

Semi-annual Environmental Monitoring Report

**Grant No- 0582- BAN
December 2019**

Emergency Assistance Project

This Semi-annual Environmental Monitoring Report is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.

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Emergency Assistance Project

ADB Project 52174-001 | Grant 0582-BAN | TA 9546 BAN

Environmental Monitoring Report

Third Semi-Annual Environmental Monitoring Report

Reporting Period

July to December 2019

Implementing Agency

Local Government Engineering Department (LGED)

Department of Public Health Engineering (DPHE)

Ministry of Local Government, Rural Development and Cooperatives (MLGRDC)

Roads and Highways Department (RHD)

Ministry of Road Transport and Bridges

Bangladesh Rural Electrification Board (BREB)

Ministry of Power, Energy and Mineral Resources

December 2019

BAN: EMERGENCY ASSISTANCE PROJECT

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ABBREVIATIONS

ADB	Asian Development Bank
BCCSAP	Bangladesh Climate Change Strategy and Action Plan
BREB	Bangladesh Rural Electrification Board
DPHE	Department of Public Health Engineering
EAP	Emergency Assistance Project
EARF	Environmental Assessment and Review Framework
ECA	Environmental Conservation Act
ECC	Environmental Clearance Certificate
ECR	Environmental Conservation Rules
EIA	Environmental Impact Assessment
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ETP	Effluent Treatment Plant
GoB	Government of Bangladesh
H&S	Health and Safety
IEE	Initial Environmental Examination
LGED	Local Government Engineering Certificate
MPEMR	Ministry of Power, Energy and Mineral Resources
NFP	National Forest Policy
NOC	No Objection Certificate
RHD	Roads and Highways
RRRC	The Refugee Relief and Repatriation Commission
SPS	Safeguards Policy Statement
SSC	Site Clearance Certificate
ToR	Terms of Reference
UN	United Nations
US EPA	United States Environmental Protection Agency
WB	World Bank

Executive Summary

1 This report is the Third Semi-annual Environmental Monitoring Report (hereinafter refereed as EMR) of the ADB financed Emergency Assistance Project (ADB) in Bangladesh, which covers the period of July – December 2019. The report is produced to comply with the environmental scope stipulated in the sub-projects' Environmental Management Plans (EMPs) implemented by various Government Agencies/Departments under the project.

2 The Government of Bangladesh (GoB) requested Asian Development Bank (ADB) for grant support to provide basic infrastructure and essential services to displaced persons. Given the humanitarian need and heart-wrenching condition of the displaced persons, ADB is providing grant financing of \$100 million for the first phase of the project. ADB support will be focused, selective, and well-targeted in the areas of (i) road access to and within camps; (ii) water and sanitation; (iii) energy supply; and (iv) disaster risk mitigation. It will build on the support provided by GoB and complement support provided by the United Nations (UN) agencies, the World Bank (WB) and other agencies. With the principle of putting people first, the project will seek to ease the vulnerabilities and risk of hunger, disease, and disaster. The project is known as Emergency Assistance Project (Project No. 52174-001, Grant 0582-BAN).

3 ADB environmental safeguards objectives are: (i) to ensure the environmental soundness and sustainability of projects and (ii) to support the integration of environmental considerations into the project decision-making process. ADB environmental safeguards are triggered if a project is likely to have potential environmental risks and impacts.

4 The project has been categorized as B for environment under the ADB's Safeguards Policy Statement 2009 (SPS). Individual subprojects will be screened and classified, and based on the classification, and where required, environmental assessments will be undertaken and EMPs developed. Based on Schedule 1 of the ECR, subprojects are likely to require IEEs and EIAs.

5 Subprojects selected will not have significant environmental impacts. Environmental guidelines for subproject selection in Table 1 provide further guidance to avoid or minimize adverse impacts during the identification and finalization of subprojects.

Table 1 Environmental Guideline for new subproject

Component	Environmental Guidelines for Subproject Selection
Overall (Applicable to all Subprojects)	Comply with all applicable national and local laws, regulations, and standards.
	Comply with ADB's SPS.
	Avoid land acquisition and involuntary resettlement and have no impacts on indigenous peoples.
	Avoid protected areas and areas of historical/cultural value.
	Avoid building or setting-up construction camp sites along elephant migration routes
Transport Infrastructure	Do not build new* roads and avoid widening existing roads, as much as possible.
	Avoid hill cutting.
	Do not build new* bridges.
	Avoid cutting trees on the roadside and if any trees have to be removed, plant two new trees for every tree lost.
	Consult the relevant archaeological agency regarding archaeological potential subproject areas to ensure that these are located in areas where there is a low risk of chance finds.

6 The Department of Environment is responsible for environmental issues while forest issues are looked after Department of Forests. Over the years, the MoEF has adopted number of legal instrument in the form of Acts for the protection and conservation of the environment.

7 The important elements of ADB's resettlement policy statement (APS 2009) include the following:

- i. Compensation to replace lost assets, livelihood, and income;
- ii. Assistance for relocation, including provision of relocation sites with appropriate facilities and services; and
- iii. Assistance for rehabilitation to achieve at least the same level of well-being with the project as without it.

8 Refer to **Table 2** for the status of the respective component sub-projects with regard to compliance status to ADB's policy statement (APS 2009).

Table 2 ADB Safeguards Policy Status

ADB Safeguard Policy Statement	Contract Package Status				
	Cyclone Shelter Sub-project	Road Sub-project	Drainage/erosion Sub-project	Water Supply Sub-project	Others Sub-project
(i) Involuntary resettlement will be avoided whenever feasible.	complied	complied	complied	complied	complied
(ii) Where population displacement is unavoidable, it should be minimized.	No displacement	No displacement	No displacement	No displacement	No displacement
(iii) All lost assets acquired or affected will be compensated. Compensation is based on the principle of replacement cost.	NA	Matrix formulated	Matrix formulated	NA	NA
(iv) Each involuntary resettlement is conceived and executed as part of a development project or program. Affected persons need to be provided with sufficient resources to re-establish their livelihoods and homes with time-bound action in co-ordination with civil works.	NA	Provided in Compensation Matrix	Provided in Compensation Matrix	NA	NA
(v) Affected persons are to be fully informed and closely consulted.	complied	complied	complied	complied	complied
(vi) Affected persons are to be assisted to integrate economically and socially into host communities so that adverse impacts on the host communities are minimized and social harmony is promoted.	NA	NA	NA	NA	NA
(vii) The absence of a formal title to land is not a bar to ADB policy entitlements.	NA	NA	NA	NA	NA
(viii) Affected persons are to be identified and recorded as early as possible to establish their eligibility, through a census, which serves as a cut-off date, and prevents subsequent influx of	NA	complied	complied	NA	NA

ADB Safeguard Policy Statement	Contract Package Status				
	Cyclone Shelter Sub-project	Road Sub-project	Drainage/erosion Sub-project	Water Supply Sub-project	Others Sub-project
encroachers.					
(ix) Particular attention will be paid to vulnerable groups including those without legal title to land or other assets; households headed by women; the elderly or disabled; and indigenous groups. Assistance must be provided to help them improve their socio-economic status.	NA	complied	complied	NA	NA
(x) The full resettlement costs will be included in the presentation of project costs and benefits.	NA	NA	NA	NA	NA

9 To date 51 sub-projects have been finalized, instead of 60 sub-projects preliminarily identified in 2018. Of them BREB will implement 6 subprojects, DPHE will implement 21 subprojects, LGED will implement 21 subprojects and RHD will implement 3 subprojects. Of these subprojects 37 subprojects are identified as Category B according to ADB classification.

10 According to the ADP policy on environment, all the B category subprojects would require EMP and IEE reports before project implementation to ensure that the projects will be environmental viable and all the environmental laws, rules, restriction and policies of ADB and GoB are attained.

11 To date, 26 sub-projects have been awarded and 25 is at bid preparation stage. The summary status of the subprojects is given in **Table 3**.

Table 3 Sub-project progress status of EAP (information up to 30 December 2019)

Executive Agency	Total Package	Contact awarded	Invitation for Bid	Bid preparation stage	Financial Progress
BREB	6	6	0	0	97%
DPHE	21	10	5	6	19%
LGED	21	7	5	9	29%
RHD	3	3	0	0	97%
Total	51	26	10	15	47%

12 To date (December 2019) out of 33 B category projects according to ADB classification, 31 IEEs (including 11 indicative IEE) have been drafted with 32 EMPs (1 dropped) and 9 ECoPs (2 dropped). Some EMPs and subsequent IEEs are due to either design revision or additional survey work (those are stated as indicative IEEs). **Table 9** represents the status of preparation of safeguards documents.

Table 4 Summary Status of safeguards documents preparation for B category subprojects

Agency	Total B Category project	IEE	EMP	ECoP
DPHE	13	11	11	4
LGED	16	16	17 (1 dropped)	4 (2 dropped)
RHD	02	2	2	0
REB	02	2	2	1
Total	33	31	32 (1 dropped)	9 (2 dropped)

13 To date 11 EMPs for DPHE, 17 EMPs for LGED, 2 EMPs for BREB and 2 EMPs for RHD have been prepared. Of 31 IEEs, 11 IEEs for DPHE, 16 IEEs for LGED, 2 IEEs for RHD and 2 IEEs for BREB have been prepared.

14 During planning phase in 3rd six-month July-Dec 2019, a total 15 visits have been conducted by the Environmental specialists appointed by ADB. Besides, until date 169 environmental safeguards monitoring visits have been conducted at different times during the current cycle (3rd six-month July-Dec 2019) of monitoring period. See **Table 5** for details break down. For each monitoring visit, one site visit report/compliance report has been submitted to the concerned EA and ADB and follow ups were tracked to observe corrective measures and desired progress.

Table 5 Environmental safeguards monitoring visit conducted during July-Dec 2019

Site Visit During Planning Phase	Site Visit During Construction Phase				Total
	BREB	DPHE	LGED	RHD	
15	28	51	50	40	184

15 Besides monitoring visits, onsite trainings and meetings with EAs were conducted during the current monitoring period. The site-based trainings were arranged by the environmental specialists to sensitize the contractors on implementing the environmental safeguards according to the EMPs and other contracts. A total 28 onsite trainings were arranged during July-December 2019 where total 394 participants were attended. Environmental specialists have given a brief lecture to the participants majorly focused on: occupational health and safety including PPEs, safety signage, housekeeping, waste management, management of hazardous materials, emergency procedures. Moreover, explained about the importance of regular tool box meeting at the site. However, all the participants hold a very positive attitude towards the training program. Details of the monitoring visits are given in **Table 6** below.

Table 6 Environmental safeguards trainings conducted during July-Dec 2019

Onsite Training and No. of Participant				Total
BREB	DPHE	LGED	RHD	
7	7	9	5	28
74	57	144	119	394

16 Besides trainings, regular meetings with EAs were conducted on frequent basis to better coordinate with all the EAs. To date 52 meetings have been conducted. **Table 7** below represents the breakdown of meetings carried out by the environmental specialists.

Table 7 Meetings conducted on environmental safeguards implementation during July-Dec 2019

Meeting with EA/IA				Total
BREB	DPHE	LGED	RHD	
9	11	12	20	52

17 The concluding observations are as follows:

- The Environmental Safeguards compliance performance of the EAs are improving slowly but steadily. The onsite training workshop, regular monitoring of ADB and Regional workshop to sensitize the EAs and contractors seems to have obvious impact in this regard.
- When same contractor is being awarded with more than one subproject, environmental compliance record appears to be poor.
- The implementing agencies need to consult the Environmental Safeguards consultants and ADB's safeguard division while proposing the project, before going into design. In this way, if the Safeguards division and Environmental Consultants checks the environmental and other related issues, the implementing agencies can go for designing and can save time by avoiding redesign issues
- The implementing agencies need to better coordinate with the DoE and Forest Department. It appears the level of coordination is weak.

1 Introduction

1.1 BACKGROUND

18 This report is the Third Semi-annual Environmental Monitoring Report (hereinafter refereed as EMR) of the ADB financed Emergency Assistance Project (ADB) in Bangladesh, which covers the period of July – December 2019. The report is produced to comply with the environmental scope stipulated in the sub-projects' Environmental Management Plans (EMPs) implemented by various Government Agencies/Departments under the project.

19 This report is drafted by the Environmental Specialists working for Bangladesh Residence Mission (BRM) of ADB to ensure preparation of Environmental Impact Assessment documents for various subprojects to comply with ADB and Bangladesh Government's environmental rules and regulations as well as implementation of Environmental Mitigation Measures during the construction phase. Environmental issues also are anticipated in this report to be identified in advance for avoidance and to ensure timely completion of the project.

1.2 THE PROJECT

20 The Government of Bangladesh (GoB) requested Asian Development Bank (ADB) for grant support to provide basic infrastructure and essential services to displaced persons. Given the humanitarian need and heart-wrenching condition of the displaced persons, ADB is providing grant financing of \$100 million for the first phase of the project. ADB support will be focused, selective, and well-targeted in the areas of (i) road access to and within camps; (ii) water and sanitation; (iii) energy supply; and (iv) disaster risk mitigation. It will build on the support provided by GoB and complement support provided by the United Nations (UN) agencies, the World Bank (WB) and other agencies. With the principle of putting people first, the project will seek to ease the vulnerabilities and risk of hunger, disease, and disaster. The project is known as Emergency Assistance Project (Project No. 52174-001, Grant 0582-BAN).

21 The project will support the Government of Bangladesh in addressing the immediate and urgent needs of the displaced persons from Myanmar in Coxsbazar District, as identified by the United Nations (UN) in its Joint Response Plan (JRP) (displaced persons). The project will mainly support the improvement of water supply and sanitation, disaster risk management, sustainable energy supply, and access roads.

22 The impact of the project will be: Social recovery of affected communities accelerated in the sub-districts of Ukhyia and Teknaf. The outcome will be: Living conditions and resilience of affected communities improved. Four (04) outputs are expected from this project. They are:

- Output 01: Water supply and sanitation improved.
- Output 02: Disaster risk management strengthened
- Output 03: Energy sources provided
- Output 04: Access roads improved.

23 **Output 1:** Water supply and sanitation improved. This consists of providing the camp areas with (i) mobile water carriers for the distribution of treated water; (ii) community bathing facilities for women; (iii) mini piped water supply systems with a production tube well, distribution pipe network, and standpipe water

distribution points; (iv) an integrated waste management facility with collection system; and (v) small surface water treatment plants.

24 **Output 2: Disaster risk management strengthened.** This includes constructing in and around the camp areas (i) multipurpose cyclone shelters with emergency access roads, (ii) food distribution centers, (iii) hill slope protection and/or toe walls to resist landslides, and (iv) storm water drainage networks. The project will also provide lightning arresters and support the preparation of gender-sensitive disaster risk management plans with community-based disaster risk reduction approach.

25 **Output 3: Energy sources provided.** This includes providing the camp areas with (i) retained heat cookers; (ii) stand-alone solar powered street lights with solar photovoltaic panels, battery boxes, and mini grid-connected street lights; and (iii) access to electricity by augmenting substations, distribution lines, and transformers.

26 **Output 4: Access roads improved.** This consists of rehabilitating (i) rural roads to connect to food storage and distribution centers, field hospitals, primary health care centers, and primary education centers; (ii) emergency access roads to the camp areas; and (iii) existing access roads to and within the camps and drainage systems. The project also supports resurfacing the road from Cox's bazar to Teknaf, which is the main supply line.

27 The project will be implemented over 2.5 years, and the grant will close by 30 June 2021. As a condition for being selected, each subproject must have an implementation period that can be completed prior to the project closing date.

1.3 PURPOSE OF THE ENVIRONMENTAL SAFEGUARDS

28 ADB environmental safeguards objectives are: (i) to ensure the environmental soundness and sustainability of projects and (ii) to support the integration of environmental considerations into the project decision-making process. ADB environmental safeguards are triggered if a project is likely to have potential environmental risks and impacts.

29 The purpose of the Environmental Safeguards for the project are defined as:

- Assist in determining adequacy of cost for EMP implementation;
- Assist in addressing any concern related to IEEs and EMPs;
- Assist in summarizing IEEs, translating to language understood by local people and disclosure in public locations;
- Oversee implementation of EMP including environmental monitoring of contractors;
- Assist in implementing corrective actions when necessary to ensure no environmental impacts;
- Review monthly reports by contractors, assist PMU to submit environmental monitoring reports on regular basis;
- Assist in establishing the grievance mechanism for safeguards and addressing any grievances brought about through the GRM in a timely manner as per IEEs;
- Submit semi-annually environmental safeguards monitoring report to ADB via PMU;
- Be responsible for training the PMU/contactor safeguards officers on environmental awareness and management in accordance with both ADB and government requirements and implement the capacity building program for PMU and all staff involved in project implementation on (a) ADB SPS, (b) Government of Bangladesh national and local environmental laws and regulations, (c) core labor standards, (d) occupational health and safety monitoring given in the Social Safeguards Monitoring Report and (e) EMP implementation especially spoil

management, working in congested areas, public relations and ongoing consultations, grievance redress, etc.; and

- Provide induction course for the training of contractors preparing them on EMP implementation.

30 A location map of the proposed subproject is presented in **Figure 1**.



Figure 1 Location map of the proposed subproject

2 Environmental Responsibilities and Institutional Setup

2.1 INSTITUTIONAL SETUP AND IMPLEMENTATION ARRANGEMENTS

31 The project has been categorized as B for environment under the ADB's Safeguards Policy Statement 2009 (SPS). Individual subprojects will be screened and classified, and based on the classification, and where required, environmental assessments will be undertaken and EMPs developed. Based on Schedule 1 of the ECR, subprojects are likely to require IEEs and EIAs.

32 The Refugee Relief and Repatriation Commission (RRRC) is proposed to act as the coordinator on behalf the government to execute all interventions. RRRC and ADB will conduct regular coordination meetings involving all IAs, relevant stakeholders including deputy commissioner (DC), Cox's Bazar, other development partners and agencies. ADB plans to establish extended mission office in Cox's Bazar for close coordination, facilitation of sub-projects development and implementation. A steering committee comprising higher officials from relevant ministries coordinated by ERD will be formed to provide necessary guidance to expedite the sub-project development and implementation. The steering committee will have a safeguards focal person.

33 The Local Government Engineering Department (LGED), the Department of Public Health Engineering (DPHE), the Roads and Highways Department (RHD), and the Bangladesh Rural Electrification Board (BREB) will be the executing agencies and implementing agencies. responsible for project oversight and coordination. There will be a safeguards focal person in the EA/IA. The EA/IA will be assisted by PMCs. The EAs/IAs will form project implementation units (PIU). The PIUs will identify a focal person for environmental safeguards. The focal person will be assisted in the conduct of the environmental assessment, the development and implementation of EMPs, and compliance monitoring by project consultants. All the implementing agencies are currently implementing ADB projects under this institutional arrangement (further defined in Section VI). ADB also conducts safeguards training for project executing and implementing agencies. Thus, the government has sufficient capacity in implementing ADB requirements and strengthening of capacity, other than through the course of the consultant's work with local counterparts, is not required. ADB will continue to conduct capacity building programs during implementation.

34 The Project Organization established to ensure the requirements of all stakeholders are adequately addressed is shown in the following diagram (**Figure 2**).

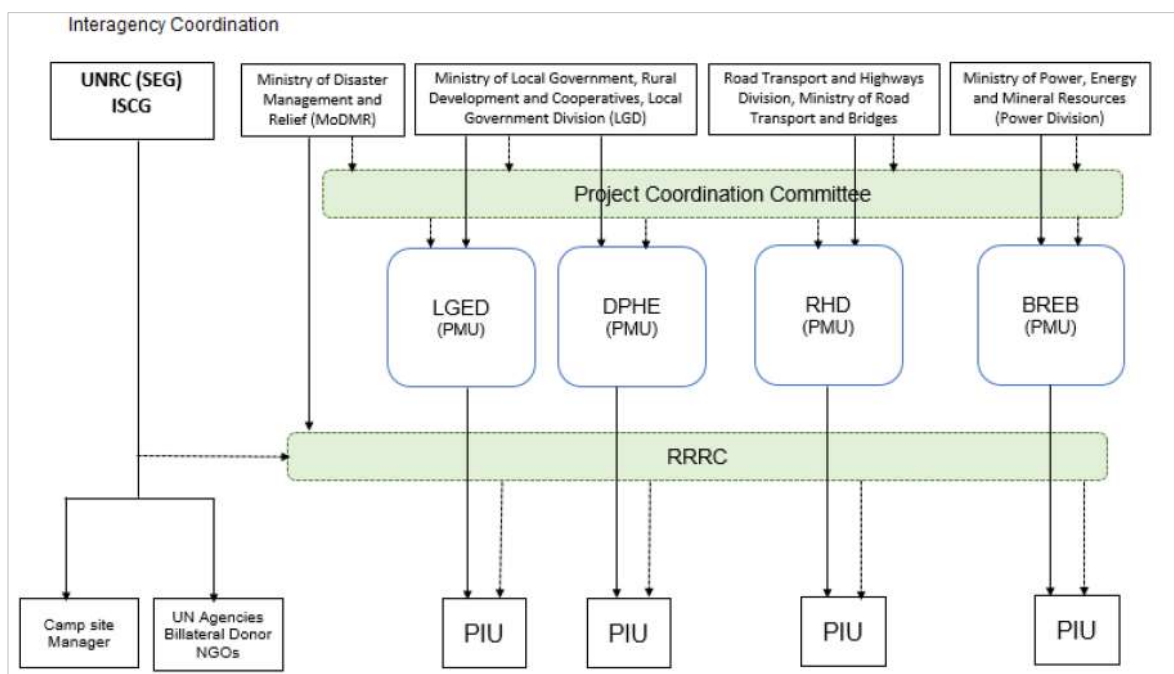


Figure 2 Project organization structure

2.2 RESPONSIBILITIES: ENVIRONMENTAL SAFEGUARDS

35 In compliance with ADB's Safeguard Policy Statement (2009), the project's safeguard categories are as follows:

36 **Environment (category B):** ADB formed subproject selection criteria to avoid significant adverse environmental impacts. An environmental assessment and review framework (EARF) has been prepared following ADB's Safeguards Policy Statement (2009) and government laws and regulations. ADB has disclosed the EARF on its website. Implementation arrangements build on the implementing agencies' experience from other ADB-financed projects, and the project team will help the implementing agencies gain adequate capacity to manage environmental impacts through consultant support. Initial environmental examinations and environmental management plans will be prepared consistent with the EARF and will be incorporated in bidding documents and contract documents to be implemented by contractors and monitored by the implementing agencies. Executing and/or implementing agencies will provide environmental report to the Bangladesh Resident Mission on a semiannual basis.

