Environmental Due Diligence Report

November 2018

BAN: SASEC Chittagong–Cox's Bazar Railway Project, Phase 1 – Tranche 2

Construction of Single Line Dual Gauge Railway Track from Dohazari to Cox's Bazar via Ramu, Bangladesh

Prepared by Bangladesh Railway, Government of Bangladesh for the Asian Development Bank

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CURRENCY EQUIVALENTS

(as of 13 November 2018)

Currency unit	–	Bangladesh Taka (BDT)
BDT1.00	=	$.0119
$1.00	=	BDT 83.830

ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
BBA	Biodiversity Baseline Assessment
BOD	Biological Oxygen Demand (Biochemical Oxygen Demand)
BR	Bangladesh Railway
CBI	Computer Based Interlocking
CCECC	China Civil Engineering Construction Corporation
CO	Carbon Monoxide
COD	Chemical Oxygen Demand
CREC	China Railway Group Ltd (Contractor)
CSC	Construction Supervision Consultant
CWS	Chunati Wildlife Sanctuary
DO	Dissolved Oxygen
DOE	Department of Environment
EARF	Environmental Assessment and Review Framework
EMP	Environmental Management Plan
EMR	Environmental Monitoring Report
EMWS	Environmental Management Implementation Works Schedule
FC	Faecal Coliform
FWS	Fasiakhali Wildlife Sanctuary
GM/PD	General Manager/Project Director, Bangladesh Railway
GOB	Government of Bangladesh
HEC	Human-Elephant Conflict [
IA	Implementing Agency
JICA	Japan International Cooperation Agency
km	kilometer
m	metre(s)
MFF	Multitranche Financing Facility
MNP	Medhkachapia National Park
NGO/INGO	Non-Governmental Organisation
OCR	Ordinary Capital Resources
PA	Protected Areas
PD	Project Director
PFR	Project Financing Request
PM	Project Manager
PM_{10}	Particulate Matter (≤ 10 micrometers or less)
ROW	Right of Way
RDC	Rural Development Council (HIV/AIDS NGO)
RP	Resettlement Plan
SMEC	SMEC International Pty Ltd, Australia
TBDLP	Tongi-Bhairab Bazar Double Line Project
TDS	Total Dissolved Solids
TP	Total Phosphates
TSS	Total Suspended Solids

NOTE

(i) In this report, "$" refers to US dollars.

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EXECUTIVE SUMMARY

1. The construction phase of the 102-km Chattogram-Cox's Bazar Railway Project in southeastern Bangladesh began in March 2018. The Project was classified as a Bangladesh Department of Environment Red Category due to its status as a Greenfield rail project and as an Asian Development Bank (ADB) Category A project since the rail alignment passes through legally protected areas that host endangered Asian elephants in 3 protected areas (PA).

2. Construction activities to date have focused on establishment of labor camps for the two construction consortia and initiation of some bridge works. Implementation has been slowed by the progress of land acquisition. With sufficient lands recently transferred to Bangladesh Railway (BR), construction is now expected to accelerate. Lands transfer for the railway alignment rights-of-way (ROW) through the 3 PAs has yet to occur between the Forest Department and BR.

3. Environmental due diligence of ongoing tranches is a requirement of ADB for a multitranche financing facility during processing of subsequent tranches. Environmental due diligence review of Tranche 1 is required for the preparation of Tranche 2 of the Project. As required for environment Category A projects, an independent monitoring team has been recruited for the project to conduct third party monitoring and tasked with reviewing and assessing compliance of construction activities against the environmental safeguards and accuracy of reporting by the Construction Supervision Consultant (CSC). This report addresses compliance of the relatively limited amount of construction which has occurred to date.

4. Under the Independent Environmental Monitoring team, a National Environmental Consultant is responsible for monitoring environment safeguard issues related to the physical environmental components such as air and water quality, noise levels and occupational health and safety An International Biodiversity Consultant is responsible for monitoring related to the ecological components such as biodiversity, wildlife, tree planting implementation of wildlife mitigations along the railway alignment, assisting in design of the structural wildlife mitigations with the CSC and contractors, as well as overseeing implementation of the Habitat Enhancement Plan to be finalized by December 2018.

5. Monitoring of physical environmental components ranging from surface and ground water, air quality, noise, dust and erosion has been ongoing by the contractors, CSC, and independent monitor. This early into construction, the results of most testing have yet to be reported by the CSC. Site visits by the independent monitor have found compliance though attention to some items was noted.

6. Monitoring of the occupational health and safety components by the independent monitor during site inspections regarding personal protective equipment, worksite safety and training, toilet facilities, fire and security guards were largely adequate for the appropriate stage of construction, though some concerns with drinking water were identified.

7. Due to the fact that only limited construction and no tree planting and replacement have occurred to date, with none in the PA, there is no activity to assess for compliance within the biodiversity and ecological components of the Project. Once the land transfer between BR and the Forest Department occurs, activity to design the structural mitigation measures and construction will ensue.

8. Progress of construction works is minimal at the moment due to the non-availability of land as land acquisition is still under progress. Construction activities are limited to establishment of campsites and initiating construction of the Dohazari bridge. Hence, the progress on implementation of environment safeguard activities are mainly focused on pre-construction stage studies, processing of clearances and initial construction/establishment activities.

9. There are 33 activities under the EMP. For Project Lot 1, the contractors have achieved 41% fully compliant activities, 47% partially compliant activities, and 11% are noncompliant at this time. For Lot 2, the contractors have achieved 64% fully compliant activities, 23% partially compliant activities, and 11% are noncompliant. This illustrates that Lot 2 is several steps ahead of Lot 1, but this contract's commencement date was finalized 4 months earlier than Lot 2. For both lots combined, 11 parameters in the EMP are still not yet applicable.

10. In terms of compliance with the environmental safeguard clauses of the Framework Financing Agreement the project has either complied or is in the process of complying with the requirements. Some clauses are not yet applicable given the early stage of construction activities. Similarly, for the Facility Administration Manual, the project is also either compliant or in the process of complying with the requirements. Overall, no major issues and non-compliance on environment safeguards have been found for the project so far.

I. INTRODUCTION

A. Context and Purpose of the Report

1. The Board of Directors of ADB approved a multitranche financing facility on 28 September 2016 of $1,500 million to the People's Republic of Bangladesh, for South Asia Subregional Economic Cooperation (SASEC) Chattogram–Cox's Bazar Railway Project Phase 1 (the Project). The Project is to be funded from ADB's regular ordinary capital resources (OCR) and concessional OCR. The President approved Tranche 1 of $300 million, comprising $210 million from the OCR, and $90 million from the concessional OCR on 30 September 2016. The Project will support the government in constructing the new 102- kilometer (km) Dohazari–Cox's Bazar section of the Chattogram–Cox's Bazar railway corridor in Southeastern Bangladesh while the government is rehabilitating the 47-km Chattogram–Dohazari section with its own funds. The Project will also strengthen the capacity of Bangladesh Railway for project implementation management.

