

Initial Environmental Examination

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Bangladesh: Climate Resilient Livelihood
Improvement and Watershed Management in
Chattogram Hill Tracts Sector Project

Dulahazara-Hargaza Road, Lama Upazila,
Bandarban District

Prepared by the Ministry of Chittagong Hill Tracts Affairs for the Asian Development Bank (ADB).

CURRENCY EQUIVALENTS

(as of 22 December 2022)

Currency unit – Bangladesh Taka (Tk)

Tk1.00 = \$ 0.0094

\$1.00 = Tk 105.91

ABBREVIATIONS

ADB	- Asian Development Bank
ADRF	- Alternative dispute resolution forum
ADC	- Additional Deputy Commissioner
AH	- affected household
AP	- affected person/ affected people
BC	- Bitumen carpeting
BCCSAP	- Bangladesh Climate Change Strategy and Action Plan
BECA	- Bangladesh Environment Conservation (Amendment) Act
CHT	- Chattogram Hill Tracts
CHTDB	- Chittagong Hill Tracts Development Board
CRLIWM-CHT	- Climate Resilient Livelihood Improvement and Watershed in Chattogram Hill Tracts Sector Project
CHTRC	- Chittagong Hill Tracts Regional Council
CHTRDP	- Chittagong Hill Tracts Rural Development Project
CTE	- Consent to establish
CTO	- Consent to operate
DOE	- Department of Environment
DPD	- Deputy Project Director
DPMO	- District Project Management Office
EA	- executing agency
EARF	- Environmental Assessment and Review Framework
ECC	- Environmental clearance certificate
ECR	- Environmental Conservation Rules
EIA	- Environmental Impact Assessment
EMP	- Environmental management plan
EMoP	- Environmental monitoring plan
EMR	- Environmental monitoring report
FYP	- five-year plan
GEN	- gender equality theme
GOB	- Government of Bangladesh
GRC	- grievance redress committee
GRF	- Grievance redress form
GRO	- Grievance redressal officer
GRM	- grievance redress mechanism
HBB	- Herring bone brick
HDC	- Hill District Council
IA	- implementing agency
IEE	- initial environmental evaluation
LARF	- Land acquisition and resettlement framework
LARP	- Land acquisitions and resettlement plan
LGED	- Local Government Engineering Department

M&E	- monitoring and evaluation
MoCHTA	- Ministry of Chittagong Hill Tract Affairs
NEMAP	- National Environmental Management Action Plan
NGO	- non-governmental organization
NOC	- No objection clearances
NTFP	- Non-timber and forest products
NWMP	- National Water Management Plan
OHS	- occupational, health and safety
O&M	- operation and maintenance
PAM	- Project Administration Manual
PD	- Project Director
PDC	- Para Development Committee
PISC	- Project Implementation Support Consultant
PIU	- Project Implementation Unit
PMO	- Project Management Office
PPE	- personal protective equipment
PPTA	- project preparatory technical assistance
PSC	- Project steering committee
PVM	- participatory village mapping
SCC	- Site Clearance Certificate
SEC	- small ethnic communities
SECP	- small ethnic communities plan
SPB	- Sector project batch
SPS	- Safeguard Policy Statement, 2009
Tk	- Bangladesh Taka
TVET	- Technical and vocational education and training
UNFCCC	- United Nations Framework on Climate Change
VAR	- village access road
VCF	- Village common forest
WASH	- water, sanitation, and hygiene
WMM	- wet mix macadam
WHO	- World Health Organization
XEN	- Executive Engineers

GLOSSARY OF BANGLADESH TERMS

jhum	–	swidden or shifting cultivation
mouza	–	a small administrative area usually composed of a number of villages
para	–	similar to term village
union	–	administrative division – subdivision an upazila
upazila	–	administrative division – subdivision a district

WEIGHTS AND MEASURES

hectare	–	ha
kilometer	–	km
meter	–	m

NOTE

In this report, "\$" refers to United States dollars.

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EXECUTIVE SUMMARY

A. Chattogram Hill Tracts (CHT)

1. CHT is a geographically and ethno-culturally distinct region of Bangladesh. Situated in south-east of the country, it is the only extensively hilly area of Bangladesh. The CHT borders Myanmar to the South, the Indian states of Tripura and Mizoram to the North and East and the Chattogram District of Bangladesh to the West. Its land area covers 13,000 square km, of which 90% are sloping lands.

B. Climate Resilient Livelihood Improvement and Watershed Management in Chattogram Hill Tracts (CRLIWM-CHT) Project

2. The CRLIWM-CHT Project is a USD 125 million project. The Asian Development Bank (ADB) will support the proposed Project with USD100 million financing through a sector approach. There are five outputs: (Output 1) community infrastructures development; (Output 2) watershed management; (Output 3) improvement of agricultural production storage, processing and marketing; (Output 4) enhancing rural non-farm skills and capacities strengthening of CHT institutions; and (Output 5) upgrading of rural roads.

3. The implementation period of CRLIW-CHT Project will be from 2023 to 2029. In the span of seven years, the proposed Project will achieve enhanced human health and well-being, reduced vulnerability, and improved food security of the CHT people. By June 2030, all targets under the five components are achieved.

C. Dulahazara-Hargaza Road Subproject

4. At Lama Upazila, Bandarban District, the Dulahazara-Hargaza Road subproject covers a 11.620-km road section. This is classified as a Village Road by Local Government Engineering Department (LGED), consisting of herringbone brick (HBB) road that will be improved and upgraded by the Project. There will be around 10,035 people beneficiaries (1725 families in 22 villages or paras). The present condition of the HBB road is narrow, broken in many places, and difficult to use. During a four-month period in the rainy season the road is covered by mud and hardly usable for vehicles.

5. The improvement of the Dulahazara-Hargaza Road will considerably improve the transport situation of the communities. Farmers will get better market access for their products, which will lead to better prices and higher margins. The improvement of the road will reduce transportation cost and travel time of farmers to reach markets. Improvement of market access may also cause farmers to improve their cultivation practices, including some mechanization and productivity increase. The improvement of the rural road is expected to create additional employment.

D. Subproject's Environmental Safeguards

6. All projects implemented by ADB are to comply with the Safeguard Policy Statement of 2009 (ADB SPS, 2009), which requires a screening, categorization, environmental management plan, information disclosure, consultation, and participation, monitoring and reporting, and grievance redress mechanisms.

7. Road improvement projects are likely to bring several impacts to the local environment, including both beneficial and negative impacts. This initial environmental examination (IEE) identifies nature, extent, and magnitude of all such likely environmental risks due to subproject activities for all stages of the subproject cycle (i.e., pre-construction, construction and operation). The IEE focusses on the physical environment, the biological environment, and human environment (i.e., economic characteristics, infrastructure, human health, noise pollution, cultural heritage, institutions and landscape, community health and safety risks). The IEE discusses the national and local legal setting, as well as international environmental agreements that are relevant to the subproject.

8. The IEE identifies potential direct, indirect, cumulative, and induced impacts and risks to physical, biological, socioeconomic¹, and physical cultural resources in context to subproject's area of influence. The IEE provides recommendations on the mitigation measures required to reduce environmental impacts due to civil works constructions.

9. The implementation of the Environmental Management Plan (EMP) is necessary to mitigate the potential impacts of the rural road subproject. The EMP is prepared covering potential environmental impacts, environmental monitoring program, responsible entities for mitigation and monitoring, and budget. The EMP budget is estimated at BDT 1,91,31,000.

10. The Environmental Monitoring Plan (EmoP) will check and document the effectiveness of mitigation measures in the EMP. The Environmental Monitoring Report (EMR) will document and disclose information on the EMP and other safeguard activities of the subproject on a periodic interval. EMRs will be disclosed on ADB and executing agency's websites.

11. The IEE is in compliance with legal and administrative framework of Bangladesh such as the Bangladesh Environment Conservation Act of 2010, the Environmental Conservation Rules, National Transport Policy, National Water Policy, National Water Law, the Embankment and Drainage Act and the Bangladesh Climate Change Strategy and Action Plan. It provides detailed overviews of the environmental standards on air quality, ambient noise quality standards, surface water quality standards, and ground water quality standards.

12. The Environmental Assessment and Review Framework (EARF) has been prepared to support and provide guidance to the implementing agencies (MoCHTA and CHTRC) to screen, categorize, prepare environmental assessments including environmental management plans, and

¹ Including impacts on livelihood through environmental media, health and safety, vulnerable groups, and gender issues.

monitor the implementation of environmental management plans in accordance with the laws of the GoB, and SPS 2009.

E. Institutional Arrangement

13. The CHT is a unique multi-tiered administrative structure comprising ministry and line department counterparts, district administration, local government institutions, and CHT-specific institutions. These are the (i) Ministry of Chittagong Hill Tracts Affairs (MoCHTA) - responsible for coordinating all development activities in CHT, (ii) Chittagong Hill Tracts Regional Council (CHTRC) - supervises and coordinates all activities, (iii) Hill District Councils (HDCs)² - to implement activities for Outputs 1-4, and (iv) Local Government Engineering Department (LGED) – to implement Output 5.

14. The executing agency for the project is the Ministry of Chittagong Hill Tracts Affairs (MoCHTA). The CHTRC will be the lead implementing agency, where the Project Director (PD) of the Project Management Office (PMO) will manage the subprojects at the districts with the support from District Project Management Office (DPMO). The LGED will create a Project Management Unit (PMU) to manage implementation of rural roads with the support of Project Implementation Units (PIUs) at the district level. A project steering committee (PSC) will be established under the chairmanship of the Minister of MoCHTA and be responsible for overall coordination at national level and policy guidance.

F. Grievance Redress Mechanism (GRM)

15. A dedicated multi-tier grievance redress mechanism (GRM) will be established to receive, evaluate, and facilitate the concerns and complaints of the affected people on social and environmental performance. The GRM aims to ensure: (i) basic rights and interests of every person affected by poor environmental or social performance of the project are protected; and (ii) concerns arising from the poor environmental or social performance of the project during the conduct of pre-construction, construction and operation activities are addressed. The GRM is anchored on the following principles: transparency, empowering and participatory, socially inclusive, culturally appropriate, simple and accessible, confidentiality. Response to grievance and comments is ensured within an acceptable timeline.

16. The GRM has three tiers. There are two types of tier. Tier 1 (Type A) refers to the alternative dispute resolution forum (ADRF), which will be at subproject level to address land disputes for output 5 (rural roads component). Tier 1, (Type B) refers to the para development committee (PDC), which will serve as tier one for all other social and environmental safeguards concerns raised across project Outputs 1 - 5. Tier two is represented by a Grievance Redress Committee (GRC) which is established at Hill District Council (HDC). At the apex of this structure is the Regional Advisory Council (RAC) at CHTRC level.

² CHT districts of Rangamati, Bandarban and Khagrachari.

CHAPTER 1. INTRODUCTION

A. About CRLIWM-CHT Project

17. The proposed Climate Resilient Livelihood Improvement and Watershed Management in Chattogram Hill Tracts Sector Project (“CRLIWM-CHT Sector Project” or “the proposed Project”) will aim to enhance sustainable livelihood opportunities and access to basic services for the rural population of the Chattogram Hill Tracts (CHT) (Figure 1). The indicated project size of the proposed project is USD125 million, of which ADB will provide USD100.0 million as a sector project loan. The project implementation period is expected to be seven years.

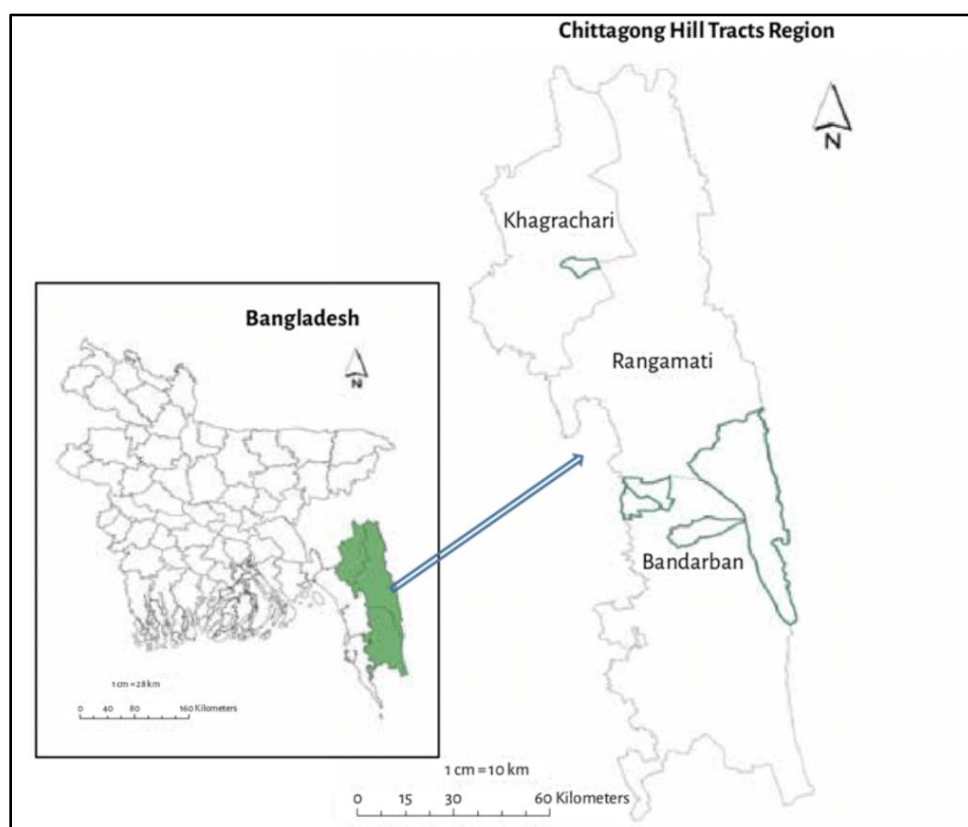


Figure 1. Map of CHT in Bangladesh covering districts of Bandarban, Rangamati and Khagrachari.³

18. The proposed Project will serve communities not covered by the ADB-funded Chittagong Hill Tracts Rural Development Project in Bangladesh (CHTRDP), of which CHTRDP-I was implemented from 2003-2010 and CHTRDP-II from 2011-2021.

³ Source of map: Ahammad, Ronju & Stacey, Natasha. (2016). Forest and agrarian change in the Chattogram Hill Tracts region of Bangladesh.

19. The project is aligned with the following impacts: enhanced human health and well-being, reduced vulnerability, and improved food security of the CHT people. The project will have the following outcome: climate resilient livelihoods and access to basic services for the rural population in the CHT including women and small ethnic communities enhanced. The proposed sector project is expected to have five outputs:

20. *Community infrastructure developed.* The community infrastructure component will follow the approach and methodology of the successful CHTRDP-II and includes three main types of village infrastructure interventions, particularly:

- small village roads, footpaths and steps for better access to health services, schools, and markets, and provide increased economic opportunity;
- small-scale water supply, sanitation and hygiene (WASH) infrastructure and renewable energy - small-scale water supply schemes using ring wells, shallow/deep tube wells or gravity flow systems, sanitary latrines at household and community level; and
- agricultural infrastructure, including small weirs, lined channels, power tillers, and lift pumps. For women involved in weaving, weaving sheds are an additional option.

21. *Watershed management strengthened.* Land use pressure coupled with deforestation, landslides, and bamboo and other non-timber forest products (NTFP) extraction decreased the land rotation period from 10-15 years to 2-3 years. Land being worked, with greater intensity, has resulted in soil nutrient depletion and topsoil erosion. Small catchments often remain dry in most of the pre-monsoon and post monsoon period. Proper conservation and utilization of land, water, crop and vegetation resources in watersheds have become urgent to meet people's daily basic needs for fuelwood, fodder and construction materials. This component will aim at strengthening the functioning of community-based organizations to improve climate resilient livelihoods by:

- promoting appropriate/sustainable land use and regenerative agricultural practices in fulfilling the basic needs for food, fodder, fuelwood, construction materials mainly bamboo and timber, and medicinal plants and rehabilitation of degraded lands enhancing productivity;
- improving proper water resource management, while fulfilling water needs for agriculture and human use; and
- strengthening the local stakeholders/community-based organization in planning, implementation and maintenance of watershed management interventions.

22. *Agriculture production, storage, processing and marketing improved.* Most rural households in CHT are involved in agriculture and agricultural labour. Only small number of households have secondary income outside agriculture, and it can be an important driver for economic development. However, the returns from agriculture in the CHT are low due to a variety of reasons that include: (i) poor accessibility to markets, (ii) prevalence of low value crops, (iii) soil erosion, (iv) reduced soil fertility, (v) watershed degradation, (vi) shortened crop rotation, (vii) use of extreme sloping land, (viii) monoculture, and (ix) overexploitation of forest with no replacement programme. Improving soil health would thus contribute towards increased productivity. This can be achieved through sustainable agricultural practices, such as regenerative agriculture, in close coordination with the watershed management component. Promising value chains will be

supported by targeted training programmes and infrastructure support to improve the livelihoods of farmers cultivating these specific products. Apart from training, measures are likely to include improved collection and storage facilities for perishable produce from the region.

23. *Rural non-farm skills improved and capacities of CHT institutions strengthened.* The proposed sector project will include a stand-alone skills development component focusing on rural non-farm skills. This is meant to strengthen skills in sectors allied to the project's main objectives.⁴ The skills component will specifically target employment opportunities that will arise from implementing this project.⁵ The main direct beneficiaries will be motivated rural youth, both men and women.⁶ Capacity building measures to strengthen implementing agencies and implementing non-government organizations (INGOs) also are included in the component.

24. *Rural roads improved.* The rural roads component aims at upgrading existing roads in the target areas. As Implementing Agency (IA), the Local Government Engineering Department (LGED) will work through its district level offices, with *upazila* officers.⁷ When making the final selection of roads targeted for improvement, elected and non-elected officials at various levels will be consulted by LGED, with the shortlist then to be submitted to the CHTRC for approval. During the implementation phase of the CRLIWM-CHT Sector Project a next batch (SPB-2) of around 50 km would then need to be prepared for implementation and are expected to include unpaved, earthen union and *upazila* roads, and potentially require more land acquisition as they require road widening.

25. The first four components of the proposed Project will be implemented by the Chittagong Hill Tracts Regional Council (CHTRC) and the Hill District Councils (HDCs) – IAs. The last component will be implemented by the LGED. The Ministry of Chittagong Hill Tracts Affairs (MoCHTA) is the Executing Agency (EA).

B. Purpose of the IEE Report

26. For environmental safeguards, the proposed Project is a category "B" based on Safeguards Policy Statement (SPS, 2009) classification system, and an initial environmental examination (IEE) report is hence required by ADB for the rural road subproject (i.e. Dulahazara-Hargaza Road). This report serves to assess and document potential environmental impacts that may arise due to the proposed interventions of the subproject. Accordingly, the IEE report identifies and recommends mitigation measures to mitigate the impacts and/or reduce their magnitude. An environmental management plan (EMP) covers the environmental impacts, environmental monitoring program, and the responsible entities for mitigation and monitoring.

⁴ Examples of skills allied to the project's main objectives are construction related skills, improving available workmanship, agricultural processing techniques, and maintenance skills for agricultural equipment.

⁵ Including latent demand that will become realized once this project is implemented.

⁶ Training under consideration is for motor and pump mechanics, masonry and carpentry, cement ring production (for latrines), food processing (linked to agriculture component), weaving, tailoring, automotive mechanics, electrical installation and maintenance, e-commerce/entrepreneurship, mobile phone servicing, plumbing, and sewing machine operation.

⁷ Responsible for surveys, with designs being prepared by the LGED design office in Dhaka.

27. Further, this IEE report primarily: (i) provides information on the proposed subproject and its requirements to ADB SPS 2009 and government policies (ii) baseline conditions of the physical, ecological, physical cultural and socio-economic environments and/or resources within the subproject's area of influence; (iii) presents information on stakeholder consultations and participation; (iv) identification of monitoring and reporting requirements; and (vii) recommends a mechanism to address grievances on the environmental performance of the project.

C. Scope of the IEE Report

28. The IEE for the Dulahazara-Hargaza Road Subproject captures the environmental setting of the subproject site including physical, biological, and socioeconomic conditions and the national and local legal setting, as well as international environmental agreements that are relevant to the project. Based on these, the IEE identifies potential direct, indirect, cumulative, and induced impacts and risks to physical, biological, socioeconomic (including impacts on livelihood through environmental media, health and safety, vulnerable groups, and gender issues), and physical cultural resources in context to project's area of influence.

29. The IEE is prepared based on findings from on-site visits and investigations, detailed discussions with LGED and other stakeholders such as people in paras (or villages).

CHAPTER 2. POLICY, LEGAL, AND ADMINISTRATIVE FRAMEWORK

30. CHT was a self-governed independent territory until it was annexed to the province of Bengal in 1860 by the British. In 1900, the *Chittagong Hill Tracts Regulation* declared the area as an 'Excluded Area' restricting 'outsiders' from purchasing land or settling in the CHT. With independence from the British in 1947, the CHT was included as part of East Pakistan. In 1962, the Government of Pakistan replaced the 'Excluded Area' status to 'tribal area' with the intention of settling outsiders in the CHT. In 1971, following the *Liberation War of Bangladesh*, the CHT became part of Bangladesh.

31. The CHT has a unique multi-tiered administrative structure comprising ministry and line department counterparts, district administration, local government institutions, and CHT-specific institutions. These are the Ministry of Chittagong Hill Tracts Affairs (MoCHTA), responsible for coordinating all development activities in CHT; the Chittagong Hill Tracts Regional Council (CHTRC), which supervises and coordinates all activities; and hill district councils (HDCs), which are to implement activities. There are also traditional institutions of circle chiefs, headmen, and *karbari*.⁸

A. Environmental Legislation

32. The concept of environmental protection through national efforts was first recognized and declared in Bangladesh with the 1992 adoption of the Environment Policy and Environment Action Plan. This was followed up by the Bangladesh Environmental Conservation Act (BECA) of 1995 (as amended in 2002 and 2010) is the umbrella Act that includes laws for (i) conservation of the environment, (ii) improvement of environmental standards, and (iii) control and mitigation of environmental pollution. It is currently the main legislative framework document relating to environmental protection in Bangladesh.⁹

33. The Environment Conservation Rules (ECR) 1997 (as amended 2003 and 2010) are the first set of rules, promulgated under the BECA 1995. Among other things, the ECR 1997 sets (i) the National Environmental Quality Standards for ambient air, various types of water, industrial effluent, emission, noise, vehicular exhaust etc...; (ii) requirement for and procedures to obtain Environmental Clearance Certificates; and (iii) requirements for IEE and EIA according to categories of industrial and other development interventions.

34. BECA of 1995 provides the Director General (DG) a discretionary authority to grant Environmental Clearance Certificate (ECC) to an applicant by exempting the requirement of site or location clearance, provided the DG considers appropriate. Presently, "EIA Guidelines for Industries" published by the Department of Environment (DoE) and the ECR 1997 are the formal

⁸ This is the village headman. The circle chief, headmen, and karbari were established by CHT Regulations of the year 1900.

⁹ ECA of 1995 repealed earlier Environment Pollution Control ordinance of 1977.

documents providing guidance for conducting Environmental Assessment. Any proponent planning to set up or operate an industrial project is required to obtain an ECC from the DoE, under the ECA 1995 amended in 2002.

35. Key legislation governing the environmental approvals process for the CHTRC is the BECA 1995 and the ECR 1997. According to Rule 7 of the ECR 1997, proposed developments within Bangladesh are classified as one of four categories, as follows:

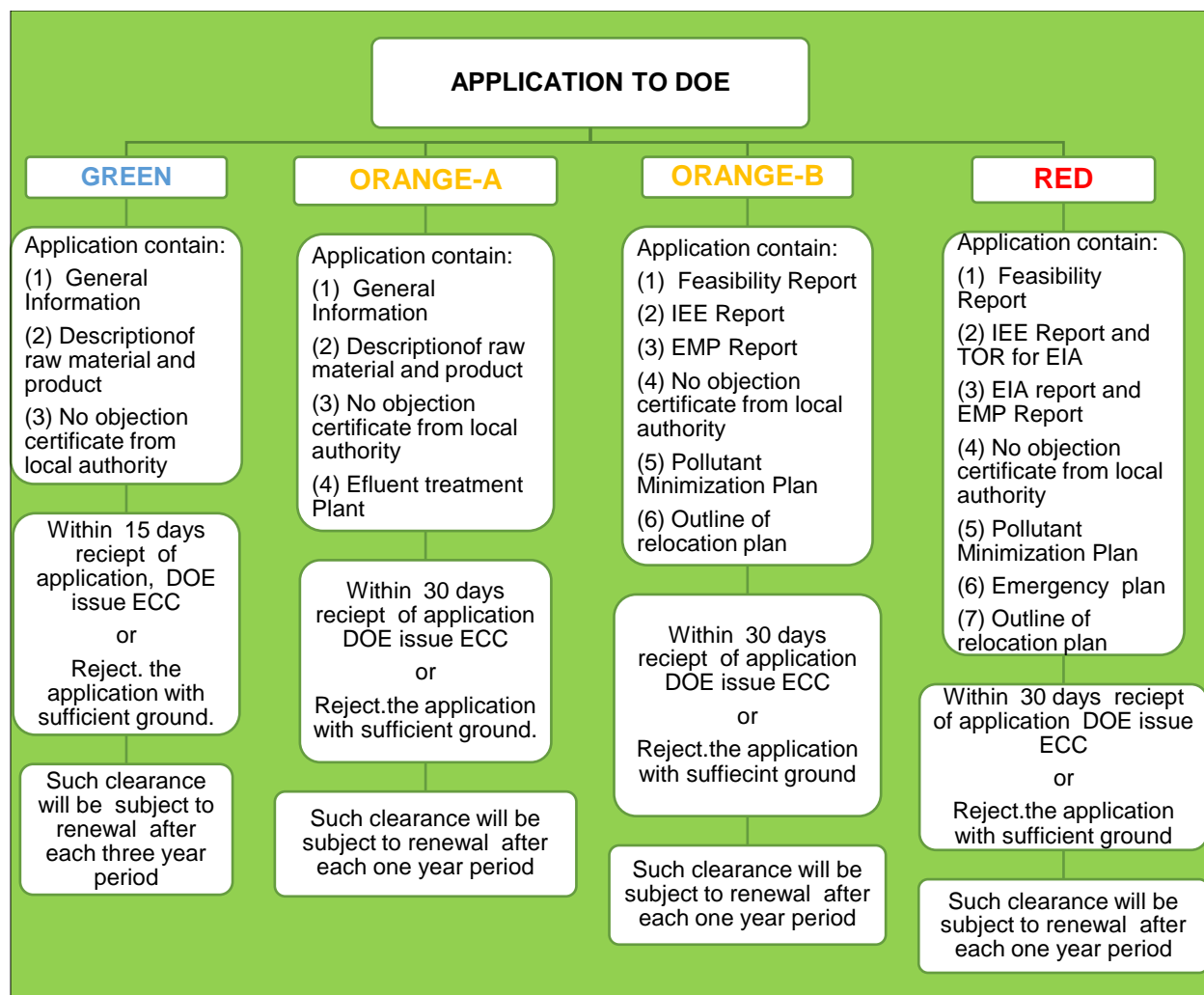
- Green;
- Orange A;
- Orange B; and
- Red.