37 **Involuntary resettlement (category B):** ADB formed subproject selection criteria to avoid land acquisition and involuntary resettlement impacts and social risks. A resettlement framework has been prepared and disclosed, following ADB's Safeguards Policy Statement and government laws and regulations, to guide planning studies and detailed designs of subprojects. The project team will help the implementing agencies gain adequate capacity to prepare resettlement plans, if required, through consultant support. Consultations will be undertaken with stakeholders in project areas during implementation. Executing and/or implementing agencies will provide resettlement implementation report to the Bangladesh Resident Mission on a semiannual basis.

2.3 ENVIRONMENTAL CRITERIA FOR SUBPROJECT SELECTION

38 Subprojects selected will not have significant environmental impacts. Environmental guidelines for subproject selection in Table 1 provide further guidance to avoid or minimize adverse impacts during the identification and finalization of subprojects.

Table 1 Environmental Guideline for new subproject

Component	Environmental Guidelines for Subproject Selection
Overall (Applicable to all Subprojects)	Comply with all applicable national and local laws, regulations, and standards.
	Comply with ADB's SPS.
	Avoid land acquisition and involuntary resettlement and have no impacts on indigenous peoples.
	Avoid protected areas and areas of historical/cultural value.
	Avoid building or setting-up construction camp sites along elephant migration routes
Transport Infrastructure	Do not build new* roads and avoid widening existing roads, as much as possible.
	Avoid hill cutting.
	Do not build new* bridges.
	Avoid cutting trees on the roadside and if any trees have to be removed, plant two new trees for every tree lost.
	Consult the relevant archaeological agency regarding archaeological potential subproject areas to ensure that these are located in areas where there is a low risk of chance finds.

3 Monitoring Framework and Environmental Compliance

3.1 MONITORING FRAMEWORK

Impact the Project is Aligned with Social recovery of displaced persons in Teknaf and Ukhia camps accelerated (Defined by the project)			
Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
Outcome Living conditions and resilience of displaced persons improved	By 2021 <ol style="list-style-type: none"> Reported cases of waterborne diseases decreased by 20%. Occurrence of landslides and flooding in project area during average monsoon months reduced by 50%. At least 90% of households in project area connected to electricity. Average travel time to transport relief goods and services to campsites reduced by 50%. 	<ol style="list-style-type: none"> Project beneficiary survey, executing agency reports 	Crisis and influx of displaced persons extend beyond the project life and exceed projected demand for services.
Outputs 1. Water supply and sanitation improved	By 2020 <ol style="list-style-type: none"> 5 mobile water carriers for the distribution of potable water to the camps provided (2018 baseline: 0) 600 community bathing facilities for women constructed and maintained, of which 10%–20% of women are employed and involved (2018 baseline: 0) 40 mini piped water supply systems with production tube wells constructed (2018 baseline: 0) 5 integrated waste management facilities constructed, and a collection system established (2018 baseline: 0) 2 small surface water treatment plants constructed or expanded (2018 baseline: 0) 	1a–e. Periodic project progress reports prepared by the executing agency	Extreme climate events disrupt or delay execution of works.

2. Disaster risk management strengthened	<p>2a. 10 multipurpose cyclone shelters constructed with sex- disaggregated toilets and designated space for women, including pregnant women and lactating mothers (2018 baseline: 0)</p> <p>2b. 20 semi permanent food distribution centers constructed and employed 10%–20% of women in the community (2018 baseline: 0)</p> <p>2c. 5 km of hill slope protection and/or toe walls constructed (2018 baseline: 0)</p> <p>2d. 5 km storm water drainage network constructed (2018 baseline: 0)</p> <p>2e. 200 lightning arresters installed (2018 baseline: 0)</p> <p>2f. Gender-sensitive disaster risk management plans, adopting community-based disaster risk reduction approach, prepared and implemented (2018 baseline: not applicable)</p>	2a–f. Periodic project progress reports prepared by the executing agency	
3. Energy sources provided	<p>3a. A 33/11 kV, 10 MVA substation constructed; and Cox's bazar-Teknaf grid augmented</p> <p>3b. A 50 km, ≤11 kV new distribution line constructed with 5 MVA distribution transformers installed (2018 baseline: 0)</p> <p>3c. 2,000 new mini grid-connected street lights and 4,000 new stand- alone solar LED lights with built-in solar PV panels and battery banks installed (2018 baseline: 62 grid- connected street lights and 2,495 solar PV street lights inside the camps)</p> <p>3d. 70,000 retained heat cookers provided (2018 baseline: 0)</p> <p>3e. 50 solar PV micro-grid systems installed at Balukhali, Kutupalong, Noyapara, Leda, and Shamlapur camps (2018 baseline: 0)</p>	3a–e. Periodic project progress reports prepared by the executing agency	
4. Access roads improved	<p>4a. 30 km of internal roads and stairs (where required) with drainage facilities constructed (2018 baseline: 0)</p> <p>4b. 30 km of rural roads to connect to food storage centers, food distribution centers, field hospitals, primary health care centers, cyclone shelters, and primary education centers reconstructed and rehabilitated (2018 baseline: 0)</p> <p>4c. 50 km of the road from Coxsbazar to Teknaf resurfaced, including the improvement of critical sections (market areas and culverts) (2018 baseline: 0)</p> <p>4d. 10%–20% of women employment in the construction and rehabilitation of access roads achieved (2018 baseline: 0)</p>	4a–d. Periodic project progress reports prepared by the executing agency	

Key Activities with Milestones

1. Water supply and sanitation improved

- 1.1 Identify and appraise subprojects, as required (by Q3 2018)
- 1.2 Recruit consultants (by Q3 2018)
- 1.3 Prepare bid documents and commence bidding (by Q3 2018)
- 2. Disaster risk management strengthened
- 2.1 Identify and appraise subprojects, as required (by Q3 2018)
- 2.2 Recruit consultants (by Q3 2018)
- 2.3 Prepare bid documents and commence bidding (by Q3 2018)
- 2.4 Complete disaster risk capacity building for implementing agencies and key stakeholders (Q4 2018)
- 3. Energy sources provided
- 3.1 Identify and appraise subprojects, as required (by Q3 2018)
- 3.2 Recruit consultants (by Q3 2018)
- 3.3 Prepare bid documents and commence bidding (by Q3 2018)
- 4. Access roads improved
- 4.1 Identify and appraise subprojects, as required (by Q3 2018)
- 4.2 Recruit consultants (by Q4 2018)
- 4.3 Prepare bid documents and commence bidding (by Q3 2018)

3.2 COMPLIANCE WITH ENVIRONMENTAL RELATED PROJECT COVENANTS

3.2.1 National Covenant

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

40 The main Ministry, Department, Institutions and Boards responsible for development of policy, framing regulation, developing projects, monitoring and approval of issues related to environment protection and conservation are presented in this section. The Department of Environment (DoE) was established in 1977 under the Environment Pollution Control Ordinance, 1977. During 1987-89, Forestry was a Division of Agriculture Ministry with a Secretary to Government in charge of the Forestry Division. With the formation of the new Ministry of Environment and Forests, in 1989, both the departments were transferred to this new Ministry.

41 The DoE has been placed under the MoEFCC as its technical wing and is statutorily responsible for the implementation of the Environment Conservation Act, 1995. Besides these two departments, MoEFCC controls the Bangladesh Forest Industries Development Corporation (BFIDC), Bangladesh Forest Research Institute (BFRI) and Bangladesh National Herbarium (BNH).

42 The Ministry of Environment and Forests and Climate Change (MoEFCC) prepare the environmental policies. MoEF has also formulated regulation toward clearance of projects from environmental angles based on environmental impact assessment report.

43 The Department of Environment is responsible for environmental issues while forest issues are looked after Department of Forests. Over the years, the MoEF has adopted number of legal instrument in the form of Acts for the protection and conservation of the environment. **Table 2** summarizes the Environmental Legislation applicable to the sub-projects.

Table 2 Summary of Environmental Legislations Applicable to the Proposed Project

No.	Environmental Legislation / Act	Objective	Relevance to the Project	Responsible Institution
1	National Environmental Policy, 1992	Ensure that development components do not pollute the environment or degrade resources. It sets out the basic framework for environmental action together with a set of broad sectoral action guidelines.	Restriction on operations which can not be initiated in ecological critical areas Regulation on vehicles emitting smoke which is harmful to the environment Follow standards on quality of air, water, noise and soil Sets limits for discharging and emitting waste	Ministry of Environment and Forests, and Climate Change
2	National Environmental Management Action Plan (NEMAP), 1995	An action plan to identify key environmental issues affecting Bangladesh, identifies actions for reducing the rate of environmental degradation and improve quality of life.	Sectoral agencies to coordinate with MoEFCC in preparing environmental guidelines	Ministry of Environment and Forests, and Climate Change
3	Environment Court Act, 2000 and subsequent amendments in 2003	Establishment of Environment Court for trial of an offence or for compensation under environmental law, such as environment pollution.	Option to affected persons for grievances related to environment safeguards.	Ministry of Environment and Forests, and Climate Change
4	The Forest Act (1927) and Forest (Amendment) Act (2000)	An act to control trespassing, illegal resource extraction and provide a framework for the forestry revenue collection system;	Requires clearances for any project within forest areas and clearances for any felling, extraction, and transport of forest produce.	Department of Forests
5	National Forest Policy (1994)	To conserve existing forests and bring about 20% of the country's land area under the Forestation Programme and increase reserved forests by 10% per year until 2015	Incorporate tree planting in the subproject Clearance for any felling, extraction, and transport of forest produce	Department of Forests
6	The Bangladesh Wildlife (Conservation & Security) Act, 2012	To conserve and protect wildlife in Bangladesh including designation of protected areas. Protection of wildlife is provided with lists of species with four schedules: first, second, third and fourth schedule. The fourth schedule species have the highest level of protection.	Consultation and necessary permits required if the project will pass through the wildlife sanctuaries and other protected areas.	Department of Forests
7	National Safe Drinking Water Supply and Sanitation Policy of 1998	Ensures access to safe water and sanitation services at an affordable cost	Pourashavas and water sanitation authorities will take actions to prevent wastage of water. They will take necessary steps to increase public awareness to prevent misuse of water Pourashavas shall be responsible for solid waste collection, disposal and their management	Ministry of Local Government, Rural Development, and Cooperatives

No.	Environmental Legislation / Act	Objective	Relevance to the Project	Responsible Institution
8	National Water Act 2013	Ensures Bangladesh water sources are free from any type of pollution. Pollution from water in urban outfalls and reservoirs, e.g. lakes, canals, ponds and ditches may result in amenity losses, fisheries depletion, health problems and fish and aquatic species contamination.	Secure clearance certificate on water resource development subprojects	Ministry of Water Resources
9	Wetland Protection Act 2000	Advocates protection against degradation and resuscitation of natural water-bodies such as lakes, ponds, beels ¹ , khals, tanks, etc. affected by man-made interventions or other causes. Prevents the filling of publicly-owned water bodies and depressions in urban areas for preservation of the natural aquifers and environment. Prevents unplanned construction on riverbanks and indiscriminate clearance of vegetation on newly accreted land.	In case of diversion of water from Naf river, detailed assessment will be done	Ministry of Water Resources
10	Bangladesh Labor Law, 2006	It is a comprehensive law covering labour issues such as: conditions of service and employment, youth employment, benefits including maternal benefits, compensation for injuries, trade unions and industrial relations, disputes, participation of workers in company's profits, regulation of safety of dock workers, penalty procedures, administration and inspection. This Act pertains to the occupational rights and safety of factory workers and the provision of a comfortable environment for working. It also includes rules on registration of labourers, misconduct rules, income and benefits, health and fire safety, factory plan	Compliance to provisions on employment standards, occupational health and safety, welfare and social protection, labor relations and social dialogue, and enforcement. Prohibition of employment of children and adolescents.	Ministry of Labor and Employment
11	Bangladesh Labor Rules, 2015	Includes rules on registration of laborers, misconduct rules, income and benefits, health and fire safety, factory plan	Contractors to implement occupational health and safety measures Contractor will be liable for compensation for work-related injuries	Department of Labor
12	The Pourashava Act 2009 / Ordinance issued for the amendment of local government (municipality) ordinance, 2009 and 2010; The Pourashava Ordinance, 1977;	Provides guidance for subproject integrated community and workers health and hygiene at the construction and operation and maintenance stages of the project	Coordinate with pourashava committees on disaster management measures, water and sanitation and waste management	Local Authorities

¹ A beel is a billabong or a lake-like wetland with static water (as opposed to moving water in rivers and canals - typically called khaals), in the Ganges - Brahmaputra flood plains of the Eastern Indian states of West Bengal, and Assam and in the country of Bangladesh.

No.	Environmental Legislation / Act	Objective	Relevance to the Project	Responsible Institution
	Municipal Administration Ordinance, 1960			
13	Bangladesh Climate Change Strategy and Action Plan of 2009	Enhances the capacity of government ministries, civil society and private sector to meet the challenges of climate change	Integrate adaptation measures for buildings in consideration of extreme climatic events	Ministry of Environment, Forests and Climate Change
14	Building Construction (Amendment) Act and Building Construction Rules, Bangladesh National Building Code	Regulates technical details of building construction and to maintain standards of building construction	Follow specifications to ensure structural integrity of buildings	Ministry of Housing and Public Works
15	Electricity Act, 1910 and Electricity Rules 1937	Requires compensation for any damage, detriment or inconvenience caused by the project; Requires precautionary measures in laying down electricity supply lines near or where any metallic substance or line crosses to avoid electrocution	Secure permission to supply energy and lay down or place electricity supply lines for the conveyance and transmission of electricity from respective authorities prior to any works Give full compensation for any damage, detriment or inconvenience caused by him or by anyone employed by him Take precautions in laying down electricity supply lines near or where any metallic substance or line crosses in order to avoid electrocution	Ministry of Power, Energy and Mineral Resources
16	The National Energy Policy (1996 and Updated 2004)	Ensures environmentally sound sustainable energy development programs causing minimum damage to the environment, to encourage public and private sector participation in the development and management of the energy sector and to bring the entire country under electrification.	Public and private sector participation in the development and management of the energy subprojects. Provides guidelines for renewable energy subprojects	Ministry of Power, Energy and Mineral Resources
17	Standing Order on Disaster, 1999 (Updated 2010)	Enhances capacity at all tiers of government administrative and social structures for coping with and recovering from disasters	Geographical information system (GIS) technology will be applied at the planning stage to select location of cyclone shelter considering habitation, communication facilities, distance from the nearest cyclone center, etc Advice from the concerned District Committee should be obtained prior to final decision	Ministry of Disaster Management and Relief
18	National Disaster Management Act of 2012	Establishes a framework for managing disasters in a comprehensive way.	Setting-up emergency response procedures	Ministry of Disaster and Relief

3.2.2 ADB Safeguards policy statement

44 The important elements of ADB's resettlement policy statement (APS 2009) include the following:

- i. Compensation to replace lost assets, livelihood, and income;
- ii. Assistance for relocation, including provision of relocation sites with appropriate facilities and services; and
- iii. Assistance for rehabilitation to achieve at least the same level of well-being with the project as without it.

45 For any ADB operation requiring involuntary resettlement, resettlement planning is an integral part of project design, to be dealt with from the earliest stages of the project cycle, taking into account the following basic principles:

- i. Involuntary resettlement will be avoided whenever feasible.
- ii. Where population displacement is unavoidable, it should be minimized.
- iii. All lost assets acquired or affected will be compensated. Compensation is based on the principle of replacement cost.
- iv. Each involuntary resettlement is conceived and executed as part of a development project or program. Affected persons need to be provided with sufficient resources to re-establish their livelihoods and homes with time-bound action in co-ordination with civil works.
- v. Affected persons are to be fully informed and closely consulted.
- vi. Affected persons are to be assisted to integrate economically and socially into host communities so that adverse impacts on the host communities are minimized and social harmony is promoted.
- vii. The absence of a formal title to land is not a bar to ADB policy entitlements.
- viii. Affected persons are to be identified and recorded as early as possible to establish their eligibility, through a census which serves as a cut-off date, and prevents subsequent influx of encroachers.
- ix. Particular attention will be paid to vulnerable groups including those without legal title to land or other assets; households headed by women; the elderly or disabled; and indigenous groups. Assistance must be provided to help them improve their socio-economic status.
- x. The full resettlement costs will be included in the presentation of project costs and benefits.

3.2.3 SPS (2009) compliance status

46 Refer to **Table 3** for the status of the respective component sub-projects with regard to compliance status to ADB's policy statement (APS 2009).

Table 3 ADB Safeguards Policy compliance Status for the EAP subprojects

ADB Safeguard Policy Statement	Contract Package Status				
	Cyclone Shelter Sub-project	Road Sub-project	Drainage/erosion Sub-project	Water Supply Sub-project	Others Sub-project
(i) Involuntary resettlement will be avoided whenever feasible.	complied	complied	complied	complied	complied
(ii) Where population displacement is unavoidable, it should be minimized.	No displacement	No displacement	No displacement	No displacement	No displacement

ADB Safeguard Policy Statement	Contract Package Status				
	Cyclone Shelter Sub-project	Road Sub-project	Drainage/erosion Sub-project	Water Supply Sub-project	Others Sub-project
(iii) All lost assets acquired or affected will be compensated. Compensation is based on the principle of replacement cost.	NA	Matrix formulated	Matrix formulated	NA	NA
(iv) Each involuntary resettlement is conceived and executed as part of a development project or program. Affected persons need to be provided with sufficient resources to re-establish their livelihoods and homes with time-bound action in co-ordination with civil works.	NA	Provided in Compensation Matrix	Provided in Compensation Matrix	NA	NA
(v) Affected persons are to be fully informed and closely consulted.	complied	complied	complied	complied	complied
(vi) Affected persons are to be assisted to integrate economically and socially into host communities so that adverse impacts on the host communities are minimized and social harmony is promoted.	NA	NA	NA	NA	NA
(vii) The absence of a formal title to land is not a bar to ADB policy entitlements.	NA	NA	NA	NA	NA
(viii) Affected persons are to be identified and recorded as early as possible to establish their eligibility, through a census, which serves as a cut-off date, and prevents subsequent influx of encroachers.	NA	complied	complied	NA	NA
(ix) Particular attention will be paid to vulnerable groups including those without legal title to land or other assets; households headed by women; the elderly or disabled; and indigenous groups. Assistance must be provided to help them improve their socio-economic status.	NA	complied	complied	NA	NA
(x) The full resettlement costs will be included in the presentation of project costs and benefits.	NA	NA	NA	NA	NA

4 Status of Ongoing Contract Packages

4.1 PROJECT STATUS

47 To date 51 sub-projects have been finalized, instead of 60 sub-projects preliminarily identified in 2018. Of them BREB will implement 6 subprojects, DPHE will implement 21 subprojects, LGED will implement 21 subprojects and RHD will implement 3 subprojects. Of these subprojects 37 subprojects are identified as Category B according to ADB classification.

48 According to the ADP policy on environment, all the B category subprojects would require EMP and IEE reports before project implementation to ensure that the projects will be environmental viable and all the environmental laws, rules, restriction and policies of ADB and GoB are attained.

49 To date, 26 sub-projects have been awarded and 25 is at bid preparation stage. The summary status of the subprojects is given in **Table 4**.

Table 4 Sub-project progress status of EAP (information up to 10 June 2019)

Executive Agency	Total Package	Contact awarded	Invitation for Bid	Bid preparation stage	Financial Progress
BREB	6	6	0	0	97%
DPHE	21	10	5	6	19%
LGED	21	7	5	9	29%
RHD	3	3	0	0	97%
Total	51	26	10	15	47%

50 A comparative analysis of contract awards in the first six month (July- December 2018), second six-month (January – June 2019) and third six-month (July – December 2019) has been given in **Table 5**. In the third six-month 4 contracts were awarded while in the first and second six-month 15 and 7 contracts were awarded respectively.