2. The Project will connect Cox's Bazar district for the first time to the national and subregional railway network, and support economic development in the Dhaka–Chattogram–Cox's Bazar corridor through railway connectivity, contributing to the overall development of the national economy. The railway corridor is part of the Trans-Asia Railway network and will facilitate access for the Cox's Bazar district's population and products to subregional markets and trade. The Project will also improve subregional connectivity with Myanmar, combined with intermodal connection to road transport toward the border. The project is also anticipated to facilitate access to projects by other development partners, such as Japan International Cooperation Agency's (JICA) planned power plant and deep-sea port in Matarbari Island near Cox's Bazar.

3. The MFF is following a time-sliced financing approach, where funds under tranche 2 will be utilized to continue civil works initiated under tranche 1. There is no change in scope or addition of new components under tranche 2. Hence, the environmental issues will remain the same as in tranche 1. The original EIA during tranche 1 is for the entire MFF and remains valid.

4. Environmental due diligence of ongoing tranches is a requirement of ADB for multitranche financing facility (MFF) during processing of subsequent tranches. This environmental due diligence (EDD) report assesses the compliance of SASEC Chattogram – Cox's Bazar Railway Project Tranche 1 to Government of Bangladesh's environmental policies, laws, and regulations, particularly Environmental Conservation Act 1995, and ADB's Safeguard Policy Statement (SPS) 2009 as translated into provisions of the Framework Financing Agreement, Environmental Management Plan (EMP) and Environmental Monitoring Plan (EMoP).

5. This due diligence aims to identify environmental problems to avoid or manage project risks that could result in increased costs for making the project comply with environmental regulations and address third-party damages. Further, environmental due diligence helps ADB determine whether the investments are ready for financing by providing for the proactive identification and resolution of potential sources of environmental risks and liabilities that could occur as part of the project.

B. Project Description and Scope

6. The Chattogram-Cox's Bazar Railway Project (Project) in southeastern Bangladesh will construct a new single line dual gauge railway from Dohazari (46 km south of Chattogram) to Cox's Bazar via Ramu, traversing a total distance of 102 km. The Project crosses largely rural

southeastern Bangladesh, which supports approximately 2 million residents. The project is now being implemented by the Bangladesh Railway (BR) with joint funding by the Government of Bangladesh (GoB) and the Asian Development Bank (ADB).

7. The Project was classified by the Bangladesh Department of Environment as Red Category due to its status as a greenfield rail project (GoB 2016). It was also classified as an ADB Category A project since the rail alignment passes through legally protected areas that harbor one or more endangered species. The Project alignment crosses 3 of Bangladesh's 24 legally protected areas (PAs). These PAs include: 1) Chunati Wildlife Sanctuary (CWS), 2) Fasiakhali Wildlife Sanctuary (FWS), and 3) Medhkachapia National Park (MNP). All 3 PAs support populations of IUCN-endangered Asian elephants (*Elephus maximus*).

8. The site is located south of the Dhaka-Chattogram and Chattogram-Sylhet rail corridors. The alignment passes mostly through rural areas except some small urban built-up areas. There are parallel road facilities in parts of the site. There is also a National Highway (NH 1) linking Chittagong and Cox's Bazar.

9. The scope of the project and the major project activities are summarized as follows:

a. Eight new rail stations including one iconic station at Cox's Bazar with platforms, platform sheds, several foot overbridges and access roads.
b. Construction of Dual Gauge (DG) track with 103.47 km of route and 140 km of total track including loops and sidings at stations.
c. 145 box culverts and 39 bridges will be constructed of which 6 are major bridges.
d. Modern signalling systems of 9 stations involving the Supply and installation of computer-based interlocking (CBI) signalling system with associated telecommunications facilities at these stations.
e. Relocation of overhead electricity wire crossings and underground utility crossings affecting construction works.
f. The whole construction project is divided into two lots. Lot 1 is awarded to CREC and Toma Group Joint Venture and Lot 2 is given to CCECC and Max group joint venture.

C. Status of Tranche 1 Works

10. There are two contract packages, divided into lot 1 and lot 2. Lot 1, which covers km 2+000 to 50+400 was awarded to China Railway Engineering Group (CREC) & Toma Construction & Company Limited Joint venture (CREC–TOMA JV). Lot 2 covering km 50+400 to 101+477 was awarded to China Civil Engineering Construction Corporation (CCECC) & Max Infrastructure Limited Joint Venture (CCECC-MAX JV). The contract for both packages were signed on September 2017 and civil works commenced on 1-March-2018. The estimated construction period for both packages is 3 years. However, this is assuming that land acquisition activities, resettlement and forest land transfer take place on a timely basis.

11. The detailed status of progress of civil works as of 30 September 2018 is given in Table 1.

Table 1: Status of Civil Works

Contract Package	Section	Physical Accomplishment (%)
Lot 1: CREC–TOMA JV	Ch -2+000 to Ch 50+400	As Per CSC 4% Contractor's claim 4%
Lot 2: CCECC-MAX JV	Ch 50+400 to Ch 101+477	As Per CSC 10% Contractor's claim 11-12%

12. After extensive planning and environmental review and analysis, as documented in the project Environmental Impact Assessment (EIA) and associated Environmental Management Plan (EMP) (EIA; GoB 2016), coupled with the recent completion of a Biodiversity Baseline Assessment (BBA; Dodd and Imran 2018), construction activities began in March 2018. So far, construction activities have focused mostly on the establishment of labor camps for the two construction consortiums and initiation of some bridge works. Implementation has been slowed down by the slow progress of land acquisition. With sufficient lands recently transferred to BR, construction along the railway alignment is now expected to accelerate. Lands transfer for the railway alignment rights-of-way (ROW) through the 3 PA has yet to occur between the Forest Department and BR.

D. Methodology and Approach Used for Due Diligence

13. This due diligence report is prepared based on the review of safeguard documents and independent monitor site inspections. The review of safeguard documents covered the Environmental Impact Assessment (EIA) report, including the Environmental Management Plan and Environmental Monitoring Plan, and the Framework Financing Agreement (FFA). The independent monitor site inspections took place on 20-September to 22-September-2018. Before commencing these site inspections, there were several discussions by telephone with PD of BR and DTL of CSC. On 20-September-2018 there was a brief meeting held with BR and CSC at CRB, Chattogram regarding the current active site and parameters of conducting inspection. Mr. Khasru, DTL-CSC made necessary arrangement with his staff to accompany the individual monitor to conduct inspection. During inspection numerous interview and discussion took place with CSC staff and contractor's staff and also with workers.

14. The secondary source was the "semi-annual report" of environmental safeguards submitted by CSC. This report was used to identify the parameters and check on compliance condition. The list of inspected sites is given in Table 2.