36. These categories define proposed developments according to their potential environmental impact. Section 12 of the BECA 1995 states that “*No industrial unit or project shall be established or undertaken without obtaining an Environmental Clearance Certificate from the Director General, in the manner prescribed by the Rules*”.

B. ECR 1997 Approval Framework

37. Key milestones in the approvals process are outlined in Figure 2. These comprise:

- *Project Authorization Letter*. Formal authorization of the Project by the project owner is required in order for the environmental approvals process to formally commence.
 - *No Objection Certificate (NOC)*. Must be received from the municipality/upazila/union parishad in the subproject area before the SCC application can be made.
 - *Site Clearance Certificate (SCC)*. An SCC will be issued by DoE upon approval of the IEE study (note that the IEE submission is to include the Project Authorization Letter, NOC and SCC application form). The SCC will include a term of reference of ToR for the IEE/EIA study, and typically provides authorization for site establishment works to commence.
- Environmental Clearance Certificate (ECC)*. The ECC will be issued by DoE upon approval of the IEE/EIA study (including associated EMP). The ECC allows project construction to commence and contains specific approvals requirements for matters such as pollution control and environmental monitoring.



DOE = Department of Environment, EIA = environmental impact assessment, ECC = Environmental Compliance Certificate, EMP = environmental management plan, IEE = initial environmental examination, TOR = term of reference

Figure 2. Categorization and approval process under ECR 1997.

38. For the purpose of issuance of ECC, in consideration of project's site and impact on the environment, be classified into the following four categories: (i) Green; (ii) Orange – A; (iii) Orange – B; and (iv) Red. The industries and projects included in the various categories are specified in sub-rule (1) have been described in Schedule – 1. The ECR indicates that all industrial units or projects must obtain a SCC and ECC from the Department of Environment (DoE). No industrial unit or project will be established or undertaken without obtaining environmental clearance from DoE in the manner prescribed by the rules.

39. Rule 7 of ECR 1997 indicates the procedure and requirements for the issuance of an ECC. The corresponding requirements per category are described below:

- *Green category projects.*
 1. completed application for ECC, and the appropriate fee;
 2. general information about the project;

3. exact description of the raw materials to be used, and the product to be manufactured (where relevant); and
 4. No-objection certificate from the local authority.
- *Orange-A category projects.* Same requirements as green category projects, plus the following:
 1. process flow diagram;
 2. layout plan (showing location of effluent treatment plant or ETP);
 3. effluent discharge arrangement; and
 4. outlines of the plan for relocation and rehabilitation (if applicable).
 - *Orange-B category projects.*
 1. completed Application for ECC, and the appropriate fee;
 2. report on the feasibility of the project;
 3. report on the IEE for the project, plus process flow diagram, and in the case of an industrial project, layout plan (showing ETP) and ETP design
 4. report on the environmental management plan (EMP);
 5. no objection certificate from the local authority;
 6. emergency plan relating to adverse environmental impact and plan for mitigation of the effect of pollution; and
 7. outline of the relocation and rehabilitation plan (where applicable).
 - *Red category projects.* Same requirements as Orange Category B, except that Item 3 (IEE) is amended to read as follows:
 1. report on the IEE for the project, and terms of reference for the EIA; or EIA report prepared based on ToR previously approved by DOE; and
 2. in the case of an industrial project, layout plan showing location of ETP, process flow diagram, design, and time schedule of the ETP.

40. The environmental category of any project is listed in Schedule-1 of ECR. As per Schedule 1 of ECR, the rural road (Output 5) is likely to be classified as orange-B Category.

41. Table 1 provides an overview of key Bangladesh legislative approvals requirements which are relevant to the Project, and the permissions required under this legislation in order to undertake the subproject works.

Table 1. Required permissions for the subproject under Bangladesh legislation.

Legislation	Permission Required	Purpose	Permission Given By
Environment Conservation Act (1995)	SCC and ECC	DoE will issue an SCC to allow for a detailed IEE/EIA as per Section 12 (ECA), Rule- 7 and Form -3 of the ECR.	Director General of the Bangladesh DoE

Environment Conservation Rules (1997)			
Acquisition and Requisition of Immovable Property Act (1982)	Application required	To acquire and compensate for any Project land	Ministry of Land and Deputy Commissioner

C. Regulatory Requirements for the Proposed Subproject

42. An outline of national legal instruments that will have relevance to the proposed subproject with respect to the social and environment considerations are tabulated below.

Table 0. National legal instruments relevant to the Dulahazara-Hargaza Road Subproject.

Act/ Rule/ Law/ Ordinance/SRO	Enforcement Agency – Ministry/ Authority	Key Features
National Environmental Policy 2018	Ministry of Environment, Forests and Climate Change	<p>Ensure sustainable development through environmental conservation, pollution control, conservation of biodiversity and by combating the negative impacts of climate change.</p> <p>With specific objectives:</p> <ul style="list-style-type: none"> maintaining natural balance and ensuring overall development of the country through conservation of environment and sustainable management, expansion of climate change adaptation programs to reduce its negative impacts, introduce and encourage wide-spread use of low-carbon emitting technology, identification control of all types of pollution and degradation of environment, and ensuring environment friendly development in all sectors.
Environment Court Act, 2000 and subsequent amendments in 2002	Ministry of Environment, Forests and Climate Change; and Judiciary	<ul style="list-style-type: none"> Government of Bangladesh has given highest priority to environment pollution. Passed 'Environment Court Act, 2000 for completing environment related legal proceedings effectively.
National Policy of Land Use, 2001	Ministry of Land	<ul style="list-style-type: none"> Prevent the current tendency of gradual and consistent decrease of cultivable land for the production of food to meet the demand of expanding population.

Act/ Rule/ Law/ Ordinance/SRO	Enforcement Agency – Ministry/ Authority	Key Features
		<ul style="list-style-type: none"> • Ensure that land use is in harmony with natural environment, • Use land resources in the best possible way and to play supplementary role in controlling the consistent increase in the number of landless people towards the elimination of poverty and the increase of employment, • Protect natural forest areas, prevent river erosion and destruction of hills, • Prevent land pollution, and • Ensure the minimal use of land for construction of both government and nongovernment buildings.
Road Transport Act 2018 The Motor Vehicles Ordinance, 1983 The Bengal Motor Vehicle Rules, 1940	Bangladesh Road Transport Authority	<ul style="list-style-type: none"> • Exhaust emissions • Vehicular air and noise pollution • Road/traffic safety • Vehicle Licensing and Registration • Fitness of Motor Vehicles • Parking by-laws.
Water Supply and Sanitation Act, 1996	Ministry of Local Government, Rural Development and Cooperatives	<ul style="list-style-type: none"> • Management and control of water supply and sanitation in urban areas. • Not directly applicable, however, indirectly applicable when considering water usage management and sanitation facilities.
The Forest Act, 1927 and subsequent amendments in 1982 and 1989	Ministry of Environment and Forests	<ul style="list-style-type: none"> • Categorization of forests as reserve, protected and village forests. • Permission is required for use of forest land for any non-forest purposes. • Applicable if the proposed subproject is in the forest land Area (Chattogram Hill Tracts Region).
Bangladesh Wild Life (Preservation) Act, 1974	Ministry of Environment and Forest; Bangladesh	<ul style="list-style-type: none"> • Preservation of wildlife sanctuaries, parks, and reserves. • Applicable if the proposed subproject is in the wildlife sanctuaries, parks, and reserves (Chattogram Hill Tracts Region).

Act/ Rule/ Law/ Ordinance/SRO	Enforcement Agency – Ministry/ Authority	Key Features
	Wildlife Advisory Board	
National Biodiversity Strategy and Action Plan (2004)	Ministry of Environment and Forest Bangladesh Wildlife Advisory Board	<ul style="list-style-type: none"> • Conserve, and restore the biodiversity of the country for wellbeing of the present and future generations. • Maintain and improve environmental stability for ecosystems. • Ensure preservation of the unique biological heritage of the nation for the benefit of the present and future generations. • Guarantee the safe passage and conservation of globally endangered migratory species, especially birds and mammals in the country. • Stop introduction of invasive alien species, genetically modified organisms and living modified organisms.
National Water Bodies Protection Act, 2000	Town development authority/ Municipalities	<ul style="list-style-type: none"> • The characterization of water bodies as rivers, canals, tanks or flood plains identified in the master plans formulated under the laws establishing municipalities in division and district towns shall not be changed without approval of concerned ministry.
Antiquities Act, 1968	Ministry of Cultural Affairs	<ul style="list-style-type: none"> • This legislation governs preservation of the national cultural heritage, protects and controls ancient monuments, regulates antiquities as well as the maintenance, conservation and restoration of protected sites and monuments, controls planning, exploration and excavation of archaeological sites. • Not applicable as the subproject study areas do not have any likely cultural heritage or ancient monuments of national or international significance. However, in case, any such evidence of archaeological findings arise, the subproject will act in consonance to the Act.
Administrative and Regulatory Guidelines and Instructions for Land Acquisition	Ministry of Land	<ul style="list-style-type: none"> • Regulation of land acquisition process by certain administrative instructions and procedural requirements
Ozone Depleting Substances (Control) Rules, 2004	Ministry of Environment and Forests	<ul style="list-style-type: none"> • Ban on the use of ozone depleting substances • Phasing out of ozone depleting substances

Act/ Rule/ Law/ Ordinance/SRO	Enforcement Agency – Ministry/ Authority	Key Features
Noise Pollution (Control) Rules 2006	Ministry of Environment and Forests	<ul style="list-style-type: none"> • Prevention of noise pollution • Standards for noise levels

D. Permissions and Clearance Required for Rural Roads (Output 5)

43. List of required clearances related to environment are as follow:

- a. Pre-construction – the ECC and site clearance certificate (SCC) from the Department of Environment. The construction, reconstruction, and extension of feeder or local roads is classified as Orange-B Category under the BECA, 1995 as implemented under Environment Conservation Rule, 1997 and guided by the Environment Clearance Procedure, 2010. All Orange-B category projects are required to submit the following list of requirements to the Department of Environment. LGED is responsible to secure the ECC and all No Objection Clearances (NOC) from Union Parishads traversed by each subproject rural road. The procedure to secure the environmental clearance for rural road upgrading are as follows:
 - File application through prescribed form-3 under Environment Conservation Rules 1997
 - Pay prescribed fees under schedule-13 under Environment Conservation Rules 1997 (Amended 2002)
 - Submit a report on the feasibility of the project
 - Submit report on the Initial Environmental Examination of the project
 - Secure No objection certificate (Prescribed Form) from the local authority
 - Submit Emergency plan relating adverse environmental impact and plan for mitigation of the effect of pollution
 - Submit an Outline of the relocation, rehabilitation plan (where applicable); and other necessary information (where applicable).
- b. Other clearances and permits required before construction includes a No Objection Clearance from the local authority or Union Parishad, and a tree cutting permit from jurisdictional District Forest Office.
- c. During construction: Contractors are required to secure Consent to establish (CTE) and Consent to Operate (CTO) for all mix and batching plants.

E. Environmental Regulatory Standards

44. The **ECR, 1997** also provides the environmental standards applicable to CRLIWM-CHT Project rural roads component. Schedule 2 of the ECR presents the national standards for

ambient air quality and Schedule 4 of the ECR presents the national standards for ambient noise. Following requirements of ADB SPS 2009, the rural road subproject will apply pollution prevention and control technologies and practices consistent with international good practice, as reflected in World Bank Group's Environment, Health and Safety Guidelines.¹⁰ When the Government of Bangladesh regulations differ from these levels and measures, the subproject will achieve whichever is more stringent. If less stringent levels or measures are appropriate in view of specific subproject circumstances, LGED through Project Management Office will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in ADB SPS 2009.

45. In view of this, Table 3 and Table 4 show the ambient air quality standards and noise level standards to be followed by the subproject with corresponding World Health Organization (WHO) standards. Table 6 and Table 7 provide water quality standards that are to be followed by the rural road subproject.

Table 3. Ambient air quality standards of Bangladesh and WHO air quality guidelines.

Parameter	Bangladesh Ambient Air Quality Standard (µg/m ³) ^a	WHO Air Quality Guidelines (µg/m ³)		Applicable to ADB-funded Projects Per ADB Safeguard Policy Statement ^d (µg/m ³)
		Global Update ^b 2005	Second Edition ^c 2000	
TSP	200 (8-h)		-	200 (8-h)
PM ₁₀	50 (1-year) 150 (24-h)	50 (24-h) 500 (10-min)	-	50 (24-h)
PM _{2.5}	15 (1-year) 65 (24-h)	10 (1-year) 25 (24-h)	-	25 (24-h)
SO ₂	80 (1-year) 365 (24-h)	20 (24-h) 500 (10-min)	-	20 (24-h)
NO ₂	100 (1-year)	40 (1-year) 200 (1-h)	-	40 (1-year) 200 (1-h)
CO	10,000 (8-h) 40,000 (1-h)	-	10,000 (8-h) 100,000 (15-min)	10,000 (8-h)
Lead	0.5 (1-year)	-	-	0.5 (1-year)
Ozone (O ₃)	235 (1-h) 157 (8-h)	100 (8-h)	-	100 (8-h)

ADB = Asian Development Bank, CO = carbon monoxide, h = hour, µg/m³ = microgram per cubic meter, min = minute, NO₂ = nitrogen dioxide, PM_{2.5} = particulate matter 2.5 microns, PM₁₀ = particulate matter 10 microns, SO₂ = sulphur dioxide, TSP = total suspended particle, WHO = World Health Organization.

^a Based on SRO 220-Law 2005 (Amendment of Schedule 2 of ECR, 1997). Air Quality Management Project of Bangladesh <http://www.doe-bd.org/aqmp/standard.html>

^b IFC World Bank Group. 2007. Environmental, Health and Safety General Guidelines. Washington, D.C.

^c WHO Regional Office for Europe. 2000. Air Quality Guidelines for Europe, Second Edition. Copenhagen.

^d If less stringent levels or measures are appropriate in view of specific project circumstances, executing agency will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in ADB SPS

¹⁰ World Bank Group, 2007. Environmental, Health, and Safety General Guidelines. Washington, DC.

Table 4. Ambient noise level standards of Bangladesh and WHO noise level guidelines.

Receptor/ Source	National Noise Standard Guidelines, 2006 ^a (dB)		WHO Guidelines Value for Noise Levels Measured Out of Doors ^b (One Hour LAq in dBA)		Applicable Per ADB Safeguard Policy Statement ^c (dBA)	
	Day	Night	Day	Night	Day	Night
Industrial area	75	70	70	70	70	70
Commercial area	70	60	70	70	70	60
Mixed area	60	60	55	45	55	45
Residential area	55	45	55	45	55	45
Silent area	50	40	55	45	50	40

^a Schedule 4 of ECR, 1997 (as amended in 2006).

^b WHO. 1999. Guidelines for Community Noise; World Bank Group. 2007. Environmental, Health and Safety General Guidelines. Washington, D.C.

^c If less stringent levels or measures are appropriate in view of specific project circumstances, the executing agency will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in ADB SPS.

Table 5. Noise level limits for various working environments

Parameters	Unit	DoE (Bangladesh) Standard for drinking water
pH	-	6.5-8.5
Hardness(as CaCO ₃)	mg/L	200-500
Iron	mg/L	0.3-1.0
Chloride	mg/L	150-600
Arsenic	mg/L	0.05
Residual chlorine	mg/L	0.2
Total Coliform	n/100mL	0
Fecal Coliform	n/100mL	0
Ammonia	mg/L	0.5
Nitrate	mg/L	10
Phosphate	mg/L	6

Source: ECR'97, Schedule-3

Table 6. Surface water quality standards

Standard	pH	Ec μS/cm	DO mg/l	BOD ^{5d} mg/l	COD (mg/l)	TSS mg/L	TDS mg/L	Fe mg/l	Mn mg/l	As ppb	Turbidity NTU	NO3-N mg/l	Cl- mg/l	Tota Coliform cfu/100ml
Standard per ECR,1997 (Schedule 3A)	6.5- 8.5		5.0 or above	6 or less	NYS			NYS	NYS	NYS		NYS	NYS	5000 or less
Standard per ECR,1997 (Schedule 10)	6-9		4.5- 8	50	200			2	5	20		10	600	NYS

Table 7. Groundwater quality standards

Standard	pH	DO (mg/l)	BOD ^{5d} (mg/l)	COD (mg/l)	EC (μs/Cm)	Fe (mg/l)	Mn (mg/l)	As (ppb)	NO ₃ -N (mg/l)	Chlo- ride (mg/l)	TSS (mg/l)	TDS (mg/l)
Standard per ECR, 1997 (Schedule 3B)	6.5- 8.5	6.0 or above	0.2	4.0	NYS	0.3- 1.0	0.1	50.0	10.0	150-600		1000

F. ADB Safeguard Policy Statement (SPS, 2009)

F.1. ADB SPS 2009 Objective

46. The objective of SPS 2009 is to “ensure the environmental soundness and sustainability of projects and to support the integration of environmental considerations into the project decision-making process.” All projects implemented by ADB are to comply with the SPS 2009. ADB requires environmental assessment of all project loans, program loans, sector loans, sector development program loans, financial intermediation loans and private sector investment operations. Also, implementation of the environmental safeguards is the responsibility of the EA and IAs, while ADB is to monitor and provide guidance to compliance.

F.2. Requirements

47. *Screening.* Environmental category is a function of project location, scale, the most sensitive environmental components, and the magnitude of potential environmental impacts (including direct, indirect, cumulative, and induced). Projects are assigned to one of four categories, which are:

- (i) *Category A* – where projects are likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. The impacts may affect an area larger than the sites or facilities subject to physical works. Such projects require an environmental impact assessment (EIA).
- (ii) *Category B* – where potential adverse impacts are less than those of Category A. Impacts are generally site specific, few if any are irreversible, and in most cases mitigation measures can be designed more readily than for Category A projects. Such projects require an IEE.
- (iii) *Category C* – incurs minimal or no adverse environmental impact and thus does not require environmental assessment, although environmental implications need to be reviewed. Environmental Due Diligence will be adequate for such projects; and
- (iv) *Category FI* refers to projects that involve investment of ADB funds through a financial intermediary and is not applicable to the present Project.

48. *Categorization.* The rural road component of CRLIWM-CHT Project potentially has moderate environmental impacts and subproject under this component (including the Dulahazara-Hargaza Road Subproject) are classified as Category B according to the ADB SPS 2009 and require an IEE. Road construction including rehabilitation of rural roads may potentially impact surface waters, lead to erosion, and have a range of possible impacts on adjacent communities

(e.g., due to noise, dust, hazardous materials, traffic, labor crews, etc.). An ECC from DOE is required for the Dulahazara-Hargaza Road subproject as it has been classified as Orange-B category.¹¹ As IA for Output 5, LGED will seek permit prior to construction of all rural roads.

49. *Environmental Management Plan (EMP)*. To address potential impacts and risks identified by the environmental assessment, an EMP is prepared for the rural roads. The level of detail and complexity of the EMP and the priority of the identified measures and actions will be commensurate with the subproject's impact and risks. As one of the commitment of contractors, EMP will be part of bidding documents. The details of EMP for the rural road subproject are shown in Section 11.

50. *Information disclosure*. Information about environmental safeguard issues is to be made available in a timely manner, in an accessible place, and in a form and language(s) understandable to affected people and to other stakeholders, including the public, so they can provide meaningful inputs into project design and implementation. For illiterate people, suitable communication methods are to be used. Specific information and recommendation for information disclosure is discussed in Section 9.

51. *Consultation and participation*. Communities, groups, or people affected by proposed projects, and civil society are to be engaged through information disclosure, consultation, and informed participation in a manner commensurate with the risks to and impacts on affected communities. Section 9 discusses the results of public consultation with stakeholders and beneficiaries.

52. *Monitoring and reporting*. Procedures are to be established and followed to monitor the implementation of environmental management plans, verify compliance with safeguard measures and progress toward intended safeguard outcomes; and prepare and disclose environmental monitoring reports. As part of monitoring, EA and IAs will identify the necessary corrective actions, and reflect them in a corrective action plan. The EA and IAs will implement these corrective actions and follow up on these actions to ensure their effectiveness.

53. *Grievance Redress Mechanisms (GRM)*. Projects are to develop and maintain a GRM to receive and facilitate resolution of affected peoples' concerns and grievances on environmental and social performance. The GRM is to address concerns and complaints promptly, using understandable and transparent processes that are gender responsive, culturally appropriate, readily accessible to all segments of the affected people, and that do not impede access to the national judicial or administrative remedies. Section 10 of the IEE discusses the GRM process common for environment and social safeguards.

F.3. Environmental Assessment and Review Framework (EARF)

The environmental assessment and review framework (EARF) has been prepared to support and provide guidance to the implementing agencies (MoCHTA and LGED) for screening subprojects and respective interventions, environmental safeguards categorization, prepare environmental assessments including environmental management plans, and monitor the implementation of

¹¹ Based on discussion of project staff member with Dr. Shamim, Director, Env. Clearance, DoE, on 16 June 2022.

environmental management plans in accordance with the laws of the GOB, and ADB's Safeguard Policy Statement (2009). The EARF includes an outline of the legal and regulatory setting provided by GOB and ADB and provides an overview of potential environmental and social impacts expected by the sector project. The EARF also sets out what needs to be done, why and how from a sector project cycle perspective. Annexes to the EARF provide formats for various environmental safeguards documents.

G. International Treaties

54. Of the international environmental agreements to which Bangladesh is a party, those potentially relevant to the Project are listed below. Their relevance will depend on whether natural habitats will be affected by the Project and to which degree, and whether potentially affected areas also include wetlands. At present it seems unlikely that Project actions will create the need for invoking these conventions, but this cannot be ruled out.

- Convention on Wetlands of International Importance (also known as the Ramsar Convention, 1971; Bangladesh 1992); this promotes conservation and wise use of all wetlands.
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES Convention, 1975, Bangladesh 1981); this aims to ensure that international trade in specimens of wild animals and plants does not threaten their survival,
- Convention on Biological Diversity (1993, Bangladesh 1994); this addresses two objectives (i) sustainable use of biological diversity components, (ii) fair and equitable sharing of genetic resources utilization benefits.
- Convention on the Conservation of Migratory Species of Wild Animals (also known as CMS or Bonn Convention) (1983; Bangladesh 2005); this addresses conservation of terrestrial, marine, and avian migratory species throughout their ranges, including conservation of migratory species habitats.

CHAPTER 3. DESCRIPTION OF THE PROJECT

A. Project Background and Purpose

55. The proposed Project will contribute to improving livelihoods and sustainable use of natural resources in the CHT while increasing resilience to climate change. It will do so by addressing selected deficiencies in the five forms of capital that are needed to support holistic and sustainable development of livelihoods of communities. Specifically, the project will address **physical capital** by improving roads and bridges and small-scale water supply and irrigation schemes and providing agricultural equipment. It will build **human capital** by improving vocational skills in rural non-farm sector and developing capacity of CHT institutions and stakeholders. **Social capital** will be improved by strengthening the local government institutions to continue the system of participatory bottom-up planning and implementation of subprojects that has been established under the 2nd Chittagong Hill Tracts Rural Development Project (CHTRDP II). **Natural capital** will be improved by supporting the restoration of critical watersheds through village community forest management, improving sustainable agricultural land management practices, and implementing a few pilot projects in rural solid waste management. Finally, **financial capital** will be enhanced by channeling public funds for infrastructure development and promoting private investment in market links and basic agro-processing facilities.

56. The proposed Project will enhance the climate and disaster resilience of CHT infrastructure and livelihoods. The CRLIWM-HT Project will do so by: (i) scaling up the watershed management pilot projects done under CHTRDP II into a comprehensive component on integrated watershed management along with improved hydro-met monitoring facilities; (ii) introducing more sustainable measures for roadside slope and riverbank protection adopting bioengineering techniques; (iii) incorporating climate proofing measures in the design of infrastructure; (iv) incorporating climate adaptation and disaster risk reduction measures in the agriculture production and processing interventions; and (v) strengthening capacity of the CHT institutions to assess and manage climate risks.

57. *Output 1: Community infrastructure developed.* This output will support infrastructure interventions aimed at improving village access, water supply and sanitation, household renewable energy supply, and agriculture productivity. Intervention have been grouped in three categories: (i) village access roads (VAR) including footpaths and steps; (ii) WASH and renewable energy; and (iii), agriculture infrastructure (Agri-infra).