Table 5 Comparative analysis of contract awards in first, second and third six month

Executive Agency	Total Package	Contact awarded in first six month (2018)	Contact awarded in second six month (2019)	Contact awarded in third six month (2019)	Total Contract awarded
BREB	6	4	1	1	6
DPHE	21	1	8	1	10
LGED	21	0	5	2	7
RHD	3	2	1	0	3
Total	51	7	15	4	26

51 The list of sub-projects that have been awarded to date are presented in **Table 6**.

Table 6 List of subprojects been awarded to date and their progress status

SL no.	Component	Package No.	Description	Progress to date
BREB				
1	Disaster Risk management	EAP/BREB/G1	Supply and installation of 200 nos. lightening arresters along the access roads from Palongkhali to Kutupalong camp, and all other camps.	a) All 200 lightening arresters completed b) Progress 100%

SL no.	Component	Package No.	Description	Progress to date
2	Energy	EAP/BREB/G2A	Supply, installation and Operation & Maintenance of 2,000 Nos. Solar PV Powered LED Street Lights	a) All 2,000 street lights completed; 26-Nov-18 b) Progress 100%
3	Energy	EAP/BREB/G2B	Supply and installation of 2,000 nos. solar powered 20-watt LED street lights, in all camps	Completed works: Mini grid = 02 nos., Battery room = 40 nos., Solar panel installation = 40 sites, Battery installation = 40 sites, Battery room construction ongoing = 5 nos., Distribution line = 2 sites complete and pole erection = 1500 nos., Overall work progress is about 75%.
4	Energy	EAP/BREB/G5	Supply, Installation Testing commissioning of 50 nos. solar nano-grid for household electricity supply within the camp (150 household per cluster: to cater 7,500 HH) at Balukhali mega camp	Ongoing sites= 22; Completed works: Battery room= 7 sites, and pole erection = 200 nos., Overall physical progress is about 30%.
5	Energy	EAP/BREB/W1A	Design, Supply, Installation, Testing & Commissioning of 33/11kV, 10/14MVA Electrical Sub-station (Turn-key)	<ul style="list-style-type: none"> • Site development (earth filling) completed. • Control room/ building piling completed. • Boundary piling completed. • Gantry foundation completed. • Switch yard completed. • Overall physical progress is 60%.
6	Energy	EAP/BREB/W2	Design, Supply and Construction of 50 KM, 11KV and Below Lines in the Camp Areas of Displaced Personnel and Other Areas at Ukhiya and Teknaf (Turnkey)	Completed works: Poles installed = 1130 nos., Conductor installation = 43 km, Transformer installed = 10 nos. (out of 100), Fittings completed: 95%. Overall physical progress is 85%.
DPHE				
7	Water and Sanitation	EAP/DPHE/G1	Supply of 7 no. Water Carriers for Emergency Water supply including operation and maintenance for 2 years in Cox's Bazar, Ukhiya and Teknaf	80% physical progress has been achieved up to date.
8	Water and Sanitation	EAP/DPHE/W1	Construction and operation of mini piped water	80% physical progress has been achieved up to date.
9	Water and Sanitation	EAP/DPHE/W2	Construction and operation of mini piped water supply system (10 schemes): Package 2	70% physical progress has been achieved up to date.
10	Water and Sanitation	EAP/DPHE/W3	Construction and operation of mini piped water supply system (10 schemes): Package 3	50% physical progress has been achieved up to date.
11	Water and Sanitation	EAP/DPHE/W4	Construction and operation of mini piped water supply system (10 schemes): Package 4	20% physical progress has been achieved up to date.
12	Water and Sanitation	EAP/DPHE/W5	Construction and operation of mini piped water supply system (5 schemes): Package 5	40% physical progress has been achieved up to date.
13	Water and Sanitation	EAP/DPHE/W10	Construction and operation of Integrated waste management system (Shamlapur, Teknaf) Group -1	10% physical progress has been achieved to date.
14	Water and Sanitation	EAP/DPHE/W13	Construction of Community Bathing Facilities (100 units), Group -1	100% physical progress has been achieved up to date.
15	Water and Sanitation	EAP/DPHE/W14	Construction of Community Bathing Facilities (200 units), Group -2	100% physical progress has been achieved up to date.
16	Water and Sanitation	EAP/DPHE/W15	Construction of Community Bathing Facilities (200 units), Group -3	95% physical progress has been achieved up to date.
LGED				
17	Roads	EAP/LGED/ OCB-N/W3	Improvement of 1.5 km existing Folia Para road connecting Highway to U-B Road Ukhiya+ Upgradation of 5.5 km existing	15% physical progress has been achieved to date.

SL no.	Component	Package No.	Description	Progress to date
			N.I. Chowdhury Road Connecting Marine Drive to U-B road.	
18	Roads	EAP/LGED/OCB-N/W5	Upgradation of existing 8.8 km link road connecting Coks Bazar-Teknaf and Marine Drive Highways, Ukhiya	20% physical progress has been achieved to date.
19	Disaster Risk Management	EAP/LGED/OCB-N/W6	Construction of 4 nos. school cum cyclone shelter for affected people, 3 story LGED Prototype, in Ukhiya	36% physical progress has been achieved up to date.
20	Disaster Risk Management	EAP/LGED/OCB-N/W8	Construction of 3 nos. school cum cyclone shelter for affected people, 3 story LGED Prototype, in Ukhiya	52% physical progress has been achieved up to date.
21	Disaster Risk Management	EAP/LGED/OCB-N/W9	Construction of 3 nos. School cum cyclone shelter for affected people, 3 story LGED Prototype, in Teknaf	35% physical progress has been achieved up to date.
22	Disaster Risk Management	EAP/LGED/OCB-N/W19	"Construction of Semi-Permanent Food Distribution Centers and loading /unloading yard in Ukhiya and Teknaf	51% physical progress has been achieved up to date.
23	Disaster Risk Management	EAP/LGED/CON/1	Design, Monitoring and Supervision consulting services through ICT for LGED component, Coks Bazar	Consultant fielded as per TOR.
RHD				
24	Roads	EAP/RHD/W1	Rehabilitation of National Highway from LinkRoad (Coks Bazar) (Chainage 381+494) to Ukhiya (Chainage- 406+494)	<ul style="list-style-type: none"> • Pavement for widening (sub-base) 23 km (100%) completed • Pavement for widening (ISG) 23 km (100%) completed • Box cutting 23 km (100%) completed • 6 out of 10 culverts completed • One km (100%) Toe Wall (100%) completed • 3.5 km out of 6.5 km "U"-shaped drain completed
25	Roads	EAP/RHD/W2	Rehabilitation of National Highway from Ukhiya (Chainage 406+494) to Unchiprang (Chainage-431+494)	<ul style="list-style-type: none"> • 16.75 km out of 21 km pavement for widening (sub-base) completed • 16.75 km out of 21 km pavement of widening (ISG) completed • 16.75 km out of 21 km Box cutting completed • 6 out of 12 culverts completed • 1.588 km out of 2 km Toe Wall completed • 0.95 km out of 12.20 km "U"-shaped drain completed
26	Roads	EAP/RHD/CON/1	Design, Monitoring and supervision consulting services for RHD component , Cox's bazar	Contract signed on 30 April 2019 and consultant fielded as per TOR.

52 The list of sub-projects that are Invited for Bidding (IFB) process is presented in the **Table 7** below.

Table 7 List of subprojects at IFB stage awarded to date and their possible award date

SL no.	Component	Package No.	Description	Progress to date
DPHE				
1	Water and Sanitation	EAP/DPHE/G4	Supply and operation of 4 no. drilling rigs	IFB was published on 01 April 2019. Bids received on 16 May 2019. BER has been submitted and recommended for re-bidding as none of the bidder found qualified. IFB for re-bidding is done. Evaluation is in progress. Contract signing is expected by December 2019.

SL no.	Component	Package No.	Description	Progress to date
2	Water and sanitation	EAP/DPHE/W9A	Construction and operation of 2 Integrated waste management and resource recovery facilities with collection system at the outskirts of Kutupalong Balukhali Megacamp, Ukhiya Group-2	IFB published on 09 October 2019 for both lots. Bid openings for 1st lot done on 11 November 2019 and on 28 October for 2nd lot. Bid evaluations are in progress. Contract signing is expected by January 2020.
3	Water and sanitation	EAP/DPHE/W9B	Construction and operation of Integrated waste management (Kutupalong Balukhali) Group-3	IFB published on 25 November 2019. Bid closing date is 24 December 2019. Contract signing is expected by February 2020.
4	Water and sanitation	EAP/DPHE/W12B	Construction of piped water systems (Unchiprang/ Shamlapur)	No Objection to Contract Award issued on 5 December 2019. Contract signing is expected by the end of December 2019.
5	Water and Sanitation	EAP/DPHE/CON/1	Design, Monitoring and Supervision consulting services of DPHE component, Cox's Bazar	RFP submission and opening were completed on 24 June 2019. Submission 2 was submitted to ADB on 09 August 2019. No-Objection to Submission 2 issued to EA on 26 August 2019. Submission 3 was issued to ADB on 1 October 2019. No objection issued to EA on 2 October 2019. Contract negotiation is done. Contract signing is expected by the end of December 2019.
LGED				
6	Roads	EAP/LGED/OCB-N/W1B	Construction of 7.5 km Internal Roads and Stairs with Drainage Facilities Inside the camps. in Ukhiya, Group 2	Re-bid published on 08 August 2019. Bid opening done on 03 September 2019. Bid evaluation done. No Objection to Contract Award issued (by email) on 27 November 2019. Contract signing is expected by 20 December 2019.
7	Disaster Risk management	EAP/LGED/OCB-N/W11	Hill Slope Protection Works inside the Kutupalong Balukhali Inside Mega Camp Ukhiya Group -2	IFB published on 06 August 2019. Bid proposals received on 29 August 2019. Considering the limitation in implementing the work, this package to be dropped from the procurement plan.
8	Disaster Risk management	EAP/LGED/OCB-N/W12	Hill Slope Protection Works inside the Kutupalong Balukhali Inside Mega Camp Ukhiya Group -3	IFB published on 06 August 2019. Bid proposals received on 29 August 2019. However, considering the limitation in implementing the work, this package to be dropped from the procurement plan.
9	Disaster Risk management	EAP/LGED/OCB-N/W20	Construction of Storm Water Drainage Network inside camps and evacuating water outside camps, 2 groups in Ukhiya	No Objection to Contract Award issued on 27 November 2019. Contract signing is expected by 15 December 2019.
10	Disaster Risk management	EAP/LGED/OCB-N/W21	Construction of Storm Water Drainage Network inside camps and evacuating water outside camps: 1 group in Teknaf	IFB published on 05 August 2019. Bid proposals received on 29 August 2019. No Objection to Contract Award issued (by email) on 27 November 2019. Contract signing is expected by 15 December 2019.

53 The list of sub-projects that are under bid preparation is presented in the **Table 8** below.

Table 8 List of subprojects been under bid preparation stage awarded to date

SL no.	Component	Package No.	Description	Progress to date
DPHE				
1	Water and sanitation	EAP/DPHE/G2	Supply and operation of waste management equipment/vehicle for two years for Camps in Ukhiya.	a) Equipment selection and specification preparation are in progress. It is related to the design of work packages W9A and W9B. b) IFB publication is expected by December 2019.

SL no.	Component	Package No.	Description	Progress to date
2	Water and sanitation	EAP/DPHE/G3	Supply and operation of waste management equipment/vehicle for two years for camps in Teknaf.	a) Equipment selection and specification preparation are in progress. It is related to the design of work packages W9A and W9B. b) IFB publication is expected by December 2019.
3	Water and sanitation	EAP/DPHE/W11	Construction of Surface Water Treatment Plant for supporting water supply at Cox's Bazar city and surrounding areas	a) Site selection, design and cost estimation are in progress. b) IFB publication is expected by December 2019.
4	Water and sanitation	EAP/DPHE/W12A	Construction of surface water reservoir based piped water system (Nayapara, Teknaf)	a) Site selection, design and cost estimation done. b) Approval of cost estimation is in progress. c) IFB publication is expected by 10 December 2019.
5	Water and sanitation	EAP/DPHE/W18	Construction of piped water supply with surface water reservoirs, treatment plant and other and associated facilities at Ukhiya	a) Site selection confirmed. b) Design and cost estimation are in progress. c) IFB publication is expected by December 2019.
6	Water and sanitation	EAP/DPHE/W19	Supply Installation of Omni processor	a) Bid document has been finalized. b) IFB publication is expected by 10 December 2019.
LGED				
7	Roads	EAP/LGED/OCB-N/W1A	Construction of 7.5 km Internal Roads and Stairs with Drainage Facilities Inside the camps in Ukhiya, Group 1	Scope of work has been revised. Survey and Estimation are in progress. The package will be rebid. IFB publication is expected by 25 December 2019.
8	Roads	EAP/LGED/OCB-N/W2A	Construction of 7.5 km Internal Roads and Stairs with Drainage Facilities Inside the camps. in Ukhiya -Group 3	32% higher than the schedule rate observed during first bidding, the package will be rebid. Estimate review is in progress. IFB for rebid is expected by 15 December 2019.
9	Roads	EAP/LGED/OCB-N/W2B	Construction of 7.5 km Internal Roads Internal Roads and Stairs with Drainage Facilities Inside the camps in Teknaf Group 4	EA requested to reject the previous tender and allow rebidding the package considering new rate schedule of LGED and changes in scope of the sub-projects. No objection to rebid the package issued to EA on 27 November 2019. IFB for rebid is expected to be published by 15 December 2019.
10	Disaster Risk management	EAP/LGED/OCB-N/W10	Hill Slope Protection Works inside the Kutupalong Balukhali Mega Camp, Ukhiya Group -1	EA has decided to reject the previous bid. Considering the limitation in implementing the work and changes in scope of work, this will be re-packaged. Bid document preparation is in progress. IFB publication is expected by 30 December 2019.
11	Disaster Risk management	EAP/LGED/OCB-N/W4C	Improvement of Hajirpara Mukter Swdagor bari Side-Dakhin Faliapara Sajahan bari Rd. Ch. 00-2400 m, Malercul LGED Road-Dakhin Faliapara Rd. Ch. 00-814 m & Ali Mohammed Pingir Rd. Ch. 00-2327 m by BC, under Ukhiya Upazila, Dist: Cox's Bazar	Not included in the PAM, concurrence required. Bid document preparation is in progress. IFB publication is expected by 10 December 2019.
12	Disaster Risk management	EAP/LGED/OCB-N/W4D	Alternate Road Selection is ongoing to reduce congestion of Cox's bazar-Teknaf Highway in Ukhiya.	Not Included in PAM, Concurrence Required
13	Disaster Risk management	EAP/LGED/OCB-N/W6A	Construction of Boundary Wall of 4 nos. school cum cyclone shelter for affected people, 3 story LGED Prototype, in Ukhiya	Not included in the PAM, concurrence required. This will be re-packaged comprising boundary walls for all 10 school cum cyclone shelters. Bid document preparation is in

SL no.	Component	Package No.	Description	Progress to date
				progress. IFB publication is expected by 10 December 2019.
14	Disaster Risk management	EAP/LGED/OCB-N/W8A	Construction of Boundary Wall of 3 nos. school cum cyclone shelter for affected people, 3 story LGED Prototype, in Ukhiya	This package is dropped from the procurement plan.
15	Disaster Risk management	EAP/LGED/OCB-N/W9A	Construction of Boundary Wall of 3 nos. School cum cyclone shelter for affected people, 3 story LGED Prototype, in Teknaf	This package is dropped from the procurement plan.

4.2 CONTRACT REQUIREMENTS (ENVIRONMENT)

54 The following documents, relating to the identified environmental safeguards, form part of the Contract Package and are part of the monitoring requirements in ascertaining the degree of compliance:

- a. Initial Environmental Examination (IEE)
- b. Environmental Management Plan (EMP); and

55 In addition to the foregoing, the Contractor is to provide the Project Manager with a written notice of any unanticipated environmental risks or impacts that arise during construction, implementation or operation of the Plant or Works, which were not considered in the IEE's and the EMP's.

56 **The general anticipated impacts for all subprojects and their mitigation measures are summarized in later paragraphs for reference of the later chapters which discuss the environmental safeguard compliance in relation to the requirements set by subproject specific EMPs.**

4.2.1 Air Quality

57 During construction period the impact on air quality is mainly due to the material movement. However, air quality over a small area is affected, though, not in significant levels. There is an increase in the dust levels all along the haul roads, the borrow areas and dumping areas is expected. The emissions from the construction machinery are the source of ambient air pollution during the actual construction. Continuous use of generators, bulldozers, rollers, crane, trucks etc. give rise to the ambient levels.

58 The general mitigation measures are as follows:

- In order to curb the increased fugitive dust emissions in the area due to vehicular movement and raw material transport, provisions should be made for sprinkling of water on the haul roads in the area. Sprinkling of water should be carried out at least once a day on a regular basis during the entire construction period. Special attention should be given to all the haul roads passing through residential areas in the region. Daily inspection at haul roads and at construction site should be carried out to ensure removal of construction debris to the landfill sites.
- Covered trucks shall be used for transportation of materials prone to fugitive dust emissions. Additionally, materials which may collect on the horizontal surfaces of these trucks during loading should be removed before transportation.
- Idling of delivery trucks or other equipment should not be permitted when not in active use.
- The emission levels from diesel vehicles being used should be checked on monthly basis and brought to the required levels of emission standards.
- Proper care should be taken for storage of furnace oil, diesel, petrol etc.

- Work schedule and the operation time of construction machinery should be suitably modified to exercise a control on ambient air quality standards.
- To ensure the efficacy of the mitigation measures suggested, air quality monitoring shall be carried out as per environmental monitoring plan;
- As soon as the construction activity is over the surplus earth should be utilized to fill up the low-lying areas, if any.

4.2.2 Noise Quality

59 Noise quality is also important for the construction phase. During the construction phase, there would be an increase in ambient noise levels due to construction machinery operation and movement of construction vehicles.

60 The following mitigation measures may be adopted:

- Construction yard shall be established at least 200 m away from any residential area. This will allow the noise to attenuate.
- Special acoustic enclosures should be provided for individual noise generating equipment. Enclosures may be provided by way of noise shields, which can, be either brick masonry structure or any other physical barrier which is effective in adequate attenuation of noise levels. A 3 m structure made up of brick and mud with internal plastering and of non-reflecting surface will be very effective in this regard.
- Noise measurement should be conducted during construction to assess the prevailing noise levels. Earplugs should be provided to those workers who will be working very close to noise generating construction machinery.
- The exposure of workers to high noise levels especially, near the construction site needs to be minimized during construction period. This could be achieved by: Job rotation, Protective devices, and Noise barriers. Stationery construction equipment should not be located near human habitation in particular schools, hospitals and institutions.
- Noise levels from loading and unloading can be reduced by usage of various types of cranes and by placing materials on sand or on the beds of sandy bags.
- Use of noisy construction equipment should not be permitted during night hours near residential areas or sensitive areas.

4.2.3 Disposal of Construction Spoil and Debris

61 During construction about 15% of gravel, sand, bricks and cement is left as construction spoils. It is advocated that construction spoils shall be disposed off at a site, as approved by the local authority. The Contractor shall prepare a spoils management plan, which shall include the following:

- i. Spoils Information: Materials Type; Potential Contamination; Expected Volume and Sources; Spoil Classification
- ii. Spoils Management: Transportation of Spoil; Storage of Spoil; Contamination of Spoil; Approved Reuse and/or Disposal Sites
- iii. Records of Reuse and/or Disposal

4.2.4 Surface Water and Groundwater Contamination

62 Use of toxic materials such as solvents and vehicle maintenance fluid (oil, coolant) and diesel fuel may contaminate surface and groundwater if these are disposed of directly into the ground or washed into the streams. Human waste from construction workers may also contaminate surface water and groundwater if there are no adequate sanitary facilities.

63 The following mitigation measures can be adopted:

- All earthworks must to be conducted during dry season/dry spell to maximum extent possible to avoid the difficult working conditions that prevail during monsoon season such as problems from runoff.
- Prioritize re-use of excess spoils and materials in construction activities. If spoils will be disposed, consult with Local Authority on designated disposal areas.
- Ensure diverting storm water flow during construction shall not lead to inundation and other nuisances in low-lying areas.
- Monitor water quality according to the environmental management plan.
- Garbage disposal service to be provided, Concrete refuse reused or disposed of without habitat loss;
- All other effluents not to be disposed of directly into natural waters, but via settling basins to allow suspended sediment to settle out.
- Workforce camps will be located away from water resources. All practical measures such as provision of septic tanks, garbage bags, and other sanitation facilities will be implemented at the construction camps to prevent the wastewater and solid wastes from entering well and groundwater recharge areas.
- Wells used for drinking will be tested quarterly to ensure potability. The wells will be designated during labour camp establishment.
- Take all precautions to minimize the wastage of water in the construction activities. In this case there is no waterbody nearby. However, it needs to be noted that, no temporary or long-term waterlogging during the construction should be allowed.

4.2.5 Occupational and Health and Safety Risks

64 Occupational hazards may arise if not properly managed (risk of fall and electrocution, etc). Increase in dust may cause health problems to workers. Insufficient supply and improper use of personal protective equipment (PPE) and lack of safety procedures may cause injuries or fatal accidents. For safety there will be a need to interrupt electricity supply to existing businesses while new poles, conductors and other installations are put in place. This needs to be done in a phased manner allowing small sections of lines to be reconnected to the network, keeping down time to a minimum for existing users. Close contact with persons afflicted with diseases and lack of sanitation in workers camps may also pose health risks. Outbreaks of diseases like diphtheria and measles can be avoided by observing proper sanitation facilities and observing good personal hygiene habits.