Table 2. Inspected Sites for Conducting Due Diligence Report

Location	Sites	Accompanied by
Lot 1 Date: 20-9-2018 and 22-9-2018	1. Contractor Base Camp at Dohazari St 2. Batching plant, B # 03, Dohazari 3. B # 03, Piling activity, Cox Bazar Side 4. Harbang Toma Base Camp 5. B # 79, CREC camp & active piling activity 6. Re-visit Harbang Toma Base Camp 7. Inspect sampling of AAQ testing by ENRAC at Lohagara St. site	1. Asim Datta, Geotechnical Engineer, Mid Level,CSC 2. Golam Mosabbir, Junior Environmental & safety specialist,CSC 3. Towhidul Islam, Junior Environmental specialist, ENRAC- Sub Contractor.
Lot 2 Date: 21-9-2018	1. CCECC base camp at Napitkhali 2. B # 124, Recently completed load test site 3. B # 124 Access road construction activity 4. Islamabad Proposed Station site 5. MAX Lab at Ramu 6. Max Base camp site 7. Cox's Bazar Station yard site; active back filling 8. Cox Bazar Station access road site 9. Inspection of sampling Ambient Air Quality by ENRAC at Cox Bazar St. Area 10. Max office at Cox Bazar, discussed findings and issues with DPM-MAX Mr. Anand Kulkarny	1. Saiful Islam, Earthwork & Geotechnical Engineer - Mid level, CSC 2. Saiful Islam Bhuban, Junior Environmental & Safety Specialist,CSC 3. Tarek Aziz, Junior Environmental Specialist, ENRAC- Sub Contractor. 4. Mr. Mizan, HSSE manager, MAX CCECC JV. 5. Mr. Fezer, Camp Safety Officer CCECC.

II. ENVIRONMENTAL MANAGEMENT PLAN IMPLEMENTATION AND INSTITUTIONAL ARRANGEMENT FOR SAFEGUARDS

A. Environmental Management Plan Implementation

15. The Environmental Management Plan (EMP) is the main tool used in the project to manage environment impacts. The EMP specifies the activities that will be undertaken under the project, the anticipated impacts of each activity and the corresponding mitigating measures to lessen the project's negative impacts. The plan also includes performance target (PT) and monitoring indicators (MI) for environmental parameters that will be affected by the anticipated impacts. The EMP also includes the responsible institutions or persons involved in the

implementation and supervision of mitigating measures. In addition, the plan also proposed the costs and timeline to fund the mitigating measures.

16. An EMP was included in the EIA that was prepared during project preparation stage. The EMP was updated during project implementation in 2018, to include updated findings and recommendations of the baseline biodiversity study that was conducted from March 2017 to March 2018.

17. The contractor conducts quarterly air, water and noise quality monitoring and submits reports to the CSC and BR. The contractor's environmental safeguard personnel are required to attend a training workshop on EMP implementation prior to or during contractor mobilization.

18. Three types of environmental reports are being prepared containing air, noise and water quality data, maps, diagrams, plans, tables, etc. The following reports are prepared and submitted by the Contractor and Engineer:

a. Monthly Environmental Inspection Report (Contractor);

b. Quarterly Environmental Inspections and Reports (Contractor);

c. Quarterly Compliance Monitoring Checklists (Contractor and Engineer; and

d. Semi-annual Monitoring Reports (Engineer).

19. The environmental management and monitoring system described above is in accordance with the requirements of the EIA report and the Facility Administration Manual (FAM) of the facility.

B. Project Institutional Set-up for Environment Safeguards

20. ***Table 3***Table 3 indicates the responsibility for monitoring the project's compliance with environment safeguard requirements. The primary responsibility lies with the Project Implementation Unit (PIU) with the support of the Construction Services Consultant (CSC). The CSC is responsible for preparing semi-annual environmental monitoring reports. Given that physical construction works started only in March 2018, the first semi-annual environmental monitoring report covering the period of January – June 2018 was prepared for the Project. As required for Category A projects, an independent environment monitoring team has been recruited for the project to conduct third party monitoring initially under TA 8731 (mainly for pre-construction phase) and now under TA 9193 (for construction and operation phase). The independent monitors will review and assess compliance of on-the-ground construction activities against the safeguards, as well as accuracy of the monitoring report by the CSC. This report assesses compliance with the relatively limited amount of construction which has occurred to date, through 30-September-2018.

Table 3. Environmental Responsibility Matrix

Phase	Agency	Contact	Responsibility	Deliverables
Design/ Preconstruction	Executing Agency: (BR)	General Manager/ Project Director	Preparation of EIA. Incorporation of EMP clauses into bidding documents. Reporting to ADB.	
	Design Consultant: SMEC & Associates	Team Leader/ Project Manager		EMP, Bidding Documents

Phase	Agency	Contact	Responsibility	Deliverables
Construction (Current Phase)	Executing Agency: (BR)	General Manager/ Project Director	Monitoring of EMP Implementation, Audit and Reporting to ADB.	Monthly, Quarterly Reports. Semi-Annual Reports to ADB.
	Implementation Consultant: SMEC & Associates	Team Leader/ Project Manager		
	Contractor: CREC & Toma JV for lot 1, CCECC & MAX JV for lot 2.	CREC Representative	Implementation EMP and reporting to CSC	Monthly Reports, Quarterly reports
	NGO: RDC	RDC Team Leader	Delivery of HIV/AIDS Awareness Program	Monthly Reports
Operation Post Construction	Executing Agency: (BR)	General Manager/ Project Director	Monitoring of EMP Implementation,	Annual reports to ADB

21. Under the Independent Environment Monitoring team, the National Environmental Consultant is responsible for the third-party monitoring of environment safeguard issues related to the physical environmental components such as air and water quality, noise levels and occupational health and safety (**Figure 1**). The International Biodiversity Consultant is responsible for third-party monitoring of environment safeguard issues related to the ecological components such as biodiversity, wildlife, tree planting implementation of wildlife mitigations along the railway alignment. The International Biodiversity Consultant is also responsible for assisting in design of the structural wildlife mitigations with the CSC and contractors, as well as overseeing implementation of the off-alignment Habitat Enhancement Plan components, which was conceptualized in July 2018 and will be finalized by December 2018. The third-party monitors' due diligence reviews, assessments and recommendations will be presented in a single report on a semi-annual basis and disclosed on the ADB website.

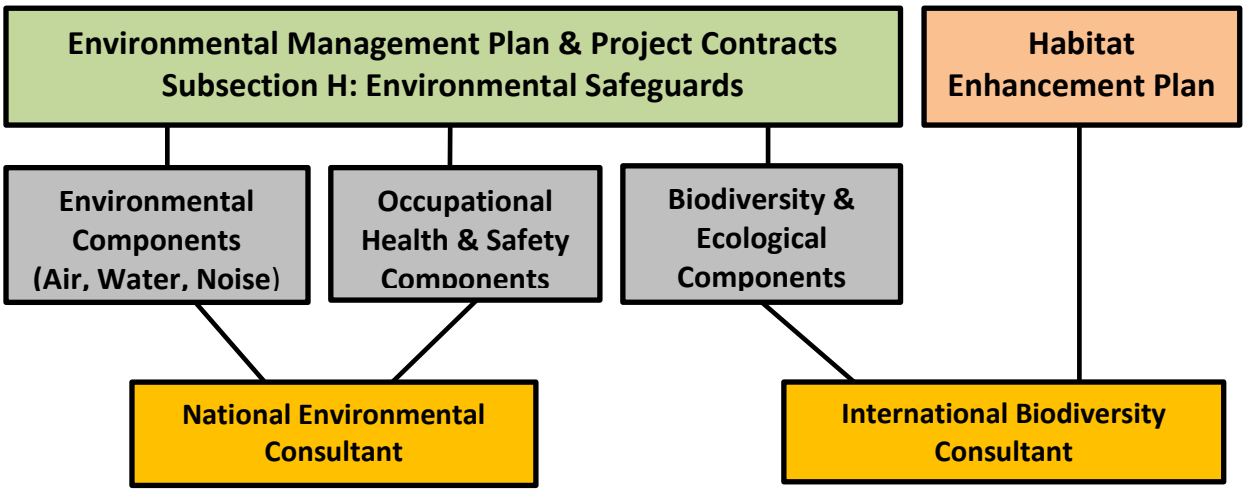

Figure 1. Organizational structure and responsibilities of ADB independent third-party monitoring by National Environmental and International Biodiversity consultants.