58. The first 421 Paras to be supported by the Project were selected by the CHTRC in consultation with the respective HDCs. The remaining 579 Paras will be selected in a similar manner within the first year of project implementation, ensuring that all ethnic communities in the CHT are represented. The infrastructure interventions are identified through a participatory needs assessment and planning process involving the communities of selected Paras. It is expected that about 85 additional such Union-scale subprojects¹² will be implemented during the project.

¹² A Union is the lowest administrative tier, coming below the upazila (sub-district).

59. *Output 2: Watershed management improved.* This output will involve participatory watershed management interventions to improve the CHT's resilience to climate change, mitigate risks from natural disasters and to support sustainable land use and regenerative agricultural practices. These measures will address food security and water security concerns of beneficiary communities. Watersheds are selected based on criteria including the level of degradation. Interventions are selected using resource mapping and participatory planning methods involving Para Development Committees and Village Common Forest (VCF) Groups. Interventions will focus on: (i) agriculture land conservation; (ii) forest/shrub land conservation; (iii) degraded land improvement; (iv) stream bank protection; (v) water resources development; and (vi) demonstration of good agricultural practices. Monitoring arrangements combining GIS and field-based approaches will also be included under this Output. Activities will be implemented by beneficiary communities, facilitated by an NGO. Local contractors will implement more complex civil works. The capacity of community-based organizations in planning, implementation and maintenance of watershed management interventions will also be strengthened. The component will support a total of 9 sub-watersheds, with an average size of 1,350 ha per watershed, benefiting a total population of around 75,000 people in 180 Paras.

60. *Output 3: Agriculture production, storage, processing and marketing improved.* This output will support farmers' (including women farmers) participation in agriculture value chains. The output will: (i) improve farmers skills and knowledge to participate in value chains of locally produced fruits, vegetables, spices, condiments, and livestock; (ii) provide farmers with better skills and knowledge to improve their cultivation practices, add new produce to their mix, and access backward linkages to procure improved inputs and applies these in a judice manner; (iii) coordinate with institutions to identify and address bottlenecks in value chain development; and (iv) link farmers with market through engagement with private sector value chain operators. Implementing NGO will support farmers in 9 subdistricts (upazilas) to improve cultivation practices and market linkages together with private sector and business service providers. The project will build on work done during CHTRDP-II and focus on high value vegetables, fruits, pond fisheries, spices and medical plants, and poultry as main product groups. Farmers will be organized in common interest groups around one of these categories.

61. *Output 4: Rural non-farm skills improved and capacities of CHT institutions strengthened.* This component will target rural youth (both men and women), especially from small ethnic communities (SEC), to participate in skills training in sectors allied to the project's main objectives. The skills component will specifically target employment opportunities that will arise from implementing this project itself – including the demand that will become realized once this project is implemented. Training will be delivered by specialized technical and vocational education and training (TVET) institutes and NGOs. Skills development will increase the resilience of rural communities by providing new non-farm employment and preparing them to cope with climate change impacts. The training will focus on developing rural non-farm skills that are relevant and in demand, enabling skilled youth to remain in the CHT. The component will also strengthen capacities of local government and project implementation entities for climate adaptation and disaster preparedness, especially in relation to the watershed and agriculture value chain components.

62. *Output 5: Rural Roads Improved.* The project will undertake upgrading and improving of around 130 km of rural roads to enhance connectivity and resilience to climate change. Road surfaces will be upgraded to herringbone brick (HBB) surfaces or bituminous coated surfaces. New or improved bridges will be included together with drainage infrastructure which takes into consideration the climate scenarios for the CHT. The first batch of subprojects (SPB-1) – comprising of 15 union and upazila roads with a total length of 94 km – will constitute part of the project readiness requirement.

63. Nature-based, bioengineering techniques will be integrated in road design to protect hill slopes and riverbanks adjacent to roads from erosion and landslides. These interventions will institutionalize bioengineering solutions at a policy/corporate level within LGED.¹³ This will reduce emergency maintenance and losses incurred by road users due to such events. Measures to improve road safety in the hilly CHT region are also being integrated in designs. The LGED will allocate sufficient budget to maintain completed roads in accordance with their standard procedures.

64. The rural roads rehabilitation component of the Sector Project aims at upgrading existing roads in the target areas, which are often in a poor to very poor condition and form a significant barrier to development of rural communities. Poor access not only hampers economic development but also leads to reduced access to health and education facilities and plays a much broader role in overall well-being.

As Implementing Agency, LGED will work through its district level offices, with upazila officers. When making the final selection of roads targeted for improvement, elected and non-elected officials at various levels will be consulted by LGED, with the shortlist then to be submitted to the CHTRC for approval. During the implementation phase of the CRLIWM-CHT Sector Project a next batch (SPB-2) of around 50 km would then need to be prepared for implementation and are expected to include unpaved, earthen union and upazila roads, and potentially require more land acquisition as they require road widening.

B. Lessons Learned from Previous Projects

65. Two successive Chittagong Hill Tracts Rural Development Projects supported by ADB have significantly improved living conditions and livelihood opportunities of almost 900,000 CHT people in around 1,600 Paras.¹⁴ Together these projects have: (i) improved 445 km of access roads; (ii) developed around 55,000 community infrastructure facilities (e.g. small-scale water supply schemes, irrigation canals, village roads and steps); (iii) provided basic agriculture equipment (power tillers, water pumps) to around 135,000 communities; (iv) supported crop diversification and marketing in around 2,600 communities; and (v) improved capacity of CHT agencies and farmers.

¹³ This support is provided through TA 9461-REG: Protecting and Investing in Natural Capital in Asia and Pacific.

¹⁴ aHill Tracts Rural Development Project I was implemented from October 2002 to February 2010 and Chittagong Hill Tracts Rural Development Project II commenced in December 2011 and was completed in June 2021.

66. The key lessons learned from these projects were: (i) implementing arrangements involving communities and all levels of government through a bottom-up process were essential in ensuring inclusiveness and equity in the delivery of interventions; (ii) improved access and community infrastructure especially, piped water supply schemes were highly valued by communities since they reduced time spent collecting water and reduced water-borne illnesses significantly; (iii) for the rural road component, the risk from climate induced disasters (e.g, erosion and landslides) was a key issue to be addressed to protect investments. Bioengineering solutions will help mitigate these risks to infrastructure; (iv) delays in approval and implementation of Land Acquisitions and Resettlement Plans (LARPs) occurred when District Commissioners did not understand ADB safeguards policies as well as customary land laws applicable in the CHT. These delays will be mitigated by taking advanced action during project preparation.

C. Implementation Arrangements

C.1. Project Schedule

67. The implementation period of CRLIW-CHT Project will be from 2023 to 2029. In the span of seven years, the proposed Project will enhance human health and well-being, reduce vulnerability, and improve food security of the CHT people. By June 2030, all targets under the five components are achieved (Annex 1).

C.2. Institutional Arrangement

68. The Executing Agency (EA) for the project is the Ministry of Chittagong Hill Tracts Affairs (MoCHTA), which will be responsible for:

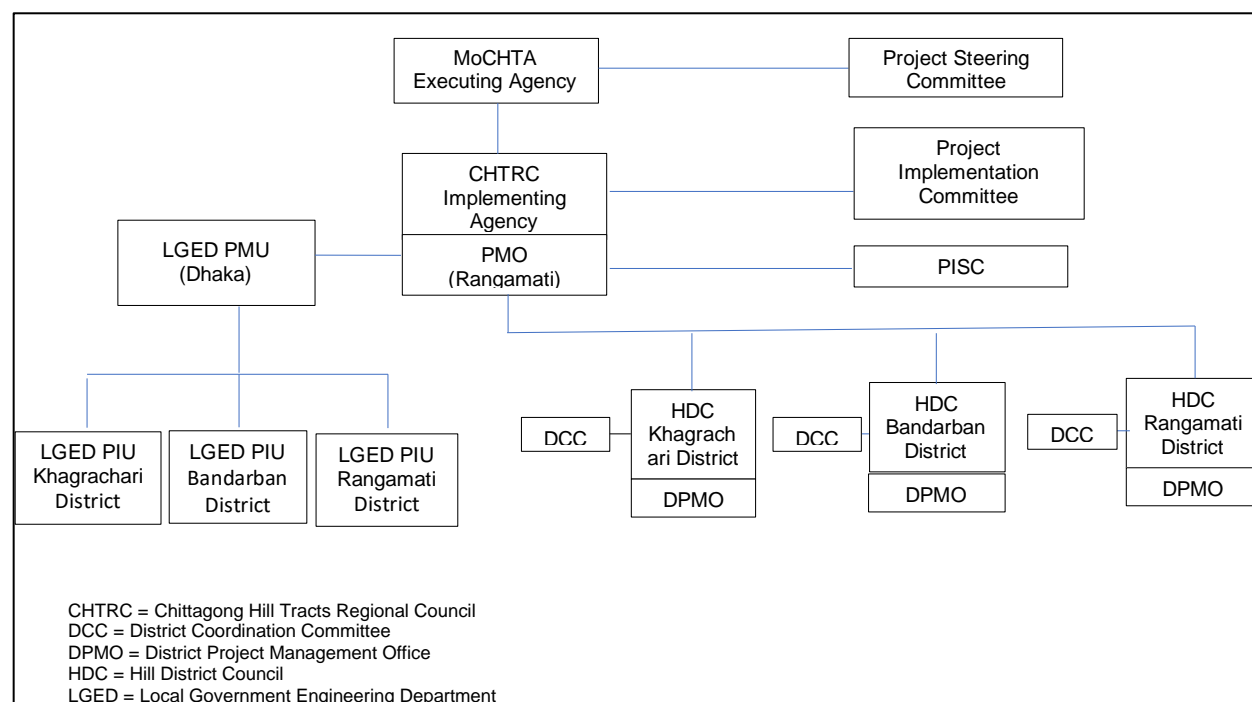
- Overall coordination and management of the project at national level, including coordination with development partners and government agencies.
- Ensuring timely budgetary allocations to the PMO (Project Management Office), headed by a Project Director (PD-PMO), for the purposes of the project; and
- ensuring the necessary national level approvals in times for carrying out the project.

69. The PD-PMO will consolidate and compile all reports required by the Government and ADB. A District Project Management Office (DPMO) will be established in each of the three districts, attached to the Hill District Councils (HDCs) of Bandarban, Khagrachari and Rangamati, and be headed by a Deputy Project Director (DPD). The DPDs will report directly to the PD-PMO. LGED will establish Project Implementation Unit (PIU) in the three district Executive Engineers' offices.

70. The CHTRC will be the lead implementing agency and will be responsible for (i) overall coordination and management of the day-to-day implementation of the project; and (ii) overall supervision of activities carried out by the PMU and PIUs in LGED, and DPMO-HDCs.

71. A project steering committee (PSC) will be established under the chairmanship of the Minister of MoCHTA and be responsible for overall coordination at national level and policy

guidance. One of the members of the steering committee will be the Joint Secretary of the Development Wing of MoCHTA. At the regional level, a Project Implementation Committee will be established and be chaired by the Chairman of the CHTRC. At the district level, District Coordinating Committees will be established and be headed by the Chairman of the respective HDCs.



Source: ADB

Figure 3. Framework of the institutional arrangement for CRLIWM-CHT Project.

C.3. Implementation Arrangement in LGED

72. LGED will establish a Project Management Unit (PMU) headed by a Project Director (PD-LGED) to implement Output 5: Rural Roads. For purposes of Project related monitoring and reporting, the PD-LGED will coordinate through CHTRC.

73. The implementing agency in LGED has appointed a Project Coordinator for the project preparation with district and upazila officers taking responsibility for survey work, design and costing. Once the project will move to implementation, LGED will establish a PMU at LGED headquarter headed by a Project Director along with LGED technical and support staff and strengthened by individual consultants and PIUs at district level.

74. The PD-LGED will be responsible to the Chief Engineer, LGED for the implementation of the project. The PD-LGED will also co-ordinate and co-operate with the Project Coordinating Director of PMO, CHTRDP, Rangamati on all matters relating to the expenditure and reimbursement of project funds. Also, the PD-LGED will supervise the work of officials and staff involved in the project implementation along with the activities of national individual survey, design

and supervision consultants to be contracted directly by LGED under individual consultancy contracts.

75. LGED has district offices (which will act as PIUs) headed by Executive Engineers and Upazila offices headed by the Upazila Engineer. The Dulahazara-Hargaza Road Subproject will be implemented under direct supervision of the Bandarban District Executive Engineer's (XEN) office and the concerned Lama Upazila office of LGED.

76. As LGED has experienced difficulties in the past to mobilize sufficient internal resources to donor funded projects in the CHT, the project management budget includes provision to contract additional supervision consultants required for proper implementation of the subprojects. The Project Implementation Consultant (PIC) team will provide additional support on bioengineering and road safety during the design phase and supervise the civil works, including environmental aspects.

CHAPTER 4. DESCRIPTION OF THE SUBPROJECT

A. Background of the Subproject

77. The rural road component of the CRLIWM-CHT Project will contribute to the reduction of social and economic poverty by improving connectivity. Upgraded, rehabilitated, and newly constructed village, upazila and union roads will link rural communities to markets and service centers.

78. The subproject concerns an 11.620 km road section under Lama Upazila, Bandarban District which is classified as Village Road by LGED with identification number 4035514011. The road runs in a west to east direction in Fashiakhali Union. Its starting point is at the border between Chakaria Upazila in Cox's Bazar District and Lama Upazila in Bandarban District. Here the road connects to an existing earthen Road of Chakaria UZ, which runs for about 2.5 km and connects to the Chattogram-Cox's Bazar R&H road. The road passes 22 paras or villages: Kallor Dana, Ali Baper Jum, Pagleer Aga, Kurukpata Jiri, Majer Hargaja Para, Lamar Hargaza Para, Hargaza Headman Para, Hargaza Maheshkhali Para, Hargaza Tanggree Para, Golbanu Jiri, Raiyaga Jiri, Sapergara Natun Para, Sapergara Bazar Para, Sapergara Siya Para, Sapergara Muslimpara, Sapergara Maheshkhali Para, Sapergara Purba Maheshkhali Para, Fakir Hala, Hlatwai Para, Lailema Para, Mongpu Rowaja Para, and Abdullaha Para. These 22 paras are located on both sides of the road. The road ends at an existing bridge where it connects to Naikhyongchari Upazila. The Herringbone Brick (HBB) section was originally constructed by the CHTRDP-1 in 2005-2006. The HBB road was found in a bad condition and will therefore be improved and upgraded.

79. The subproject will benefit 10,035 people of 1725 families of 22 paras of 3 No. Fashiakhali Union under Lama Upazila. Those living along the 11.620 km stretch are all affected by the bad condition of road. Along the road there are houses, shops, five mosques, two Buddhist temples, one Hindu temple (Mandir), a non-government high school, two government primary schools, two community health care centres, paddy fields, fruit gardens, etc. Figure 5 gives an overview of the catchment area of the road prepared by the TA team while Figure 6 is the LGED map showing how the proposed road is connected.

80. Apart from easing communication within the catchment area, the improved road will provide the inhabitants of the 22 paras along the road with improved access to the Lama Upazila head town as well as other larger towns, where facilities like hospitals, schools, fire service, banks, shops and markets can be found.

81. The improvement of the road will considerably improve the transport situation of the communities in the catchment area. Farmers will get better market access for their products. It is expected this will lead to better prices and higher margins as the improvement of the road will reduce carrying cost and travel time used by farmers to reach to market. It is expected that improved market access may also cause farmers to improve their cultivation practices, including some mechanisation, and productivity may thus increase. This is expected to create additional

employment. In addition, the quality of life is expected to improve through better access to health, education, and other services for all inhabitants of the 22 paras.

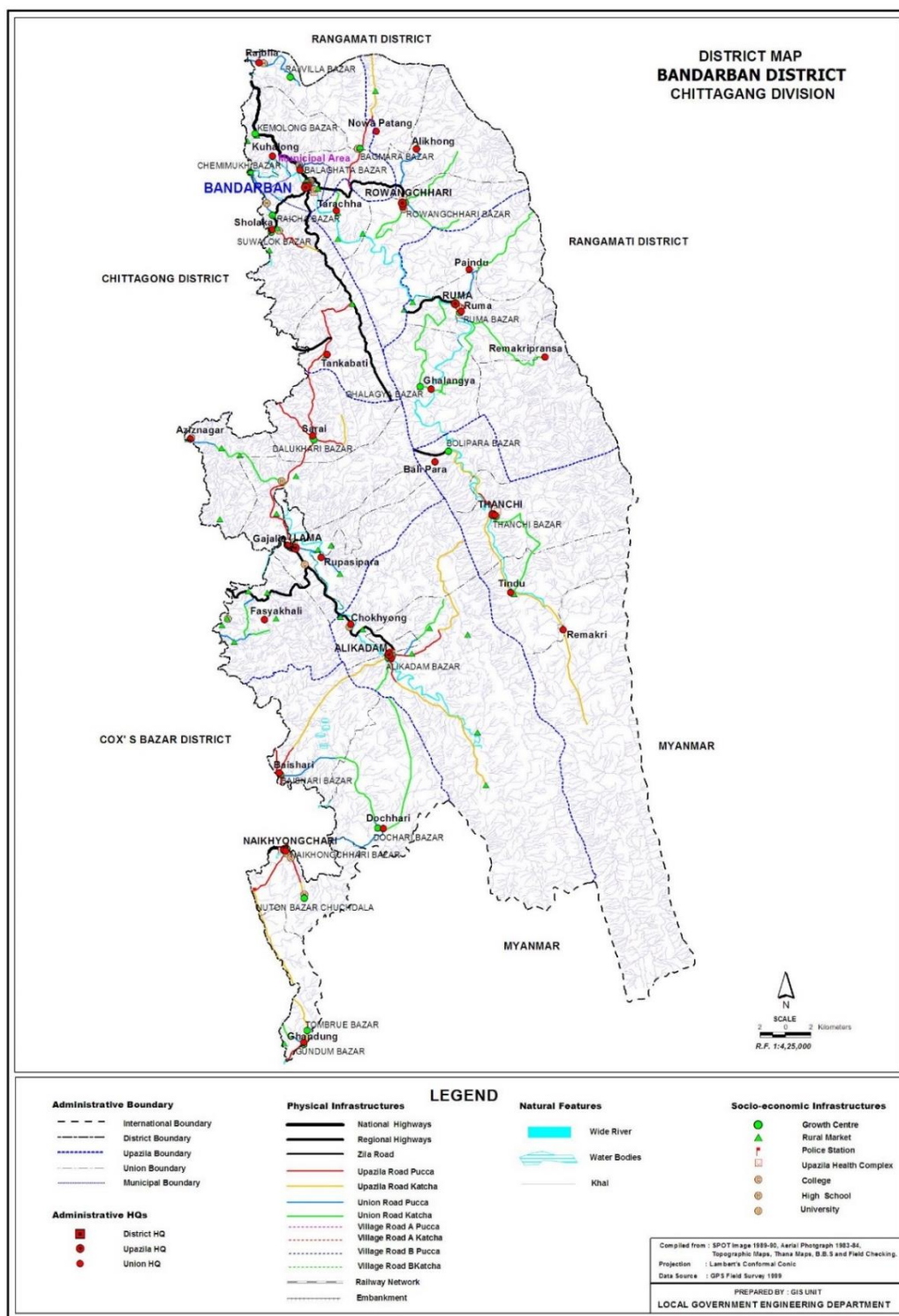
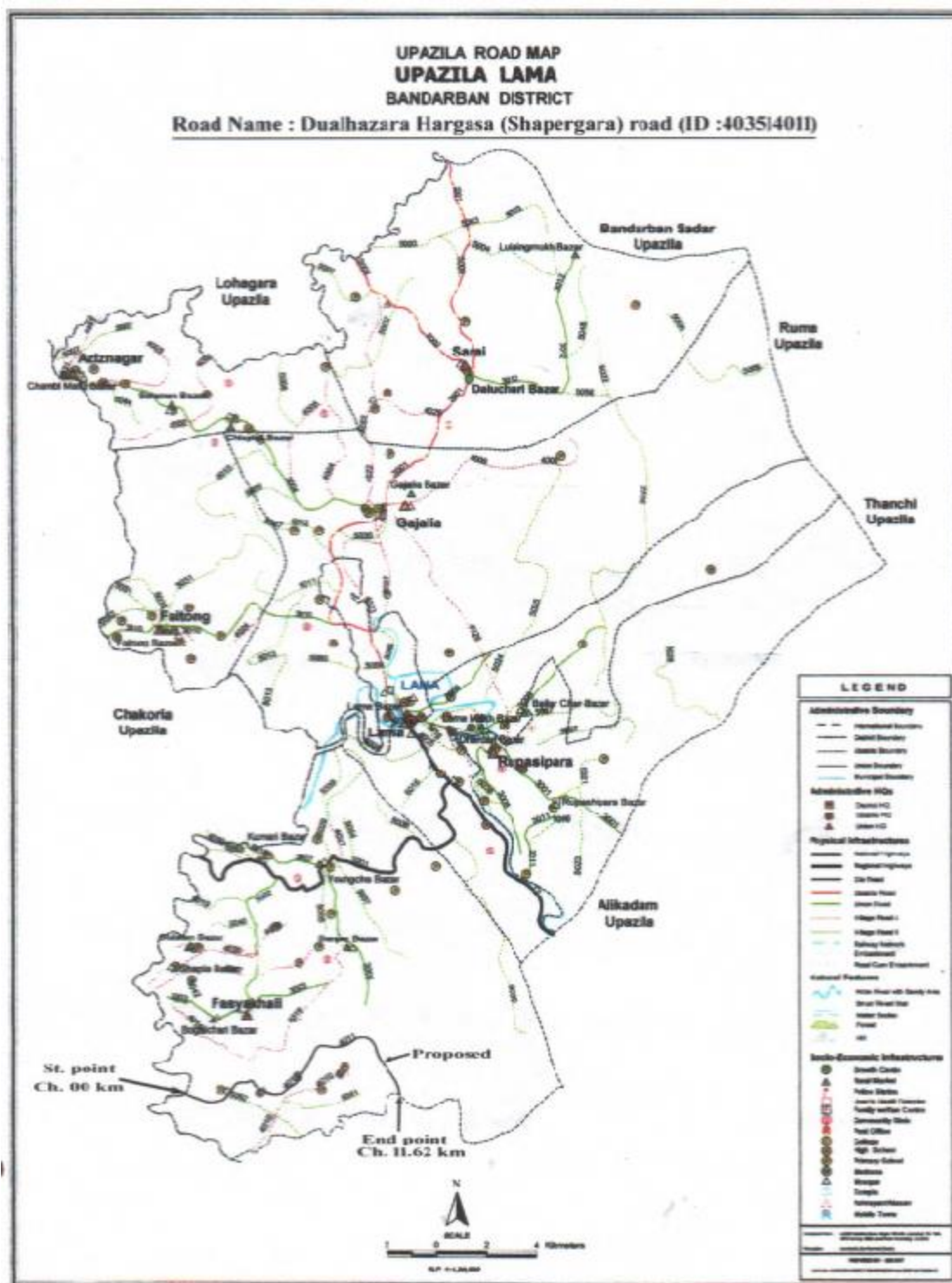


Figure 4. Roads of Bandarban District

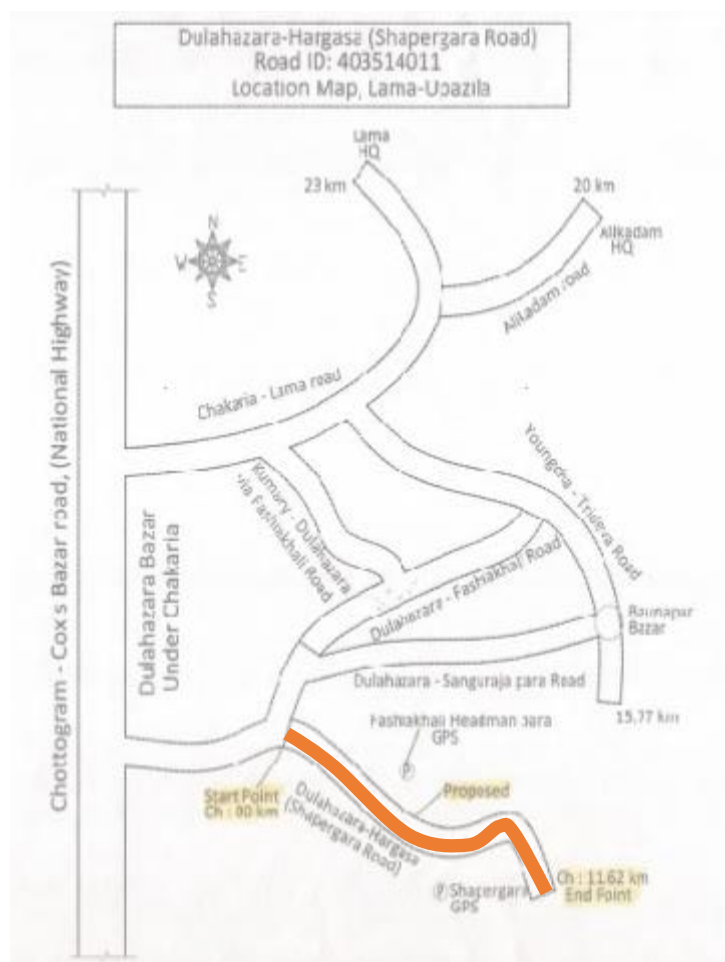
82. The road is presently in a bad condition in some places, see Figure 7. The road is seriously damaged in several place. In the rainy season it is not possible to move on this road, except for few four-wheel drive jeeps. Figure 8 shows the flooded road condition after rain events. Bricks of the most of road are broken in many locations or have shifted due to the weight of passing trucks, jeeps, and three-wheeler taxis. During a four-month period in the rainy season the road is covered by mud and vehicles can hardly use it. Local users, mostly farmers, students, office service holders, sellers-byers and patients are then forced to go by foot. The bad condition of the road means that people living in this area experience problems in visiting markets to sell their agriculture products, and also for visiting education and health institutions.