65 The following generic measures suggested are as followed;

- Comply with requirements of Government of Bangladesh Labour Law of 2006 (amended in 2013) and all applicable laws and standards on workers' health and safety (H&S).

- Ensure that all site personnel have a basic level of environmental awareness training. If necessary, the environmental management specialist and/or a translator shall be called to the sites to further explain aspects of environmental or social behavior that are unclear.
- Produce and implement a site H&S plan which include measures as: (i) excluding the public from worksites; (ii) ensuring all workers are provided with and required to use personal protective equipment (reflectorized vests, footwear, gloves, goggles and masks) at all times; (iii) providing H&S training for all site personnel; (iv) documenting procedures to be followed for all site activities; and (v) maintaining accident reports and records.
- Arrange for readily available first aid unit including an adequate supply of sterilized dressing materials and appliances
- Maintain necessary living accommodation and ancillary facilities in functional and hygienic manner in work camps. Ensure (i) uncontaminated water for drinking, cooking and washing, (ii) clean eating areas where workers are not exposed to hazardous or noxious substances; and (iii) sanitation facilities are available at all times.
- Provide medical insurance coverage for workers;
- Provide H&S orientation training to all new workers to ensure that they are apprised of the basic site rules of work at the site, personal protective protection, and preventing injuring to fellow workers;
- Provide visitor orientation if visitors to the site can gain access to areas where hazardous conditions or substances may be present. Ensure also that visitor/s do not enter hazard areas unescorted;
- Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas;
- Ensure moving equipment is outfitted with audible back-up alarms;
- Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal. Signage shall be in accordance with international standards and be well known to, and easily understood by workers, visitors, and the general public as appropriate; and - Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively.

4.2.6 Community Health and Safety Hazards

66 Community hazards may arise during construction (dust, air quality, noise, electrocution etc.). Traffic accidents and vehicle collision with pedestrians during material and waste transportation may occur if no proper signages are placed.

67 The following Generic Measures are suggested:

- Contractor's activities and movement of staff will be restricted to designated construction areas.
- Locations of hot-mix plants, batching plants and crushers (if these establishments are being set up exclusively for the subproject) shall be located at least 100 m away from the nearest dwelling preferably in the downwind direction.
- Consult with the Local Authority on the designated areas for stockpiling of, soils, gravel, and other construction materials.
- If the contractor chooses to locate the work camp/storage area on private land, he must get prior permission from the environment management specialist and landowner.

- Use small mechanical excavators to attain faster excavation progress. For rock and concrete breaking, use non-explosive blasting chemicals, silent rock cracking chemicals, and concrete breaking chemicals.
- Under no circumstances may open areas or the surrounding bushes be used as a toilet facility.
- Recycling and the provision of separate waste receptacles for different types of waste shall be encouraged.
- A general regard for the social and ecological well-being of the site and adjacent areas is expected of the site staff. Workers need to be made aware of the following general rules:
 - (i) no alcohol/drugs on site; (ii) prevent excessive noise; (iii) construction staff are to make use of the facilities provided for them, as opposed to ad hoc alternatives (e.g. fires for cooking, the use of surrounding bushes as a toilet facility); (iv) no fires permitted on site except if needed for the construction works; (v) trespassing on private/commercial properties adjoining the site is forbidden; (vi) other than pre-approved security staff, no workers shall be permitted to live on the construction site; and (vii) no worker may be forced to do work that is potentially dangerous or that he/she is not trained to do.
- Interested and affected parties need to be made aware of the existence of the complaints book and the methods of communication available to them. The contractor must address queries and complaints by: (i) documenting details of such communications; (ii) submitting these for inclusion in complaints register; (iii) bringing issues to the environment management specialist's attention immediately; and (iv) taking remedial action as per environment management specialist's instruction.
- The contractor shall immediately take the necessary remedial action on any complaint/grievance received by him and forward the details of the grievance along with the action taken to the environment management specialist within 48 hours of receipt of such complaint/grievance.
- Create traffic regulation and diversion zones during construction work. The proposed site is on the main road, and it is expected that heavy vehicle movements can cause traffic nuisance. Therefore, traffic regulation and diversion will be important to avoid traffic nuisance.

4.2.7 Soil erosion

68 Clearing topsoil in proposed widening areas can lead to loss of nutrient and erosion particularly along the hill cut slopes and dust from unprotected storage sites. The erosion risk at hill cut slopes is possible. Gully erosion along the exposed track slope during rainy season may cause localized sedimentation congestions.

69 The following measures are suggested:

- Topsoil storage areas must be protected during the dry season, wind erosion—by covering.
- Rapid revegetation and use of hydro-seeding and jute erosion protection mats should be applied in areas where erosion is noted during the regular monthly inspections.

4.2.8 Topography and landscape change

70 Visual intrusion from large piles of bridge/culverts materials and ballast obstructing views and excavation along the edge of the alignment leaving large unsafe holes is possible.

71 The following measures are suggested:

- Material stockpiles will be removed as soon as work is completed and the area re-landscaped. Same applies to borrow areas.

4.2.9 Post-construction clean-up

72 Damage due to debris, spoils, excess construction materials.

73 The following general mitigation measures are suggested:

- Remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required;
- All excavated roads shall be reinstated to original condition;
- All disrupted utilities restored;
- All affected structures rehabilitated/compensated;
- The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up;
- All hardened surfaces within the construction camp area shall be ripped;
- All imported materials removed, and the area shall be top soiled and regressed using guidelines set out in the re-vegetation specification that forms part of this document;
- The contractor must arrange the cancellation of all temporary services;
- Request PIU to report in writing that worksites and camps have been vacated and restored to pre-project conditions before acceptance of work.

4.2.10 Submission of EMP implementation Report:

74 Unsatisfactory compliance to EMP.

75 The following mitigation measures are suggested:

- Appointment of Supervisor to ensure EMP implementation;
- Timely submission of monitoring reports including pictures.

4.3 FINANCING AGREEMENT

76 Financial cost provision for the Contractor to complete all the required Environmental mitigation and monitoring requirements is given in the EMP cost stipulated with the subproject specific EMPs, along with the stipulated frequency and extent of sample monitoring, in accordance with the respective Environmental Management and Monitoring Plan, of the particular contract package.

5 Environmental Status

5.1 STATE OF ENVIRONMENTAL SAFEGUARDS DOCUMENTS

77 To date (December 2019) out of 33 B category projects according to ADB classification, 31 IEEs (including 11 indicative IEE) have been drafted with 32 EMPs (1 dropped) and 9 ECoPs (2 dropped). Some EMPs and subsequent IEEs are due to either design revision or additional survey work (those are stated as indicative IEEs). **Table 9** represents the status of preparation of safeguards documents.

Table 9 Summary Status of safeguards documents preparation for B category subprojects

Agency	Total B Category project	IEE	EMP	ECoP
DPHE	13	11	11	4
LGED	20	7	13	1
RHD	02	2	2	0
REB	02	2	2	0
Total	37	22	28	5

78 To date 11 EMPs for DPHE, 17 EMPs for LGED, 2 EMPs for BREB and 2 EMPs for RHD have been prepared. Of 31 IEEs, 11 IEEs for DPHE, 16 IEEs for LGED, 2 IEEs for RHD and 2 IEEs for BREB have been prepared. Details of subproject wise status of IEE and EMP preparation has been presented in **Table 10**.

Table 10 Subproject wise status of preparation of safeguards documents

SI No.	Package No.	Category	EMP	IEE	ECoP
BREB					
01	EAP/BREB/G1	C			
02	EAP/BREB/G2A	C			Done
03	EAP/BREB/G2B	C			
04	EAP/BREB/G5	C			
05	EAP/BREB/W1A	B	Done	Done and disclosed	
06	EAP/BREB/W2	B	Done	Done and disclosed	
Total B category		02	02	02	01
DPHE					
01	EAP/DPHE/G1	C			Done
02	EAP/DPHE/G2	C			
03	EAP/DPHE/G3	C			
04	EAP/DPHE/G4	C			
05	EAP/DPHE/W1	B	Done; Revised once due to design review for final distribution network.	Done; Revised once, see EMP status.	
06	EAP/DPHE/W2	B	Done; Revised twice due to merging of two subprojects into one package; and	Done; Revised twice, see EMP status.	

SI No.	Package No.	Category	EMP	IEE	ECOP
			design review for final distribution network.		
07	EAP/DPHE/W3	B	Done; Revised twice due to merging of two subprojects into one package; and design review for final distribution network.	Done; Revised twice, see EMP status.	
08	EAP/DPHE/W4	B	Indicative EMP done which was revised once due to merging of two subprojects into one package; Final revision will be done after receiving the final design of distribution network.	Indicative IEE prepared, but revision required; see EMP status.	
09	EAP/DPHE/W5	B	Indicative EMP done. Final version will be come out after final design of distribution pipeline.	Indicative IEE prepared, but revision needed, see EMP status.	
10	EAP/DPHE/W9A	B	Done; Revised twice due to location change and inclusion of package W19 in the premise of W9A.	Done; Revised twice, see EMP status.	
11	EAP/DPHE/W9B	B	Done; Revised once due to location change.	Done; Revised once, see EMP status.	
12	EAP/DPHE/W10	B	Done; Revised twice due to location and design changes.	Done; Revised twice, see EMP status.	
13	EAP/DPHE/W11	B	Yet to do. Location and design has not been finalized yet.		
14	EAP/DPHE/W12A	B	Indicative EMP done which was revised once due to spilt the package into two Lots. Final version will be come out after final design of distribution pipeline.	Indicative IEE prepared, but revision required; see EMP status.	
15	EAP/DPHE/W12B	B	Indicative EMP done. Final version will be come out after final design of distribution pipeline.	IEE prepared, but revision needed, see EMP status.	
16	EAP/DPHE/W13	C			Done
17	EAP/DPHE/W14	C			Done
18	EAP/DPHE/W15	C			Done
19	EAP/DPHE/W18	B	Yet to do. Location and design has not been finalized yet.		
20	EAP/DPHE/W19	B	Done	IEE prepared, but revision needed.	
21	EAP/DPHE/CON/1				
Total B category		13	11	11	04
LGED					
01	EAP/LGED/OCB-N/W1A	B	EMP done, 3 rd revision	Indicative IEE done, needs final design set since most roads are in contradiction WB and other finding agencies	Frequent change in plan hampers IEE preparation
02	EAP/LGED/OCB-N/W1B	B	EMP done, 1 st revision		
03	EAP/LGED/OCB-N/W2A	B	EMP done, 5 th revision		
04	EAP/LGED/OCB-N/W2B	B	EMP done, 5 th revision		
05	EAP/LGED/OCB-N/W3	B	EMP done, 4 th revision then design cancelled, redesigned, EMP done 2 nd revision, further design cancelled, EMP done based on third design, 4 th revision	IEE done, cancelled, 2 nd IEE done, cancelled, 2 nd indicative IEE done and cancelled, 3 rd IEE done, needs final design for updating and disclosure	IEE done and delivered, however needs a final update before disclosing
06	EAP/LGED/W4a	B	EMP done, 4 th revision	Subproject dropped after 4 th revision	Cancelled

SI No.	Package No.	Category	EMP	IEE	ECOP
07	EAP/:GED/W4b	B	EMP done, 5 th revision	Subproject dropped after 5 th revision	Cancelled
08	EAP/LGED/OCB/W4C	B	EMP done, 2 nd revision	Indicative IEE done, yet no final design set	Needs one more revision after final design
09	EAP/LGED.OCB/W4D	B	EMP done, 3 rd revision	Indicative IEE done, yet no final design set	Needs one more revision after final design
10	EAP/LGED/OCB-N/W5	B	EMP done 4 th revision, then tender dropped, EMP done on new design 2 nd revision	IEE done, then tender dropped, New IEE done, needs a final revision	IEE done and delivered, however the issue of forest encroachment is to be solved before IEE is disclosed
11	EAP/LGED/OCB-N/W6	B	EMP done, 2 nd revision	IEE done	Disclosed
12	EAP/LGED/OCB-N/W8	B	EMP done, 2 nd revision	IEE done	Disclosed
13	EAP/LGED/OCB-N/W9	B	EMP done, 2 nd revision	IEE done	Disclosed
14	EAP/LGED/OCB-N/W10	B	EMP done, once dropped, now 2 nd revision	Indicative IEE done, needs final design set to finalize	Frequent changes in final design sets making the final IEE difficult
15	EAP/LGED/W19	C	Despite being a C Category project, given its nature EMP was done	IEE not required	
16	EAP/LGED/OCB-N/W20	B	EMP done, 4 th revision, twice dropped, EMP based on new design	Indicative IEE done, needs main design set to finalize	The issue of executability remains, so IEE can be disclosed only after the issue is solved
17	EAP/LGED/OCB-N/W21	B	EMP done, 2 nd revision	Indicative IEE done, needs main design set to finalize	
Total B category	B 16 C 01	17	5 finalized, 9 at indicative stage, waiting for final design set/executability assurance for final disclosure	LGED needs to assure that subprojects are implementable since many subprojects are facing implementation problem	
RHD					
01	EAP/RHD/W1	B	Done	Done and disclosed	
02	EAP/RHD/W2	B	Done	Done and disclosed	
03	EAP/RHD/C ON/1				
Total B category		02	02	02	
Grand Total (B category)		33	29		

79 For a detailed information on safeguards documents produced, see **Figure 3** below.

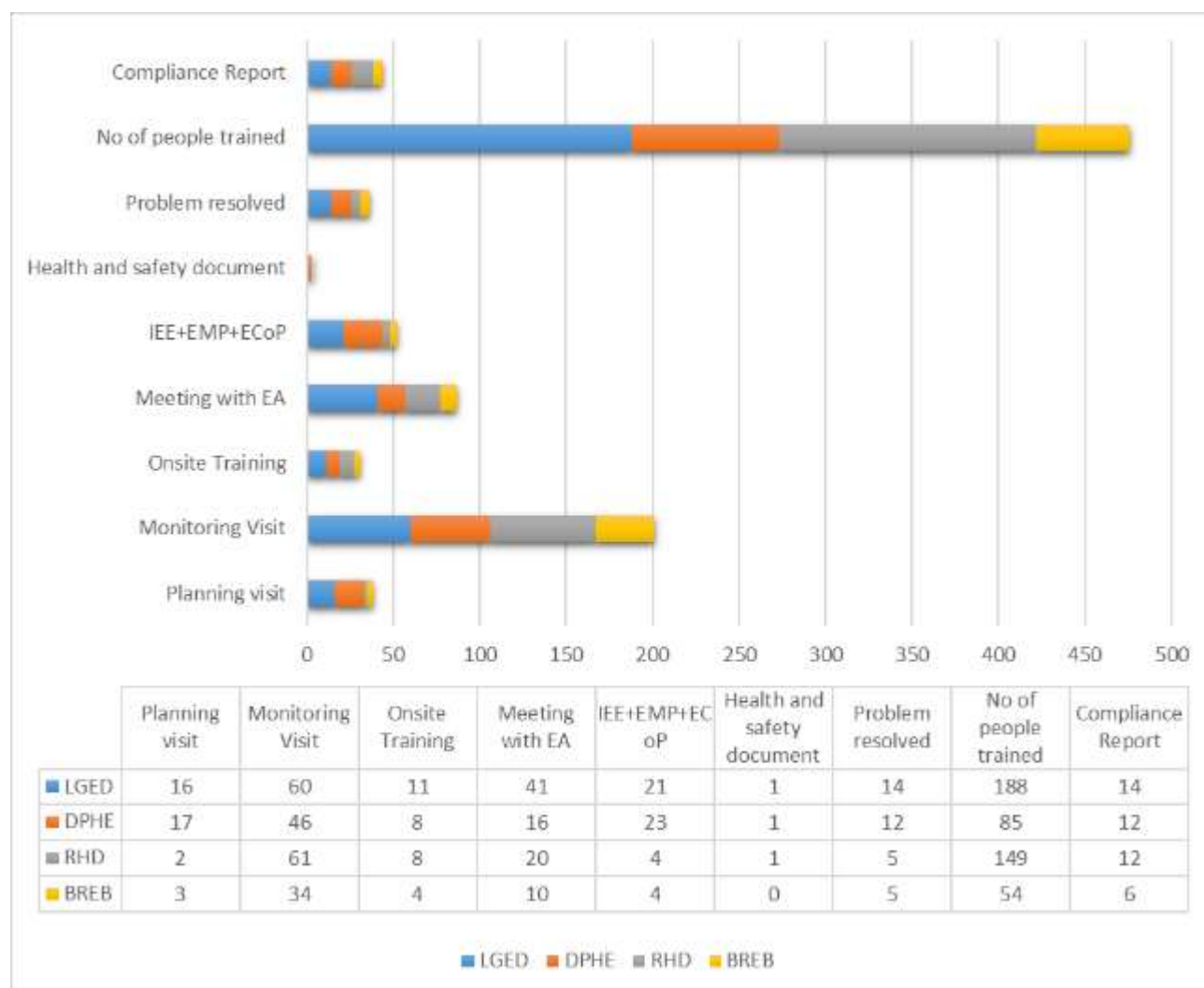


Figure 3 Comparative analysis of safeguard documents produced during monitoring (Information until November 2019)

5.2 ENVIRONMENTAL SAFEGUARDS MONITORING

80 An environmental assessment, using ADB's Rapid Environmental Assessment (REA) checklist for urban development, was conducted and the results of the assessment demonstrated that the subprojects will not cause significant adverse impacts. The proposed infrastructure development programme is classified as Environmental Category B as per the ADB's SPS 2009, as no significant impacts are envisioned. The related initial environmental examination (IEE) reports has been prepared in accordance with ADB SPS 2009 requirements for environment category B projects and provide mitigation and monitoring measures, for no envisaged significant impacts, as a result of implementing the subprojects.

81 The environmental mitigation measures, as stipulated in the respective EMP's and in the obtained environmental permit, are monitored during the implementation programme. In order to monitor the

respective EMP's, two environmental specialists from ADB and one environmental specialist from each executive agency are working as a team with the support of ADB safeguards team.

82 There are no indigenous people present in the subproject areas and so no impact on Indigenous peoples (IPs). These subprojects are hence categorized as Category C for Indigenous People. Therefore, no Indigenous Peoples Development Plan (IPDP) is required for this sub-project.

83 The environmental mitigation measures, as stipulated in respective EMP's for the currently active civil works contract packages, are monitored as part of this EMR-03.

5.2.1 Monitoring Visits

84 During planning phase in 3rd six-month July-Dec 2019, a total 15 visits have been conducted by the Environmental specialists appointed by ADB. Besides, until date 169 environmental safeguards monitoring visits have been conducted at different times during the current cycle (3rd six-month July-Dec 2019) of monitoring period. See **Table 11** for details break down. Also see photographs of monitoring visits in **Figure 5**. **Figure 4-5** presents some photographs of planning visits also. For each monitoring visit, one site visit report/compliance report has been submitted to the concerned EA and ADB and follow ups were tracked to observe corrective measures and desired progress.

Table 11 Environmental safeguards monitoring visit conducted during July-Dec 2019

Site Visit During Planning Phase	Site Visit During Construction Phase				Total
	BREB	DPHE	LGED	RHD	
15	28	51	50	40	184



Figure 5 Monitoring visit to RHD/W1' construction camp site (left) and BREB G2B (right)



Figure 4 Planning visit to LGED' access road package (left) and DPHE' DEWATS package (right)

Table 12 Environmental monitoring visits and trainings conducted during July-Dec 2019

Date	DPHE							LGED						RHD		BREB			
	W1	W2	W3	W4	W5	W14	W15	W8	W3	W5	W6	W9	W19	W1	W2	W1A	W2	G2B	G5
9/07/2019																			
14/07/2019																			
17/07/2019																			
18/07/2019											Training								
22/07/2019																			
27/07/2019																			
28/07/2019																			
31/07/2019																		2 Training	
8/8/2019												2 Training							
26/8/2019								Training											
28/8/2019			Training	Training															
2/9/2019														Training					
6/9/2019																			
17/9/2019										Training									
18/9/2019																			
23/9/2019				Training					Training										
29/9/2019								Training											
2/10/2019																			
3/10/2019		Training																	
4/10/2019																	Training		
9/10/2019																			
12/10/2019	Training																		
13/10/2019																			
22/10/2019																			
11/11/2019																			
16/11/2019																Training			
18/11/2019											Training								
27/11/2019					Training														
4/12/2019				Training								Training							Training
12/12/2019															Training				
18/12/2019														Training	Training				
23/12/2019														Training	Training		Training		Training
26/12/2019																			

Legend	Visit
	Training

5.3 CONSTRUCTION PERIOD ENVIRONMENTAL QUALITY MONITORING

85 In order to ensure proper implementation of the environmental safeguard requirements during the construction period, Contractor have appointed an independent organization named Development Solutions Consultant Limited (DSCL) for testing of required environmental parameters (air quality, noise quality, surface water quality and groundwater quality). All instruments used by the organization are maintained following International Standards and calibrated regularly in accordance with the manufacturer's instructions (**Table 13**).