22. The institutional arrangements described above and distribution of responsibilities between the PIU, CSC, Independent Monitor are in accordance with that proposed in the EIA and the FAM.

III. DUE DILIGENCE ASSESSMENT AND FINDINGS

23. **Table 4** provides an overview on the status of environment safeguards related clearances and permits.

Table 4. Status of Clearances and Permits

No.	Clearances and Permits required	LOT 1	LOT 2	Status
1.	Environmental Clearance from DOE	Obtained	Obtained	The latest Environment clearance was issued by DOE on 26 November 2017. Renewal date is 25 November 2018.
2.	De-reservation of forest land and transfer to BR. Approval from the Prime Minister	Required for 86.9 ha forest land at CWS	Required for 51.7 ha forest land at FWS & MNP	Under process. MoR has sent official letter requested to acquire those lands. This whole process is now handled by MoEF.
3.	Permission for hill cutting	Obtained	Obtained	Permission given by honorable PM of Bangladesh which was received on 20,December 2016.
4.	Tree cutting permit from Division Forest Department	Obtained	Obtained	BFD has issued a NOC Permission which was received on 1 February 2018.
5.	Permit for use of ground water	Not Required	Not Required	Required from DPHE only when constructing a deep tube well in Dhaka and Chattogram metropolitan area.

A. Compliance with the Framework Financing Agreement

24. The compliance of the Multitranche Financing Facility (MFF) Tranche 1 as to the requirements of the Framework Financing Agreement (FFA) is indicated in **Table 5**.

Table 5. Compliance of Tranche 1 to the Relevant Provisions of the Framework Financing Agreement

Framework Financing Agreement Provisions	Description	Status of Compliance
Schedule 3 (Implementation Framework), Item D. Project Performance Monitoring and Evaluation, Number 13. Environmental safeguards monitoring	For environmental safeguards records on implementation of the mitigation measures on site will be maintained by the contractor on a daily basis and compiled into monthly reports. Based on these records and spot checks of at least once a week by BR and CSC, the CSC will prepare monitoring reports on a quarterly basis. These quarterly monitoring reports will further be compiled into a semiannual reports submitted to ADB for disclosure on the ADB website. If there are any changes in the design or alignment, the EMP of the respective	Complying. Sampling of environmental parameters are ongoing. CSC has submitted the first semi-annual environmental monitoring report for January – June 2018 and it has

Framework Financing Agreement Provisions	Description	Status of Compliance
	project component or tranche will be updated to account for any additional or new environmental impacts. Further, the need for revising the EIA report will also be reviewed and confirmed in discussion with ADB. The independent monitor for environment safeguards will prepare semi-annual monitoring reports during project implementation and annual monitoring reports during project operation for disclosure on the ADB website.	been disclosed on the ADB website.
Schedule 5 (Social Dimensions and Safeguard Requirements), number 5	In all cases, for each new PFR preparation, the client will review ongoing projects to check on the status of compliance with the…safeguard plans and frameworks, and submit the review reports to ADB, together with other required safeguard documents relevant to the project included in the tranche being processed. If any noncompliance is discovered in the course of the review of ongoing projects, a corrective action plan will be prepared and submitted to ADB.	Complied. This due diligence currently checks the status of compliance of tranche 1 with the EIA, EMP, FFA and FAM for preparation of tranche 2. No non-compliance has been found so far.
Schedule 6 (Undertakings), number 1	The Executing Agency shall employ sufficient staff for the duration of the Project with adequate and relevant expertise in the field of…environmental…safeguards implementation; they shall ensure that the Project is implemented in accordance with the detailed arrangements set forth in the FAM, and if applicable. Any subsequent change to the FAM shall become effective only after approval of such change by Bangladesh and ADB.	Complying. The EA ensures that there is adequate expertise at the PIU, CSC, and contractor levels to implement the provisions of the EIA and EMP. In addition, an Independent Monitor for Environmental Safeguards (IMES) has been engaged.
Schedule 6 (Undertakings), number 2	Provision of all counterpart funds, land and facilities required for timely and effective implementation of the Project under the Investment Plan, including, without limitation, any funds required…(ii) to mitigate unforeseen environmental impacts…	Complying. Funds have been allocated for the EMP and Environmental Monitoring Plan (EMoP).
Schedule 6 (Undertakings), number 3	Work contracts (i) follow all applicable labor laws of Bangladesh and that these further include provisions to the effect that contractors(a) carry out HIV / AIDS awareness programs for labor and disseminate information at worksites on risks of sexually transmitted diseases and HIV / AIDS as part of health and safety measures for those employed during construction; (b) follow and implement all statutory provisions on labor (including not employing or using children as labor, equal pay for equal work), health, safety, welfare, sanitation, and working conditions…	Complying. As part of EMP, all the provisions are being followed.

Framework Financing Agreement Provisions	Description	Status of Compliance
Schedule 6 (Undertakings), number 7	Towards smooth implementation of the Project, Bangladesh will cause the Executing Agency to ensure that grievance(s) if any from stakeholders, relating to Project implementation or use of funds are addressed effectively and efficiently.	Complying. Grievance redress mechanism has been institutionalized and is functioning
Schedule 6 (Undertakings), number 11	The Executing Agency shall not award Works contract for the Project which involves environmental impacts until the Project Executing Agency has incorporated the relevant provisions from the relevant EMP into the Works contract.	Complying. An EMP addressing relevant environmental impacts has been included in the Works contract.

B. Compliance to the Framework Administration Manual

25. The compliance of the Multitranche Financing Facility (MFF) Tranche 1 with the Framework Administration Manual is detailed in **Table 6**.