83. As part of the upgrading, the existing road pavement width including 75cm brick edging will be widen from 3 meter to 3.70 meter including 125cm brick edging to meet LGED's current design standards. The crest width of the road including shoulders will be widened from 3.70m to 6.70m. The considered design period is 10 years.



Source: Feasibility study of Dulahazara-Hargaza Road

Figure 5. Lama Upazila roads map including the Dulahazara-Hargaza Road in the southwest



Source: adapted from Feasibility study of Dulahazara-Hargaza Road
Figure 6. Dulahazara-Hargaza Road location map



Source: Feasibility study of Dulahazara-Hargaza Road

Figure 7. Condition of damaged road sections along the Dulahazara-Hargaza Road



Figure 8. Condition of flooded road sections along the Dulahazara-Hargaza Road

B. Technical Specifications

84. The starting point of the Dulahazara-Hargaza Road is connected to an existing earthen road of 2.5 km under Chakaria Upazila, which in itself is connected to the Chattogram – Cox's Bazar National Highway.

85. The starting point of the proposed road is 32 kilometres away from the Lama Upazila Headquarter. From Dulahazara the proposed road goes from the west to the east direction. It passes Kallor Dana para and ends at Purbo Moheshkhali Para under Fashiakhali Union. At the end point there is a connection to an existing bridge of Naikhyongchari Upazila.

86. As part of the upgrading, the existing road pavement width including 75cm brick edging will be widened from 3 meter to 3.25 meter including 125cm brick edging to meet LGED's current design standards. The crest width of the road including shoulders will be widened from 3.70m to 6.70m. The considered design period is 10 years.

87. Based on survey work carried out by LGED upazila staff, the design drawings and estimate of the subproject were then prepared by the LGED Bandarban District Office. This was then verified and approved by the LGED Design Office in Dhaka, which was responsible for technical due diligence.

88. The present condition of the 11.620 km HBB road section is very poor and difficult to use by all kinds of traffic during the rainy season. The existing road crest width is 3.7m and the carriageway width is less than 3m. Both require widening to meet current LGED road standards. The key dimensions of the improved works are:

- Extend crest width to 6.70m
- Extend pavement width to 3.7m
- Provide road shoulder width of 1500mm
- Provide improved subgrade: 250mm; sub-base: 225mm, base course: 150mm
- Provide dense carpeting of 40mm.

The design period of flexible pavement is 10 years. Figure 9 gives the cross section of the road.



Source: LGED Road Design Unit, Dhaka Headquarter

90. *L-Drain, U-Drain & Outfall-Drain* are proposed to drain out flash water in the hilly area to protect the road from water logging and to avoid any damage. *RCC Column Supported Outfall Drain* are proposed at different Ch. as per requirement to collect the flash water through L-drain from a long distance and will divert to a safe distance & safe area. It will protect the slope from erosion. 19 nos. (0.9m x1.30m size) of *U-Box Drain* at different Ch. as per field condition are proposed to construct at canal section to safe the shoulder and slope of the road from erosion. 4

nos. 2.00m x 2.00m *RCC Box Culvert* at Ch. 450m, 2940m, 4590m & 5070m, 1no. 2vent 3.50m x 3.50m *RCC Box Culvert* at Ch. 510.00m. and 3nos 2vent 3.50m x 2.50m *RCC Box Culvert* at Ch. 5390m, 5600m, 10520 are proposed to drain out the drain out flash water in the hilly area to protect the road from water logging and to avoid any damage of road pavement,

91. *Brick Masonry Toe-wall* with precast *RCC Post* at different Ch. of road to protect the road soft shoulder and slope from damage caused by erosion during rains.

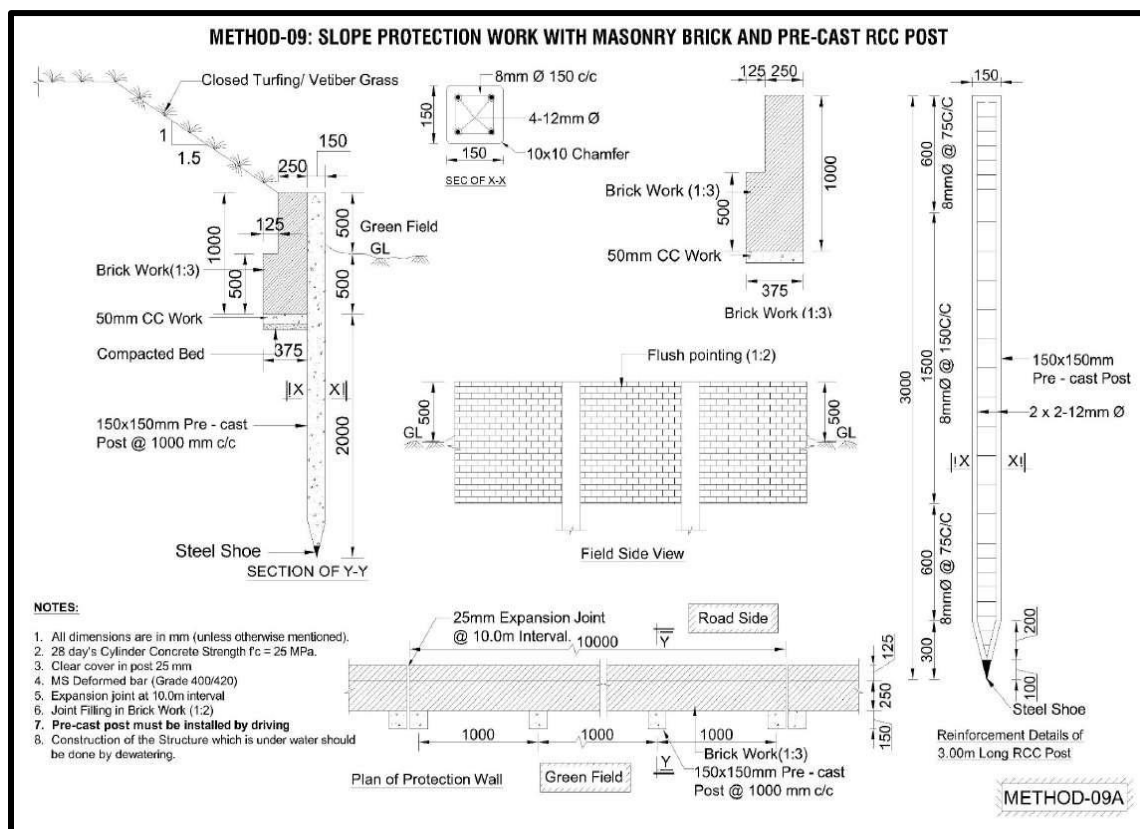


Figure 10. Section of Brick Masonry Toe Wall / Guide Wall to protect the road from damage
Source: LGED Road Design Unit, Dhaka Headquarter

92. 4 nos. *Passenger Shed and Solar System Light* are proposed for safety of road passengers from rain and to get down and up the passenger vehicles safely.

93. *Road Safety Works* (road safety signs of different types, guide posts, road crossing markings are proposed at turning points, at steep slope up & down, in front of school, college, market, clinic, diversion narrow village road passing by the left & right side of the main road) are proposed to avoid any road accident,

94. *Environmental & Occupational Safety Works* are proposed to protect the environment from air pollution, sound pollution, water pollution following national & international rules during working period. Occupational workers, officers and engineers must use safety boots, dress, hand gloves, safety helmet and safety eye protection glass to save themselves from any injury during working

period. Safety toilets for workers & officers must be arranged at project site. Fast Aid Box with medicines without expiry date must be available at site on emergency basis during working period.

C. Construction Material Sourcing

95. The sourcing of construction material is listed below in Table 8. Where possible, materials will be locally sourced, but subject to positive results of lab testing. No borrow pits will be needed as this will be upgradation of brick road to bituminous carpeting with only some road widening.

Table 8. Sources of construction materials

Category	Types, brands & usage	Source
Bricks	KBM, RBM, ABM, MBM, ABC, BBC are used in Rangamati after specified Lab-Test in LGED lab	Rangunia District, Chattogram
Bricks	ABC, JMB, 5-Star, 3-Star are used in Khagrachari after specified Lab-Test in LGED lab	Khagrachari
Bricks	MBM, ABM, BBC, NBM are used in Bandarban after specified Lab-Test in LGED lab	Soalok Union, Bandarban
Cement	King-brand, Premier, Shah, MGS, Confidence, Aramit, Ruby are used in Rangamati after specified test in LGED lab	Chattogram
Cement	Diamond, Aramit, Royal, Premier are used in Khagrachari after specified test- in LGED Lab	Chattogram
Cement	Premier, Confidence, Ruby are used in Bandarban after specified test in LGED Lab.	Chattogram
Bitumen	BPC (Bangladesh Petroleum Corporation) 60/70 are used in Rangamati, Khagrachari & Bandarban	Available in Bangladesh & used after specified test in BUET Lab.
Stone	Sylhet stone & imported black stone from India are used in concreting in 3-CHT Districts after specified test in LGED Laboratory	Sylhet and India
Local fine sand	Used in Rangamati after specified test in LGED Lab. It is used in road improved subgrade and back filling in foundation work.	Collected from Ichamati River (Rangamati), Sangu River (Raojan)
Local fine sand	Used in Khagrachai after specified test in LGED Laboratory. It is used in road improved subgrade and back filling in foundation work. It is also used in plaster work.	Collected Chengi River (Khagrachari)
Local fine sand	Used in Bandarban after Lab-Test. It is used in road improved subgrade & in back filling of foundation work.	Collected from Silok Khal (Bandarban).
Sylhet coarse sand	Used in concreting of structure & plaster works after specified test in LGED Lab. It is used in 3-CHT Districts	Sylhet
Steel	BSRM, KSRM, RSRM, Baized, AKS (Grade-400W) available in Chattogram are used in 3-CHT Districts after specified Lab-Test in CUET/BUET	Chattogram
Water	After specified test in DPHE Lab of each CHT District, it is used in all types of construction of structure works and drinking purpose.	Locally available in 3-CHT Districts.
Geotextile	It is used in protective works after specified test in BUET Laboratory.	Dhaka

Source: LGED Rangamati District Office

D. Road Safety Component

96. The Dulahazara-Hargaza Road mostly runs through a relatively plain area with low hills. Road safety measures can be limited to installing guideposts, cross lines, and road safety signs especially at junctions and turning points.

97. Following road safety features have been included:

- *Precautionary signs*: are proposed at a safe distance from the start of curving towards the right- and left-hand side of the road (see for example Figure 11), at a safe distance from steep hill upwards and downwards at a safe distance from bridge, culvert.
- *Information signs*: are proposed at safe distance from school, bridge, culverts, narrow village road
- *Compulsory signs* (horn prohibited, no overtaking): are proposed at a safety distance from community clinic, temples & mosques. Total 96 nos. road safety sign (square, rectangular & equilateral triangle in shape as per LGED standard design) are proposed of the road length of 11.620 km.
- *Kilometre posts*: 13 numbers are proposed to install at each kilometre of total road length: 11.620km.
- *Guideposts*: 1400 numbers are proposed to be installed on the road shoulder on both sides of the approach of bridges, culverts, left & right turning point so that vehicles can pass these safely to avoid any accidents.
- *Road name plates*: 02 numbers are proposed to install at starting point and end point of the road.



Figure 11. Road safety signs to be installed at turning points

Source: Bandarban District Office

CHAPTER 5. ANALYSIS OF ALTERNATIVES

98. *Alternative routes.* In principle, existing road alignments are to be followed on the Dulahazara-Hargaza Road Subproject, except for some minor corrections to the road alignment as per proposed road design. Alternative routes will lead to loss of livelihoods, additional costs and delays, as land will need to be provided for major re-alignment; hence, alternative routes are not under consideration.

99. *Alternative design.* The present design envisages a transition from HBB surfacing to a road with bitumen carpeting, and installation of improved road-side and cross-drainage. At the same time, the crest width of the road including shoulders will be widened from 3.70m to 6.70m. This is to bring the design up to LGED standards and to meet safety standards. Deviating from this would compromise on safety, which is undesirable.

100. The “without project” alternative will mean that current conditions will prevail. This includes poor access leading to longer travel times, higher costs and spoilage of produce, but also higher risks due to longer times required to access medical care and reduced access to, for example, education and other services. Under the without project scenario there will also be less investment in further development the area as basic infrastructure is required to attract entrepreneurs and entrepreneurship from within. Overall, socio-economic conditions will be negatively affected and relegated to the backwaters of development.

CHAPTER 6. DESCRIPTION OF THE ENVIRONMENT

101. The CHT is a geographically and ethno-culturally distinct region of Bangladesh. Situated in south-east of the country, it is the only extensively hilly area of Bangladesh. The CHT borders Myanmar to the South, the Indian states of Tripura and Mizoram to the North and East and the Chattogram District of Bangladesh to the West. Its land area covers 13,000 square km, of which 90% are sloping lands.

102. The Dulahazara-Hargaza Road (Road ID is 403514011, length 11.620 km) is a HBB road herringbone brick (HBB) Union road starting from the border between Chakaria Upazila in Cox's Bazar District and Lama Upazila in Bandarban District near Dulahazara, and running in an easterly direction to Purbo Moheshkhali Para near a bridge at the border with Naikhyongchari Upazila.

A. Physical Environment

A.1. Topography

103. Bandarban District has a hilly to mountainous topography. It is bordered by the districts of Cox's Bazaar and Chittagong to the west, the district of Rangamati to the north, and the states of Chin and Rakhine (Myanmar) to the east and south, respectively. Notable hill ranges are Muranja, Wayla, Chimbook, Batimain, Politai, Saichal-Mowdok, and Saichal. The highest point of Bangladesh, Saka Haphong, is located at the border of Bandarban and Myanmar. The largest rivers of the district are Sangu (also known as Sangpo or Shankha), Matamuhuri and Bakkhali.

104. Figure 12, below, shows the topography of the subproject site, where the Dulahazara-Hargaza Road and other rural roads in the vicinity are surrounded by low hills.



Figure 12. Satellite image of the surroundings of the Dulahazara-Hargaza Road. The white line shows the approximate trajectory of the road, from the Chakaria-Lama Upazila border in the west to the the Lama-Naikhyongchari Upazila border in the southeast.

A.2. Soil

105. The soil in the subproject area is mainly light to dark brown loams, sand loams and clay loams which grade into broken shale or sandstone at varying depths (between 30-120 cm). The valley soil is mainly acid loams and clays. Soil in this area generally appears to be fertile.

A.3. Weather and Climate

106. The subproject area has a subtropical monsoon climate characterized by wide seasonal variations in rainfall, high temperatures and humidity. The climate of the subproject area is observably moderate and mild, with relatively equable temperature and high humidity owing to plenty of rainfall. In Lama Upazila, the annual average daily temperature is approximately 27 °C, which varies from 21 °C in Dec.-Jan. to 31 °C in May. Minimum temperatures vary from 16-18 °C in Dec.-Feb., rising to 27 °C in May-August. The annual rainfall is 1,716 mm, with most of the rain falling between May and November.

A.4. Air Quality and Noise Levels

107. According to the Environmental Monitoring Report of the 2nd Phase Chittagong Hill Tract Rural Development Project¹⁵ air quality was not monitored because rural development project has no significant impact on air quality. Hence, little information is available on baselines, especially on noise and air quality.

¹⁵ CHTRDP II; <https://www.adb.org/projects/42248-013/main>

A.5. Water Resources

108. In the subproject area, there are a few small rivers and streams including Hargaza chara, Rahinggya jhiri, Kurup Pata Jhiri, and Zum chara. These streams are perennial with water year-round, also in the dry season.



Figure 13. Small streams in the subproject area: Rahinggya jhiri also known as Chandra jhiri (left) and Kurup Pata jhiri (right)

A.6. Water Quality

109. There is little pesticide use in the project area and only a moderate use of fertilizers, and on the whole, these are used mainly in rice paddies and only a little on other crops. Hence, the impact of agrochemicals on water quality is expected to be low (in upland areas) and moderate (in the lower areas where rice paddies are concentrated). Another main source of contamination of surface waters is human and livestock excrement, which is concentrated in/around villages. While access to sanitary latrines has greatly improved in Bangladesh overall, this still lags behind in the CHT, and especially in more remote villages the level of access to sanitary latrines may be 50% or less.

A.7. Natural hazards

110. The CHT are prone to natural hazards such as heavy downpours (esp. during the monsoon and during tropical cyclones) and associated local flooding and landslides, periodic drought and earthquakes. Climate change is likely to further aggravate the risks of floods and droughts. The Dulahazara-Hargaza Road is also subject to these hazards and especially floods, landslides and earthquakes may pose a risk. As part of the road construction, five culverts will be constructed to drain out flash water in the hilly area to protect the road from water logging and to avoid any damage of road pavement.

B. Biological Environment

B.1. Terrestrial Vegetations

111. The main terrestrial habitats in the subproject area are found as vegetation's of homesteads and along roadsides. Many trees are located along both sides of the road and include many introduced ornamentals, fruit-trees and timber species. The trees and vegetations include Rubber, Akashmoni (*Acacia auriculiformis*), Jack fruit (*Artocarpus heterophyllus*), Mango, Eucalyptus, Neem (*Azadirachta indica*), Gamari (*Gmelina arborea*), Papaya (*Carica papaya*), Banana (*Musa paradisiacum*), Betel nut palm (*Areca catechu*), Bamboo species, and so on.

112. There are no endangered or rare plants in the subproject area according to the information provided by the Bangladesh Forest Department.

B.2. Freshwater fauna & terrestrial wildlife species

113. According to community members, in the small streams such as Bagaicharari Khal, Kachukhola Chara and Dulhazara Khal, mostly only small fish like Puti, Taki, Gulsa, crabs, and small shrimps are found. Fish is one of the most important sources of protein for village consumption and local people are used on catching fish for this purpose. Aquatic habitats also provide a refuge for different species of frog, crab, reptiles and others.

114. There are still some deep forest areas around the villages Hargaza, Natun para, and Mongpu para, but local community members informed that due to population pressure and deforestation wildlife is limited. Around the subproject area species such as wild hens, wild boar, snakes and lizards can be found. There is a movement route of Asian elephants near the subproject area, with community members indicating elephant movements usually 2-3 times per year.

115. The Indian elephant (*Elephas maximus indicus*) is recognized as an endangered subspecies based on the IUCN Red List. Indian elephants are known to have specific movement and habitat utilization patterns that differ per season, and it is therefore common for elephants to move to different habitats at the beginning and end of the rainy season.

C. Human and Economic Development

C.1. Demography

116. The catchment area of the proposed subproject extends to 22 paras that are all in the Lama Upazila under Bandarban District, with a total population of 10,035 persons (1725 households). Of the 22 paras, 17 paras are benefiting directly, and 5 paras are benefiting indirectly from the road improvement. The villages adjacent to the road are considered to benefit directly from the subproject, while neighbouring villages whose inhabitants will use the road occasionally are considered as indirect beneficiaries. All these villages would have access to the improved rural road by either earthen road or foot path. 25.7% of the population of the 22 paras belong to IP communities, namely the Marma community. The remaining 74.3% are Bengali by ethnicity. Of the 22 paras, 6 are mainly Marma villages, 15 are mainly Bengali, and one is a mixed village.

C.2. Land holding

117. In the subproject sites, there are 1725 households, with an average household size of 5.8 persons. Distribution of household by type shows that there are 86.13% general units and 13.87% institutional units. In the upazila, 3.8% of the general household live in paka house, 6.8% in semi-paka house, 85.4% in kancha house and the remaining 4.0% live in jhupri.

118. There are two types of land ownership in the project upazila, (i) registered/legal owners and (ii) customary right. Major portions of the land is still being used under customary right. Of the households, 100% are landowners, and 0% are landless.

C.3. Economic Livelihood

119. The economy of the subproject area is overwhelming subsistence agricultural oriented. The main employment of heads of HHs is in agriculture 62.18%, non-agricultural labourer 7.4%, commerce 10.82%, industry 0.46%, commerce 10.82%, transport and communication 0.61%, service 7.52%, construction 0.6%, religious service 0.27%, rent and remittance 0.31% and others 9.83%. In discussion with community members, it is said that agriculture is the main source of income, followed by daily labour, farming of fruits orchards, vegetables cultivation, driving, small business, etc.

120. Main cash crops are rice, potato, cotton, ginger, turmeric, beans, chili and brinjal. Various types of seasonal fruits (mango, jackfruit, litchi, banana, papaya, and sugarcane) are produced in large quantities, a large portion of which perishes in the fields because of lack of market access. Selling the products in markets is costly and time-consuming, as the road connection to nearby markets is cumbersome. People are selling their agricultural goods in the Lama Upazila market, Dulahazra bazar and sometimes in the Chakaria bazar. Traders are not interested to buy from the farm gate because of the bad road condition.



Figure 14. Economic livelihoods in the catchment area of the proposed road: paddy field

C.4. Infrastructure

121. The socio-economic study was carried out on the existing situation and the expected impact of the proposed project using conservative assumptions. The study reflected a positive impact on the social and economic development in the area if the subproject is implemented. The study shows a substantial benefit for the people who are living in the catchment area and will use

the services provided by the subproject. It is anticipated that after implementation of subproject the people of the area serviced by the improved road will get better transport facilities, will get additional employment opportunities and will be able to market their agricultural products more easily and at lower cost. Thus, their living standard will increase.

122. The subproject will benefit 10,035 people of 1725 families of 22 paras of 3 no Fashiakhali Union of Lama Upazila, living along the 11.620 km stretch as all are affected by the bad condition of road. Along the road there are houses, shops, five mosques, two Buddhist temples, one Hindu temple (Mandir), a non-government high school, two government primary schools, two community health care centres, paddy fields, fruit gardens, etc. Apart from easing communication within the catchment area, the improved road will provide the inhabitants of the 22 paras along the road with improved access to the Lama Upazila head town and the District capital of Bandarban District where facilities like the general hospital, community clinic, government and public colleges and high schools, fire service, the District Commissioners Office and the Police Station are located as well as banks, shops and markets.

D. Education and literacy

123. Along the road there are a non-government high school (Hargaza High School) and two government primary schools, one in Hargaza and one in Saperghata (see Figure 15). The improved road will provide better access to these schools, as well as to schools and public colleges in towns nearby.

124. The literacy rate Lama Upazila is at 30.4%, with the literacy rate for men being 36.4% and for women 23.5%, based on the Population and Housing Census 2011. More recent figures are not available.



Figure 15. Schools along the Dulahazara-Hargaza Road: Saperghata Government Primary School (left) and Hargaza High School (right)

E. Gender Issues

125. The subproject is a gender equality theme or GEN category. The subproject will safeguard the interest of women and will ensure additional job opportunities for poor and destitute women in the subproject area. The construction of the rural road will ensure equal wages for both men

and women laborers, and appropriate facilities (accommodation, toilets and working hours) for both men and women laborers.

F. Public Health

126. 53.78% of households have access to drinking water from tube wells, 0.41% from tap, 7.9% from pond, and the remaining 37.82% of households get water from other sources. In the upazila, 10.57% (rural 6.78% and urban 29.19%) of dwelling households of the upazila use sanitary latrines 55.33% (rural 56.11% and urban 51.52%) of dwelling households use non-sanitary latrines; 34.1% of households do not have latrine facilities. The water of this area is arsenic free. (Population housing census 2011).

G. Cultural Heritage

127. There are no registered cultural heritage sites in the subproject area. Hence there will be no potential impact. However, there are a few important religious and other buildings along the road. There are five mosques, two Buddhist temples and one Hindu temple (Mandir) in the subproject area of the Dulahazara-Hargaza Road (see Figure 16).



Figure 16. A mosque (left) and a temple (right) along the Dulahazara-Hargaza Road.

CHAPTER 7. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATIONS MEASURES

128. Road improvement projects are likely to bring several changes in the local environment both beneficial and negative impacts. This section of the IEE identifies nature, extent, and magnitude of all such likely changes due to subproject activities for all stages i.e., pre-construction, construction and operation.

129. This section presents the environmental assessment process and planning undertaken by LGED in addressing the environmental impacts and risks associated with upgrading of rural roads under the proposed Project. Environmental assessment process starts with the identification and screening of potential environmental impacts. Identification of impacts commence by understanding the subproject components (e.g., site mobilization, establishment of camps, road construction, and road operation) in consultation with the district engineers and technical consultants of LGED. Corresponding interaction of these general components with specific environmental aspects (e.g., physical, biological, and socio-economic) are identified through environmental impact analysis, and a series of discussions with stakeholders, including community stakeholders, Union Parishads, and relevant government departments.

130. As subproject under CRLIWM-CHT Project, the process of the environmental assessment the subproject will be duplicated for the upcoming subproject during project readiness and implementation. The EARF will provide guidance for other environmental safeguards requirements of the proposed Project.

131. The civil work components and activities that are anticipated to affect the environment within the influence of the Dulahazara-Hargaza Road Subproject:

(i) Pre-construction Phase:

- (a) Road alignment and design involves screening and selection of roads to avoid environmentally sensitive areas, and surveys.
- (b) Finalization of road alignment including minor geometric realignment particularly on intersections and sharp corners.
- (c) Removal and transfer (utility shifting) from carriageway of electric, telephone, and water supply pipelines, gas pipeline, drainage pipes, gas pipelines, and hand pumps.
- (d) Construction mobilization involves land clearing, installation of electricity and other utility connections, perimeter fencing, establishment of storage areas, waste disposal, and installation of production equipment (i.e. cold mix, concrete batching, rock crusher, casting).
- (e) Tree cutting and clearing includes tree marking, cutting, and grubbing.