Table 13 Parameters, methods and laboratory for environmental quality sampling

Environmental Quality	Parameters	Methodology	Laboratory
Ambient Air Quality	PM10 and PM2.5	LATA Envirotech APM 250 with Combined PM10 Sampler	In-house analysis of captured data by DSCL
	SOx, NOx	LATA Envirotech LES 411	
	CO	HTC CO-01 meter	
Noise Level	LAeq in dB	HTC Sound Level Meter	In-house analysis of captured data by DSCL
Surface Water Quality	pH and EC	Onsite test using EZDO 8200 Multi-meter	Onsite testing by DSCL
	Turbidity, TSS, DO, BOD, COD, Cl- and Ammonia	Samples collected from site & sent to the Laboratory for analysis.	Department of Public Health Engineering (DPHE) Laboratories
Groundwater Quality	pH, EC and TDS	EZDO 8200 Multi-meter	Onsite testing by DSCL
	Fe, Mn, As, Cl-, TC, FC	Samples collected from site & sent to the Laboratory for analysis.	Department of Public Health Engineering (DPHE) Laboratories

5.3.1 Air Quality

86 Ambient air quality data at the project site measured to verify the current quality of air. The aim was to collect the existing air quality data and to compare the data with the air quality data during future project activities to check if there is any high air pollution level due to the construction activities and to design adequate mitigation measures, as applicable. Dispersal of pollutants depends upon factors like prevailing wind direction and other weather conditions, atmospheric stability, height of the source. The air quality testing was performed at the project area from 02 October 2019 to 03 October 2019 (**Figure 6**). Filter and each chemical were measured before testing. Electro-Chemical Sensor device were calibrated before testing some other parameters. Results of the air quality monitored at the project location have been showed in **Table 14**. The details of this result are shown in Appendix III of this report.



Figure 6 Air quality monitoring in DPHE/W2 site

Table 14 Test results of ambient air quality monitoring

Parameter	Unit	EAP/DPHE/W2/ AAQ_01 21.20760°N 92.14153°E	EAP/DPHE/W2/ AAQ_02 21.19473°N 92.15831°E	Bangladesh Standard*	Duration (hours)	Method of Analysis
PM2.5	µg/m3	23.31	27.45	65	24	Gravimetric
PM10	µg/m3	65.36	69.89	150	24	Gravimetric
SO2	µg/m3	23.54	27.87	365	24	West- Geake
NO	µg/m3	18.78	21.89	100	Annual	Jacob and Hochheiser
CO	PPM	<1	1	9	8	CO Meter

* The Bangladesh National Ambient Air Quality Standards have been taken from the Environmental Conservation Rules, 1997 which was amended on 19th July 2005 vide S.R.O. No. 220-Law/2005.

87 **PM10:** Particle pollution, also called particulate matter or PM, is a mixture of solids and liquid droplets floating in the air. Some particles are released directly from a specific source, while others form in complicated chemical reactions in the atmosphere. PM10 are 2.5 to 10 micrometers in diameter. Sources include crushing or grinding operations and dust stirred up by vehicles on roads. From the above table of test results, it is seen that, for all the locations, the values were within the national standard.

88 **PM2.5:** PM2.5 are 2.5 micrometers in diameter or smaller, and can only be seen with an electron microscope. Fine particles are produced from all types of combustion, including motor vehicles, power plants, residential wood burning, forest fires, agricultural burning, and some industrial processes. The test results show that for the locations the values of PM2.5 was within the national standards.

89 **SOx:** Sulfur oxides (SOx) are compounds of sulfur and oxygen molecules. Sulfur dioxide (SO2) is the pre-dominant form found in the lower atmosphere. It is a colorless gas that can be detected by taste and smell in the range of 1,000 to 3,000 micrograms per cubic meter (µg/m3). From the test results it can be said that, for all the locations, the value was within the national standard.

90 **NOx:** In atmospheric chemistry, NOx is a generic term for the nitrogen oxides that are most relevant for air pollution, namely nitric oxide (NO) and nitrogen dioxide (NO2). These gases contribute to the

formation of smog and acid rain, as well as tropospheric ozone. The test results above show that, for all the location the values of NO_x are within the national standard.

91 **CO:** Carbon monoxide is a gas and is found in air. High levels of carbon monoxide are poisonous to humans and, unfortunately, it cannot be detected by humans as it has no taste or smell and cannot be seen. The main sources of additional carbon monoxide are motor vehicle exhaust and some industrial activities, such as making steel. Tobacco smoke is one of the main indoor sources of carbon monoxide. The above table shows that, for all the sampling locations, CO was within the national standard.

5.3.2 Noise Measurement

92 Noise level data were collected from 05 project locations during day time from 02 to 3 October 2019 (**Figure 7**) for 2 hours. Noise level measurement device was calibrated before noise level measurement. Result of the noise level monitored along with details of the sampling locations have been showed in **Table 15**. The details result is given in Appendix III of this report.



Figure 7 Noise level monitoring in DPHE/W2 site

Table 15 Test results of noise level monitoring

Sample ID	Sample Location	Time		Noise Level (dBA) (LAeq)	Bangladesh Standard*	Land Use Category
		Start	End			
EAP/DPHE/W2/NM_01	21.207600N 92.141530E	11:00 am	01:00 pm	55.01	55	Residential
EAP/DPHE/W2/NM_02	21.208770N 92.145330E	01:14 pm	03:14 pm	51.32	55	Residential
EAP/DPHE/W2/NM_03	21.209540N 92.158430E	03:40 pm	05:40 pm	58.84	55	Residential
EAP/DPHE/W2/NM_04	21.194730N 92.158310E	10:47 am	12:47 pm	65.35	55	Residential
EAP/DPHE/W2/NM_05	21.198120N 92.156060E	02:14 pm	04:14 pm	61.32	55	Residential

*Notes: Land use category is based on the classification provided in the Noise Pollution Control Rules (2006), The sound level standards for residential area are 55 at day time and 45 at night time. Noise Level is the average noise recorded over the duration of the monitoring period.

93 The result shows that time weighted average value of the sound monitored inside the project exceeded the standard set for the residential area for most of the sampling locations except EAP/DPHE/W2/NM_02. The test result revealed that the amount of noise is not much disturbing due to project components. There are different types of residential, educational and religious institutions are present in Ukhiya mega camp area which creates some amount of noise. There were different types of interruptions during the monitoring period.

5.3.3 Surface Water Quality

94 The surface water sample was collected on 3 October 2019 from a large canal flows through camp 8W (**Figure 8**). EZDO-8200 Multi-meter was used the conduct the on-site test of pH and EC for surface water. The collected samples have been sent to Department of Public Health Engineering (DPHE) for other remaining parameters. Before collecting water sample, sample bottle was washed with distilled water. Results of the surface water quality at the project location have been showed in **Table 16**. The Laboratory test result is given in Appendix III of this report.



Figure 8 Surface water sampling and onsite testing in DPHE/W2 site

Table 16 Test results of surface water quality monitoring

Parameter	Unit	Concentration Present in EAP/DPHE/W2/SW_01	Standards for Inland Surface Water* (ECR,1997)	Standards for Project Waste Water* (ECR,1997)	Analysis Method
		21.20734°N 92.14167°E			
Turbidity	NTU	1732	NYS	NYS	Turbidity Meter
pH	-	8.10	6-9	6-9	Multimeter
EC	µs/cm	905	1200	1200	Multimeter
Cl-	mg/L	90	600	600	Titrimetric
NH3-N	mg/L	3.86	50	75	UVS
DO	mg/L	4.32	4.5-8	4.5-8	DO Meter
COD	mg/L	140	200	400	CRM
BOD5	mg/L	29	50	250	5 days Incubation

Parameter	Unit	Concentration Present in EAP/DPHE/W2/SW_01	Standards for Inland Surface Water* (ECR,1997)	Standards for Project Waste Water* (ECR,1997)	Analysis Method
		21.20734°N 92.14167°E			
TSS	mg/L	21	150	500	Gravimetric

* Standards for Inland Surface Water and Project Waste Water is followed Environmental Conservation Rule (ECR)'97

95 **Turbidity:** Turbidity is a measure of the degree to which the water loses its transparency due to the presence of suspended particulates. The more total suspended solids in the water, the murkier it seems and the higher the turbidity. Turbidity is considered as a good measure of the quality of water. Turbidity of the project location was found 1732 NTU.

96 **pH:** The "desirable" range of pH prescribed by the DOE is between 6.5 and 8.5. This is the range, which provides adequate protection to the life of fresh water fish and bottom dwelling invertebrates. The pH value of the collected sample was within the national standard.

97 **Electrical Conductivity (EC):** EC stands for electrical conductivity, which measures the potential for a material to conduct electricity. The test results show that EC value was found 905 µs/cm which was within the national standard.

98 **NH₃-N:** Nitrogen is an essential nutrient that is required by all plants and animals for the formation of amino acids. In its molecular form, nitrogen cannot be used by most aquatic plants; therefore, it must be converted to another form. The test results show that the value of NH₃-N was found 3.86 mg/l for the sampling location.

99 **Dissolved Oxygen (DO):** Dissolved oxygen is necessary for many forms of life including fish, invertebrates, bacteria and plants. Decrease in DO values below the critical level of 3 mg/L causes death of most fishes and other aerobic aquatic organisms. The DO value was found 4.32 mg/L for the sampling location which are below the national standard. Rohingya people throw their household and other waste into this canal that polluted the water and decrease the DO level.

100 **Chemical Oxygen Demand (COD):** COD or Chemical Oxygen Demand is the total measurement of all chemicals in the water that can be oxidized. The value of COD was 140 mg/L which is within the national standard according to ECR,1997.

101 **Biochemical Oxygen Demand (BOD₅):** Biochemical Oxygen Demand is supposed to measure the amount of food (or organic carbons) that bacteria can oxidize. The standard for inland surface water for BOD₅ is 6 or less mg/L. the test results show that, BOD₅ value was 29 mg/L which did not exceed the national standard. Rohingya people throw their household and other waste into this canal that polluted the water.

102 **Chloride:** Chlorides are important in detecting the contamination of groundwater by sewage. Chlorides are leached from various rocks into soil and water by weathering. The chloride ion is highly mobile and is transported to closed basins or oceans. Chloride occurs in all-natural water in widely varying concentration. The chloride content normally increases as the mineral content increases. The test results show that, Chloride value was 90 mg/L which is within the national standard according to ECR,1997.

103 **Total Suspended Solids (TSS):** Total suspended solids (TSS) are the dry-weight of particles trapped by a filter. The test results show that, TSS value was 21 mg/L which is within the national standard according to ECR,1997.

5.3.4 Groundwater Quality

104 Groundwater sample is collected from shallow tube well in Water Distribution Zone: 8W.8, Camp: 8W (**Figure 9**). The depth of the tube well is around 100ft. It is used for drinking and bathing purposes. EZDO-8200 Multi-meter was used to conduct the on-site test of pH, EC and TDS for groundwater. The groundwater sample was collected on 3 October 2019. The bottle was washed by distilled water before using for water sample collection. Results of the groundwater quality at the project location have been showed in **Table 17**. The Laboratory test result is given in Appendix III of this report.



Figure 9 Groundwater sampling and onsite testing in DPHE/W2 site

Table 17 Test results of groundwater quality monitoring

Parameter	Unit	Concentration Present in EAP/DPHE/W2/GW_01	Standards for Drinking Water**	Analysis Method
		21.194730N 92.158310E		
pH	-	6.11	6.5-8.5	Multi-meter
EC	µs/cm	189.12	NYS	Multi-meter
TDS	mg/L	121.2	1000	Multi-meter
Fe	mg/L	0.11	0.3-1.0	AAS
As	mg/L	0.001	0.05	AAS
Mn	mg/L	0.30	0.1	AAS
Cl-	mg/L	15	150-600	Titrimetric
TC	N/100ml	0	0	MFM
FC	N/100ml	0	0	MFM

* Standards for Drinking Water followed Environmental Conservation Rule (ECR)'97

105 **pH:** pH is a measure of the hydrogen ion concentration in water and indicates whether the water is acidic or alkaline. The measurement of alkalinity and acidity of pH is required to determine the corrosiveness of the water. From the pH value of the groundwater sample it is observed that the value was 6.11 which are below than the national standard. It might be occurred due to depth and layer of the tube well/area but not for our project proponents.

106 **Electrical Conductivity (EC):** EC stands for electrical conductivity, which measures the potential for a material to conduct electricity. The test results show that EC value was found 189.12 $\mu\text{S}/\text{cm}$ which is Not Yet Standardized (NYS) for groundwater according to ECR,1997.

107 **Total dissolved solids (TDS):** TDS values indicate the general nature of water quality and are usually related to conductivity. However, the value of TDS of the sample collected was found 121.2 mg/L and it was within the national standard.

108 **Iron (Fe):** Natural waters contain variable amounts of iron depending on the geological area and other chemical components of the waterway. Iron in groundwater is normally present in the ferrous or bivalent form $[\text{Fe}^{++}]$ which is soluble. It is easily oxidized to ferric iron $[\text{Fe}^{+++}]$ or insoluble iron upon exposure to air. The concentration of iron is within the national standard for the project area and the value was 0.11 mg/L.

109 **Arsenic:** Arsenic is a natural component of the earth's crust and is widely distributed throughout the environment in the air, water and land. It is highly toxic in its inorganic form. People are exposed to elevated levels of inorganic arsenic through drinking contaminated water, using contaminated water in food preparation and irrigation of food crops, industrial processes, eating contaminated food and smoking tobacco. The test result shows that the concentration of Arsenic (As) is within the national standards for the project area and the value was 0.001 mg/L.

110 **Total Coliform (TC):** Total coliforms are a group of bacteria that are widespread in nature. All members of the total coliform group can occur in human feces, but some can also be present in animal manure, soil, and submerged wood and in other places outside the human body. Thus, the usefulness of total coliforms as an indicator of fecal contamination depends on the extent to which the bacteria species found are fecal and human in origin. The values of TC were nil for the project area.

111 **Faecal Coliform (FC):** The presence of fecal coliform bacteria in aquatic environments indicates that the water has been contaminated with the fecal material of man or other animals. Faecal Coliform bacteria indicate the presence of sewage contamination of a waterway and the possible presence of other pathogenic organisms. The values of FC were nil for the sampling location.

112 **Chloride:** Chlorides are important in detecting the contamination of groundwater by sewage. Chlorides are leached from various rocks into soil and water by weathering. The chloride ion is highly mobile and is transported to closed basins or oceans. Chloride occurs in all-natural water in widely varying concentration. The chloride content normally increases as the mineral content increases. The test result shows that the concentration of chloride is below the acceptable limit for the project area. It might be occurred due to depth and layer of the tube well/area but not for our project proponents.

113 From the environmental quality monitoring, it is found that all the air quality parameters are within national standard of Bangladesh. Noise Level exceeded the standard set for the residential area for most of the sampling locations except Water Distribution Zone: 4.1, Camp: 04, Ukhiya Mega Camp due to construction work and other interruptions. Groundwater quality concentration levels were within the national standard except some of the parameters. From the surface water quality results, it is seen that, most of the parameters are within the national limit and others are slightly exceed the national standard according to ECR,1997.

5.4 TRAINING AND AWARENESS

114 Onsite trainings and meetings with EAs were conducted during the current monitoring period. The site-based trainings were arranged by the environmental specialists to sensitize the contractors on implementing the environmental safeguards according to the EMPs and other contracts. A total 28 onsite trainings were arranged during July-December 2019 where total 394 participants were attended. Environmental specialists have given a brief lecture to the participants majorly focused on: occupational health and safety including PPEs, safety signage, housekeeping, waste management, management of hazardous materials, emergency procedures. Moreover, explained about the importance of regular tool box meeting at the site. However, all the participants hold a very positive attitude towards the training program. Details of the monitoring visits are given in **Table 18** below. Photographs of onsite trainings are in **10**.

Table 18 Environmental safeguards trainings conducted during July-Dec 2019

Onsite Training and No. of Participant				Total
BREB	DPHE	LGED	RHD	
7	7	9	5	28
74	57	144	119	394

115 Besides trainings, regular meetings with EAs were conducted on frequent basis to better coordinate with all the EAs. To date 52 meetings have been conducted. **Table 19** below represents the breakdown of meetings carried out by the environmental specialists.

Table 19 Meetings conducted on environmental safeguards implementation during July-Dec 2019

Meeting with EA/IA				Total
BREB	DPHE	LGED	RHD	
9	11	12	20	52



Figure 10 Onsite trainings conducted during monitoring visits

5.5 ENVIRONMENTAL ISSUES OF THE CURRENT PROJECT

116 Until date a few numbers of environmental issues have ben encountered or identified to be affecting project design. **Table 20** represents the environmental issues, recommendations and measures taken.

117 Summary of Key Issues Identified are:

- Environmental quality monitoring is pending to date except DPHE/W2.
- Lack of proper solid waste management system.
- Lack of waste water management system and none of the site has proper drainage network.
- Dust pollution resulting from construction work and irregular watering.
- Lack of proper management for hazardous materials.
- Lack of proper PPEs.
- No site has the H&S professional except RHD/W1, RHD/W2 and DPHE/W2.
- Consideration of community health and safety is minimal.
- No site has proper emergency procedure except DPHE/W2.

118 **Figure 11** later represents some currents safeguards photographs from various sites taken during field visits.

Table 20 Environmental Status of the subproject, issues and recommendation

Package	Monitoring visits	Trainings conducted	Major issues identified during 2 nd monitoring period (Jan-Jun 19)	Issues addressed during 3 rd monitoring period (July-Dec 19)	New Issues identified during 3 rd monitoring period (July-Dec 19)	Comments
DPHE W1	9	1	<ul style="list-style-type: none"> Environmental quality monitoring (air, water, noise etc.) for both pre-construction as well as construction phase has not been done yet. Waste management is absent in the site. Domestic wastes from the labor shed are disposed openly. Drainage congestion is occurred on the access road due to excavation of pipeline. Construction materials were found to stockpile in open place with no protective measure. Oil/fuel barrels were found in open in scattered way. PPEs are not fully implemented and no safety measures were taken for working at height. Unauthorized access including children are observed in the site. First aid box is not supplied at the construction site. Emergency procedure is not followed at site. Toolbox meeting is still not being held at any site. 	<ul style="list-style-type: none"> Health and safety plan is prepared and started to implement in the site. Onsite training is carried out to educate the contractor' staffs and workers in regard to environment, health and safety management. Contractor has already prepared the TOR to appoint sub-contractor to carry out environmental monitoring survey. Waste bins are placed in the sites to manage the waste. Fuel storage is confined and sand is kept along the fuel drums as absorbent. PPEs are partially addressed. Boundary fencing partially implemented to control the unauthorized entry in the site. Site safety signs are placed. First aid box is available at the site. 	<ul style="list-style-type: none"> PPEs are partially implemented; since no safety measures were taken for working at height. Unauthorized access including children are observed on the water reserve tanks. Toolbox meeting is still not being held at any site. Fire protection is available at the site. 	Contractor needs to implement the Health and Safety plan to improve their construction practice.
DPHE W2	11	1	<ul style="list-style-type: none"> Environmental monitoring (air, water, noise etc.) prior commencing the construction activity has not been done yet to establish the baseline. No waste management facility in the site for both construction and domestic wastes. PPEs are partially implemented. Labor accommodation facility is still not improved. Site safety signs are absent in the site. No first aid box is available at the site. No fire protection was found. Labor accommodation facility was temporary and unable to support during rain. Emergency procedure was not followed at site. 	<ul style="list-style-type: none"> Health and safety plan is prepared and started to implement in the site. Onsite training is carried out to educate the contractor' staffs and workers in regard to environment, health and safety management. Environmental quality monitoring (air, noise, surface water and groundwater) for pre-construction has been carried out by the contractor on 2-3 October 2019 in accordance to the EMP. Monitoring report has been submitted by the contractor. Planning to start EQM for construction period asap. 	<ul style="list-style-type: none"> The construction site was confined but unauthorized access is observed in the site. High level of noise was generated due to operation of generator in the work site which was situated along the school. 	Onsite training seems to be working

Package	Monitoring visits	Trainings conducted	Major issues identified during 2 nd monitoring period (Jan-Jun 19)	Issues addressed during 3 rd monitoring period (July-Dec 19)	New Issues identified during 3 rd monitoring period (July-Dec 19)	Comments
			<ul style="list-style-type: none"> No tool box meeting was conducted at site to educate the workers. 	<ul style="list-style-type: none"> Housekeeping is partially addressed. Separate garbage bins were supplied for organic and inorganic wastes at the site. PPEs were fully implemented at site. Contractor supplied the ear plugs to the labors who were working close to the noise source. Standard ladder was provided to work at height. Signboards with safety warning is installed at the site. First aid box is available at the site. Fire protection is available at the site. Emergency contact information is disseminated in the site. Toolbox meeting is being conducted regularly. 		
DPHE W3	7	1	<ul style="list-style-type: none"> Environmental monitoring (air, water, noise etc.) prior commencing the construction activity has not been done yet to establish the baseline. No waste management facility is seen in the site for both construction and domestic wastes. Oil/fuel barrels were found in open in scattered way. Site safety signs are absent in the site. PPEs are partially implemented. No first aid box is available at the site. No fire protection was found. Emergency procedure was not followed at site. No tool box meeting was conducted at site to educate the workers. 	<ul style="list-style-type: none"> Health and safety plan is prepared and started to implement in the site. Onsite training is carried out to educate the contractor' staffs and workers in regard to environment, health and safety management. Contractor has already prepared the TOR to appoint sub-contractor to carry out environmental monitoring survey. Waste bins are placed in the sites to manage the waste. PPEs are partially implemented in the site. First aid box is readily available at the site. Site safety signboards are placed in the site. The construction site was confined by fencing. 	<ul style="list-style-type: none"> Fuel storage is not confined and open burning was found along the fuel drums where accident may occur at any time. The construction site was confined but unauthorized access specially children were observed inside the active working site. No safety measures were taken for working at height. No fire protection is found in the site. Emergency procedure was not followed at site. 	Contractor needs to implement the Health and Safety plan to improve their construction practice.