Table 6. Compliance of Tranche 1 to the Relevant Provisions of the Framework Administration Manual

Framework Administration Manual Agreement Provisions	Description	Status of Compliance
Section VII. Safeguards, B. Environmental Safeguards, para 47	The MFF and tranche 1 are categorized "A" for environment according to the SPS because the project scope includes the construction of a greenfield 102 km rail line passing through many elephant crossings and three protected areas (Chunati Wildlife Sanctuary, Faisakhali Wildlife Sanctuary and Methakatchpia National Park). An environmental impact assessment (EIA) report including an environmental management plan (EMP) has been prepared for the rail line and was disclosed on the ADB website on 29 April 2016. An environmental assessment and review framework (EARF) has been prepared to guide environmental assessment of succeeding tranches under the program and will be disclosed on the ADB website as well. Categorization and assessments for succeeding tranche's will be carried out in accordance with the requirements of the EARF, Department of Environment (DOE) of the government and ADB SPS	Complying. The 'A' categorization has been retained. The EARF will be used as guide for succeeding tranches. It was also disclosed in the ADB website. **Table *6***
Section VII. Safeguards, B. Environmental Safeguards, para 48	In case of unanticipated environmental impacts or design changes during implementation, the PIU will immediately inform ADB to make a decision on whether additional studies need to be carried out or updates need to be made to the EIA or EMP. Based on the decision made, the PMU will instruct the CSC	Complying. The mechanisms in case of unanticipated environmental impacts or change in design are well established.

Framework Administration Manual Agreement Provisions	Description	Status of Compliance
	or recruit consultants to conduct additional studies or update the EIA and EMP.	
Section VII. Safeguards, B. Environmental Safeguards, para 49	Ensuring implementation of environmental safeguards. BR will ensure that all environment safeguard requirements under the MFF will be implemented as required by the EARF and respective EIA or IEE, including the EMP. The EMP with detailed budget estimates for the Dohazari–Cox's Bazar section is given in the EIA report. The EMP is a plan for mitigating all anticipated environment impacts during project construction and operation. Specific mitigation measures with details on location, time and responsible agency for implementation is given in the EMP. Mitigation measures for implementation during the construction stage is implemented by the contractor and during operation stage by the PIU under BR.	Complying. BR is making sure all environmental safeguard requirements are being followed.
Section VII. Safeguards, B. Environmental Safeguards, para 50	The EMP also includes monitoring activities on testing the quality of air, water, and noise through laboratory tests and physical monitoring of problems of soil erosion, tree plantations and occupational health and safety issues. Quality testing of air, water and noise may be outsourced by the contractor to recognized and approved laboratories, while physical monitoring activities will be carried out by the CSC and independent monitor, where applicable.	Complying. Monitoring activities on testing environmental parameters are being implemented.
Section VII. Safeguards, B. Environmental Safeguards, para 51	As mentioned in the EARF, since tranche 1 is an environment category A project, an independent monitor will conduct third party monitoring on implementation of environment safeguards and provide technical guidance on the mitigation measures for elephant crossings. The independent monitor will conduct monitoring activities throughout project construction and for at least three years during project operation.	Complying. The latest site inspection was conducted by the independent monitor on September 20-22, 2018.
Section VII. Safeguards, B. Environmental Safeguards, para 52	Given the issue of elephant crossings in the project area the contractor will be responsible for implementing the pilot test of the three camera options under the guidance of the CSC and the independent monitor. A decision on the camera option to be included in the project operations will be made by BR based on the results of the pilot test, recommendations of the CSC and independent monitor and approval from ADB. The contractor will be responsible for procuring and installing the selected camera option, incorporating necessary changes in the rail operations systems and rules, and organizing training for train operators on using the camera system. The independent monitor will conduct further studies on elephant behavior and	Will be complied. To date, no activity has occurred with regard to the pilot assessment of thermal imaging camera (TIC), nor the purchase and deployment of camera trap systems; thus, there is no activity to assess for compliance or report at this time.

Framework Administration Manual Agreement Provisions	Description	Status of Compliance
	movement patterns during the pre-construction stage and provide recommendations on the exact location and technical design of the elephant overpass. The contractor will be responsible for preparing the technical design of the elephant overpasses and constructing them along with associated features such as funneling structures, sign boards and others.	
Section VII. Safeguards, B. Environmental Safeguards, para 53	In accordance to the Forest Act (1927), and the Forest (Amendment) Act (2000) and the management plans of the Chunati Wildlife Sanctuary and Fasiakhali Wildlife Sanctuary government clearance will be required for any development project falling inside legally protected areas. Furthermore, according to the Hill Cutting Ordinance, 1986, no person shall cut or raze any hills or hillocks without prior approval from the government. Hence, BR will be responsible for securing government clearance for construction of the project rail line through the three protected areas and hills in the project area.	Will be complied and complied, respectively. The de-reservation of forests land (86.9 hectares for Lot 1 and 51.7 hectares for Lot 2) for transfer to BR is under process. For the permission of hill cutting, permission was given by Bangladesh PM on 20 December 2016.
Section VII. Safeguards, B. Environmental Safeguards, para 54	All other statutory clearances such as the environmental clearance, forestry clearance, No Objection letters, etc. must be obtained by the PIU before start of construction works. Permits, certificates, No objection letters, etc. for activities such as operation of hot mix plants, operation of equipment and machinery, sourcing of ground water, etc. must be obtained by the contractor before the implementation of the respective construction activity.	Complied and will be complied. All the required permits (Environmental clearance from DOE, Permission for hill cutting, Tree cutting permit from Division Forest Department) have been secured; while the de-reservation of forest land for transfer to BR is still under process.
Section VII. Safeguards, C. Grievance Redress Mechanism, para 55.	BR will establish a grievance redress mechanism (GRM) to voice and resolve social and environmental concerns linked to the project and ensure greater accountability of the project authorities towards all affected persons. The GRM should be in place no later than 3 months following the recruitment of the RP implementing NGO or no later than 6 months after the loan effectiveness, whichever is earlier. This mechanism is not intended to bypass the government's own legal process, but is intended to provide a time-bound and transparent mechanism that is readily accessible to all segments of the affected people. The NGO and BR will try as much	Complying. Grievance redress mechanism has been institutionalized and is functioning.

Framework Administration Manual Agreement Provisions	Description	Status of Compliance
	as possible to address grievances locally before these are submitted to the GRM. All costs involved in resolving the complaints (meetings, consultations, communication and reporting/information dissemination) will be borne by the Project.	
Section VII. Safeguards, C. Grievance Redress Mechanism, para 56.	Prior to the start of construction activities, BR or its representative will make public the establishment of the grievance redress committees and process, and advertise through dissemination campaigns and poster(s) in the local language(s) the contact information of the NGO and BR focal points. A complaint register of all grievances received will be kept, including contact details of complainant, date of complaint submission, nature of grievance, agreed corrective actions and the date these were affected, and final outcome.	Will be complied and complying, respectively. BR has to make public the establishment of grievance redress committees and process. As far as the complaints register, there are no complaints yet concerning environment safeguards that have been formally filed by any party. All future grievances or complaints if any will be documented and included in the semi-annual environmental monitoring report.
Section VII. Safeguards, D. Prohibited Investment Acpara 56.	Pursuant to ADB's Safeguard Policy Statement (2009), ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth at Appendix 5 of the Safeguard Policy Statement (2009).	Complying. BR ensures that there are no activities being implemented that are classified as prohibited under SPS policy.

C. Compliance with the Environmental Management Plan

26. ***Table 7*****Table *7*** summarizes the compliance of Tranche 1 with EMP implementation. FC indicates full compliance, PC is partial compliance while NC is not compliant.