(ii) Construction Phase:

- (a) Road construction includes earthworks to implement design geometric shape, earth filling, sub-grade, earthwork in box cutting on-road crest, aggregate sand sub-base, brick aggregates for base course, earthen shoulder construction in layers and converted to hard shoulder and bitumen surfacing.

- (b) Construction plants operation for wet mix macadam (WMM) and cement batching plants.
- (c) Site restoration involves clean-up and restoration of construction zones back to its original condition prior to contractor demobilization to include: riverbeds used for sand mining; camps; hot mix plant, crushers, batching plant sites; and borrow areas rehabilitated.

(iii) *Post-Construction Phase:*

- (a) Road maintenance.
- (b) Vegetation control – involves periodic mechanical mowing, trimming, removal of brush, and removal of trees when necessary to enhance aesthetics and to prevent potential safety hazards (e.g., reduced visibility, obstruction of signs, and debris in the roadway).

132. The identification of potential effect requires the identification of environment (i.e., physical, biological, and human components) at risk due to upgrading of the Dulahazara-Hargaza Road. The environmental components for this subproject are drawn from environmental baseline as follows:

- Physical environment – air quality and greenhouse gas emissions, land and soil, surface water quality and quantity, and groundwater quality and quantity,
- Biological environment – Vegetation, mammals, birds and fish species.
- Human environment – private land and buildings, public infrastructures, sound environment, aesthetic and visual, and community and occupational health and safety.

133. A risk assessment is used to define the level of potential environmental risks by considering the magnitude, extent and duration. This is developed based on the professional judgement and experience of experts, who prepared the IEE for the subproject. Through these, risks are defined by minor, moderate and major. This is a simple mechanism to assess risks and assist in preparing mitigation measures. The assessment of potential environmental impacts requires classifications of the risks associated in terms of the following categories.

- (i) Magnitude (Mag): The potential risks of a particular project component refer to the level of disruption to the environment. Three levels have been defined:

- (a) *Low (L)*: No or minimal change in the characteristics and conditions of the environment;
- (b) *Medium (M)*: There is noticeable change in certain characteristics and conditions of the environment;
- (c) *High (H)*: Significant change in the environment.

- (ii) Extent (Ext): This describes the coverage of the potential risks caused by construction activity to the environment. It refers to the distance and area covered by an impact. The terms regional, local and limited are used to describe the scope:

- (a) *Site specific (SS)*: Only within or immediate the project components' site boundaries or no impact at all;
- (b) *Local (Lc)*: beyond project components' site boundaries (<500m).

- (c) *Regional*: when an action affects beyond subproject area and reaches nearby districts.
- (d) *National (Na)*: impacts are national concern.
- (e) *Cross boundary (CB)*: nearby countries expect to be affected by such actions.

(iii) *Duration (Dur)*: This is the time aspect of the potential environmental risks. The terms permanent, temporary and short are used to describe the period (or time):

- (a) *Short term (ST)*: the effect disappears promptly or even no impact at all;
- (b) *Medium term (MT)*: limited during construction period and few months in the operation stage;
- (c) *Long Term (LT)*: change and/or impact on the environment throughout the life of the infrastructure or component.

(iv) *Significance of impacts (Sig)*. Three classifications are incorporated into the impact matrix, thus defines the potential environmental risks into one of three categories below.

- (a) *Minor (Mi)*: Impacts are minimal or does not affect the environmental component in any observable or quantifiable way, and that it is related to a randomly occurring natural effect.
- (b) *Moderate (Mo)*: Potential impacts are less adverse on particular environmental component and/or not irreversible.
- (c) *Major (Mj)*: Signifies an effect that is severe and that affects the integrity, diversity and sustainability of the environment. Such an effect substantially or immediately alters the quality of the environment.

134. A matrix for identification and analysis of potential environmental impacts is provided below in Table 9.

Table 9. Matrix for identification and analysis of potential environmental impacts

Activity	Potential Negative Impact	Specific Environmental Impact	Type of Impact			
			Mag	Ext	Dur	Sig
Pre-operation Phase						
Human environment						
Acquisition of land for maintaining road width	Loss or degradation of farmland and productivity	Reduced production, hardship, food shortage	L	SS	ST	Mi
	Loss of private properties	Displacement of people, hardship	L	Lc	LT	Mo
Land temporarily required for site offices, material storage, equipment parking, labour accommodation & occupational safety measures for workers	Loss or degradation of farmland and productivity	Reduced production, hardship, food shortage	L	Lc	MT	Mo

Activity	Potential Negative Impact	Specific Environmental Impact	Type of Impact			
			Mag	Ext	Dur	Sig
Construction Phase						
Physical environment						
Construction of road: Site clearance	Change in land use	Loss of agricultural land and production, and property	L	SS	MT	M
Construction of road: Earth excavation	Spoil disposal and imposed weight of spoil on fragile slope	Gully erosion, landslide, disruption of road, damage to farmland, water pollution	M	SS	MT	Mo
Site clearance: Excavation	Slope instability in few locations	Erosion, landslide, loss of property	M	SS	MT	Mo
Construction of road: Drainage	Drainage maintenance and generation of surface runoff	Erosion, landslide, damage to farmland	M	Lc	MT	Mo
Construction works: Operation of constructions vehicles, materials hauling and unloading, spoil and waste disposal	Air pollution due to dust from exposed surface and construction equipment and vehicles	Effect on local people and workers health	M	SS	MT	Mo
	Noise pollution	Disturbance and annoyance around institutions	M	SS	MT	Mo
	Water pollution due to sediment level, spills and leakage of oils and chemicals to water bodies	Risk of water-borne diseases	M	Lc	MT	Mo
Cutting of slopes	Effect on instability of slopes	Scars of landslide, damage to farmland, disturbance to natural drainage	M	SS	LT	Mo
Associated activities for the construction of road: Camp site operations	Change in local landscape	Encroachment of agricultural land, alteration of drainage, disposal of solid waste and waste-water	L	SS	MT	Mo
Associated activities for the construction of road: Storage of petrol, diesel and grease for vehicle	Water Pollution	Water source and soil pollution, affect health of workers	L	Lc	MT	Mo
Biological environment						
Clearance of vegetation necessary for road formation	Loss of vegetation	Loss of environmental benefits from vegetation and disturbance in ecological function	M	Lc	LT	Mo
Construction activity	Impact on wildlife due to loss of habitats	Loss of biodiversity and valuable species of wildlife	M	SS	LT	Mi
Human environment						
Occupational health and safety aspect	Health and Safety issue	Injury, fatal accidents, outbreak of epidemics and diseases, decline in capacity to work	H	SS	MT	Mo

Activity	Potential Negative Impact	Specific Environmental Impact	Type of Impact			
			Mag	Ext	Dur	Sig
Operation Phase						
Physical environment						
Closure of equipment yards and camps	Health and safety issues	Disturbance to locals	L	Lc	ST	Mo
Road slope instability and management	Landslides	Disturbance to traffic flow and road users	M	Lc	MT	Mo
Operation of vehicles to repair inadequate drainage	Noise pollution	Disturbance to locals	L	Lc	LT	Mo
Biological environment						
Operation of road	Disturbance to wildlife	Collision of wildlife with vehicles, disturbance in their normal activities, loss of biodiversity	L	SS	LT	Mi
Human environment						
Operation of road	Issue of road safety	Increase in accidents	M	SS	LT	Mo

A. Physical Environment

135. *Potential Impact.* Soil erosion (such as loss of topsoil and soil fertility) could occur due to realignment of the road embankment at the sharp bends. Dust generation will occur during the construction phase especially at the realigned portions of the road at sharp bends. Air pollution could occur during construction phase in and around construction areas and during operation stage due to the increase of motorized vehicles and construction activities. The improved final surface of the road will reduce dust generation. Due to earth cutting and soil erosion, sediment load in the stream and canals may occur and that will create impacts to surface and groundwater hydrology.

136. Temporary drainage congestion at some locations of bridges/culverts construction site may occur due to construction of diversion roads and sedimentation in the streams. These problems cannot be identified in advance.

137. *Mitigation.* An appropriate clause on soil impacts (including avoidance of fertile lands for borrow pits, and enhanced fish culture in borrow-pits etc.) will be included in the construction contracts along with adequate arrangements to ensure compliance. Dust generating items will be conveyed under covered road surfaces. Earth excavation and construction sites will be water sprayed to minimize dust. Trucks carrying construction materials (such as earth, sand or stone) will be covered with tarpaulins to avoid spillage. Construction will require routine dust control and air quality monitoring. The road design will provide adequate drainage facilities to ensure no drainage congestion. The construction of culvert should be completed during dry season

(October–May) or adequate temporary pipe drains should be provided in the diversion. LGED supervisor staff will take urgent steps to solve temporary drainage congestion if any at the sites of culverts construction by providing pipes at the diversions. Siltation and sedimentation problems will be mitigated by placing required structural (retaining wall, silt trap, etc.) and non-structural measures (like turfing and vegetation cover).

B. Biological Environment

138. *Potential Impact.* The drainage congestion may occur due to diversion during construction of the culvert. Road widening at narrow portions of the road and realignment portions of the road at sharp bends will involve removal of considerable quantities of small to medium size trees (fruit, timber and fuel trees). No pond or canal will be affected (potential negative impact) due to improvement of the road as all are situated away from the road alignment. Marketing facilities will increase for fish from ponds, canals, rivers, streams and inland water bodies, etc. after improvement of the subproject.

139. The movement pattern of the endangered species of Asian elephant, subspecies Indian elephant, shows that elephants move through the area of the subproject at certain times every year. The movement of elephants will not be impacted by the operational improved road, but may be impacted by construction works.

140. *Mitigation.* Construction of culvert will be completed during the non-monsoon period. Adequate alternative drainage in the diversion road will be provided to maintain flow of water. Wastes and construction debris will not be disposed in a manner that these would end up in drainage canals. Removal of existing trees due to project activities will be re-planted by Bangladesh Forest Department and through watershed management component of CRLIWM-CHT.

141. Following identification of exact movement times of Indian elephants through the subproject area, the construction is to be planned to ensure that no major construction will take place during times of elephant movement. As such movement is common at the start and end of the rainy season, major construction activities during these times are to be avoided.

C. Human Environment

C.1. Economic Characteristics

142. *Potential Impact.* For the road improvement land acquisition will be required in some cases in order to attain design width. The amount and owners of land to be acquired including the amount of compensation for the affected people have already been identified. For this activity a LARP has been prepared to properly record everything that needs to be acquired and to finalize a plan for the payment of proper compensation to be given to the landowners/dwellers irrespective of whether individual title deeds or are cultivating on communal land from the project fund. For this activity, ADB SPS 2009 and the Land Acquisition and Resettlement Framework (LARF) will be followed by the subproject. The improved road networks will increase the value of land and assets in the adjacent areas of the subproject. The subproject will generate employment opportunities for the local poor people, especially women, both during the construction and

operation phases. In addition, road improvement will have a highly positive impact in terms of the accessibility of local goods to the growth centers and bazaars.

143. From an initial survey carried out by the TA team in May 2022, it is concluded that 1022.47 decimals (4.14 hectare) of land will need to be acquired, consisting of 100% title land. 137 plots will be affected by the implementation of the subproject. Out of 137 plots, 104 plots are owned by female headed households and 14 plots are owned by male headed households. These 188 household-owned plots are together 915.03 decimals. The 19 community plots to be acquired are 107.44 decimals. In addition, one structure (a shop) will be affected. Total 351 trees will be affected. Among them 335 timber trees and 16 fruit bearing trees will need to be removed. Overall estimated cost for compensation of land, structures and trees as estimated by the TA team is about BDT 52.12 million.

144. *Mitigation.* Replacement value of land to be acquired will be paid to the landowner from the project as per the entitlement matrix of the subproject's resettlement plan.

C.2. Infrastructures

145. *Potential Impact.* Temporary traffic inconveniences will occur during the construction stage. After construction, the primary impact of the subproject will be to improve the performance of the transport sector and greatly facilitate the flow of traffic, goods and travelers. It is predicted that significant social and economic benefits will take place including poverty alleviation and income generation activities.

146. *Mitigation.* Contract provisions will ensure the minimize of disruptions to the existing infrastructure during the construction period.

C.3. Quality of Life

C.3.1. Human Development/Education

147. *Potential Impact.* Due to the implementation of the subproject there will be increased incomes and easy-access to education and health facilities, which will lead to increased literacy and better health.

C.3.2. Human Health

148. *Potential Impact.* There may be a localized risk of disease being brought into an area by migrant workers. General and construction waste from the construction camps and yards will pollute the environment at the sites, which will cause health hazard during construction. Improvement of the Dulahazara - Hargaza Road will allow better access to health facilities, and this should result in improved treatment and a reduction in mortality.

149. *Mitigation.* A proper occupational health and safety plan has to be prepared and will have to be followed to avoid health hazard of the workers. The contractor will conform to disease prevention instructions. Provide regular health check-ups, sanitation and hygiene, health care, and control of epidemic diseases like COVID-19 to the workforce. The contractor will provide at cost all labor and materials and construct and maintain site safety, signboards, temporary traffic

diversions throughout the construction activities according to the specifications and provide personal protective equipment (PPE) to all the labors working at the construction site.

C.4. Noise Pollution

150. *Potential Impact.* Potential temporary noise impacts due to construction activities (stone crushing plant, generator and bridge pile driving) will occur during construction. Impacts to sensitive receptors (educational institutions, temples, and health complexes) during the operation phase are expected.

151. *Mitigation.* Noise impacts during the construction phase will be minimized through the use of source, site and activity control in front of the road-side sensitive receptor i.e., educational institutes, religious centers etc. Construction work should be performed in consideration of prayer time in the paras. Using of construction equipment producing excessive noise should be avoided.

C.5. Cultural Heritage, Institutions and Landscape

152. *Potential Impact.* Three schools and eight religious institutions are located in the project site which may be affected indirectly by construction activities of the subproject.

153. *Mitigation.* Contact institutions to determine if there are impacts to their operations during construction and to reschedule work in favor of their timing. Contract provisions should be made to ensure proper care to make minimum level of noise and dust near the institutes. Moreover, supervision staff of LGED will ensure the adequate provision to keep the road passable during construction stage.

C.6. Community Health and Safety Risks

154. *Potential Impact.* There will be an increased risk of accidents, particularly at the road during construction. Road accidents are likely to be increased after construction as traffic volumes and speeds increase.

155. *Mitigation.* Contractor should prepare and implement a site health and safety plan that will include measures to exclude the public from site. It should be ensured that workers use PPEs and health & safety Induction for all personnel is provided during construction. Provision for providing road-safety measures, such as traffic signs, driver awareness signboard, speed-breakers, pillars with road reflectors at black/blind spots and other appropriate measures along the roads will be in the tender document, which will reduce the incidence of road accidents to some extent.

CHAPTER 8. INFORMATION DISCLOSURE, CONSULTATION AND PARTICIPATION

A. Principles

156. Disclosure, consultation, and participation involving persons interested in or affected by project activities forms a critical part of best practice project planning and environmental assessment. Active participation of stakeholders all stages of project preparation and implementation is essential for successful implementation, ensuring that subprojects reflect stakeholder needs, have community acceptance, and are beneficial to the people.

157. SPS (ADB, 2009) requires meaningful consultation with affected people and other concerned stakeholders including civil society. Meaningful consultation:

- (i) Begins early in project preparation and continues throughout the project cycle
- (ii) Provides timely disclosure of relevant and adequate information that is understandable and readily accessible to affected people
- (iii) Is undertaken in an atmosphere free of intimidation or coercion
- (iv) Is gender inclusive and responsive and tailored to the needs of disadvantaged and vulnerable groups; and
- (v) Enables the incorporation of all relevant views of affected people and other stakeholders into decision making, such as project design, mitigation measures, the sharing of development benefits and opportunities, and implementation issues.¹⁶

158. Consultation is to be commensurate with impacts on affected communities, and its results documented and reflected in the environmental assessment report.

B. Subproject Stakeholder Consultations

159. A consultation meeting was held at 3 No Fashiakhali Union Parishad with the TA team on 5 August 2021. Upazila Engineer-LGED. Lama Upazila, Sub-Assistant Engineer-LGED Lama Upazila, Surveyor Lama Upazila, LGED, UP Chairman, Members of Union Parishad, Local Elites, Headman, Karbari, Job holders, Students, Farmers and Land Owners including Women Stakeholders were present in the meeting. In the meeting, the following aspects were discussed elaborately:

- Importance of the road improvement
- Impact on socio-economic development after implementation of the subproject
- Design width of the road section including right-of-way
- Land Acquisition, Resettlement Plan including Compensation Procedure
- Potential beneficiary participation in program planning and implementation
- Engagement of local laborers in the road project
- Environmental impacts and mitigation

¹⁶ SPS (ADB, 2009), 33.

160. All the stakeholders including local leaders expressed their willingness to implement the subproject and assured that they would co-operate in every step of implementation including land acquisition, resettlement and compensation process. Initially the affected people agreed to hand over their land on a voluntary basis, i.e., “no compensation required” basis, as they appreciated the improved road would provide them with substantial benefits. Moreover, all the environmental hazards were discussed with the local people. Local people who participated in the consultation meeting agreed to accept the inconvenience due to the environmental hazards arise during road construction activities.

161. Subsequent to the stakeholder meetings, it was decided that donation on voluntary basis would not be appropriate, as it would create inequity between the affected people of various subproject both for SPB-1 and between SPB-1 APs and APs of future projects. It was therefore decided to engage the APs of the subproject into a negotiated settlement process where compensation would be at the level of that prescribed by the current Bangladesh regulatory framework. Upon further analysis of the prevailing regulatory framework of the country this was found not to be viable as government procedures do not recognize a voluntary settlement process if the acquiring party is a government agency such as LGED. LGED management and CHTRC both advised that an “eminent domain process” would follow (whereby by government intervention private property becomes public use), which meant that a LARP should be prepared. Following this process, an LARP has been prepared and submitted separately to meet GoB and ADB requirements.

162. A stakeholder consultation meeting was held by the resettlement team on 23 November 2021 at 3 No Fashiakhali Union Parishad, for both the Dulahazara-Hargaza Road and the Dulahazara-Fashiakhali Road. This meeting was attended by 37 participants (31 male and 6 female).

163. A further stakeholder consultation meeting was held by the IEE team on 14 September 2022 at Hargaza High School, with 26 participants (all male). During this consultation, similar topics as listed above were discussed. Specific discussions have focused on sources of drinking water and water for irrigation; conditions of sanitation; economic activities and the impact of the road project; and work as daily laborers in the road construction. Annex 2 provides minutes of this meeting, along with a list of participants. Photos of the consultation meeting are provided below in Figure 17. Together with local stakeholders, a social village (road) map was also produced in 2022 (Figure 18).



Figure 17. Stakeholder consultation meeting in Hargaza High School on 14 September 2022

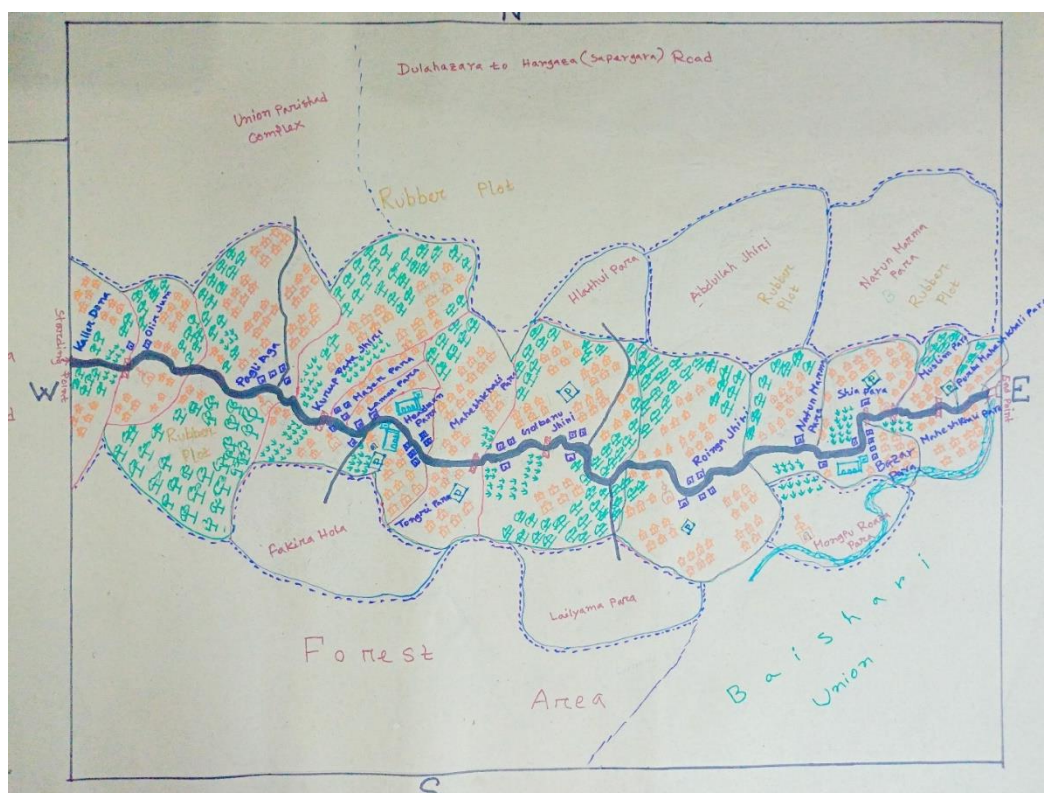


Figure 18. Stakeholder social village/road map

C. Disclosure Framework

164. PMU and PIU, with support from PISC, will disclose safeguards information through public consultation and making available relevant documents in public locations. The following documents will be submitted to ADB for disclosure on its website:

- subproject IEEs (including EMPs) of subprojects
- EARF before project appraisal
- Semi-annual environmental monitoring report during project implementation until ADB issues project completion report
- updated IEE of subproject and corrective action plan prepared during project implementation, if any.

165. The PMU through the PIU will provide relevant safeguards information (e.g. IEEs and monitoring reports) in a timely manner, in an accessible place and in a form and language understandable to subproject stakeholders/ affected people and other stakeholders. Among others, a project website will be established for the purpose of information disclosure and uploading of safeguard reports. For illiterate people, other suitable communication methods will be used. Specifically, summary safeguards information translated into Bengali and other languages as required, will be made available to each Upazila and LGED District office.

D. Adaptive Mechanism

166. Adaptive mechanisms will be used to address limitations on environmental safeguard activities and consultations due to government restrictions and COVID-19 risks. Surveys and data collection will be conducted through online platforms, brochures, questionnaires, and other forms of media as applicable to provide information and receive feedback from the people, beneficiaries, government agencies and other stakeholders.

CHAPTER 9. GRIEVANCE REDRESS MECHANISM

167. A dedicated multi-tier grievance redress mechanism (GRM) will be established to receive, evaluate, and facilitate the concerns and complaints of the affected people, if any, about the social and environmental performance at the project level. The GRM aims to ensure:

- a. basic rights and interests of every person affected by poor environmental or social performance of the project are protected; and
- b. concerns arising from the poor environmental or social performance of the project during the conduct of pre-construction, construction and operation activities are addressed.

A. Principles of GRM

168. The GRM is anchored on the following principles that guide the CRLIWM-CHT Project:

169. *Transparency.* The Project will keep the affected person informed about the progress made in resolving the grievances and provide sufficient information about the mechanism's performance to build confidence in its effectiveness and meet any public interest at stake. The small ethnic communities (SEC) especially the *karbaris* must be (i) made aware of the complaints and issues reported, (ii) involved in their redress, and (iii) informed on progress made in resolving grievances. Confidentiality of the dialogue between parties and of individuals' identities should be provided where necessary.

170. *Empowering and participatory.* SEC, *karbaris*, affected persons, beneficiaries, INGOs and other stakeholders are encouraged to participate and bring complaints, issues and comments to the attention of Project management. More importantly, communities should be involved in problem solving.

171. *Socially inclusive.* The whole community is given the opportunity to raise concerns and the right to be accorded a response. The grievance system will allow anyone, especially the SEC, poor, the disadvantaged groups, the women, to raise grievance or complaints, be heard and involved on redressal process.

172. *Culturally appropriate.* Alternative dispute resolution forum (ADRFs) will be constituted for land dispute resolution where the *karbaris* and PDC in SEC will be members in grievance redress council.

173. *Simple and accessible.* Procedures to file complaints and seek redress are kept simple and easy to understand by the SEC and affected people. Complaints and queries may be sent through different accessible means such, as but not limited to, installation of grievance box in subproject areas, walk-in to district offices, para development committee (PDC) representatives, *karbari*, message or call to grievance hotline, or an email to the Project website.

174. *Confidentiality.* The identities of affected people and other stakeholders are kept confidential upon request. This encourages people to voluntarily participate in the GRM process, and file complaints and/or comments.

B. Functions of GRM

175. Response to grievance and comments is ensured within an acceptable timeline. The corresponding action is responsive and commensurate to complaint or issue. The GRM entails objective and independent practice to promote fair procedures and encourages people to use. Thus, GRM will enhance the proposed Project's contribution to participatory development. In all instances, conflict of interest or perceptions of it will be investigated and avoided.

176. The GRM will establish multiple channels by which grievances can be received by the PMO. The procedures will be easy for all the diverse groups of affected persons to understand and be made known to them and consider the many facets involved in making the mechanism accessible including affected people's (AP) access to transportation and roads and their literacy and education levels, as well as their access to such communications facilities as telephones, mail, and the internet. The project will ensure consultation is organized in a congenial environment without intimidation and should be culturally appropriate and acceptable to SEC and gender sensitive.