Package	Monitoring visits	Trainings conducted	Major issues identified during 2 nd monitoring period (Jan-Jun 19)	Issues addressed during 3 rd monitoring period (July-Dec 19)	New Issues identified during 3 rd monitoring period (July-Dec 19)	Comments
DPHE W4	9	3	<ul style="list-style-type: none"> Environmental monitoring (air, water, noise etc.) prior commencing the construction activity has not been done yet to establish the baseline. No waste management facility in the site for both construction and domestic wastes. Drainage congestion was occurred due to discharging of waste water from the test well. Site order book was maintained at the site. Site safety signs are absent in the site. Labors were observed to work without protection. No first aid box is available at the site. No fire protection was found. Tool box meeting is not conducted at site to educate the workers. Emergency procedure is not followed at site. 	<ul style="list-style-type: none"> Health and safety plan is prepared and started to implement in the site. Onsite training is carried out to educate the contractor' staffs and workers in regard to environment, health and safety management. Contractor has already prepared the TOR to appoint sub-contractor to carry out environmental monitoring survey. Waste bins are placed in the sites to manage the waste. PPEs are partially implemented in the site. First aid box is available at the site. Site safety signboards are placed in the site. 	<ul style="list-style-type: none"> Fuel drums were stored in the vicinity of drainage channel which may pollute the surface water. The fuel storage is not confined and open burning was found along the fuel drums where accident may occur at any time. No safety signage is placed at the storage area. No safety measures were taken for working at height. No fire protection is found in the site. Emergency procedure was not followed at site. 	Contractor needs to implement the Health and Safety plan to improve their construction practice.
DPHE W5	6	1	<ul style="list-style-type: none"> Environmental monitoring (air, water, noise etc.) prior commencing the construction activity has not been done yet to establish the baseline. No waste management facility is seen in the site for both construction and domestic wastes. Oil/fuel barrels were found in open in scattered way. Site safety signs are absent in the site. PPEs are partially implemented. No first aid box is available at the site. No fire protection was found. Emergency procedure was not followed at site. No tool box meeting was conducted at site to educate the workers. 	<ul style="list-style-type: none"> Health and safety plan is prepared and started to implement in the site. Onsite training is carried out to educate the contractor' staffs and workers in regard to environment, health and safety management. Contractor has already prepared the TOR to appoint sub-contractor to carry out environmental monitoring survey. Waste bins are placed in the sites to manage the waste. PPEs are partially implemented in the site. First aid box is readily available at the site. Site safety signboards are placed in the site. The construction site was confined by fencing. 	<ul style="list-style-type: none"> The construction site was confined but unauthorized access specially children were observed inside the active working site. No safety measures were taken for working at height. No fire protection is found in the site. Emergency procedure was not followed at site. 	Contractor needs to implement the Health and Safety plan to improve their construction practice.
			<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 	

Package	Monitoring visits	Trainings conducted	Major issues identified during 2 nd monitoring period (Jan-Jun 19)	Issues addressed during 3 rd monitoring period (July-Dec 19)	New Issues identified during 3 rd monitoring period (July-Dec 19)	Comments
DPHE W13 and W14	Construction is completed and the work site is reinstated prior to leaving the construction site.					
DPHE W15	5	0	<ul style="list-style-type: none"> No waste management facility was observed in the site. PPEs were not fully implemented. Protection for working at height is absent. Proper safety signs were absent at the site. No first aid box is available at the site. Emergency procedure is not followed at site. 	<ul style="list-style-type: none"> Environmental code of practices has been suggested. PPEs are partially implemented Site safety signs are placed. 	<ul style="list-style-type: none"> Construction is nearly completed. Site reinstatement needs to be finished immediately. 	
Total DPHE	51	7				
LGED W8	11	2	<ul style="list-style-type: none"> Waste management problems has been persisting. Solid waste has been found to dispose outside of the labor shed and inside the camp area, which is unacceptable Obstacle on the access to the school is still not removed yet. Dust pollution occurred in the construction site due to uncovered loose earth materials. Mature trees were cut to use for cooking in the camp in N.I Chowdhury GPS. PPEs are not fully implemented. Since the water/bentonite house/pond is not confined, thus accident might occur. Sanitation facility is disrupted since the toilets built for the workers filled by the sewage. No site safety signboards were placed at the site. No fire protection was found. Emergency procedure is not followed at site. Tool box meeting is not conducted at site to educate the workers. 	<ul style="list-style-type: none"> Health and safety plan is prepared and started to implement in the site. Onsite training is carried out to educate the contractor' staffs and workers in regard to environment, health and safety management. Excess earth material has been removed from the school playground located outside of the construction yard. Water is spraying regularly twice per day to suppress the dust. PPEs partially addressed. Site safety signs are placed at different locations in the site. Gas cylinders are supplied to the labor shed for cooking to avoid tree cutting. The sediment pond is confined by safety tape. Sanitation facility for the labors is ensured at all the construction sites. First aid box is readily available at the site. 	<ul style="list-style-type: none"> Drainage congestion was observed in Tuturbil GPS where storm water is stagnant in the construction site. Due to absence of housekeeping, construction wastes were scattered around the work site. Labors worked without proper safety gears and no standard ladder is provided to them where they were working at height without any fall protection. Major/minor accident happened at the site but no accident report is prepared and submitted. Emergency procedure for accident, fire incident is not maintained at the site. 	Contractor needs to implement the Health and Safety plan to improve their construction practice.
LGED W6	9	2	<ul style="list-style-type: none"> No waste management facility in the site for both construction and domestic wastes. Waste water management was not fully addressed. PPEs were not fully implemented. No fire protection was found in the fuel storage. 	<ul style="list-style-type: none"> Health and safety plan is prepared and started to implement in the site. Onsite training is carried out to educate the contractor' staffs and workers in regard to environment, health and safety management. Housekeeping has been started at Goriayer Dip GPS where labors were 	<ul style="list-style-type: none"> Water supply system to the school building has been disrupted for 5 months due to construction work. As a result, sanitation facility is also being affected in the school. Students are observed to enter into the work site for water collection. 	Contractor needs to implement the Health and Safety plan to improve their construction practice.

Package	Monitoring visits	Trainings conducted	Major issues identified during 2 nd monitoring period (Jan-Jun 19)	Issues addressed during 3 rd monitoring period (July-Dec 19)	New Issues identified during 3 rd monitoring period (July-Dec 19)	Comments
			<ul style="list-style-type: none"> National labor standard was not followed in the work site. Tool box meeting was not conducted at the sites. Emergency procedure is not followed. 	<ul style="list-style-type: none"> found to clear the work site during site monitoring. Sedimentation pond is built to retain the waste water which is confined by safety tape. PPEs partially addressed. Site safety signboards were placed at the site. First aid box is readily available at the site. Fuel storage is designated in the work site needs to be confined. 	<ul style="list-style-type: none"> Labors worked without proper safety gears and no standard ladder is provided to them where they were working at height without any fall protection. Hazardous materials including fuel drums are stored in the labor shed where no fire extinguisher is kept to put out the fire. No electric safety was ensured in the site where electric wire was found in water which might cause accident. 	
LGED W9	6	3	<ul style="list-style-type: none"> Drainage congestion was occurred in the active working area. Waste management is absent for both construction waste and domestic waste generated from the labor shed in the construction site. PPEs are yet to be properly implemented. National labor standard was not followed in the work site. School buildings are used for the labor shed. Emergency procedure is not followed. Tool box meeting is not conducted at site to educate the workers. 	<ul style="list-style-type: none"> Health and safety plan is prepared and started to implement in the site. Onsite training is carried out to educate the contractor' staffs and workers in regard to environment, health and safety management. Construction site is being developed to prevent drainage congestion. Housekeeping is partially implemented. Construction wastes were collected and stored in the designated location. Site safety signboards are placed. PPEs partially addressed. First aid box is readily available at the site. Gas cylinder is supplied to the worker shed as cooking fuel. 	<ul style="list-style-type: none"> Waste management is still absent in the site. Solid wastes including construction wastes were dumped openly adjacent to the labor camp. Labors worked without proper safety gears and no standard ladder is provided to them where they were working at height without fall protection. Emergency procedure is still not followed. Labor shed is still not relocated from the school building. 	Contractor needs to implement the Health and Safety plan to improve their construction practice.
LGED W19	10	0	<ul style="list-style-type: none"> No waste management facility in the site for both construction and domestic wastes. Dust pollution occurred in the construction site due to uncovered loose earth materials. PPEs are yet to be properly implemented. Emergency procedure is not followed. National labor standard was not followed in the work site. Tool box meeting is still not conducted. No first aid box is available at the site. No fire protection was found. 	<ul style="list-style-type: none"> Health and safety plan is prepared and started to implement in the site. Water is spraying regularly twice per day to suppress the dust. Housekeeping is partially implemented. Site safety signboards are placed. PPEs partially addressed. First aid box is readily available at the site. 	<ul style="list-style-type: none"> Labors worked without proper safety gears and no standard ladder is provided to them where they were working at height without fall protection. No respiratory protection is supplied to the painting workers. Proper waste management yet to be implemented. Emergency procedure for accident, fire incident is not maintained at the site. 	Contractor needs to implement the Health and Safety plan to improve their construction practice.

Package	Monitoring visits	Trainings conducted	Major issues identified during 2 nd monitoring period (Jan-Jun 19)	Issues addressed during 3 rd monitoring period (July-Dec 19)	New Issues identified during 3 rd monitoring period (July-Dec 19)	Comments
			<ul style="list-style-type: none"> National labor standard was not followed in the work site. Tool box meeting is not conducted at site to educate the workers. 		<ul style="list-style-type: none"> Tool box meeting is still not conducted. 	
LGED W3	11	1	<ul style="list-style-type: none"> Construction has been commenced recently. Traffic management plan is not formulated yet to manage traffic properly which creates traffic congestion. No signage for speed limit is installed. Contractor stored the construction materials on the private land without consultation with the land owner. Proper PPEs are not implemented. Site safety signs are absent in the site. No first aid box is available at the site. Tool box meeting is not conducted at site to educate the workers. Emergency procedure is not followed at site. National labor standard was not followed in the work site. 	<ul style="list-style-type: none"> Health and safety plan is prepared and started to implement in the site. Onsite training is carried out to educate the contractor' staffs and workers in regard to environment, health and safety management. Traffic management is partially addressed. PPEs partially implemented. First aid box is available at the camp office. Gas cylinder is supplied to the worker shed as cooking fuel. 	<ul style="list-style-type: none"> Dust resulting from construction work. Road safety signs are yet to be installed. Construction materials are stored on the road causes traffic congestion. No first aid box was found in the construction site. National labor standard is still not followed in the work site. Emergency procedure for accident, fire incident is not maintained at the site. Tool box meeting is not conducted at site to educate the workers. 	Contractor needs to implement the Health and Safety plan to improve their construction practice.
LGED W5	3	1	<ul style="list-style-type: none"> Construction has been commenced recently. No objection certificate from Forest Department is not obtained as per national regulation. No road safety measure is followed at the site. Proper PPEs are not implemented. Site safety signs are absent in the site. No first aid box is available at the site. Tool box meeting is not conducted at site to educate the workers. Emergency procedure for accident, fire incident is not maintained at the site. 	<ul style="list-style-type: none"> Health and safety plan is prepared and started to implement in the site. Onsite training is carried out to educate the contractor' staffs and workers in regard to environment, health and safety management. PPEs partially implemented. First aid box is available at the camp office. 	<ul style="list-style-type: none"> Dust is being occurred due to irregular dust suppression measure. NOC from Forest Department has not been obtained yet which may result in stoppage of the Works. Road safety signs are yet to be installed. Emergency procedure for accident, fire incident is not maintained at the site. Tool box meeting is not conducted at site to educate the workers. 	Contractor needs to implement the Health and Safety plan to improve their construction practice.
Total LGED	50	9				
RHD W1	23	3	<ul style="list-style-type: none"> Quarterly environmental quality monitoring (air, water, noise etc.) has not been done yet. PPEs are yet to be properly implemented. 	<ul style="list-style-type: none"> TOR is under preparation to appoint sub-contractor to carry out environmental monitoring survey. Health and safety plan is prepared and started to implement in the site. 	<ul style="list-style-type: none"> Contractor should prepare and submit the environmental report on a monthly basis. 	Contractor needs to implement the Health and Safety plan to

Package	Monitoring visits	Trainings conducted	Major issues identified during 2 nd monitoring period (Jan-Jun 19)	Issues addressed during 3 rd monitoring period (July-Dec 19)	New Issues identified during 3 rd monitoring period (July-Dec 19)	Comments
			<ul style="list-style-type: none"> No waste management is implemented for both construction and domestic wastes generated from the labor shed. Drainage congestion is being occurred in the camp and excavated trenches. No proper site demarcation and fencing along road side might provoke potential accident. Severe dust pollution resulting from construction work and lack of watering measure. Toilets for the labors are built without proper door and septic tank is opened which emitted odor in the surrounding. Safety signboard is absent at the camp site. No first aid box is available at the site. No fire protection was found. Proper lighting is absent during night shift at the site. Tool box meeting is not conducted at site to educate the workers. National labor standard was not followed in the work site. Emergency procedure for accident, fire incident is not maintained at the site. 	<ul style="list-style-type: none"> Onsite training is carried out to educate the contractor' staffs and workers in regard to environment, health and safety management. Draft tree plantation program is prepared. Traffic management is partially implemented. Frequency of water spray has been increased (from twice daily to thrice daily) and a log sheet is maintained for watering measures. Sanitation facility is improved in the camp site. Housekeeping is partially implemented. PPEs are partially addressed. Adequate lighting is ensured at the site during night shift. Road safety measures are partially addressed. Site demarcation and fencing partially applied. Fire protection is preserved in the site. First aid box is readily available at the site. 	<ul style="list-style-type: none"> Draft tree plantation program is prepared which needs to be updated. Waste water management plan for concrete batching plant to be prepared and implemented strictly. Proper waste management yet to be implemented. Fuel storage should be confined and established away from haulage and water body. Dust pollution occurred severely due to lack of adequate watering measure. Hearing protection must be ensured for the workers who operate hydraulic compressor. Heavy drainage congestion is occurred due to lack of storm drainage system in the camp area and along the road, consequently the road is being damaged. PPEs are yet to be properly implemented. Worksites are to be equipped with safety signs. Emergency procedure for accident, fire incident is not maintained at the site. 	improve their construction practice.

Package	Monitoring visits	Trainings conducted	Major issues identified during 2 nd monitoring period (Jan-Jun 19)	Issues addressed during 3 rd monitoring period (July-Dec 19)	New Issues identified during 3 rd monitoring period (July-Dec 19)	Comments
RHD W2	17	2	<ul style="list-style-type: none"> Quarterly environmental quality monitoring (air, water, noise etc.) has not been done yet. PPEs are yet to be properly implemented. No waste management is implemented for both construction and domestic wastes generated from the labor shed. Drainage congestion is being occurred in the camp and excavated trenches. No proper site demarcation and fencing along road side might provoke potential accident. Severe dust pollution resulting from construction work and lack of watering measure. Toilets for the labors are built without proper door and septic tank is opened which emitted odor in the surrounding. Safety signboard is absent at the camp site. No first aid box is available at the site. No fire protection was found. Proper lighting is absent during night shift at the site. Tool box meeting is not conducted at site to educate the workers. National labor standard was not followed in the work site. Emergency procedure for accident, fire incident is not maintained at the site. 	<ul style="list-style-type: none"> TOR is under preparation to appoint sub-contractor to carry out environmental monitoring survey. Health and safety plan is prepared and started to implement in the site. Onsite training is carried out to educate the contractor' staffs and workers in regard to environment, health and safety management. Draft tree plantation program is prepared. Traffic management is partially implemented. Frequency of water spray has been increased (from twice daily to thrice daily) and a log sheet is maintained for watering measures. Sanitation facility is improved in the camp site. Housekeeping is partially implemented. PPEs are partially addressed. Adequate lighting is ensured at the site during night shift. Road safety measures are partially addressed. Site demarcation and fencing partially applied. Fire protection is preserved in the site. First aid box is readily available at the site. 	<ul style="list-style-type: none"> Contractor should prepare and submit the environmental report on a monthly basis. Draft tree plantation program is prepared which needs to be updated. Waste water management plan for concrete batching plant to be prepared and implemented strictly. Proper waste management yet to be implemented. Fuel storage should be confined and established away from haulage and water body. Dust pollution occurred severely due to lack of adequate watering measure. Hearing protection must be ensured for the workers who operate hydraulic compressor. Heavy drainage congestion is occurred due to lack of storm drainage system in the camp area and along the road, consequently the road is being damaged. PPEs are yet to be properly implemented. Worksites are to be equipped with safety signs. Emergency procedure for accident, fire incident is not maintained at the site. 	Contractor needs to implement the Health and Safety plan to improve their construction practice.
Total RHD	40	5				
BREB W1A	8	1	<ul style="list-style-type: none"> Silt laden wastewater discharged into the nearby waterbody and agricultural land. Construction wastes are scattered around the work site due to absence of housekeeping at the site. PPEs are yet to be properly implemented. Emergency procedure is not followed. 	<ul style="list-style-type: none"> Sediment has been removed from the agricultural field which was discharged deliberately from the construction site. Housekeeping is partially implemented. PPEs are partially implemented. Onsite training is carried out to educate the contractor' staffs and workers in 	<ul style="list-style-type: none"> Wastewater is discharged to the cultivated land from the site which causes soil pollution and might decrease the crop production. Labors worked without proper safety gears and no standard 	Contractor needs more focused on OHS training, waste management and pollution control

Package	Monitoring visits	Trainings conducted	Major issues identified during 2 nd monitoring period (Jan-Jun 19)	Issues addressed during 3 rd monitoring period (July-Dec 19)	New Issues identified during 3 rd monitoring period (July-Dec 19)	Comments
			<ul style="list-style-type: none"> Tool box meeting is not conducted at site to educate the workers. National labor standard was not followed in the work site. 	<ul style="list-style-type: none"> regard to environment, health and safety management. First aid box is readily available at the site. 	<ul style="list-style-type: none"> ladder is provided to them where they were working at height without fall protection. Site safety signs are yet to be placed. Emergency procedure is not maintained at the site. No fire protection was found in the site. 	
BREB W2	7	2	<ul style="list-style-type: none"> Labors worked without proper safety gears and no standard ladder is provided to them where they were working at height without fall protection. No objection certificate from Forest Department is not obtained as per national regulation. No first aid box is available at the site. No site safety signage was placed at the working site where the site is located along the busy roadside in the densely populated camp area. Tool box meeting is not conducted at site to educate the workers. Emergency procedure for accident, fire incident is not maintained at the site. 	<ul style="list-style-type: none"> PPEs partially implemented. BREB started negotiating with DFO to obtain the NOC for the section from Whykong to Shamlapur. Onsite training is carried out to educate the contractor' staffs and workers in regard to environment, health and safety management. First aid box is available at the site. 	<ul style="list-style-type: none"> NOC from Forest Department has not been obtained yet which may result in stoppage of the Works. PPEs are yet to be properly implemented. Labors worked without proper safety gears and no standard ladder is provided to them where they were working at height without fall protection. Worksites are to be equipped with safety signs. Emergency procedure for accident, fire incident is not maintained at the site. 	Contractor needs more focused on OHS training, waste management and pollution control
BREB G1 and G2A	Construction is completed and the work site is reinstated prior to leaving the construction site.					
BREB G2B	8	2	<ul style="list-style-type: none"> Burrow pits left open and causing trouble for locals PPEs were absent. Excavated earth materials were left open. Site safety signs are absent in the site. No first aid box is available at the site. Tool box meeting is not conducted at site to educate the workers. Emergency procedure for accident, fire incident is not maintained at the site. 	<ul style="list-style-type: none"> Onsite training is carried out to educate the contractor' staffs and workers in regard to environment, health and safety management. Burrow pits were covered. Excavated earth materials were under fencing. PPEs were partially implemented. First aid box is available at the site. 	<ul style="list-style-type: none"> PPEs are yet to be properly implemented. Labors worked without proper safety gears and no standard ladder is provided to them where they were working at height without fall protection. Worksites are to be equipped with safety signs. Emergency procedure for accident, fire incident is not maintained at the site. 	Onsite training seems to be working.

Package	Monitoring visits	Trainings conducted	Major issues identified during 2 nd monitoring period (Jan-Jun 19)	Issues addressed during 3 rd monitoring period (July-Dec 19)	New Issues identified during 3 rd monitoring period (July-Dec 19)	Comments
BREB G5	5	2	<ul style="list-style-type: none"> Burrow pits left open and causing trouble for locals PPEs were absent. Excavated earth materials were left open. Site safety signs are absent in the site. No first aid box is available at the site. Tool box meeting is not conducted at site to educate the workers. Emergency procedure for accident, fire incident is not maintained at the site. 	<ul style="list-style-type: none"> Onsite training is carried out to educate the contractor' staffs and workers in regard to environment, health and safety management. Burrow pits were covered. Excavated earth materials were under fencing. PPEs were partially implemented. First aid box is available at the site. 	<ul style="list-style-type: none"> PPEs are yet to be properly implemented. Labors worked without proper safety gears and no standard ladder is provided to them where they were working at height without fall protection. Worksites are to be equipped with safety signs. Emergency procedure for accident, fire incident is not maintained at the site. 	Onsite training seems to be working.
Total BREB	28	7				
Grand total	169	28				



Figure 11 Safeguards status at various sites. Most of them found as partially to fully satisfactory

6 Performance Indicators

119 This section presents some site-based performance indicators for observe the performance of all running subprojects at a glance. The performance indicators are based on field observations from each subproject. While the Health and Safety (H&S) performances indicators are presented in **Table 21** and performance indicators in **Table 22**, some photographs of site visits where information collection through onsite training with workers were done are presented in **Figure 12**.