Table 7. EMP Compliance for Tranche 1

S.N	Mitigation Measure	FC	PC	NC		FC	PC	NC
		Lot 1				Lot 2		
2.1	Implementation of EMWS	1				1		
2.2	Air Quality and Dust		1			1		

S.N	Mitigation Measure	FC	PC	NC		FC	PC	NC
		Lot 1				Lot 2		
2.3.1	Erosion		1				1	
2.3.2	Topography and landscape change	NA				NA		
2.3.3	Hill Cutting	NA				NA		
2.4.1	Hydrology and Surface water quality	1				1		
2.4.2	Ground water	1				1		
2.5.1	Waste Management		1				1	
2.6	Noise		1			1		
2.7.1	Terrestrial and Aquatic Fauna			1				1
2.7.2	Terrestrial and Aquatic Flora			1				1
2.8	Elephant travel routes and population	NA				NA		
2.9	Land Use	NA				NA		
2.10	Heritage and Culture	NA				NA		
2.11.1	H& S; Vector Borne Diseases			1			1	
2.11.2	Worksite Safety Management		1			1		
2.11.3	HIV Awareness	1				1		
2.12.1	Personal Safety equipment (PSE)		1				1	
2.12.2	Drinking Water	1				1		
2.12.3	Safety Training	1				1		
2.12.4	Labour Standards		1			1		
2.13	Construction along and across elephant travel routes	NA				NA		
2.14	Construction Period Environmental Completion Reporting	1				1		
2.15	Pollution Control Installation at Cox's Bazar Stabling and Washing Facility	NA				NA		
2.16	Pilot Program to Test TIC and other Elephant-Train Accident prevention methods	NA				NA		
2.17	Elephant protection	NA				NA		
2.18	Elephant Awareness	NA				NA		
2.19	Tree Replacement	NA				NA		
	Total Applicable **17**	**7**	**8**	**2**		**11**	**4**	**2**

FC=full compliance, PC=partial compliance, NC=noncompliant, NA= Not applicable

27. **Summary and Comments:** For Lot 1, the contractors have achieved 41% FC, 47% PC, and 11% NC. For Lot 2, the contractors have achieved 64% FC, 23% PC, and 11% NC. It clearly shows Lot 2 is several steps ahead of Lot 1 but the commencement date was 4 months earlier for Lot 2 than Lot 1. For both Lots, 11 parameters in the EMP are still not yet applicable.

28. It has been observed that fire safety is a particularly crucial factor and that has been overlooked or give little specific importance in EMP. It is not only bound to worksite safety or

having adequate fire extinguisher. To prevent fire by electrification, earthing the camp, good quality cable, good conduit every active electric line, proper circuit breaker is equally important. To ensure this issue properly a separate parameter needed to be added.

29. **Biodiversity and Ecological Components**. Due to the fact that only limited construction and no tree planting and replacement have occurred to date, with none in the PA, there is no activity to assess for compliance within the biodiversity and ecological components of the Project. Once the land transfer between BR and the Forest Department occurs, activity to design the structural mitigation measures and construction will ensue.

E. Compliance with the Environmental Monitoring Plan

30. Observations made during site visits conducted by the third-party monitor, discussion with BR, CSC and the contractor, and participation in ADB led review missions are reported in the following sections: Physical Environmental Components, Occupational Health and Safety, and Biodiversity and Ecological components, Grievances and Complaints.

a. Physical Environmental Components

i. Sampling for Surface Water

31. Samples were collected by contractor appointed agency at four proposed bridge crossing sites: two water samples per bridge: one 25 m upstream and 25 m downstream from the planned bridge alignment. The samples were collected on 29th of June 2018. The parameters to be measured include pH, turbidity, temperature (°C), DO, BOD_5, COD, TSS, TDS, and Oil & Grease.

32. Result and Findings: The results are given in

33. **Table *8***. Site visit finds no spillage or dumping at rivers by construction activity. No littering occurred during inspection or evidence recovered of previous littering. CSC representative is advised to take close look at bridge site to stop any kind of waste dumping by contractors.

34. Currently, piling activity is ongoing at Bridges No. 03 and 79. The piled mud is placed a designated pit and will be dumped at another place later on. At B # 79 site waste bin was observed and B # 03 the site in-charge was instructed to place several bins. Both sites in charge were advised to maintain a waste log book, to quantify the generation of daily waste and taking the waste by municipality waste collectors. All bridge sites at Lot 1 were advised to properly mark piling and bentonite placing area. At B# 03 and B379, all piling mud goes to the designated pit.

Table 8. SW Testing of Baseline Condition of Lot 2

Location	**Rubberdam Eidgoan Ch 73+706**															
Parameter	**BOD_5**		**COD**		**DO**		**TDS**		**TSS**		**Turbidity**		**pH**		**Oil & Grease**	
GOB Ambient WQ Standard.	**5-10 mg/l**		**4 mg/l**		**≥ 3 mg/l**		**500 mg/l**		**150 mg/l**		**10 NTU**		**6 – 8**		**1.0 mg/l**	
Loc'n of Sample	U/S	D/S	U/S	D/S	U/S	D/S	U/S	D/S	U/S	D/S	U/S	D/S	U/S	D/S	U/S	D/S
Jun 2018	2.60	3.70	**26.87**	**21.02**	7.37	7.34	54.6	52.1	81.19	57.56	**29.0**	**45.0**	7.54	7.57	**<5**	**<5**
Result Status	OK		Above Limit		OK		OK		OK		Above Limit		OK		Uncertain	
Project Effect	n/a		n/a		n/a		n/a		n/a		n/a		n/a		n/a	
Location	**Ramu Tea Garden Ch 84+886**															

Parameter	BOD_5		COD		DO		TDS		TSS		Turbidity		pH		Oil & Grease	
GOB Ambient WQ Standard.	**5-10 mg/l**		**4 mg/l**		**≥ 3 mg/l**		**500 mg/l**		**150 mg/l**		**10 NTU**		**6 – 8**		**1.0 mg/l**	
Loc'n of Sample	U/S	D/S	U/S	D/S	U/S	D/S	U/S	D/S	U/S	D/S	U/S	D/S	U/S	D/S	U/S	D/S
Jun 2018	1.4	3.5	21.29	21.53	7.19	7.12	50.7	52.7	83.32	41.72	**54.7**	**28.7**	7.49	7.41	**<5**	**<5**
Result Status	OK		Above Limit		OK		OK		OK		Above Limit		OK		Uncertain	
Project Effect	n/a		n/a		n/a		n/a		n/a		n/a		n/a		n/a	
Location	**Bakkhali River Ch 90+014**															
Parameter	**BOD_5**		**COD**		**DO**		**TDS**		**TSS**		**Turbidity**		**pH**		**Oil & Grease**	
GOB Ambient WQ Standard.	**5-10 mg/l**		**4 mg/l**		**≥ 3 mg/l**		**500 mg/l**		**150 mg/l**		**10 NTU**		**6 – 8**		**1.0 mg/l**	
Loc'n of Sample	U/S	D/S	U/S	D/S	U/S	D/S	U/S	D/S	U/S	D/S	U/S	D/S	U/S	D/S	U/S	D/S
Jun 2018	1.20	3.90	15.88	7.99	7.1	7.04	56.2	57.3	81.56	85.78	**84.30**	**83.2**	7.33	7.28	**<5**	**<5**
Result Status	OK		Above Limit		OK		OK		OK		Above Limit		OK		Uncertain	
Project Effect	n/a		n/a		n/a		n/a		n/a		n/a		n/a		n/a	
Location	**Dakkhin mithasar Ch 93+595**															
Parameter	**BOD_5**		**COD**		**DO**		**TDS**		**TSS**		**Turbidity**		**pH**		**Oil & Grease**	
GOB Ambient WQ Stndrd.	**5-10 mg/l**		**4 mg/l**		**≥ 3 mg/l**		**500 mg/l**		**150 mg/l**		**10 NTU**		**6 – 8**		**1.0 mg/l**	
Loc'n of Sample	U/S	D/S	U/S	D/S	U/S	D/S	U/S	D/S	U/S	D/S	U/S	D/S	U/S	D/S	U/S	D/S
Jun 2018	1.3	3.4	11.95	1.73	6.78	6.63	38.6	42.7	94.54	177.06	**97.6**	**150.0**	7.31	7.22	**<5**	**<5**
Result Status	OK		Above Limit		OK		OK		OK		Above Limit		OK		Uncertain	
Project Effect	n/a		n/a		n/a		n/a		n/a		n/a		n/a		n/a	