177. To ensure the GRM is in line with the ADB SPS, the GRM will be a time-bound, simple, transparent, gender- and culturally- responsive in addressing feedback, concerns and suggestions of, and facilitation of solutions for, all the relevant stakeholders of the project (i.e., local community, contractors, and other members in the value chain, including from SECs, women, and other vulnerable groups). The GRM will include service standards and an implementation modality by assigning a grievance redressal officer (GRO) at each IA to handle specific matters related to public grievances / complaints flagged to their respective offices.

178. Accessibility will be facilitated through provision of the following services: (i) grievance boxes in subproject areas, (ii) walk-in to district offices, (iii) speak to PDC representatives or karbari, (iv) message or call the grievance hotline, or (iv) email the Project website. The PMO is to establish a GRM hotline and project website for APs to contact. A phone number and web address will be defined during project readiness. Complaints received through the hotline and website will be documented and fed to the correct level of GRM for facilitation. Awareness of grievance redress procedures will be created through public awareness, outreach campaigns and clear signage with a grievance focal person's contact details and procedure on how to file a complaint, including in Bangla or major SEC dialects on project sites. Redress through the GRM does not impede access to the country's judicial or administrative remedies.

179. Gender- and cultural- responsiveness will be supported through: (i) use of local issue resolution methods, (ii) membership of the SECs or their representative at the first tier GRM at field/village level; (iii) availability of the GRM form in local/SEC dialects or languages to the extent these have a written form and on information signage.

180. For any grievance filed by a marginalized or vulnerable person, such as a SEC member or poor person, extra attention will be paid to ensuring the following: (i) complainant will be aided in recording their grievance (field staff to write up verbal complaint verbatim), (ii) complainant can be represented and supported by a local leader (such as an SEC leader), (iii) the outcome of the grievance will be delivered in writing and in person by the GRO responsible, to ensure

comprehension of the outcome and any follow up actions. All grievances shall be recorded in grievance register (including in Bengali or local language), and entire process shall be tracked and reported through quarterly and annual progress reports and semi-annual social and environmental safeguards monitoring reports. The GRM process shall include the following stages.

C. Levels of GRM

181. Before any grievances are brought to the GRM, efforts will be made to solve queries and complaints at village (*para*) level by involvement of the headman (or *karbari*) through traditional conflict resolution methods.

182. The GRM has three tiers. There are two types of tier one. Tier 1, type A refers to the ADRF, which will be located at subproject level and will address land disputes for output 5 (rural roads component). Tier 1, type B refers to the para development committee or PDC, which will serve as tier one for all other social and environmental safeguards concerns raised across project outputs 1-5 (i.e., Community Infrastructure, Watershed Management, Agriculture Production and Rural Roads). Tier two is represented by a Grievance Redress Committee (GRC) which is established at Hill District Council (HDC). At the apex of this structure is the Regional Advisory Council (RAC) at CHTRC level.

183. If the ADRF under Tier 1, type A or the *karbari* under Tier 1, type B is unable to resolve the issue at para level to the satisfaction of the affected person, the issues can be forwarded to the GRC level in tier 2. If dissatisfaction remains at GRC level, the affected person can elevate the issue to tier 3 to the RAC level. The PMU will ensure the redressal of complaints, including anonymous complaints, and issues of non-compliance, in accordance with national regulations and the ADB Accountability Mechanism Policy 2012. However, the affected person has every right to bring their issue to a court of law. The overall model of GRM for this project is summarized in Figure 19.

C.1.1. Tier 1: Community level Type A (Alternative Dispute Resolution Forum or ADRF)

184. ADRFs will be constituted for land dispute resolution. In Bangladesh, *Shalish* and *Mimangsha* are when the community takes the leading role in resolving disputes. These are usually undertaken through mediation, negotiation, and reconciliation. In the *Shalish* and *Mimangsha*, the community leaders delve deep into the root cause/s in the presence of both parties, hear viewpoints of disputants, and try to find a solution agreeable to the parties concerned.

185. Resolving disputes through community initiatives with the above tools are commonly known as alternative dispute resolution (ADR). As proposed, INGOs will be involved in the GRM process, and constitute ADRFs at subproject level for the Rural Road component. In Bangladesh, traditional *Shalish* agreements were enforced through village peer pressure. Agreements were announced and publicly proclaimed. Families would lose face if they do not comply with agreements. The reformed village mediation system, with support of INGOs, relies on traditional compliance mechanism and succeeds despite the lack of formal court enforcement. Not only does this conform with the traditions of the region, but use of a panel of mediators helps limit systematic

corruption or bias. Measures for ADR in Bangladesh have been provided in the Code of Civil Procedure 1908 which allows for the settlement of disputes outside the courts: the court may formulate the terms of a possible settlement and refer the same for arbitration, conciliation, mediation, or judicial settlement.

186. An Executive Order will be issued by MoCHTA for setting up ADRFs for the Rural Road component (i.e. Output 5) covering membership, authority and responsibilities, and rules of business of the ADRF. Its membership will reflect the composition of the affected peoples of subprojects by incorporating members of SEC proportionately. Membership will be drawn from traditional and informal local leaders from the main subproject paras, thus guaranteeing that customary methods of conflict resolution will be applied where feasible. Before land issues are submitted to the ADRF an effort will be made to resolve them with the para through the *karbari*.

187. ADRFs will be composed of 3-5 members with the mouza headman as its Chair, with a minimum of four members for each mediation. In cases where appropriate, the headmen may be replaced by the UP Chairman. The remaining members of the ADRFs will be drawn from the community elders, traditional leaders (e.g. the village *karbari*) or representatives of local government institutions (e.g. UP Ward Members). At least one of the ADRF members will be a woman. The INGO responsible for the resettlement plan will facilitate the identification of the ADRF members in consultation with the mouza Headman and DPMO. The NGO will further be responsible for facilitating the conduct of the ADRF's meetings and act as its Member Secretary. The grievance redressal and resolution at this stage is within seven days.

188. At any time, any affected person can submit a grievance/complaint in writing (and other means mentioned above) to the concerned UP Chairman, Headman or *Karbari* or the PDC, using the grievance redress form (GRF) with support from NGOs or Social Development Organizers. At the time of registering the complaint, a copy will be given to the affected person making the complaint for their record. The PMO will make sure that sufficient GRF is available in the site office and in the office of the concerned UP Chairman/Mouza Headman, Headmen or *karbari* and other local community leaders. Some cases may just require provision of required information or clarification and may thereafter not be required to be referred to Step 2. The GRF is in Annex 3.

189. The ADRF is composed of:

- Mouza Headman as Chairperson
- Union Parishad Chairman as Alternate Chairperson
- Karbari as Member
- One female local leader as Member
- Resettlement INGO as Member Secretary
- Contractor's site engineer or representative (will take part when there is grievance on construction)

C.1.2. Tier 1: Community level Type B (Para Development Committee or PDC)

190. The PDC will be the first tier of the GRM for all social and environmental concerns, excepting land dispute resolution, caused by project components: community infrastructure, watershed, skills training, agriculture production outputs and the rural roads. The complaints resolution should be within seven days and will follow the same steps in filing the complaint as

mentioned above. Any affected person can approach the *karbari* or any member of the PDC. The Social Development Organizers and NGOs will ensure to provide support throughout the grievance problem-solving process. The PDC will convene weekly to address all complaints lodged at the PDC level. If PDC is unable to resolve the issue at para level to the satisfaction of the affected person, the issues can be forwarded to the GRC level in tier 2 within seven days.

191. The PDC is composed of:

- Karbari as Chairperson
- Two representatives from PDC as Members
- One female local leader as Member
- Representative from contracted NGO as Member
- Social Development Organizer as Member Secretary
- Contractor's site engineer or representative (will take part when there is grievance on construction)

C.2. Tier 2: Grievance Redress Committee (GRC) – Hill District Council Level

192. For environmental or social safeguards related complaints that cannot be settled at the community level through the ADRF or PDC, the GRC at District level will provide a simple process for the affected person to raise their objection and get them resolved within seven days. The affected persons will be informed of their right to file complaints to the GRC.

193. The GRC will receive unresolved grievances of the affected persons through the ADRF and/or Resettlement INGO for the rural road output or through the concerned NGO or Social Development Organizer for community infrastructure, watershed, and agriculture production outputs. The ADRF and Resettlement INGO will assist the affected person in lodging their resettlement claims in a format acceptable to the GRC at Hill District Council. All complaints will be received at the office of the INGO, or by the GRC, with a copy to the Union Parishad representative. The INGO will operate through village consultation meetings and explain the process of grievance resolution, including the distribution of information booklet. The concerned INGO will explain the GRF in indigenous dialect and ensure that the affected person understands.

194. The GRC at Hill District Council level will settle the issues within seven days after receiving complaints. The Resettlement INGO, as member secretary of the GRC, upon receipt of complaints, will organize a GRC meeting. The GRC at Hill District Council level will pass a resolution which will be formally conveyed to the concerned affected persons through the Resettlement INGO. The key functions of a GRC will be as follows:

- Record, categorize and prioritize any grievances;
- Settle grievances in consultation with affected persons/representatives, project staff and other stakeholders;
- Inform the aggrieved parties about the resolutions; and
- Forward any unresolved complaints to the Regional Advisory Committee.

195. The authorities and responsibilities of the GRC and its rules of business will be part of the MoCHTA Executive Order.

196. The GRC is composed of:

- Chairman of Hill District Council as Chairperson
- Deputy Project Director of PMO as Member
- Deputy Project Director of LGED PMU as Member
- Representative from the District Commissioner's Office as Member
- Land Officer of Hill District Council as Member
- Representative, Headmen Association
- Representative, Union Parishad as Member
- NGO representing women in the Hill Districts
- Resettlement INGO or the contracted NGO will provide as Member Secretary

197. If not resolved at the GRC level within seven days, the matter will be referred immediately to the Regional Advisory Committee.

C.3. Tier 3: Regional Advisory Committee – Regional Council Level

198. Complaints that cannot be settled at the GRC level should be elevated to the Regional Advisory Council (RAC) at the Regional Council level for grievance redressal and resolution within 15 days. The RAC will meet whenever a case is brought to its attention and determine the merit of each grievance brought to their level. The authorities and responsibilities of the RAC and its rules of business will be part of the MoCHTA Executive Order. The RAC secretary will provide feedback to the affected person.

199. The RAC is composed of:

- Chairman or Representative of Chittagong Hill Tracts Regional Council as Chairperson
- Representative from the Ministry of Chittagong Hill Tracts Affairs as Member
- HDC Chairmen of the three Hill Districts or their nominated councilor as Member
- Deputy Commissioners of the three Hill Districts or their nominated representatives as Member
- Circle Chiefs of the three Hill Districts Circles as Member
- Project Director LGED PMU or nominated representative as Member
- Project Director PMO as Member Secretary

200. None of the three levels of the GRM possess any legal mandate or authority to resolve land issues, they rather act as an advisory body or facilitator to try to resolve issues between the affected household/person and the CRLIWM-CHT Project. Any complaints of ownership or other suits, to be resolved by judicial system, will not be resolved by project's GRM. The affected person always has other recourse through the Government legal channels. However, every effort will be made to avoid this by applying traditional conflict resolution procedures in negotiating resolutions to complaints. Should an affected person wish to pursue legal recourse at any point prior to approaching, during interaction with, or after interacting with the GRM, the PMO, DPMO and Implementation NGOs (INGOs) will ensure that support is given to the affected person to prepare a case. No fees will be charged to the affected person for such assistance.

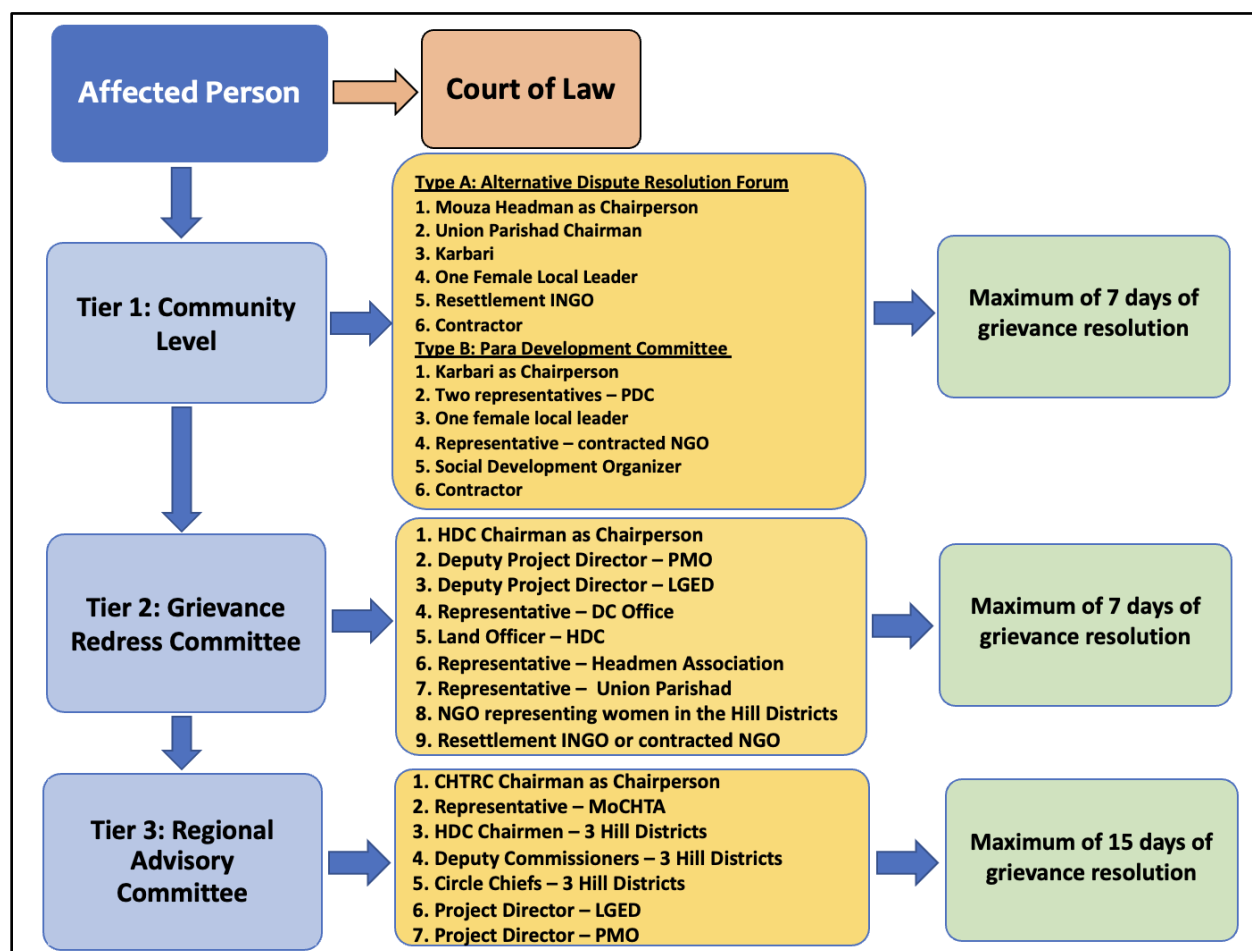


Figure 19. Framework of CRLIWM-CHT Project's GRM

C.4. Relevant GRM Activities

201. *Court of Law.* The GRM notwithstanding, an aggrieved person will have access to Bangladesh Legal System at any stage, Accessing the court of law is not dependent on the outcome of the GRM.

202. *ADB Accountability Mechanism.* If the established GRM is not able to resolve the issue, the affected person can use the ADB Accountability Mechanism through directly contacting (in writing) the Complaint Receiving Officer at ADB headquarters. Before submitting a complaint to the Accountability Mechanism, it is recommended that affected people make good faith effort to resolve their issues by working with the Bangladesh Resident Mission. Only after doing that, and if they are still dissatisfied, they could approach the Accountability Mechanism. The ADB Accountability Mechanism information will be included in the project-relevant information to be distributed to the affected communities.

203. *Consultation and Information Dissemination.* Consultation will include group meetings, and one-on-one discussion with affected persons, to be announced in advance and conducted at

the time and day agreed on with the affected persons or their representatives. Non-literate affected persons will be assisted to understand the grievance redress process. The GRM process will be explained to them in indigenous dialects by the Resettlement NGO, contracted INGOs, or the Social Development Organizers. The public, especially the SEC and affected persons, will be made aware of the GRM through consultation meetings, focus group discussions and inclusion of the GRM hotline and relevant details in the Project information booklet.

204. *Record Keeping.* A grievance database system will be established by CHTRC. Records of all grievances received, including contact details of affected person, date of complaint/grievance received, nature of grievance, agreed actions and measures, dates of meetings conducted and resolutions with linked documentation are recorded in the database. The number of grievances recorded and resolved, and the outcomes will be displayed/disclosed in the PMO office, and on the website of PMO (to be developed in project readiness), as well as reported in the semiannual environmental, IR and IP safeguards monitoring reports to be submitted to ADB. The PMO, with support from the GROs composed of the Environmental Management/Climate Adaptation Expert, Land Acquisition Expert, and SEC Expert, will be responsible for maintaining the grievance database system.

205. *Costs.* All costs involved in resolving the complaints (meetings, consultations, communication, and reporting/information dissemination) will be borne by the PMO. Cost estimates for grievance redress are included in resettlement cost estimates.

CHAPTER 10. ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

A. Environmental Management Plan (EMP) and Environmental Monitoring Plan (EMoP)

206. The implementation of EMP is necessary to mitigate the potential impacts of the road subproject. While the EMoP is required to check and document whether the mitigation measures of the EMP are being implemented properly and effectively during different stages of the subproject. Environmental Monitoring Report (EMR) will document and disclose information on the EMP and other safeguard activities of the subproject on a periodic interval.

207. In the following matrix (Table 10) the potential environmental impacts regarding the implementation activities are being identified including relevant mitigation measures to prepare a suitable construction EMP. Table 11 provides an overview of the budget required for implementation of the EMP.

Table 10. EMP for the Dulahazara-Hargaza Road ¹⁷

Activity	Potential Negative Impact	Specific Environmental Impact	Mitigation Measures	Responsibility for mitigation measures	
				Implementati on	Support agency
Pre-operation Phase					
Human environment					
Acquisition of land for maintaining road width	Loss or degradation of farmland and productivity	Reduced production, hardship, food shortage	Minimize productive land acquisition through alignment selection Compensation for affected people	CHTRC	LGED
	Loss of private properties	Displacement of people, hardship	Lands acquisition will be done after providing full compensation to the landowners	CHTRC	LGED
Land temporarily required for site offices, material storage, equipment parking, labour accommodation & occupational safety measures for workers	Loss or degradation of farmland and productivity	Reduced production, hardship, food shortage	A suitable location will be selected for site office which will have a negligible impact on environment. Proper care will be taken for not disturbing natural living beings and avoiding of uprooting trees. Healthy accommodation for the labourers Sufficient drinking water supply, and sanitary arrangement will be provided in the sites.	Contractor	LGED

¹⁷ Dulahazara-Hargaza Road is a subproject for the BAN:CRLIWM-CHT Project, where its EMP preparation approach and mitigation measures can be used as template for the upcoming subprojects under the sector loan. Supplemental mitigation measures may be added depending on the findings of environmental assessment and due diligence of subsequent subprojects.

Activity	Potential Negative Impact	Specific Environmental Impact	Mitigation Measures	Responsibility for mitigation measures	
				Implementati on	Support agency
			<p>Necessary precautionary measure will be taken which may include the building of temporary barricades to isolate the boundaries of the education/hospital/ religious institutes from the construction site, restriction on movement of heavy machinery and avoiding disposal or tipping of earth near those institutes.</p> <p>Signages that will reflect (i) key information of the scope of works, and (ii) GRM access and process.</p>		
Construction Phase					
Physical environment					
Construction of road: Site clearance	Change in land use	Loss of agricultural land and production, and property	<p>Avoid fertile land, forest and settlement areas by consulting local people in villages and LGED</p> <p>Provide signages at construction fronts that will reflect (i) key information of the scope of works, and (ii) GRM access and process</p>	Contractors	LGED
Construction of road: Earth excavation	Spoil disposal and imposed weight of spoil on fragile slope	Gully erosion, landslide, disruption of road, damage to farmland, water pollution	<p>Disposal of spoil and construction wastes through authorized company</p> <p>Excavated soil may be reused by willing local people</p> <p>No dumping of spoils along roads, waterways and private properties</p> <p>Reuse of bricks materials from roads is priority</p> <p>Provision of proper drainage, toe wall, proposed spoil disposal sites at starting and 36m bridge sites.</p> <p>Hill slope protection work such as: Jute geo-mat with brick toe wall</p> <p>Earth retaining structures such as: Brick toe wall or guide wall</p> <p>Slope drainage measures such as: Road side L-drain, U-drain, Column supported drain and hill slope drain</p>	Contractors	LGED

Activity	Potential Negative Impact	Specific Environmental Impact	Mitigation Measures	Responsibility for mitigation measures	
				Implementati on	Support agency
Construction of road: Drainage	Drainage maintenance and generation of surface runoff	Erosion, landslide, damage to farmland	Proper construction of drainage structures as per design Disposal of spoil and construction wastes through authorized company Avoid blockage or diversion of natural channels due to construction of road	Contractors	LGED
Construction works: Operation of constructions vehicles, materials hauling and unloading, spoil and waste disposal	Air pollution due to dust from exposed surface and construction equipment and vehicles	Effect on local people and workers health	Use of face mask while working on dust prone areas for workers Covering of dust sources such stockpiles Water sprinkling of ground Inform communities on construction schedules that may cause dust generations Secure valid vehicle emission clearance from authorities	Contractors	LGED
	Noise pollution	Disturbance and annoyance around institutions	Restrict horns near school, health posts and sensitive areas Inform communities on construction schedules	Contractors	LGED
	Water pollution due to sediment level, spills and leakage of oils and chemicals to water bodies	Risk of water-borne diseases	Proper spoil management and prevention of leakage and spills of construction chemicals, Restriction in urination and defecation in open areas and provide comfort/bathrooms The washing of vehicles and construction equipment will be carried out at designated washing areas in order to avoid soil and water pollution. Locate facilities at a sufficient distance from human receptors to eliminate the impact.	Contractors	LGED
Cutting of slopes	Effect on instability of slopes	Scars of landslide, damage to farmland, disturbance to natural drainage	Proper selection and management of quarry site Rehabilitation of quarry site after completion of work Procure materials from government authorized quarry only	Contractors	LGED

Activity	Potential Negative Impact	Specific Environmental Impact	Mitigation Measures	Responsibility for mitigation measures	
				Implementati on	Support agency
Associated activities for the construction of road: Camp site operations	Change in local landscape	Encroachment of agricultural land, alteration of drainage, disposal of solid waste and wastewater	Proper selection of camp site away from forest and sensitive areas such as households, institutional facilities and religious sites Proper sanitation facilities by providing pit latrine with soak pit Proper management of spoil and waste through authorized company	Contractors	LGED
Associated activities for the construction of road: Storage of petrol, diesel and grease for vehicle	Water Pollution	Water source and soil pollution, affect health of workers	Store fuels and chemicals on paved surface with surrounding catch drain to protect soil from leakage Use of safety gears to workers during handling fuels and chemicals	Contractors	LGED
Biological environment					
Clearance of vegetation necessary for road formation	Loss of vegetation	Loss of environmental benefits from vegetation and disturbance in ecological function	Minimize cutting of trees, vegetation and taking bio-engineering measures. Compensatory tree plantation will be done by Bangladesh Forest Department at the ratio of 1:10 Planting trees under the watershed management component of CRLIWM-CHT Project	Bangladesh Forest Department DC	LGED
Construction Activity	Impact on wildlife due to loss of habitats	Loss of biodiversity and valuable species of wildlife	Work only in daytime and approved sites only No poaching and hunting Do not disturb and/or harm wildlife that may come across during construction Provide awareness among workers in regards with wildlife conservation Invite government agencies relevant with wildlife conservation to awareness events In case of wildlife occurrence at work sites, record sightings and inform EHS Officer or site engineer on how to handle situation	Contractors	LGED

Activity	Potential Negative Impact	Specific Environmental Impact	Mitigation Measures	Responsibility for mitigation measures	
				Implementati on	Support agency
			Avoid dumping of construction materials and/or wastes along waterways		
Human environment					
Occupational health and safety aspect	Health and Safety issue	Injury, fatal accidents, outbreak of epidemics and diseases, decline in capacity to work	Occupational health and safety regulations Provide first aid facility at site with health treatment arrangement Proper drinking water and toilet facility for construction crew at campsite Provide health and safety awareness and PPE for workers Conduct awareness on communicable diseases such as HIV/STDs and COVID-19 Prepare occupational health and safety management plan for managing risks from (i) workers' injuries and (ii) COVID-19	Contractors	LGED
Operation Phase					
Physical environment					
Closure of equipment yards and camps	Health and safety issues	Disturbance to locals	Remove all temporary structures and clean up construction camp debris, backfill latrines and vegetate the area with tree planting.	Contractor	LGED
Road slope instability and management	Landslides	Disturbance to traffic flow and road users	Slope at hill cutting portions will be protected by proper slope protections measures Regular maintenance of slope protections measures	LGED	LGED
Operation of vehicles to repair inadequate drainage	Noise pollution	Disturbance to locals	Speed limit for vehicle No horn signages Use vegetation barriers Maintenance road drainage	LGED	LGED
Biological environment					
Operation of road	Disturbance to wildlife	Collision of wildlife with vehicles, disturbance in their normal activities, loss of biodiversity	Warning traffic signs and signals Road signs and precautions are provided to guide drivers for sensible driving, especially at night-drive. Necessary road safety measures.	LGED	LGED
Human environment					

Activity	Potential Negative Impact	Specific Environmental Impact	Mitigation Measures	Responsibility for mitigation measures	
				Implementation	Support agency
Operation of road	Issue of road safety	Increase in accidents	Maintenance of appropriate road safety measures, safety signs along the road	LGED	LGED

Table 11. EMP budget¹⁸

Environmental Impact/Issue	Mitigation Measures	Responsibility		Budget (BDT)
		Implementation	Supervision	
Pre-operations Phase				
Land temporarily required for site offices, material storage, equipment parking, labour accommodation & occupational safety measures for workers	A suitable location will be selected for site office which will have a negligible impact on environment.	Contractor	LGED	2,50,000/- (Included in the estimated cost)
	Proper care will be taken for not disturbing natural living beings and avoiding of uprooting trees.			
	Healthy accommodation for the labourers	Contractor	LGED	75,000/- (Included in the estimated cost)
	Sufficient drinking water supply, and sanitary arrangement will be provided in the sites.			
	Necessary precautionary measure will be taken which may include the building of temporary barricades to isolate the boundaries of the education/hospital/ religious institutes from the construction site, restriction on movement of heavy machinery and avoiding disposal or tipping of earth near those institutes.	Contractor	LGED	1,50,000/- (Included in the estimated cost)
	Signages that will reflect (i) key information of the scope of works, and (ii) GRM access and process.			
Operations Phase				
Slope protection, earth retaining for avoiding land slide and drainage	Hill slope protection work such as: Jute geo-mat with brick toe wall	Contractor	LGED	22,00,000/- (Included in the estimated cost)
	Earth retaining structures such as: Brick toe wall or guide wall	Contractor	LGED	24,00,000/- (Included in the estimated cost)
	Slope drainage measures such as: Roadside L-drain, U-drain, Column supported drain and hill slope drain	Contractor	LGED	1,37,00,000/- (Included in the estimated cost)
Disturbance to wildlife / biodiversity	Road signs and precautions are provided to guide drivers for sensible driving, especially at night-drive. Necessary road safety measures.	Contractor	LGED	1,66,000/- (Included in the estimated cost)

¹⁸ The EMP budget will be updated as per procurement plan.