Figure 12 Training and information collection from various subprojects

Table 21 H&S Performance indicators of all subprojects

Environmental Safeguards Questions	DPHE						LGED						RHD		BREB			
	W 1	W 2	W 3	W 4	W 5	W 15	W 3	W 5	W 8	W 6	W 9	W 19	W 1	W 2	W 1A	W 2	G 2B	G 5
1. Sensitive receptors adjacent to the site? (i.e. residential, schools/learning center, health care center, daycare...)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2. Are the workers aware of the EMP?	Y	Y	Y	Y	Y	N	N	N	Y	Y	Y	N	Y	Y	Y	Y	N	N
3. Occupational Health and Safety:																		
3.1 Is there a designated person responsible for ensuring safe working practices? Are the workers aware?	N	Y	N	N	N	N	N	N	N	N	N	N	Y	Y	N	N	N	N
3.2 Have the workers received appropriate OHS training to perform their jobs? How often are they briefed on OHS requirements? *	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
3.3 Do the workers use personal protective equipment (PPE - hats, glasses, boots etc.)? **	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
3.4 Are working areas clear of slipping and tripping hazards?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
3.5 Are health and safety warning and information signs visible and understandable to workers?	Y	Y	Y	Y	Y	N	N	N	Y	Y	Y	N	N	N	N	N	N	N
3.6 Are there any hazardous materials? Are they stored and handled appropriately?	N	Y	N	N	N	N	N	N	N	N	N	N	Y	Y	N	N	N	N
3.7 Are worker s exposed to risks from working at height? If yes, are the workers using harnesses (fall protection equipment)?	Y/ N	Y/ N	Y/ N	Y/ N	Y/ N	Y/ N	Y/ N	Y/ N	Y/ N	Y/ N	Y/ N	Y/ N	Y/ N	Y/ N	Y/ N	Y/ N	Y/ N	Y/ N
3.8 Are workers exposed to risk from confined spaces? (i.e. storage areas for hazardous materials)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
3.9 Is there a record of occupational injuries and diseases?	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
3.10 Do workers receive health checks?	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
3.11 What medical facilities are made available for the workers?	** *	** *	** *	** *	** *	***	** *	** *	** *	** *	** *	***	** *	** *	***	** *	***	** *
Labor Camps:																		
3.12 What toilet and washing facilities are provided?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
3.13 Do workers have access to clean drinking water?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
3.14 Is the workers accommodation provided by the contractor?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Emergency Procedures:																		
3.15 What procedures are in place in case of an injury on site?	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
3.16 Is there a first aid kit available on site?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
3.17 What procedures are in place for chlorine leak, oil spills?	N	Y	N	N	N	N	N	N	N	N	N	N	Y	Y	N	N	N	N
3.18 Is firefighting equipment available on site? Is servicing up to date?	N	Y	N	N	N	N	N	N	N	N	N	N	Y	Y	N	N	N	N
4. Grievance Redress Mechanism (GRM):																		
4.1 Are the names and contact information posted for possible complaints?	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
4.2 Is there a log book available on site?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Environmental Safeguards Questions	DPHE						LGED						RHD		BREB			
	W 1	W 2	W 3	W 4	W 5	W 15	W 3	W 5	W 8	W 6	W 9	W 19	W 1	W 2	W 1A	W 2	G 2B	G 5
5. House Keeping: 5.1 Did you observe examples of poor housekeeping? (i.e. empty containers scattered, stagnation of water from improper disposal of solid waste?)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

*H&S has been briefed by the ADB consultants on site

**PPEs are partially used in all site

*** Only First Aid boxes are available on site

**** Y = Yes; N = No

Table 22 Mitigation Effectiveness rating for all subprojects (deduced from consultants' observation)

SI No.	Package No.	Q1 (Jul – Sep 18)	Q2 (Oct – Dec 18)	Q3 (Jan – Mar 19)	Q4 (Apr – Jun 19)	Q4 (Jul– Sep 19)	Q4 (Oct – Dec 19)	Overall Score
BREB								
01	EAP/BREB/G1	Construction completed						
02	EAP/BREB/G2A	Construction completed						
03	EAP/BREB/G2B					3	4	3.5
04	EAP/BREB/W1A		1	2	3	3	3	2.4
05	EAP/BREB/W2		3	3	3	2	3	2.8
06	EAP/BREB/G5						3	3
DPHE								
01	EAP/DPHE/G1							
02	EAP/DPHE/G2							
03	EAP/DPHE/G3							
04	EAP/DPHE/G4							
05	EAP/DPHE/W1			2	3	3	3	2.75
06	EAP/DPHE/W2			3	4	4	5	4
07	EAP/DPHE/W3				3	3	3	3
08	EAP/DPHE/W4				2	3	3	2.66
09	EAP/DPHE/W5					2	3	2.5
10	EAP/DPHE/W9A							
11	EAP/DPHE/W9B							
12	EAP/DPHE/W10							
13	EAP/DPHE/W11							

SI No.	Package No.	Q1 (Jul – Sep 18)	Q2 (Oct – Dec 18)	Q3 (Jan – Mar 19)	Q4 (Apr – Jun 19)	Q4 (Jul– Sep 19)	Q4 (Oct – Dec 19)	Overall Score
14	EAP/DPHE/W12A							
15	EAP/DPHE/W12B							
16	EAP/DPHE/W13	Construction completed						
17	EAP/DPHE/W14	Construction completed						
18	EAP/DPHE/W15				2	3	4	3
19	EAP/DPHE/W18							
20	EAP/DPHE/W19							
21	EAP/DPHE/CON/1							
LGED								
01	EAP/LGED/OCB-N/W6		1	2	4	3	4	2.8
02	EAP/LGED/OCB-N/W8		1	3	4	4	4	3.2
03	EAP/LGED/OCB-N/W9			1	2	3	4	2.5
04	EAP/LGED/OCB-N/W19		1	3	3	3	3	2.6
05	EAP/LGED/CON/1							
06	EAP/LGED/OCB-N/W10							
07	EAP/LGED/OCB-N/W11							
08	EAP/LGED/OCB-N/W12							
09	EAP/LGED/OCB-N/W13							
10	EAP/LGED/OCB-N/W14							
11	EAP/LGED/OCB-N/W15							
12	EAP/LGED/OCB-N/W16							
13	EAP/LGED/OCB-N/W17							
14	EAP/LGED/OCB-N/W18							
15	EAP/LGED/OCB-N/W20							
16	EAP/LGED/OCB-N/W21							
17	EAP/LGED/OCB-N/W1A							
18	EAP/LGED/OCB-N/W1B							
19	EAP/LGED/OCB-N/W2A							
20	EAP/LGED/OCB-N/W2B							
21	EAP/LGED/OCB-N/W3					2	3	2.5
22	EAP/LGED/OCB-N/W5					2	3	2.5
RHD								

SI No.	Package No.	Q1 (Jul – Sep 18)	Q2 (Oct – Dec 18)	Q3 (Jan – Mar 19)	Q4 (Apr – Jun 19)	Q4 (Jul– Sep 19)	Q4 (Oct – Dec 19)	Overall Score
01	EAP/RHD/W1		2	3	4	3	4	3.2
02	EAP/RHD/W2		2	3	4	3	4	3.2
03	EAP/RHD/CON/1							

Note: Mitigation Effectiveness Rating Criteria

1	2	3	4	5
Very poor (take very few measures)	Poor (take few measures)	Medium (take several measures)	Good (take main measures)	very good (meet all requirements)

120 **Trend in performance:** A time trend analysis for EMP non-compliance has been studied against hands-on training provided to the workers for the time period of year 2019. It has been found that the non-compliance is increasing over time with a steady input of hands-on training for workers. **Figure 13** and **Figure 14** explains the situation in detail. Given the comparative study, it can be concluded that steady and continuous training can improve the H&S situation at site and may produce better EMP compliance.

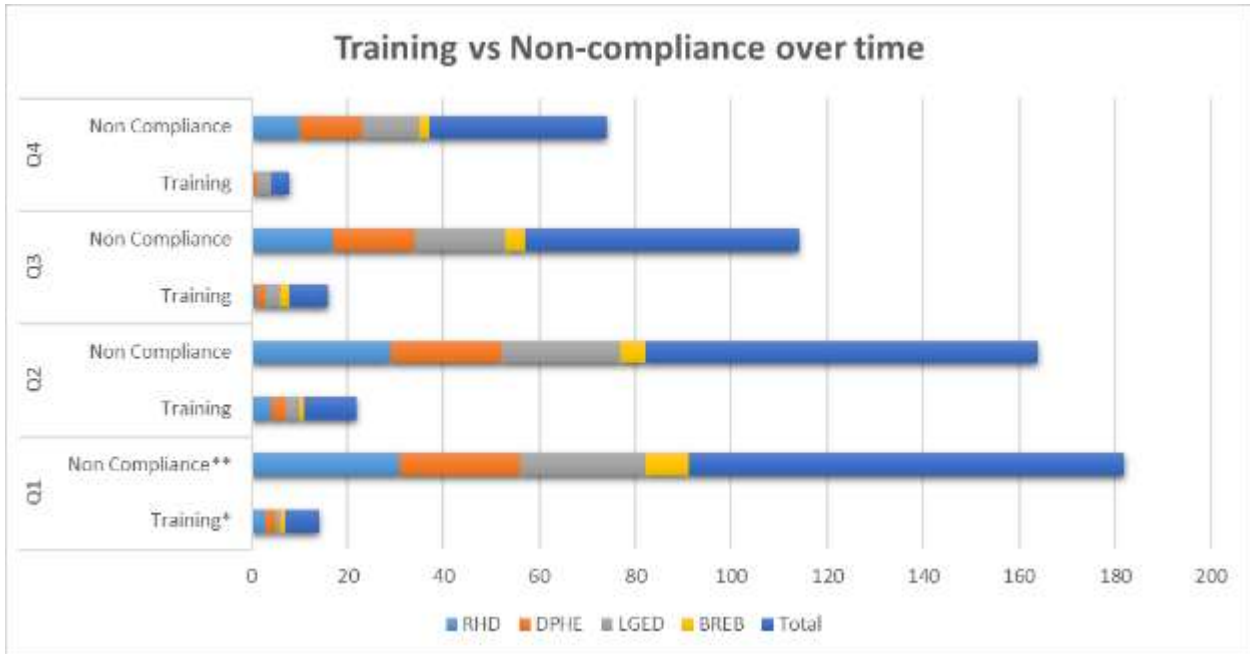


Figure 13 Training vs EMP non-compliance over time (information of year 2019) **indicate information up to November 2019

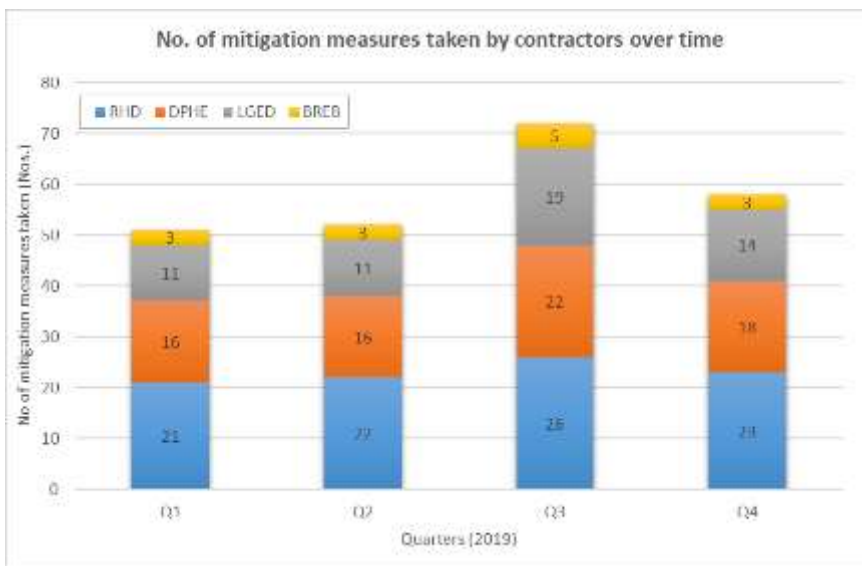


Figure 14 Number of mitigation measures taken over time

7 Concluding Observations

121 Current environmental conditions of few proposed subprojects are presented through some site photographs in **Appendix I** of this report. **Appendix II** represents some Environmental Compliance Reports produced from site visit that are shared with the EAs and ADB for tracking and action.

122 The concluding observations are as follows:

- The Environmental Safeguards compliance performance of the EAs are improving slowly but steadily. The onsite training workshop and regular monitoring of ADB to sensitize the EAs and contractors seems to have obvious impact in this regard.
- When same contractor is being awarded with more than one subproject, environmental compliance record appears to be poor.
- The implementing agencies need to consult the Environmental Safeguards consultants and ADB's safeguard division while proposing the project, before going into design. In this way, if the Safeguards division and Environmental Consultants checks the environmental and other related issues, the implementing agencies can go for designing and can save time by avoiding redesign issues.
- The implementing agencies need to better coordinate with the DoE and Forest Department. It appears the level of coordination is weak.

Reporting Information:

Revision	Description	Originator	Reporting contribution
00	Third Semi-annual Environmental Monitoring Report (July – December 2019)	Kushal Roy	Shahid Zaman Kushal Roy

8 Appendix I: Site Photographs

1. BREB/G2B: Mini-Grid Street Lights



2. BREB/G5: Nano-Grid



3. BREB/W1A: 33/11kV Electrical Sub-station



4. BREB/W2: 50 KM Distribution Line



5. DPHE/W1, W2, W3, W4 and W5: Mini-pipe Water Supply System





6. DPHE/W13, W14 and W15: Bathing Facility



7. LGED/W6, W8 and W9: Cyclone shelters





8. LGED/W19: Semi-Permanent Food Distribution Centers



9. LGED/W3 and W5: Access Road





10. RHD/W1: Rehabilitation of National Highway from Link Road (Cox's Bazar) to Ukhia



11. RHD/W2: Rehabilitation of National Highway from Ukhia to Unchiprang



12. Onsite Training Program at BREB, DPHE, LGED and RHD Component





12. Environmental Quality Monitoring During July- Dec 2019









9 Appendix II: Sample Compliance Audit Reports




AUDIT FINDINGS (EAP/RHD/W1) December 1, 2019




The findings from the site audits and action items required to mitigate non-conformances, where required, are provided in the sub-sections below:


Issues	Observation	Corrective Action	Deadline	Responsibility	Photograph
Corrective Action Plan	All the EHS issues identified and reported by the environmental specialist of ADB have not rectified yet.	Rectify all the EHS issues immediately and submit the rectification report to ABD and CSC environmental specialist.	1 st week of December 2019	Contractor and CSC	Photograph is not required.
Environmental Inspection and Monitoring Report	Contractor should prepare and submit the environmental report on a monthly basis but till date not a single report has been submitted.	Prepare Environmental Inspection and Monitoring report on a monthly basis.	1 st week of December 2019	Contractor and CSC	Photograph is not required.
Quarterly Environmental Quality Monitoring	In order to ensure proper implementation of the environmental safeguard requirements, the Contractor shall conduct air quality, noise measurement, surface water quality and groundwater quality testing and analysis on quarterly basis but Contractor has not conducted any environmental monitoring till date which should be done immediately.	Contractors must conduct environmental monitoring activity immediately as per EMP.	1 st week of December 2019	Contractor and CSC	Photograph is not required.
H&S Plan	Health and safety plan has been prepared as per EMP and sent to PD-RHD and CSC to share with the Contractor which might improve their construction practices but contractor has not received the plan yet.	HSP should be circulated to the contractor asap and monitoring the implementation activity accordingly.	1 st week of December 2019	RHD and CSC	Photograph is not required.

Issues	Observation	Corrective Action	Deadline	Responsibility	Photograph
Management of Concrete batching plant	Concrete batching plant is operated in the camp located along the agricultural land is a potential source of waste water with high pH and turbidity level which is discharged directly to the adjacent paddy land.	Contractor must undertake the following measures: <ul style="list-style-type: none"> • No waste water to be drained to the paddy. • All runoff and wastewater is to be collected and contained onsite in a sufficiently large recycle tank/sedimentation pit. • Working and washout areas to be bunded to contain runoff. • Wastewater to be reused as part of the dust suppression system at earliest possible opportunity to restore storage capacity. • Reducing the volume of wash-up water used can reduce the buildup of waste water. 	1 st week of December 2019	Contractor and CSC	 
Dust pollution	Dust pollution is being occurred severely due to irregular dust suppression measure.	Contractor should spray water at least 4 times a day to reduce the dust level and also truck drivers should instruct to cover the top with a tarpaulin after loading the truck with soil at the source.	1 st week of December 2019	Contractor	

Issues	Observation	Corrective Action	Deadline	Responsibility	Photograph
Road Safety and traffic management	<ul style="list-style-type: none"> None of the road diversion section is equipped with warning signs and any safety barriers. No signal man is found on the busy road section as a result, long tailback is being observed frequently. 	<ul style="list-style-type: none"> Road safety measures should be installed at the road diversion section. Signal man with proper safety gears should be placed at the diversion section to control the traffic. 	1 st week of December 2019	Contractor	 
Drainage congestion	U drain constructed by the contractor was filled by eroded earth materials which created drainage congestion in the drain.	Contractor should clean the drains periodically.	1 st week of December 2019	Contractor	


Issues	Observation	Corrective Action	Deadline	Responsibility	Photograph
Control of Petroleum Products	<ul style="list-style-type: none"> Petroleum products are stored in scattered way at different locations where no absorbent kit is kept. Storage of petroleum products are located adjacent to the batching plant where large amount of waste water generated and mixed with spillage and discharged to the paddy land which contaminate soil as well as water. The fuel storage is not confined and mixing trucks are frequently moved along the fuel drums, therefore, accident may occur at any time. No safety signage is placed at the storage area. 	<ul style="list-style-type: none"> All petroleum products shall be stored in a designated storage location where any spillage can be safely maintained without contamination of the surrounding area. Storage of petroleum products shall not be permitted in the vicinity of streams, rivers or other bodies of water. Storage should be confined and established away from haulage. Safety signs must be installed at the storage site. 	1 st week of December 2019	Contractor	 
Worker Health and Safety	<ul style="list-style-type: none"> Labors were observed to work without proper PPEs at the site. Child labors are appointed and engaged in hazardous activity without PPEs. No health and safety checklist is followed at work site. No first aid box was found in the construction site. 	<ul style="list-style-type: none"> Proper PPEs need to be supplied to workers and enforced them to use at site. Contractor should comply with requirements of Government of Bangladesh Labour Law of 2006 (amended in 2013). Provide first aid facilities that are readily accessible by workers. 	1 st week of December 2019	Contractor	




Issues	Observation	Corrective Action	Deadline	Responsibility	Photograph
		<ul style="list-style-type: none"> Contractor should conduct tool box talk regularly at each site. 			
Construction camp	<ul style="list-style-type: none"> Construction camp is not managed satisfactorily where no boundary fence with security is observed. No safety signs are placed at the camp site. Emergency procedure is not followed in the camp. No waste management is observed in the camp. Construction wastes were dumped openly along the access road to the camp which may create diffuse pollution and contaminate the agricultural land adjacent to the camp. No housekeeping was observed there. Moreover, wastes are burnt in the camp. Toilets for the labors are built without proper doors and septic tank is opened which emitted odor in the surrounding. No drainage network has been developed yet inside 	<ul style="list-style-type: none"> Site safety signage must be placed at designated locations in the camp. Contractor should install garbage bins and construct a concrete waste disposal site which have the concrete floor and wall and covered by shed to avoid air pollution, soil and ground water pollution. Emergency contact information should be displaced at the camp site. Sanitation facility should be improved. Noisy operation should not be conducted at night and operation sites with high noise level must be confined by noise barrier. 	1 st week of December 2019	Contractor	 




Issues	Observation	Corrective Action	Deadline	Responsibility	Photograph
	<p>the camp where waste water management is not observed at all.</p> <ul style="list-style-type: none"> At camp area, construction activity is proceeded at night with high level of noise along the residential area. 				