35. Comment on SW result: Oil & Grease test results don't tell us anything specific, whereas GoB standard allows only 1.0 mg/l then <5 is very blunt way to determine, it could be even 4.99 mg/l and that would be almost 5 times higher than national standard. Contractors need to test where the lab gives actual result or it should minimize determinant value to <1. In Bangladesh "DPHE Central Lab" has this testing ability and the contractor of TBDLP used this lab for this particular parameter.

ii. Ground Water Quality

36. EMP states that the groundwater quality sampling program will be undertaken: 7 sample tube wells and 1 sample per tube-well semi-annually for two years, if no difference, once a year for rest of the construction years; 7 samples each year at Year 1 and Year 2 and 5 samples at Year 3, and 5 samples at Year 4. The parameters to be measured are such as pH, TP, Mn, Fe, As, E-coli, Oil & Grease. The environment specialist team from the Contractor has finished measuring required ground water quality parameters on 30-June-2018 from the pre-specified location.

37. Results and Findings: Results are given in Table 9. During the site visit at all camps of both Lot 1 and Lot 2 shows the contractors set up tube-well for drinking water at Harbang and

Dohazari camps. Water purifier was shown at Dohazari camp but at Harbang it is yet to be established since the housing facility is still under construction. At B# 79 workers are using well water from the campsite.

38. At lot 2 the situation is satisfactory in terms of providing safe drinking water at Napitkhali base camp and MAX JV Lab near Ramu. During the inspection visit it was observed that all office room has water purifier and adequate supply of potable water. Overall Lot 2's performance was found to be better than Lot 1 in terms of providing safe drinking water.

Table 9. GW Testing of Baseline Condition of Lot 2

Location	**Dulahazra Station Ch 59+625**						
Parameter	**As**	**Fe**	**Mn**	**P as phosphate[1]**	**pH**	**Oil and Grease[2]**	**E Coli**
GOB Drinking Wtr Stndrd. ECR'97	**0.05 ppb**	**0.3 – 1.06 ppm**	**0.1 ppm**	**6 ppm**	**6.5 – 8.5**	**0.01 mg/l**	**0 CFU/100ml**
Jun 2018	**<2**	**5.18**	**<0.5**	0.65	**6.13**	**<5**	**950**
Result Status	Uncertain	Above	Uncertain	OK	Below	Uncertain	Above
Project Effect	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Location	**Islamabad Station Ch 72+480**						
Parameter	**As**	**Fe**	**Mn**	**P as phosphate**	**pH**	**Oil and Grease**	**E Coli**
GOB Drinking Wtr Stndrd. ECR'97	**0.05 mg/l**	**0.3 – 1.06 mg/l**	**0.1 mg/l**	**6 mg/l**	**6.5 – 8.5**	**0.01 mg/l**	**0 CFU/100ml**
Jun 2018	**<2**	<.02	**<0.5**	0.27	6.75	**<5**	**254**
Result Status	Uncertain	OK	Uncertain	OK	OK	Uncertain	Above
Project Effect	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Location	**Rubberdam Eidgoan Ch 73+706**						
Parameter	**As**	**Fe**	**Mn**	**P as phosphate**	**pH**	**Oil and Grease**	**E Coli**
GOB Drinking Wtr Stndrd. ECR'97	**0.05 mg/l**	**0.3 – 1.06 mg/l**	**0.1 mg/l**	**6 mg/l**	**6.5 – 8.5**	**0.01 mg/l**	**0 CFU/100ml**
Jun 2018	**<2**	**4.2**	**<0.5**	3.98	6.48	**<5**	0
Result Status	Uncertain	Above	Uncertain	OK	OK	Uncertain	OK
Project Effect	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Location	**Ramu Station Ch 89+129**						
Parameter	**As**	**Fe**	**Mn**	**P as phosphate**	**pH**	**Oil and Grease**	**E Coli**
GOB Drinking Wtr Stndrd. ECR'97	**0.05 mg/l**	**0.3 – 1.06 mg/l**	**0.1 mg/l**	**6 mg/l**	**6.5 – 8.5**	**0.01 mg/l**	**0 CFU/100ml**
Jun 2018	**<2**	**1.32**	**<0.5**	2.45	6.98	**<5**	**23**
Result Status	Uncertain	Above	Uncertain	OK	OK	Uncertain	Above
Project Effect	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Location	**Near Bakkhali River Ch 90+014**						
Parameter	**As**	**Fe**	**Mn**	**P as phosphate**	**pH**	**Oil and Grease**	**E Coli**
GOB Drinking Wtr Stndrd. ECR'97	**0.05 mg/l**	**0.3 – 1.06 mg/l**	**0.1 mg/l**	**6 mg/l**	**6.5 – 8.5**	**0.01 mg/l**	**0 CFU/100ml**

[1] Drinking water quality EQS Standard

[2] The Schedule-3(A) of (Standards for Inland Surface Water) Environmental Conservation Rules, 1997, has been considered