Air pollution by creating dust	Spraying of water in dust prone areas and proper covering of vehicles carrying construction materials.	Contractor	LGED	30,000/- (Included in the estimated cost)
Noise and Other Nuisances	All activities during construction will be conducted in a manner which minimizes nuisance to the general public and to the occupiers of premises. Proper measure will be taken to minimize noise pollution due to construction.	Contractor	LGED	30,000/- (Included in the estimated cost)
Soil and Water Pollution	The washing of vehicles and construction equipment will be carried out at designated washing areas in order to avoid soil and water pollution.	Contractor	LGED	20,000/- (Included in the estimated cost)
Cement mixing and brick crushing	Locate facilities at a sufficient distance from human receptors to eliminate the impact.	Contractor	LGED	20,000/- (Included in the estimated cost)
Disposal of Waste/ Construction debris	1. Necessary care will be taken to avoid any kind of waste/ construction debris disposal in water bodies. 2. All necessary measures will be taken while working close to cross drainage channels to prevent congestion by earth, stone etc.	Contractor	LGED	20,000/- (Included in the estimated cost)
Post-operations Phase				
Closure of equipment yards and camps	Remove all temporary structures and clean up construction camp debris, backfill latrines and vegetate the area with tree planting.	Contractor	LGED	50,000/- (Included in the estimated cost)

Table 12. EmoP for the Dulahazara-Hargaza Road ¹⁹

Impact	Monitoring Parameter	Method of Monitoring	Indicator	Location	Frequency of Monitoring	Responsibility
Water Pollution	pH, BOD, COD, TSS	Laboratory analysis as per Standard Methods	Test results should comply with national standards	Nearby water channels	Two times in subproject duration (50% and 90% of progress of works)	Contractor, LGED
Air Pollution	SPM, SO _x , NO _x		Test results should comply with national standards and/or WHO levels	Project site		Contractor, LGED
Noise Pollution	Noise Level			Project site		Contractor, LGED
Soil Pollution	Oil & Grease, Organic Matter		Test results should comply with national standards	Campsite		Contractor, LGED

¹⁹ Dulahazara-Hargaza Road is a subproject for the BAN:CRLIWM-CHT Project, where its EMoP can be used as template for the upcoming subproject under project readiness and implementation. Supplemental monitoring parameters may be added depending on the findings of environmental assessment and due diligence of subsequent subprojects.

B. Environment Safeguard Responsibilities of Project Proponents

208. The PMO is responsible for the full compliance of the project on ADB loan agreement and SPS, and all applicable laws and rules of the government. The PMO will be headed by a Project Director from CHTRC. The PMO will:

- Comply with the government Environment Conservation Act (1995) and Environment Conservation Rules (1997), and other environment-related statutory requirements of the project.
- With the support of the PISC, DPMOs and LGED, review and approve subproject IEEs and EMP(s), and environmental safeguard related clauses and sections to be included in tender documents and civil works contracts of contractor(s).
- Be responsible for application and forwarding of key documents to government agencies for processing of permits including, but not limited to Environmental Clearance Certificate (ECC) for the rural roads, any tree cutting activities in subproject sites, and other relevant permits and license prior to awarding any works contracts for civil works.
- Ensure preparation, review, and submission of semi-annual EMRs for disclosure on ADB's website.
- Disclose IEEs, EMRs and other environment safeguards documents on MOCHTA and LGED websites.
- Ensure compliance of the project on the EARF. Take the lead on updating the EARF when needed.
- Conduct training and workshops on environment, health and safety of all staff and workers involved in the project implementation. The staff and workers will include all engineers, and staff and laborers of contractors.
- Implement effective environmental monitoring during pre-construction, construction, and operation phases. This includes, but is not limited to, inspections, review of monitoring forms prepared by the contractors, and documentation of the issues received through GRM.
- Take proactive and timely measures to address any environment safeguards related challenges at the national or division/district levels such as (a) delays in processing of clearances during pre-construction stage and (b) significant grievances during construction and operation stages).
- Review and approve corrective action plans (CAPs) for environment safeguard non-compliance.
- Inform ADB on any unanticipated environmental impact/s occurred during project implementation phase.
- Participate and/or lead public consultations and GRM processes.
- Ensure GRM is in place and fully operational from the onset of project implementation.

209. LGED will establish a PMU headed by a Project Director (PD-LGED) to implement output 5. The PMU will:

- ensure compliance with all environment-related statutory requirements of LGED and contractor;
- review and finalize road specific EMPs based on the IEE cleared by ADB;
- through district offices, monitor the implementation of road specific EMPs and report findings to PMO in CHTRC;
- endorsement of key documents and submission to the respective agency(ies) for processing of necessary clearances and permits;
- for the rural roads components, ensure all contractors obtain permits, licenses, etc. before the implementation of the respective construction activities;
- with the support by PISC, prepare IEEs and EMPs for the rural roads selected under the project;
- with the PMO in CHTRC, conduct training and workshops on environment, health and safety of all staff and workers involved in the project implementation;
- with the PMO in CHTRC, take proactive and timely measures to address any environment safeguards related challenges at the national or division/district levels such as delays in processing of clearances during pre-construction stage and significant grievances (during construction stage);
- carry out periodic field verification and review environmental compliances of the contractor during project implementation, in coordination with the DPMO and the contractor's environment focal person;
- support PMO in CHTRC to prepare semi-annual environmental monitoring reports for disclosure on ADB's website;
- participate and/or lead public consultations and grievance redress mechanism processes; and
- in case of potential risks and hazards to health, environmental quality, and properties that may result from poor EMP implementation, immediately instruct the contractor to cease the construction activities that pose risk and conduct immediate containment and mitigation activities.

210. The PIUs under LGED will support the PMU and CHTRC (PMO and DPMO). PIUs will be headed by Executive Engineers to manage rural road subproject. PIUs will:

- support the PMU in LGED and PMO in the preparation of IEEs and EMPs of rural road subprojects through, but not limited to, reconnaissance survey, collecting data from the proposed subproject sites, government requirements and public consultations;
- ensure that the project, and all contractors obtain permits, licenses, etc. for activities such as the operation of asphalt plants, quarries, borrow areas etc. before the implementation of the respective construction activity;
- carry out regular field verification and review environmental compliances by the Contractor during project implementation, in coordination with the PISC and the Contractor's environmental focal person;

- with the support from the PISC, provide and record environmental observations during any site-visits that may include, but not limited to, excessive dust, loud noises, improper disposal of wastes, chemical/oil spills, camp hygiene, health and safety, and improper borrow area management; and
- in case of potential risks and hazards to environmental quality, life, and properties that may result from poor environmental management plan implementation, immediately instruct the Contractor to cease and desist the construction activities that pose risk and conduct immediate containment and mitigation activities.

211. Comprising with international and national experts, the PISC will support the capacity and operational effectiveness of the PMO, DPMOs and LGED (PMU and PIUs) including for environment safeguard matters. The Environment and Climate Specialist and Junior Environmental Engineers²⁰ under the PISC will support the project on supervision, compliance and monitoring of environmental safeguards. Particularly, the PISC will:

- ensure subprojects will conform to national policies and ADB's requirements for environmental safeguards;
- ensure subprojects are following social, technical, environmental and economic criteria;
- provide support to PMO for the collection of environmental information to be used in the feasibility assessment of proposed subprojects;
- provide technical expertise to PMO to implement environmental safeguard requirements;
- assist on the preparation of IEEs and EMPs of subprojects;
- support the PMO, DPMOs and LGED (PMU and PIUs) to implement EMPs, the recommendations of the IEEs and guidance in the EARF;
- assist the project to comply with the procedures and requirements indicated in the EARF;
- support the project on monitoring of environmental safeguards at subproject sites;
- provide technical expertise to PMO, DPMOs and LGED (PMU and PIUs) in the preparation of environmental safeguard requirements;
- support PMO to conduct environmental site inductions to contractors, LGED (PMU and PIUs) and DPMOs to ensure understanding of EMPs, government's environmental laws and requirements, and ADB SPS requirements;
- assist the PMO to prepare the environmental monitoring reports for timely submission to ADB; and
- provide support on any environmental management and safeguards matters of the project.

212. The contractor(s)²¹ is the principal agent to implement EMP and environmental quality monitoring for structural works. Specifically, the contractor/s will:

²⁰ There will be a Junior Environmental Engineer for each CHT district, who will be led by the Environment and Climate Specialist.

²¹ Includes any subcontractor(s) of the contractor.

- appoint the contractor's environment, health and safety focal person and attend the trainings organized by the PMO and DMOs;
- obtain necessary environmental license(s), permits etc. from relevant agencies as specified in the IEE(s) prior to commencement of works;
- prepare and implement environmental, health and safety measures;
- implement and document all mitigation measures in the EMP and environmental quality monitoring plan;
- ensure that workers and site supervisors participate in all environmental safeguard related training events;
- ensure compliance with environmental statutory requirements and contractual obligations;
- participate in resolving issues relevant to safeguards;
- respond promptly to grievances from local community or any stakeholder and implement environmental corrective actions or additional environmental mitigation measures as necessary;
- provide information to DPMOs and LGED (PMU and PIUs) on the status of EMP implementation, environmental quality monitoring and other safeguarding matters; and
- based on the results of EMP monitoring, cooperate with the DPMOs and LGED (PMU and PIUs) to implement corrective action plans, as necessary.

213. ADB is responsible for the following:

- review IEEs including EMPs and disclose the final reports on ADB's website;
- review EMRs, and disclose the final reports on ADB's website;
- explain policy requirements and safeguard covenants in the loan and project agreements to PMU, SMOs and PMU;
- monitor implementation of the EMP through due diligence missions;
- assist PMU, if required, in carrying out its responsibilities and in building capacity for safeguard compliance;
- monitor overall compliance of the subprojects to this PAM; and
- if necessary, provide further guidance on the format, content, and scope of the periodic monitoring reports for submission to ADB.

CHAPTER 11. CONCLUSION AND RECOMMENDATIONS

214. CRLIWM CHT Project is categorized as “B” in line with ADB SPS 2009. The project is a sector loan, where IEE is required particularly for the Dulahazara-Hargaza Road Subproject under Output 5. The conclusions and recommendations are the following:

- The IEE for has been prepared in accordance with ADB SPS 2009. This IEE serves as compliance to environmental due diligence requirement of Output 5. Further, this IEE serve as environmental assessment of the rural road subproject for project readiness.
- At Lama Upazila, Bandarban District, the Dulahazara-Hargaza Road subproject covers a 11.620 km road section. This is classified as a Village Road by Local Government Engineering Department (LGED), consisting of herringbone brick (HBB) road that will be improved and upgraded by the Project. 10,035 people of 1725 families of 22 paras will directly or indirectly benefit from the road improvement. Farmers will get better market access for their products, which will lead to better prices and higher margins. The improvement of the road will reduce carrying cost and travel time of farmers to reach their markets. Improvement of market access may also cause farmers to enhance their cultivation practices, including some mechanization and productivity increase. Improvement of the rural road is expected to create additional employment in the areas. Quality of life will improve through better access to health, education and other services for all inhabitants of the 22 paras.
- As part of the upgrading, the existing road pavement width including 75mm brick edging will be widened from 3 meter to 3.70 meter including 125mm brick edging to meet LGED's current design standards. The crest width of the road including shoulders will be widened from 3.70m to 6.70m. The considered design period is 10 years.
- The subproject concerns a 11.620 km road section in Lama Upazila, Bandarban District, which is classified as Village Road by LGED with identification number 403514011. The road was found to be in a bad condition and will therefore be improved and upgraded.
- The proposed interventions under the subproject are not within any environmentally sensitive area. There will be minor to moderate negative impacts however the extent of these impacts is expected to be site-specific and localized. With the EMP in place, the potential impacts will either be eliminated or minimized to insignificant levels.
- The EMP is based on conditions of the area and detailed design of the road.
- Throughout the implementation, relevant environmental safeguard requirements of ADB SPS 2009 and by the Government of Bangladesh must be complied with through the PMO and DPMO of Rangamati.

- Semi-annual EMRs will be prepared and submitted during construction and operation stages until project completion report is issued by ADB.
- In the event of any unanticipated environmental impact(s) during implementation, PMO, with PISC's, support will update the IEE and EMP, or alternatively prepare an environmental due diligence report including EMP for ADB review and disclosure on the ADB website.

CHAPTER 12. ANNEXES

Annex 1. Outputs under the CRLIW-CHT Project and corresponding indicators based on the Fact-Finding Mission on July 2022.

Outputs	Performance Indicators with by 2029
1. Community infrastructure developed	<p>1a. 1000 paras supported with small scale climate resilient community infrastructure facilities in which, on average, small ethnic community households represent at least 65% of total households.</p> <p>1b. 2,950 completed small scale climate resilient community infrastructure facilities managed by Para Development Committees (of which 30% are Para Nari Development Group).</p>
2. Watershed management strengthened	<p>2a. 9 sub-watersheds with an average surface of 1450 Ha restored and managed by Village Common Forest Committees (of which 30% of members are women)</p> <p>2b. 540 small scale climate resilient water resource management infrastructure facilities constructed and managed by Para Development Committees (of which 30% are Para Nari Development Group)</p>
3. Agriculture production, processing, and marketing improved	<p>3a. At least 21,000 new farmers in the project assisted areas (65% representing small ethnic communities and 30% women) adopt climate-smart and good agriculture practices.</p> <p>3b. At least 1,200 farmers (65% representing small ethnic communities and 30% women) in the project supported areas undertake primary processing of an agricultural product.</p> <p>3c. At least 4,200 farmers (65% representing small ethnic communities and 30% women) are linked with new buyers of an agricultural product.</p>
4. Rural non-farm skills improved	<p>4a. At least 8,000 people (of which at least 65% are from small ethnic communities and 30% are women) receive training and at least 75% them are certified in a non-farm vocational practice.</p>
5. Rural roads rehabilitated	<p>5a. 130 km of roads in the CHT area are climate proofed, upgraded and maintained, using labor-based contracts (where at least 65% of the contracted laborers are from small ethnic communities and at least 20% are women)</p>

Annex 2. Minutes and list of participants of 14 September 2022 consultation meeting for the Dulahazara-Hargaza Road Subproject

Topics Discussed	Comments
<ul style="list-style-type: none"> i. Sources of water (Drinking, Irrigation & Households uses) ii. Sanitation iii. Forest (Flora & fauna) iv. Economic Activities (Sources of income, Livelihoods) v. Major Crops (marketing linkages) & Poultry vi. Benefit from road vii. NGO activities viii. Participation of construction work on Road as daily labour. 	<p>A community's consultation meeting was held at Hargaza High School, Fasiakhali, Lama, Bandarban where Mr.Kutub Uddin Mia Member, Fasiakhali Union Parishad, Lama Bandarban was present as a Chairperson. Headman, Karbari, teacher, opinion leaders and beneficiaries of different paras were participated in this consultation meeting.</p> <p>At first, with permission from Chairperson, Mr. Rupan Kumar Chakma welcomed the participants and briefed them on forth coming project activities. He informed to participants that it is a GoB project funded by the ADB. MOCHTA is the executing agency and CHTRC is the implementing agency. So, this road is approved by the Chairman Regional Council, Rangamati. He briefed on the selection procedure of road under the forth coming project and rural road component of the forth coming project. Mr. Rupan informed them on land acquisition by providing compensation. Thus, they have to need proper documents on land ownership by name.</p> <p>Then, Mr. Paban Kumar Chakma welcomed to the participants and requested them to participate on discussion session to express their opinion on mentioned issues. Participants are from different paras. Marma & Bengali are the two communities in this area.</p> <p>Discussion:</p> <ol style="list-style-type: none"> 1. Sources of water for drinking: In discussion Mr. Sayed Hossen from Hargaza told that majority of population in this are using drinking water tube well. So communities are drinking safe water. He added that water level is around 30-40 meter in depth. In this context, Mr. Aong Koy Karbari of Nutan para added that sources of water from canals, hill streams and charas say Haraza chara, Rahinggya Chara jhiri, Kurup Pata Jhiri, Zum chara etc. These jhirsi, canals, streams are alive year round, so that they can use water for irrigation in dry season for crop production. 2. Sanitation: Regarding status of sanitation Mr. Sujit Paul, teacher of Hargaza High School informed that sanitation of these paras are almost environment friendly and healthy. Only 10% communities are using pit toilets. 3. Forest (Flora & Fauna): Mr. Kaysing Marma Karbari of Mong Prue Para informed in previous time there was deep forest in Hargaza, Notun para, Mong Prue para. There is a road way of Elephant movement. Usually 2-3 times elephants move around here. Nowadays, due to population pressure, deforestation, planation of monoculture rubber, Eucalyptus and horticultural crops forests are destroyed. As a result, wild hen, wild boar snake, lizards are seen in the plantation areas. Mr. Abu Siddik from SareGara stated that small fishes like Puti, Taki, Gulsa, crabs and small shrimp are found in canala and charas. 4. Economic Activities: In discussion with participants it is said that agriculture is the main economic activity in this area. Then, daily labour, farming of fruits orchards, services, rearing livestock, vegetables cultivation, driving, small business etc. 5. Major crops with marketing linkage: In discussion Mr. Alam from Hargaza prara told that major crops are rice, potato, Chili, Banana, Papaya, Mango. Regarding marketing linkage growers have to carry their produces to the Dulahaza for selling. Traders are not interested to buy from farm gate because of worse road condition. Mr. Mong Ching from Mong Prue oara added that they have a pay high for transportation cost. 6. Benefit from road: If road would be constructed Mr.Nurul Islam from Haegaza Para enlightened that communities from paras would be benefited directly say available vehicle support for communication, cost reduced, get easy medical facilities, get support of different GO-NGOs, easy communication for student etc. Moreover, Mr. Mong Sin

Topics Discussed	Comments
	<p>Thowai from Mong Prue Para added that transportation cost would be reduced, marketing facilities increased, save transportation cost and time. Small business holders are benefited through companies' representative may supply their products at door of business centre.</p> <p>7. Regarding NGO activities participants and Mr. Kutub Uddin informed that BNKS and BIN is implementing a project on Food Security & Livelihood Improvement.</p> <p>8. In discussion, Mr. Hadayet Ullah a labour from Fakira Para positively noted this and agreed they will work as a daily labour. Not only Hadayet, participants also committed to work as day labour. Mr. Kutub Uddin member union parishad ensured us he will assist women to work as daily labour during road construction.</p> <p>After a long consultation with participants the following decisions were made: Decisions</p> <ul style="list-style-type: none"> i. Land tenure and ownership would be up to date. ii. Assist contractor during road work iii. Work as daily labour (male & female) during road construction. <p>Then, Mr. Paban Kumar Chakma paid greeting to the participants for their valuable comments and coordination by attending the meeting. He requested to the Chairperson for concluding speech and his comments. In conclusion Mr. Kutub Uddin Mia Member, Fasiakhali Union Parishad, Lama Bandarban thanked to the participants and guests from consulting team. He ensured us that he will assist communities to work as daily labour. He requested for to start road work at food crisis period. He expressed that communities would be benefited from the road through saving transportation cost, easy communication with market linkage. Again, he thanked to all and concluded the meeting.</p>

Project Name: TA Preparing the Climate Resilient Livelihood Improvement and Watershed Management in the Chittagong Hill Tracts

Attendance Sheet of Consultation Meeting
Name of subproject: Dulahazara - Hargaja Road
District: Bandarban
Upazila: Lama
Date:

Sl No	Name	Fathers name/ Husband name	Village	Gender	Occupation	Signature
1	Jainul Abidin	Lt. Jakar Akmal	Hargaza	M	Teacher	[Signature]
2	Kutoboddin NIA	OLA MIA	KURUPBATA JIRI	M	U.P. Member	[Signature]
3	Kassim Monn	Late Ushantun	Mongpura Pura	M	Kashuri	[Signature]
4	Alom	Late. Shad Akbar	Hargaza	M	Farmer	[Signature]
5	Ushimong Monn	Late Na Choson	Mongpura Pura	M	Farmer	[Signature]
6	Mongpura Thoi	Usha Sing	"	M	"	[Signature]
7	Mongchir	Late Aongchir	"	M	"	[Signature]
8	Aongcha Pura	Late Ushantun	"	M	"	[Signature]
9	Mongsin Thoi	Late Aong Thoi	"	M	"	[Signature]
10	SAYED HOSSEN	NUR AHAMED	HARGAZA	M	Laber	[Signature]
11	MOSTAK AHAMED	AZIZUR RAHMAN	LAHARMA	M	Laber	[Signature]
12	HADAYAT ULLAH	L. AZISUR RAHMAN	FAKIRA NUA	M	Farmer	[Signature]
13	MD. ZAYNAL ABIDIN	Late: MOZAFFAR AHMED	Hargaza	M	Teacher	[Signature]
14	Sha ALAM	L. AJAR MIA	"	M	FARMER	[Signature]
15	MURUL ISLAM	L. ASON ALI	"	M	"	[Signature]
16	Shab udin	L. NORUSSABA	"	M	"	[Signature]
17	ABU SIDDIK	L. ABUR RAHMAN	SARER GARA	"	"	[Signature]
18	ABUL HOSSEN	L. OLA MIA	LAHARMA	"	Bur.	[Signature]
19	Surajit Paul	Keshab Chandra Paul	Hargaza	M	teacher	[Signature]
20	Araf Kay Monn	Late Ales Mongpura	Nuton Pura	M	Kashuri	[Signature]
21	Araf Kay Monn	Late Alin Thoi Aong	Hargaza	"	Farmer	[Signature]
22	Chasur Monn	Late Hha Thoi	"	M	Farmer	[Signature]
23	Ampere	Late Mony New	Mongpura Pura	M	Farmer	[Signature]
24	Sin Mong U	Late Chai Sady	Hargaza	M	"	[Signature]

TA Preparing the Climate Resilient Livelihood Improvement and Watershed Management in the Chittagong Hill Tracts

Attendance Sheet of Consultation Meeting
Name of subproject: Dulahazara - Hargaja Road
District: Bandarban
Upazila: Lama
Date:

Name	Fathers name/ Husband name	Village	Gender	Occupation	Signature
Okay Ching Monn	Late: Usha Monn	Tongji Pura	M	Kashuri	[Signature]
Mongpura	M.D. ALI	Hargaza	"	Far.	[Signature]

Annex 3.1. Prescribed form to submit grievance/complaint to concerned UP Chairman, Headman or *Karbari* or the PDC.