AUDIT FINDINGS (EAP/LGED/W6) December 19, 2019

The findings from the site audits and action items required to mitigate non-conformances, where required, are provided in the sub-sections below:

Issues	Observation	Corrective Action	Deadline	Responsibility	Photograph
Onsite Training on EHS	Two onsite training on EHS were conducted at Paglirbil GPS on 18 November 2019 where 12 workers were participated respectively. ADB Environmental Specialist has given a brief lecture to the participants majorly focused on: job hazard analysis, occupational health and safety including PPEs, safety signage, housekeeping, waste management, management of hazardous materials, emergency procedures, accident report and also trained them how to administer first aid. Moreover, explained about the importance of regular tool box meeting at the site. However, all the participants hold a very positive attitude towards the training program.				
Corrective Action Plan	Most of the EHS non-compliance issues are occurred recurrently at the site which are identified and reported but none of them has been rectified yet by the contractor.	Rectify all the EHS non-compliance issues immediately and submit the rectification report to ABD.	December 2019	Contractor and CSC	Photograph is not required.
H&S Plan	Health and safety plan has been prepared as per EMP and sent to PD-LGED and CSC to share with the Contractor which might improve their construction practices but contractor has not received the plan yet.	HSP should be circulated to the contractor asap and monitoring the implementation activity accordingly.	December 2019	LGED and CSC	Photograph is not required.


Issues	Observation	Corrective Action	Deadline	Responsibility	Photograph
Water supply to the school	Water supply system to the school building has been disrupted for 5 months due to construction work. As a result, sanitation facility is also being affected in the school.	Contractor should repair the water supply system immediately.	December 2019	Contractor	
Waste management	No waste management in the site for both construction and domestic wastes are found during monitoring.	Separate garbage bins should be supplied for organic and inorganic wastes at the site and finally disposed at the designated location in the camp.	December 2019	Contractor	
Worker health and safety	<ul style="list-style-type: none"> • Labors were observed to work without proper safety gears. • Without fall protection and standard ladder, they are working at height which might cause fatal accident at any time. • Child labors are found in the site. • No electric safety was ensured in the site where electric wire was found in water which might cause accident. 	<ul style="list-style-type: none"> • Proper PPEs needs to be implemented at site by force. • Contractor should comply with requirements of Government of Bangladesh Labour Law of 2006 (amended in 2013). • Contractor should conduct tool box talk regularly at each site. • Fire protection measures such as fire extinguisher 	December 2019	Contractor	



Issues	Observation	Corrective Action	Deadline	Responsibility	Photograph
	<ul style="list-style-type: none"> No health and safety checklist is followed at work site. Emergency procedure for accident, fire incident is not maintained at the site. Site safety signboards are placed at the site. First aid box is available at the site. 	should be available at the site.			 
Labor camp	<ul style="list-style-type: none"> Hazardous materials including fuel drums are stored in the labor shed where no fire extinguisher is kept to put out the fire. Kitchen wastes are dumped openly which causes soil as well as groundwater pollution. 	<ul style="list-style-type: none"> All petroleum products shall be stored in a designated storage location where any spillage can be safely maintained without contamination of the surrounding area. Fire extinguisher should be available in the camp. Contractor should construct a concrete waste disposal site which have the concrete floor and wall and covered by shed to avoid air pollution, 	December 2019	Contractor	




Issues	Observation	Corrective Action	Deadline	Responsibility	Photograph
		soil and groundwater pollution.			

AUDIT FINDINGS (EAP/DPHE/W4) December 17, 2019

The findings from the site audits and action items required to mitigate non-conformances, where required, are provided in the sub-sections below:

Issues	Observation	Corrective Action	Deadline	Responsibility	Photographs
Onsite Training on EHS	Onsite training on EHS was conducted on 4 December 2019 where 8 workers were participated. ADB Environmental Specialist has given a brief lecture to the participants majorly focused on: job hazard analysis, occupational health and safety including PPEs, safety signage, housekeeping, waste management, management of hazardous materials, emergency procedures, accident report and also trained them how to administer first aid. Moreover, explained about the importance of regular tool box meeting at the site. However, all the participants hold a very positive attitude towards the training program.				
Environmental Inspection and Monitoring Report	Contractor should prepare and submit the monitoring report on monthly basis but till date not a single report has been submitted.	Prepare Environmental Inspection and Monitoring report on monthly basis.	December 2019	Contractor	Photograph is not required.
Quarterly Environmental Quality Monitoring	In order to ensure proper implementation of the environmental safeguard requirements, the Contractor shall conduct air quality, noise measurement, surface water quality and groundwater quality testing and analysis on quarterly basis but Contractor has not conducted any environmental monitoring till date which should be done immediately.	Contractors must conduct environmental monitoring activity immediately as per EMP.	December 2019	Contractor	Photograph is not required.
H&S Plan	Health and safety plan has been prepared as per EMP and sent to PD-DPHE to share with the Contractor which might improve their construction practices but	HSP should be circulated to the contractor asap and monitoring the implementation activity accordingly.	December 2019	DPHE	Photograph is not required.


Issues	Observation	Corrective Action	Deadline	Responsibility	Photographs
	contractor has not received the plan yet.				
Control of Petroleum Products	<ul style="list-style-type: none"> Petroleum products are stored in scattered way at different locations where no absorbent kit is kept. Fuel drums were stored in the vicinity of drainage channel which may pollute the surface water. The fuel storage is not confined and open burning was found along the fuel drums where accident may occur at any time. No safety signage is placed at the storage area. No fire protection is found in the site. 	<ul style="list-style-type: none"> All petroleum products shall be stored in a designated storage location where any spillage can be safely maintained without contamination of the surrounding area. Storage should be confined and established far from the water body. Fire extinguisher must be kept at storage site Safety signs must be installed at the storage site. 	December 2019	Contractor	
Waste management	No waste management in the site for both construction and domestic wastes are found during monitoring.	Separate garbage bins should be supplied for organic and inorganic wastes at the site and finally disposed at the designated location in the camp.	December 2019	Contractor	




Issues	Observation	Corrective Action	Deadline	Responsibility	Photographs
Site Office	<ul style="list-style-type: none"> The construction site was not confined, thus unauthorized access including children were observed in the site. Site safety signboards are placed in the site. 	The work site should be confined using safety tape/fence and install a signage so that unauthorized movement can be restricted around the work site.	December 2019	Contractor	 
Worker Health and Safety	<ul style="list-style-type: none"> HSP is not followed at the site. PPEs were not implemented at the site. Child labor is appointed and engaged in hazardous activity without proper PPEs. No safety measure was taken to work at height. No first aid box not supplied at the site. Emergency procedure was not followed at site. 	<ul style="list-style-type: none"> Proper PPEs should be provided at site. Provide first aid facilities that are readily accessible by workers. Fire protection measures such as fire extinguisher should be available at the site. Contractor should conduct tool box meeting regularly at each site. 	December 2019	Contractor	

Issues	Observation	Corrective Action	Deadline	Responsibility	Photographs
	<ul style="list-style-type: none"> No tool box meeting was conducted at site to educate the workers. 				

AUDIT FINDINGS (EAP/BREB/W1A) September 3, 2019

The findings from the site audits and action items required to mitigate non-conformances, where required, are provided in the sub-sections below:

Issues	Observation	Corrective Action	Deadline	Responsibility	Photographs
Worker health and safety	<ul style="list-style-type: none"> The labors were working at height without any fall protection where fatal accident might be occurred at any moment. Most of labors were observed to work without proper safety gears. No site safety signboards were placed. Emergency procedure is not maintained at the site. No fire protection was found in the site. Rohingya labors were identified, currently about 60% labors were hired from the nearby camps. 	<ul style="list-style-type: none"> Proper staging/platform, barriers as well as safety harness must be supplied to the labors who worked at height and need to be implemented at site by force. Site safety signboards should be placed in the construction site. Fire protection measures such as fire extinguisher should be available at the site. Contractor should conduct tool box talk regularly. Rohingya labor should not be appointed. 	10 September 2019	Contractor	

Issues	Observation	Corrective Action	Deadline	Responsibility	Photographs
					 <p>Rohingya labor at the site</p>
Site Order Book	Site order book is maintained at the site where some observations along with suggestions were recorded on 17 July but no corrective measure has been taken till date.	Contractor should take corrective action in accordance to the site order book.	10 September 2019	Contractor	
Waste Management	<ul style="list-style-type: none"> Construction wastes were scattered around the work site due to absence of housekeeping at the site. There is no waste management system at the site to manage the solid wastes generated from the labor shed. 	<ul style="list-style-type: none"> Construction wastes should be dumped in the designated place. Contractor should clean the work site regularly and provide garbage bins for both organic and inorganic wastes. 	10 September 2019	Contractor	

Issues	Observation	Corrective Action	Deadline	Responsibility	Photographs
					
Community health and safety	Contractor has removed the sediments from the nearby agricultural field which was discharged deliberately from the construction site.	Rectified			

10 Appendix III: Laboratory Test Result



DSCL

Multidisciplinary Development Consultants

Name of the Project	Construction & Operation of Mini Piped Water Supply System (10 Schemes): Package 2 (EAP/DPHE/W2)
Description of Sample	Ambient Air Quality
Sample Collector	Collected by DSCL Personnel
Sampling Date	03 October 2019 – 04 October 2019

Test Result of Ambient Air Quality Analysis

Parameter	Unit	EAP/DPHE/W2/AAQ_01	EAP/DPHE/W2/AAQ_02	Bangladesh Standard	Duration (hours)	Weather Condition	Method of Analysis
		21.20760°N 92.14153°E	21.19473°N 92.15631°E				
		Water Distribution Zone: 4.4, Camp: 04, Ukhiya Mega Camp, Cox's Bazar	Water Distribution Zone: 8W.8, Camp: 8W, Ukhiya Mega Camp, Cox's Bazar				
PM _{2.5}	µg/m ³	23.31	27.45	65	24	Partial Sunny and Partial Cloudy	Gravimetric
PM ₁₀	µg/m ³	65.36	69.89	150	24		Gravimetric
SO ₂	µg/m ³	23.54	27.87	365	24		West-Geske
NO _x	µg/m ³	18.78	21.89	100	Annual		Jacob and Hochheiser
CO*	PPM	<1	1	9	8		CO Meter

Note:

** The Bangladesh National Ambient Air Quality Standards have been taken from the Environmental Conservation Rules, 1997 which was amended on 19th July 2005 vide S.R.O. No. 229-Law/2005.

NTS: Not Yet Standardized

Description of the Surrounding Environment

Location	Sample Site Description
Water Distribution Zone: 4.4, Camp: 04, Ukhiya Mega Camp, Cox's Bazar (EAP/DPHE/W2/AAQ_01)	<ul style="list-style-type: none"> Construction work was ongoing The weather was partial cloudy and Partial Sunny. Beside two educational institutions. Beside Residential Structure Traffic volume and people movement was low
Water Distribution Zone: 8W.8, Camp: 8W, Ukhiya Mega Camp, Cox's Bazar (EAP/DPHE/W2/AAQ_02)	<ul style="list-style-type: none"> Construction work was ongoing. The weather was partial cloudy and Partial Sunny. Boring work was going on. People movement was medium. Beside Household Structure.

Test Performed By:
Md. Mashur Rahman
Jr. Environmental Specialist



Checked By:
Tommy Pandit
Deputy Manager

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Multidisciplinary Development Consultants

Name of the Project	Construction & Operation of Mini Piped Water Supply System (10 Schemes): Package 2 (EAP/DPHE/W2)
Description of Sample	Noise Level Measurement
Sample Collector	Collected by DSCL Personnel
Sampling Date	02 October 2019 – 03 October 2019

Noise Level Analysis

Sample ID	Sample Location	GPS Location	Land Use Category	Time		Noise Level (dBA) (LA _{eq})	Bangladesh Standard (dBA) **
				Start	End		
EAP/DPHE/W2/ NM_01	Water Distribution Zone: 4.4 Camp: 4	21.20760°N 92.14153°E	Residential	11:00 am	01:00 pm	55.01	55
EAP/DPHE/W2/ NM_02	Water Distribution Zone: 4.1 Camp: 4	21.20877°N 92.14533°E	Residential	01:14 pm	03:14 pm	51.32	55
EAP/DPHE/W2/ NM_03	Water Distribution Zone: 2 Camp: 2W	21.20954°N 92.15843°E	Residential	03:40 pm	05:40 pm	58.84	55
EAP/DPHE/W2/ NM_04	Water Distribution Zone: 8W.8 Camp: 8W	21.19473°N 92.15831°E	Residential	10:47 am	12:47 pm	65.35	55
EAP/DPHE/W2/ NM_05	Water Distribution Zone: 8W.3 Camp: 8W	21.19812°N 92.15608°E	Residential	02:14 pm	04:14 pm	61.32	55
Notes: <ul style="list-style-type: none"> Land use category is based on the classification provided in the Noise Pollution Control Rules (2006) The sound level standards for residential area are 55 at day time and 45 at night time. Noise Level is the average noise recorded over the duration of the monitoring period 							

Description of the Surrounding Environment

Sample Location and ID	Sample Site Description
Water Distribution Zone: 4.4 Camp: 04, Ukhiya Mega Camp (EAP/DPHE/W2/NM_01)	<ul style="list-style-type: none"> Residential Area. Beside two educational institutions. Construction work was ongoing. People movement was low. Generator was running.
Water Distribution Zone: 4.1 Camp: 04, Ukhiya Mega Camp (EAP/DPHE/W2/NM_02)	<ul style="list-style-type: none"> Residential Area. Construction work was ongoing. People movement was low. Traffic volume nil.
Water Distribution Zone: 2 Camp: 2W, Ukhiya Mega Camp (EAP/DPHE/W2/NM_03)	<ul style="list-style-type: none"> Residential Area. Beside religious institutions (mosque). Construction work was ongoing. People movement was high. Traffic Volume low.

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Sample Location and ID	Sample Site Description
Water Distribution Zone: 8W.8 Camp: 8W, Ukhiya Mega Camp (EAP/DPHE/W2/NM_04)	<ul style="list-style-type: none"> ➤ Residential Area ➤ Construction work was ongoing. ➤ People movement was low. ➤ Generator was running. ➤ Boring work ahead.
Water Distribution Zone: 8W.3 Camp: 8W, Ukhiya Mega Camp (EAP/DPHE/W2/NM_05)	<ul style="list-style-type: none"> ➤ Residential Area. ➤ Beside educational institutions. ➤ Construction work was ongoing. ➤ Generator was running.

Test Performed By:
Md. Mashiur Rahman
Jr. Environmental Specialist



Checked By:
Tonmoy Pandit
Deputy Manager

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Multidisciplinary Development Consultants

Name of the Project	Construction & Operation of Mini Piped Water Supply System (10 Schemes): Package 2 (EAP/DPHE/W2)
Description of Sample	Surface Water Quality
Sample Collector	Collected by DSCL Personnel
Sampling Date	03 October 2019

Test Result of Surface Water Quality Analysis

Parameters	Unit	Concentration Present	Standards for Inland Surface Water* (ECR,1997)	Standards for Project Waste Water* (ECR,1997)	Analysis Method
		Water Canal, Camp: 8W, Ukhhiya Mega Camp			
		EAP/DPHE/W2/SW_01 21.20734°N 92.14167°E			
pH*	-	8.10	6-9	6-9	Multimeter
Electrical Conductivity (EC)*	µs/cm	905	1200	1200	Multimeter

Note:

*Standards for Inland Surface Water and Project Waste Water is followed Environmental Conservation Rule (ECR) '97

* On-site Test Result


NYS: Not Yet Standardized

Description of the Surrounding Environment

Sample Location and ID	Sample Site Description
Water Canal, Camp: 8W, Ukhhiya Mega Camp (EAP/DPHE/W2/SW_01)	<ul style="list-style-type: none"> ➤ Rain water drains in the canal. ➤ The water is used for bathing and mostly washing purposes. ➤ Water is slightly polluted. ➤ The polluted water from construction activities washes into this canal.




Test Performed By:
Md. Mashiur Rahman
Jr. Environmental Specialist




Checked By:
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	Government of the People's Republic of Bangladesh Office of the Chief Chemist Department of Public Health Engineering Central Lab, 38-39, Mohakhali C/A, Dhaka-1212 Phone: 88-02-9881927, Fax: 88-02-9882003, Email: wqmsc_central_lab@yahoo.com	
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Lab Memo: 309/ CC, DPHE, CL, Dhaka.

Date: 14-10-2019

Physical /Chemical/ Bacteriological Analysis of Water Sample

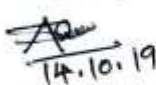
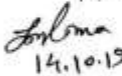
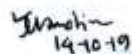
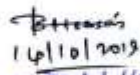
Sample ID: CEN2019100145	Sample Receiving date: 06-10-2019
Ref. Memo No: DSCL/2019/Nil & Dated: 06-10-2019	Sample Source: Surface Water
Sent by: Md. Mashiur Rahman, Jr. Environmental Specialist, DSCL, Mirpur DCHS, Dhaka-1216.	Dist: Cox's Bazar, Upa: Ukhiya Upazila
Care Taker: DSCL (EAP/DPHE/W2/SW_01)	Union: Villi: Kutupalong Mega Camp
Sample Collection date:	Date of Testing: 06/10/2019-14/10/2019

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Ammonia	0.5	3.86	mg/L	UVS	0.1
2	Biochemical Oxygen Demand (BOD)	0.2	29	mg/L	5 days Incubation	0.1
3	Chemical Oxygen Demand (COD)	4.0	140	mg/L	CRM	-
4	Chloride	150-600	90	mg/L	Titrimetric	-
5	Dissolved Oxygen (DO)	6.0	4.32	mg/L	Multimeter	-
6	Total Suspended Solid (TSS)	10	21	mg/L	Gravimetric Method	-
7	Turbidity	10	1732	NTU	Turbidity Meter	-

Comments: Sample was collected & Supplied by client.

N.B: UVS- UV-Visible Spectrophotometer, CRM-Closed Reflex Methods, LOQ - Limit of Quantitation.

Test Performed by: 1.) Name: Md. Saiful Alam Khosru Designation: Sample Analyzer  14.10.19 2.) Name: Taslima Akhter Designation: Sample Analyzer  14.10.19	Countersigned/Approved by: 1.) Name: Md. Zahidul Islam Miah Designation: Senior Chemist  14-10-19 2.) Name: Md. Biplob Hossain Designation: Chief Chemist  14/10/2019 Md. Biplob Hossain Chief Chemist Department of Public Health Engineering Central Laboratory Mohakhali, Dhaka.
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Multidisciplinary Development Consultants

Name of the Project	Construction & Operation of Mini Piped Water Supply System (10 Schemes): Package 2 (EAP/DPHE/W2)
Description of Sample	Groundwater Quality
Sample Collector	Collected by DSCL Personnel
Sampling Date	03 October 2019

Test Result of Groundwater Quality Analysis

Parameters	Unit	Concentration Present	Standards for Drinking Water**	Analysis Method
		EAP/DPHE/W2/GW_01		
		Water Distribution Zone: 8W.8, Camp: 8W, Ukhiya Mega Camp 21.19473°N 92.15831°E		
pH*	-	6.11	6.5-8.5	Multimeter
Electrical Conductivity (EC)*	µs/cm	189.12	NYS	Multimeter
Total Dissolved Solids (TDS)*	mg/L	121.2	1000	Multimeter

Note:

*Standards for Drinking Water followed Environmental Conservation Rule (ECR)'97


**On-site Test Result

Description of the Surrounding Environment

Sample Location and ID	Sample Site Description
Water Distribution Zone: 8W.8, Camp: 04, Ukhiya Mega Camp (EAP/DPHE/W2/GW_01)	<ul style="list-style-type: none"> ➤ The depth of the Tubewell is 100 ft. ➤ The source was installed in 2017. ➤ The water is mainly using for drinking and bathing purposes ➤ Septic Tank is about 200m far from the sampling location.




Test Performed By:
Md. Mashiur Rahman
Jr. Environmental Specialist




Checked By:
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Lab Memo: 309/ CC, DPHE, CL, Dhaka

Date: 14-10-2019

Physical /Chemical/ Bacteriological Analysis of Water Sample


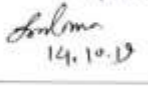
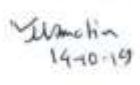
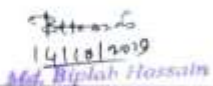
Sample ID: CEN2019100146	Sample Receiving date: 06-10-2019
Ref. Memo No: DSCU/2019/Nil & Dated: 06-10-2019	Sample Source: Ground Water
Sent by: Md. Mashur Rahman, Jr. Environmental Specialist, DSCU, Mirpur DOHS, Dhaka-1216.	Dist Cox's Bazar, Upa: Ukha Upazila
Care Taker: DSCU (EAP/DPHE/W2/GW_01)	Union:, Vill. Kutupalong Mega Camp
Sample Collection date:	Date of Testing: 06/10/2019-14/10/2019

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.001	mg/L	AAS	0.001
2	Chloride	150-600	15	mg/L	Titrimetric	-
3	Coliform (Faecal)	0	0	N/100ml	MFM	-
4	Coliform (Total)	0	0	N/100ml	MFM	-
5	Iron (Fe)	0.3-1	0.11	mg/L	AAS	0.05
6	Manganese (Mn)	0.1	0.30	mg/L	AAS	0.03

Comments: Sample was collected & Supplied by client.

N.B: AAS - Atomic Absorption Spectrophotometer, MFM-Membrane Filtration Method, LOQ - Limit of Quantitation

Test Performed by: 1.) Name: Md. Saiful Alam Khosru Designation: Sample Analyzer  14.10.19 2.) Name: Taslima Akhter Designation: Sample Analyzer  14.10.19	Countersigned/Approved by: 1.) Name: Md. Zahidul Islam Miah Designation: Senior Chemist  14.10.19 2.) Name: Md. Biplob Hossain Designation: Chief Chemist  14.10.2019 Md. Biplob Hossain Chief Chemist Department of Public Health Engineering Central Laboratory Mohakhali, Dhaka.
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