GRIEVANCE RECORDING FORM

Ministry of Chittagong Hill Tracts Affairs

Climate Resilient Livelihood Improvement and Watershed Management in Chattogram Hill Tracts Sector Project

SL	GRIEVANCE RECORDING FORM			
1.	Date of Grievance Reporting			
2.	Full Name of AP / Complainant			
3.	Gender of AP/ Complainant		Male Female	
4.	ID of AP (voters ID/passport number/driving license/any other ID)			
5.	Address of AP/ Complainant			
6.	Contact Information	Phone:	Email:	
7.	Mode of communicating grievance (<i>circle the number below</i>)			
8.	Oral	Oral (but not AP)	Written	Written (by other)
	1	2	3	4
9.	Mode of Contact (<i>circle the number below</i>)			
	Phone	Email	UP Chairman/ Mouza Headman/ UP Member/ Karbari/ Local Community Leader	Others (specify)
	1	2	3	4

10.	Type of Grievance (<i>circle as many reported</i>)		
Unaware of project component boundary	1	Safety of women	7
Parcel missed in measurement	2	Damage to crops due to construction	8
Parcel measurement error	3	Inappropriate restoration scheme livelihood	9
Disagreement over rates used for valuation	4	Loss of access	10
Mistakes in compensation agreement/ID reference	5	Others (Specify)	11
Delay in compensation payment	6		

11.	Description of Grievance:		
12.	Frequency of Grievance (<i>circle the number</i>):		
	• One time incident	1	
	• Happened more than once	2	
	• On-going	3	
13.	Expected resolution to stated grievance:		
14.	Signature/Thumb impression of AP/Complainant	Date:	
15.	Name and Signature of the Official recording grievance	Date:	
16.	Has AP been handed a copy of the grievance form	Yes	No
Status of Resolution			
17.	By GRC	Date:	
Resolution details:			
Has AP/ Complainant been notified?		Yes	No

Is Grievance resolved/closed?		Yes	Not resolved. Referred to Provincial Administrator
If case is closed, then Signature of AP/ Complainant to show agreement		Date:	
Name and signature of the Official		Date:	
18	By Hill District Council	Date:	
Resolution details:			
Has AP/ Complainant been notified?		Yes	No
Is Grievance resolved/closed		Yes	Not resolved. Referred to IPMU/WAF
If case is closed, then Signature of AP/ Complainant to show agreement		Date:	
Name and signature of the Official		Date:	
19.	BY Regional Council	Date:	
Resolution details:			
Has AP/ Complainant been notified?		Yes	No
Is Grievance resolved/closed?		Yes	Not resolved. Referred to Court
If case is closed, then Signature of AP/ Complainant to show agreement		Date:	
Name and signature of the Official		Date:	
20.	By Court	Date:	

Resolution details:		
Is Grievance resolved/closed?	Yes	No
Name and signature of the Official	Date:	
DECISION OF THE COURT IS FINAL		

Annex 3.2. Prescribed form to submit grievance/complaint to concerned UP Chairman, Headman or Karbari or the PDC. (Bengali translation)

পরিশিষ্ট ৪

অভিযোগ সংরক্ষণ ফর্ম

পার্বত্য চট্টগ্রাম বিষয়ক মন্ত্রণালয়

পার্বত্য চট্টগ্রাম জলবায়ু স্থিতিস্থাপক জীবিকা উন্নয়ন ও জলাধার ব্যবস্থাপনা সেক্টর প্রকল্প

ক্রমিক	অভিযোগ সংরক্ষণ ফর্ম			
১.	অভিযোগ প্রতিবেদনের তারিখ			
২.	এপি /অভিযোগকারীর পুরো নাম			
৩.	এপি/অভিযোগকারীর লিঙ্গ		পুরুষ নারী	
৪.	এপি আইডি (ভোটার আইডি / পাসপোর্ট নম্বর / ড্রাইভিং লাইসেন্স / অন্য কোনও আইডি)			
৫.	এপি/অভিযোগকারীর ঠিকানা			
৬.	যোগাযোগের তথ্য	ফোন:	ইমেল:	
৭.	যোগাযোগের অভিযোগ করার পদ্ধতি (নীচের নম্বরটি বৃত্তাকার করুন)			
৮.	মৌখিক	মৌখিক (কিন্তু এপি নয়)	লেখা	লেখা (অন্যের দ্বারা)
	১	২	৩	৪
৯.	যোগাযোগের মোড (নীচের নম্বরটি বৃত্তাকার করুন)			
	ফোন	ইমেইল	ইউপি চেয়ারম্যান/মৌজা হেডম্যান/ইউপি সদস্য/কারবাডি/স্থানীয় কমিউনিটি লিডার	অন্যান্য (নির্দিষ্ট)
	১	২	৩	৪
১০.	অভিযোগের ধরণ (বৃত্ত হিসাবে অনেক রিপোর্ট করা হয়েছে)			
প্রকল্পের কম্পোনেন্ট সীমানা সম্পর্কে অবগত নয়		১	নারীর নিরাপত্তা	৭
পরিমাপে পার্সেল মিস হয়েছে		২	নির্মাণের কারণে ফসলের ক্ষতি	৮

পার্সেল পরিমাপ ত্রুটি	৩	অনুপযুক্ত জীবিকা পুনরুদ্ধার প্রকল্প	৯
মূল্যায়নের জন্য ব্যবহৃত হারের বিষয়ে মতানৈক্য	৩	অ্যাক্সেস হারানো	১০
ক্ষতিপূরণ চুক্তি/আইডি রেফারেন্সে ভুল	৫	অন্যান্য (নির্দিষ্ট করুন)	১১
ক্ষতিপূরণ প্রদানে বিলম্ব	৬		

১১.	অভিযোগের বিবরণ:		
১২.	অভিযোগের ফ্রিকোয়েন্সি (সংখ্যাটি বৃত্তাকার করুন):		
	• একবারের ঘটনা		১
	• একাধিকবার ঘটেছে		২
	• চলমান		৩
১৩.	অভিযোগ বিবৃত করার প্রত্যাশিত সমাধান:		
১৪.	এপি/অভিযোগকারীর স্বাক্ষর/থাম্ব ইমপ্রেশন	তারিখ:	

১৫.	অফিসিয়াল রেকর্ডিং অভিযোগের নাম এবং স্বাক্ষর	তারিখ:	
১৬.	এপিকে কি অভিযোগ ফর্মের একটি অনুলিপি দেওয়া হয়েছে	হ্যাঁ	না
রেজোলিউশনের বিস্তারিত:			
১৭.	জিআরসি দ্বারা	তারিখ:	
রেজোলিউশনের বিস্তারিত:			
এপি/অভিযোগকারীকে কি জানানো হয়েছে?		হ্যাঁ	না

অভিযোগ কি সমাধান/বন্ধ হয়ে গেছে?	হ্যাঁ	সমাধান হয়নি। প্রাদেশিক প্রশাসক
যদি কেস বন্ধ হয়ে যায়, তাহলে চুক্তি দেখানোর জন্য এপি/অভিযোগকারীর স্বাক্ষর	তারিখ:	
কর্মকর্তার নাম ও স্বাক্ষর	তারিখ:	

১৮	পার্বত্য জেলা পরিষদ	তারিখ:	
রেজোলিউশনের বিস্তারিত:			
এপি/অভিযোগকারীকে কি জানানো হয়েছে?		হ্যাঁ	না
অভিযোগ কি সমাধান করা হয়েছে/বন্ধ করা হয়েছে		হ্যাঁ	সমাধান হয়নি। উল্লেখিত IPMU/WAF
যদি কেস বন্ধ হয়ে যায়, তাহলে চুক্তি দেখানোর জন্য এপি/অভিযোগকারীর স্বাক্ষর		তারিখ:	
কর্মকর্তার নাম ও স্বাক্ষর		তারিখ:	
19.	আঞ্চলিক পরিষদ	তারিখ:	
রেজোলিউশনের বিস্তারিত:			
এপি/অভিযোগকারীকে কি জানানো হয়েছে?		হ্যাঁ	না
অভিযোগ কি সমাধান/বন্ধ হয়ে গেছে?		হ্যাঁ	সমাধান হয়নি। আদালতে রেফার করা হয়েছে
যদি কেস বন্ধ হয়ে যায়, তাহলে চুক্তি দেখানোর জন্য AP/অভিযোগকারীর স্বাক্ষর		তারিখ:	
কর্মকর্তার নাম ও স্বাক্ষর		তারিখ:	
২০.		তারিখ:	

	আদালত দ্বারা	
রেজোলিউশনের বিস্তারিত:		
অভিযোগ কি সমাধান/বন্ধ হয়ে গেছে?	হ্যাঁ	না
কর্মকর্তার নাম ও স্বাক্ষর	তারিখ:	
আদালতের সিদ্ধান্তই চূড়ান্ত		

Annex 4. Guide for preparing Occupational Health, and Safety Plan for Rural Roads

I. Introduction

Occupational health, and safety (OHS) plan contain measures that are generally considered to be achievable. The applicability of the OHS plan should be tailored to the hazards and risks established for rural roads. The OHS plan for rural roads include information relevant to construction, operation and maintenance, including associated bridges.

Health and safety issues during the construction and operation of roads are similar to those of other infrastructure projects involving earth moving and civil works. These impacts include, among others, construction site waste generation; soil erosion and sediment control from materials sourcing areas and site preparation activities; fugitive dust and other emissions (e.g. from vehicle traffic, land clearing and movement, and materials stockpiles); noise from heavy equipment and truck traffic; and potential hazardous materials and oil spills associated with heavy equipment operation and fueling activities.

Guidance on the prevention and control of construction hazards common to most rural road constructions and facilities is presented in the following sections.

II. Integrity of Workplace Structures

Permanent and recurrent places of work should be designed and equipped to protect OHS.

1. Surfaces, structures and installations should be easy to clean and maintain, and not allow for accumulation of hazardous compounds.
2. Campsites should be structurally safe, provide appropriate protection against the climate, and have acceptable light and noise conditions.

Lavatories and showers.

1. Adequate lavatory facilities (toilets and washing areas) should be provided for the number of people expected to work in the facility.

First aid for workers.

1. The contractor should ensure that qualified first-aid can be provided at all times. Appropriately equipped first-aid stations should be easily accessible throughout the place of work
2. Eye-wash stations should be provided close to all workstations where immediate flushing with water is the recommended first-aid response

III. Physical Hazards

Physical hazards represent potential for accident or injury or illness due to repetitive exposure to mechanical action or work activity. Single exposure to physical hazards may result in a wide range of injuries, from minor and medical aid only, to disabling, catastrophic, and/or fatal. Multiple exposures over prolonged periods can result in disabling injuries of comparable significance and consequence.

Road construction and maintenance personnel can be exposed to a variety of physical hazards, principally from operating machinery and moving vehicles but also working at elevation on bridges. Other physical hazards (e.g. exposure to weather elements, noise, work in confined spaces, trenching, contact with overhead power lines, falls from machinery or structures, and risk of falling objects) are issues on rural road project.

Moving equipment and traffic safety along rural roads

1. Establishment of work zones to separate workers on foot from traffic and equipment by:
 - a. Routing of traffic to alternative roads when possible
 - b. Closure of lanes and diversion of traffic to the remaining lanes if the road is wide enough (e.g. rerouting of all traffic to one side of a multi-lane highway)
 - c. Where worker exposure to traffic cannot be completely eliminated, use of protective barriers to shield workers
 - d. from traffic vehicles, or installation of channeling devices (e.g. traffic cones and barrels) to delineate the work zone
 - e. Regulation of traffic flow by use of flaggers if possible
2. Reduction of maximum vehicle speeds in work zones;
3. Training of workers in safety issues related to their activities, such as the hazards of working on foot around equipment and vehicles; and safe practices for work at night and in other low-visibility conditions, including use of high-visibility safety apparel and proper illumination for the work space (while controlling glare so as not to blind workers and passing motorists).

Elevated and overhead work for bridges

1. The area around which elevated work is taking place should be barricaded to prevent unauthorized access. Working under personnel on elevated structures should be avoided;
2. Hoisting and lifting equipment should be rated and properly maintained, and operators trained in their use. Elevating platforms should be maintained and operated according to established safety procedures including use of fall protection measures (e.g. railings); equipment movement protocols (e.g. movement only when the lift is in a retracted position); repair by qualified individuals; and installation of locks to avoid unauthorized use by untrained individuals;
3. Ladders should be used according to pre-established safety procedures for proper placement, climbing, standing, as well as the use of extensions.

Fall protection

1. Implementation of a fall protection program that includes training in climbing techniques and use of fall protection measures; inspection, maintenance, and replacement of fall protection equipment; and rescue of fall-arrested workers, among others;
2. Installation of fixtures on bridge components to facilitate the use of fall protection systems;
3. Safety belts should be not less than 16 millimeters (mm) (5/8 inch) two-in-one nylon or material of equivalent strength. Rope safety belts should be replaced before signs of aging or fraying of fibers become evident;
4. When operating power tools at height, workers should use a second (backup) safety strap.

IV. Chemical Hazards

Chemical hazards in road construction, operations, and maintenance activities may be principally associated with exposures to dust during construction and paving activities; exhaust emissions from heavy equipment and motor vehicles during all construction and maintenance activities (including during work in tunnels or in toll collection booths); potentially hazardous dust generated during bridge paint removal; herbicide use during vegetation management; and diesel fuel used as a release and cleaning agent for paving equipment. Recommendations specific to road projects include:

1. Use of the correct asphalt product for each specific application, and ensuring application at the correct temperature to reduce the fuming of bitumen during normal handling;
2. Maintenance of work vehicles and machinery to minimize air emissions;
3. Reduction of engine idling time in construction sites;
4. Avoiding the use of lead-containing paint and using appropriate respiratory protection when removing paints (including those containing lead in older installations) or when cutting galvanized steel.

V. Noise and Vibration

Construction and maintenance personnel may be potentially exposed to extremely high levels of noise from heavy equipment operation and from working in proximity to vehicular traffic. As most of these noise sources cannot be prevented, control measures should include the use of personal hearing protection by exposed personnel and implementation of work rotation programs to reduce cumulative exposure.

1. No employee should be exposed to a noise level greater than 85 dB(A) for a duration of more than 8 hours per day without hearing protection. In addition, no unprotected ear should be exposed to a peak sound pressure level (instantaneous) of more than 140 dB(C).
2. The use of hearing protection should be enforced actively when the equivalent sound level over 8 hours reaches 85 dB(A), the peak sound levels reach 140 dB(C), or the average maximum sound level reaches 110dB(A). Hearing protective devices provided should be capable of reducing sound levels at the ear to at least 85 dB(A).
3. Prior to the issuance of hearing protective devices as the final control mechanism, use of acoustic insulating materials, isolation of the noise source, and other engineering controls should be investigated and implemented, where feasible
4. Periodic medical hearing checks should be performed on workers exposed to high noise levels

Exposure to hand-arm vibration from equipment such as hand and power tools, or whole-body vibrations from surfaces on which the worker stands or sits, should be controlled through choice of equipment, installation of vibration dampening pads or devices, and limiting the duration of exposure.

VI. Personal Protective Equipment (PPE)

PPE provides additional protection to workers exposed to workplace hazards in conjunction with other facility controls and safety systems. Table 1 presents general examples of occupational

hazards and types of PPE available for different purposes. Recommended measures for use of PPE in the workplace include:

1. Active use of PPE if alternative technologies, work plans or procedures cannot eliminate, or sufficiently reduce, a hazard or exposure
2. Identification and provision of appropriate PPE that offers adequate protection to the worker, co-workers, and occasional visitors, without incurring unnecessary inconvenience to the individual
3. Proper maintenance of PPE, including cleaning when dirty and replacement when damaged or worn out. Proper use of PPE should be part of the recurrent training programs for employees
4. Selection of PPE should be based on the hazard and risk ranking described earlier in this section, and selected according to criteria on performance and testing established

Table 1. Summary of recommended PPE according to hazard

Objective	Workplace Hazards	Suggested PPE
Eye and face protection	Flying particles, molten metal, liquid chemicals, gases or vapors, light radiation.	Safety Glasses with side-shields, protective shades, etc.
Head protection	Falling objects, inadequate height clearance, and overhead power cords.	Plastic Helmets with top and side impact protection.
Hearing protection	Noise, ultra-sound.	Hearing protectors (ear plugs or ear muffs).
Foot protection	Falling or rolling objects, pointed objects. Corrosive or hot liquids.	Safety shoes and boots for protection against moving & falling objects, liquids and chemicals.
Hand protection	Hazardous materials, cuts or lacerations, vibrations, extreme temperatures.	Gloves made of rubber or synthetic materials (Neoprene), leather, steel, insulating materials, etc.
Respiratory protection	Dust, fogs, fumes, mists, gases, smokes, vapors.	Facemasks with appropriate filters for dust removal and air purification (chemicals, mists, vapors and gases). Single or multi-gas personal monitors, if available.
	Oxygen deficiency	Portable or supplied air (fixed lines). On-site rescue equipment.
Body/leg protection	Extreme temperatures, hazardous materials, biological agents, cutting and laceration.	Insulating clothing, body suits, aprons etc. of appropriate materials.

VII. Monitoring OHS

OHS monitoring programs for rural roads should verify the effectiveness of prevention and control strategies. The selected indicators should be representative of the most significant occupational, health, and safety hazards, and the implementation of prevention and control strategies. The occupational health and safety monitoring program should include:

1. *Safety inspection, testing and calibration.* This should include regular inspection and testing of all safety features and hazard control measures focusing on engineering and personal protective features, work procedures, places of work, installations, equipment, and tools used. The inspection should verify that issued PPE continues to provide adequate protection and is being worn as required. All instruments installed or used for monitoring and recording of working environment parameters should be regularly tested and calibrated, and the respective records maintained.
2. *Training.* Training activities for employees and visitors should be adequately monitored and documented (curriculum, duration, and participants).

VIII. Accidents and Diseases monitoring

The contractor should establish procedures and systems for reporting and recording of (i) occupational accidents and diseases and (ii) dangerous occurrences and incidents. These systems should enable workers to report immediately to their immediate supervisor any situation they believe presents a serious danger to life or health.

The contractor should further enable and encourage workers to report to management all:

1. Occupational injuries and near misses
2. Suspected cases of occupational disease
3. Dangerous occurrences and incidents

All reported occupational accidents, occupational diseases, dangerous occurrences, and incidents together with near misses should be investigated with the assistance of a person knowledgeable/competent in occupational safety. The investigation should:

1. Establish what happened
2. Determine the cause of what happened
3. Identify measures necessary to prevent a recurrence

Annex 5. Health and Safety Plan to manage risks of COVID-19 in construction sites.

(Source: file:///Users/B2A/Downloads/construction_site_safety_recommendations_in_light_of_covid-19.pdf)



Guidance note - Construction site safety recommendations Minimize spread of infections in light of COVID-19

Some critical construction activities such as building health facilities or erecting emergency shelters are likely to continue during the restrictions in place due to COVID-19. Partners overseeing construction sites operating during the COVID-19 pandemic should ensure all possible steps are taken to protect their workforce and to minimize the spread of the infection. This guidance is based on WHO's key messages for infection prevention and control, and illustrates some basic measures and principles to be followed in this scenario. It mostly focuses on construction and repurposing of facilities, appreciating the greater limitations occurring while working on individual shelters. Acknowledging the complex, challenging and fast-paced operating environment, partners are invited to adopt the recommendations when applicable and to the most possible extent, embracing a "good enough" approach. This guidance does not encompass all aspects of health and safety and should be seen a complement of standard health and safety policy in place for all construction projects, rather than a standalone document. It must be updated as the situation evolves globally and specifically in the Rohingya Response.

The main underlying approaches are:

- ✓ Reduce access to site
- ✓ Adapt work plan and activities to reduce close contact
- ✓ Increase overall level of hygiene of the site
- ✓ Prioritize health and safety of staff, workers and their surrounding communities
- ✓ Increase awareness of the workforce

Planning phase

- Plan construction phases avoiding large group of workers and unnecessary overlap of crews. If the work plan was developed prior to COVID-19 outbreak, consider reviewing and adapting when necessary;
- Basic Personal Protective Equipment (PPE) related to construction safety such as gloves and glasses should be provided to workers depending on the tasks they are assigned to. In addition, each worker should be provided with two or more reusable masks (not surgical/medical graded masks);
- Additional hand washing stations including provision of clean water and soap, together with cleaning and disinfection products may be required for construction sites opened prior to the outbreak. For new construction site, plan and budget provision of these items;
- Preferably, every worker should be provided with a basic set of tools needed for the tasks they are assigned to. Using of the same tool by multiple workers should be avoided. If tools are shared or stored for later use by another person, they need to be disinfected/cleaned;¹
- Plan to engage workers coming from the close proximity of the facility been built (possibly from the same block) and avoid involving labour from farther away camps or villages;
- Supervision should be strengthened including COVID-19 prevention principles, and supervisors oriented on their new responsibilities;

¹ More instructions for safe disinfection - Cox's Bazar WASH Sector technical guidance on disinfection procedures for COVID-19 response (non-health settings) - v. 02: <https://drive.google.com/open?id=1gM8OwM4d7Y3ZEXcJIM07wRorVwAetrdh>



- If possible, prior to start construction work coordinate with Health partners to check the site and ensure appropriate measures are adopted;

Prepare your workforce

- An orientation on COVID-19 should be provided to all workers, including description of the disease, symptoms, transmissibility, severity and WHO's key prevention messages to be followed on site, public spaces as well as in their homes;
- Prevention messages should be printed and clearly displayed on site. Consider providing an additional printed copy of the key prevention messages for all workers to disseminate in their families (and communities);
- Workers should be clearly informed on protocols to follow in case they or their family members get sick;
- Workers should be requested to maintain physical distance of 2 meters (6') from others as much as possible and to adhere to the other suggested practices for infection prevention and control, in particular:
 - Wash your hands regularly with clean water and soap for at least 20 seconds, or clean them with a hand sanitizer;
 - Avoid touching your eyes, nose and mouth with unwashed hands;
 - When coughing or sneezing, cover your mouth with tissue and throw it into closed bin immediately. If you do not have a tissue, cough or sneeze into your flexed elbow;
 - Do not spit.
- Working gloves are sometimes worn to protect against injuries during some activities, but they do not offer any protection against transmission of COVID-19 and should be considered as unwashed hands in terms of minimizing touching one's face;
- Workers should not greet each other with handshakes or embraces at any point during the day;
- If workers are operating in an area where sick or suspected infected people are currently or recently transited (in the previous 3 days), they should wear mask and disposable gloves at all times;
- If masks are not available, workers should be encouraged to prepare handmade ones using household items or clothes materials;²
- Advice workers to wash their clothes frequently (daily if possible).

Access to site

- Only essential visitors (workers, supervisors, and managers) should be allowed on site;
- Programme/monitoring visits should be reduced to the minimum and should be planned when workers are not on site (i.e. lunch or prayer time);
- Fence off the construction site to ensure no one can enter or approach the workers without authorization;
- Entry and exit gates should be clearly marked and guarded;
- Body temperature should be measured for all persons entering the site;
- Allow enough space for people to queuing in a safe manner at the entrance of the site while they wash their hands and get screened;

² More instructions can be found at <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/diy-cloth-face-coverings.html>, <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public/when-and-how-to-use-masks> and https://drive.google.com/open?id=1Jb173nC8Q_HwtrTfqCdT5UaE8rzYAgL



- A trained staff should be designated to guard the access, checking temperature of workers and visitors and enquiring about overall health condition and vulnerability;
- Ensure there are sufficient hand washing stations at the entrance and that they have water and soap, as well as clearly display signs requesting persons entering to wash their hands;
- Anyone falling in one of the following categories should not be allowed on site:
 - Has a family member suspected COVID-19 patient living in the same household or self-isolating, or if s/he has got in close contact with a confirmed COVID-19 patient in the previous two weeks. S/he should not report on site and self-quarantining at home for two weeks;
 - Is showing one or more symptoms related to COVID-19 (high temperature, new persistent cough, shortness of breath). S/he should not report on site, stay home and self-isolate or seek medical care in case of severe symptoms;
 - Is a vulnerable person (by virtue of age, clinical/health condition or pregnant).
- All persons should wash or clean their hands before entering and leaving the site;
- Workers should be encouraged to reach the site using individual modes of transportation and avoid public transport when possible.

During construction

- To the most possible extent, workers should maintain physical distance of 2 meters (6') from others at all times. Performing activities that must be conducted in close proximity should be avoided when possible. If these activities must take place, workers should wear masks;
- If possible, construction crews should be segregated and tasks allocated so they do not overlap. It is suggested to establish crew shifts to be also applied for break, lunch and pray time;
- If a worker develops COVID-19 symptoms on site, the following actions should be followed:
 - Avoid touching anything;
 - Cough and sneeze into a tissue and put it in a closed bin, or in their flexed elbow in case they don't have tissues;
 - Return home and self-isolate, or seek medical care in case of severe symptoms;
 - All surfaces and tools s/he may have recently touched should be cleaned and disinfected.
- In spaces where queuing may happen (including latrines and hand washing stations), consider marking safe distance of 2 meters (6') on ground or railings;
- Meetings on site should be avoided at all times. Instruction to workers should be given in open spaces and maintaining physical distance;
- If construction activities happen in an enclosed space, the site should be ventilated as much as possible, for example leaving doors and windows open during the working day;
- Due to potential sudden access restrictions, all materials and equipment should be carefully and safely stored before leaving the site at the end of every day;
- When receiving and unloading goods and construction materials, workers should keep distance from the drivers at all times. When possible, drivers should remain in their vehicles. If drivers must unload the goods for safety reasons, they should do so without the help of the workers and they should wash or clean their hands before and after. Any contact between deliverers and receivers should be avoided (including delivery papers and pens for signature, etc.). It is recommend that everyone needing to sign paperwork have their own pen or wash their hands after.



Hand washing, hygiene and cleaning

- Provide adequate hand-washing station with water and soap or an alcohol-based hand sanitizer (min. 60% alcohol). Ensure water and soap are topped up regularly;
- Clean the hand washing facilities regularly during the day, establishing a clear cleaning plan;
- Tools, reusable PPE and frequently touched surfaces should be cleaned and disinfected frequently (at least daily);
- If possible, appropriate latrine facilities should be made available inside the compound and be kept cleaned. In any case, workers should be encouraged to wash their hands before and after using the latrines;
- Dedicated eating, break and prayer areas should be identified on site and access should be staggered to reduce risk of congestion. Workers should keep physical distance while eating, praying and having a break;
- Provide safe drinking water dispensers and one-time cups, or encourage workers to carry an individual cup;
- All solid waste (excluding construction materials) should be put immediately in closed bins or closed bags and not left for someone else to clear up;
- Separate and collect all solid waste that could serve as transmission vector. To avoid contact with waste bags, use double plastic bags (for instance when removing a filled waste bag, cover tightly and wrap with a second plastic bag). Store the waste for at least 72 hours before disposing;
- Store leftovers construction materials for at least 72 hours before disposing.

Upon completion

- The facility should be carefully cleaned and disinfected prior to the handover;
- All waste, construction materials, tools and equipment should be removed from the site and disposed safely.

References

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