Location	Dulahazra Station Ch 59+625						
Parameter	**As**	**Fe**	**Mn**	**P as phosphate[1]**	**pH**	**Oil and Grease[2]**	**E Coli**
Jun 2018	**<2**	**5.09**	**<0.5**	4.94	6.94	**<5**	**10**
Result Status	Uncertain	Above	Uncertain	OK	OK	Uncertain	Above
Project Effect	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Location	**Dakkhin Mithasara Ch 93+595**						
Parameter	**As**	**Fe**	**Mn**	**P as phosphate**	**pH**	**Oil and Grease**	**E Coli**
GOB Drinking Wtr Stndrd. ECR'97	**0.05 mg/l**	**0.3 – 1.06 mg/l**	**0.1 mg/l**	**6 mg/l**	**6.5 – 8.5**	**0.01 mg/l**	**0 CFU/100ml**
Jun 2018	**<2**	**7.52**	**<0.5**	1.11	6.55	**<5**	0
Result Status	Uncertain	Above	Uncertain	OK	OK	Uncertain	OK
Project Effect	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Location	**Cox's Bazar Station Ch 100 +150**						
Parameter	**As**	**Fe**	**Mn**	**P as phosphate**	**pH**	**Oil and Grease**	**E Coli**
GOB Drinking Wtr Stndrd. ECR'97	**0.05 mg/l**	**0.3 – 1.06 mg/l**	**0.1 mg/l**	**6 mg/l**	**6.5 – 8.5**	**0.01 mg/l**	**0 CFU/100ml**
Jun 2018	**<2**	**1.23**	**<0.5**	1.03	7.03	**<5**	0
Result Status	Uncertain	Above	Uncertain	OK	OK	Uncertain	OK
Project Effect	n/a	n/a	n/a	n/a	n/a	n/a	n/a

39. Comment on GW result: As, Mn and Oil & Grease test results don't tell us anything specific. The determinant value is too big (for As detection it has to be 40 times bigger) to justify where it is under acceptable limit or not? For As the determinant value need to be at least <0.05. The detection value for Mn also need to be present 5x times bigger than acceptable standard. Oil and Grease is discussed previously.

40. The sub-contractor needs to change current lab even though it is recognized but it doesn't serve the requirements. If the contractor will consider the ground water for drinking, precautionary measures, such as boiling water to avoid water-borne diseases, must be undertaken

iii. Noise Level Measurement

41. A total of 16 samples were collected from 4 different stations using Lutron SL 4033SD Sound Level Meter by the environmental agency in presence of Consultant in the month of June 28th. Four measurements were made per station, in two time periods of day and night time. 2 samples were taken during the day time (50m and 100m from the source) using a one-hour cycle recording values every minute and 2 samples after during the night after 9pm (50m and 100m from the source) using one measurement for 15 minutes with a one-minute interval.

42. Result and Findings: Results are given in Table 10**Table *10***. During the site visit no activity was found to produce high levels of noise. At B # 79 camp at Chakaria some level of noise pollution occurs when there is a power cut and the camp needs to operate with a heavy generator. But there are no residents or local community near the source of the noise (the generator) so no one is exposed at high noise pollution. During the inspection visit at both the Toma and MBEC camp sites, it was found that most workers had received ear plugs but they did not yet feel the need to use it due to lack of noise pollution.

Table 10. Noise Level Measurement of Baseline Condition of Lot 2

Location		**Cox's Bazar Station Ch 100 +126**							
Period		**Day**				**Night**			
GOB Noise Stndrd (2006).		**70 dBA (Commercial) 60 dBA (mixed) 55 dBA (residential) 50 dBA (silent)**				**60 dBA (Commercial) 50 dBA (mixed) 45 dBA (residential) 40 dBA (silent)**			
Value of Sample		Time	Min	Max	Avg	Time	Min	Max	Avg
Jun 2018	A	900	51.8	**89.5**	59.29	2000	47.3	**74.1**	54.64
	B		51.1	**90.2**	71.17		54.9	**99.4**	**68.96**
Result Status		OK				Higher at B			
Project Effect		Baseline				Baseline			
Location		Ramu Station Ch 89+129							
Period		**Day**				**Night**			
GOB Noise Stndrd (2006).		**70 dBA (Commercial) 60 dBA (mixed) 55 dBA (residential) 50 dBA (silent)**				**60 dBA (Commercial) 50 dBA (mixed) 45 dBA (residential) 40 dBA (silent)**			
Value of Sample		Time	Min	Max	Avg	Time	Min	Max	Avg
Jun 2018	A	900	47.7	61.1	52.56	2000	49.7	**70.8**	55.68
	B		48.0	**111.6**	72.57		48.8	**118.1**	**71.67**
Result Status		OK				Higher at B			
Project Effect		Baseline				Baseline			
Location		Islamabad Station Ch 72+480							
Period		**Day**				**Night**			
GOB Noise Stndrd (2006).		**70 dBA (Commercial) 60 dBA (mixed) 55 dBA (residential) 50 dBA (silent)**				**60 dBA (Commercial) 50 dBA (mixed) 45 dBA (residential) 40 dBA (silent)**			
Value of Sample		Time	Min	Max	Avg	Time	Min	Max	Avg
Jun 2018	A	900	46.	**77.0**	55.73	2000	49.9	**90.8**	**68.81**
	B		49.2	**94.9**	62.51		45.6	**60.4**	48.94
Result Status		OK				Higher at A			
Project Effect		Baseline				Baseline			
Location		Dulahazra Station Ch 59+625							
Period		**Day**				**Night**			
GOB Noise Stndrd (2006).		**70 dBA (Commercial) 60 dBA (mixed) 55 dBA (residential) 50 dBA (silent)**				**60 dBA (Commercial) 50 dBA (mixed) 45 dBA (residential) 40 dBA (silent)**			
Value of Sample		Time	Min	Max	Avg	Time	Min	Max	Avg
Jun 2018	A	900	48.8	**77.3**	58.47	2000	48.8	**72.6**	58.52
	B		55.5	**91.5**	62.57		47.8	**98.3**	**64.1**
Result Status		OK				OK			
Project Effect		Baseline				Baseline			

iv. Ambient Air Quality

43. The EMP requires 4 sample stations, 2 samples per station, making a total of 8 samples quarterly for five years. The parameters to be measured are CO, SO_2, NO_2, PM_{10}, $PM_{2.5}$, & air temperature (°C). The environmental team has collected air samples from 4 stations, for instance, AAQ_1_Cox's Bazar Station_Ch 100+126 (27th of June 2018, near to the closest sensitive receptor such as local school named Md. Ilias Miah Cohng High School, Cox's Bazar Station Access Road, Chainage 100+220 to 100+270) and AAQ_2_Ramu Station_Ch 89+129 (28th June, one sample which is 50m distance from the centerline of the proposed alignment and one is at the closest sensitive receptor such as local inhabitants house of the area) likewise totaling of 8 samples, using a sophisticated air sampling machine (HAZ-SCANNER, model-HIMM-6000).

44. Result and Findings: Results are given in **Table 11**. During the site visit at both lots no activity emitting high levels of air pollution was observed. However, it is expected that pollution levels may increase in the future with more movement of heavy vehicles, project cars and other construction machinery. The diesel generator at the work camps is another source of air emission but it only operates when there is load shedding. The batching plants at B # 79, B # 03 and Napitkhali need to be properly monitored by CSC staff and site safety person.

45. The contractor also conducting AAQ sampling during the DDR inspection. At 21-9-2018 AAQ sampling were going on at Cox's Bazar station building area. The following day, the sampling was going on at proposed lohagara station site. At both locations, the environmental subcontractor's personnel were present with CSC inspector.

Table 11. AAQ Testing of Baseline Condition of Lot 2

Location			**Cox's Bazar Station Ch 100 +126**				
Parameter			**CO**	**SO_2**	**NO_2**	**PM 2.5**	**PM 10**
GOB Air Quality Standard ERC-1997.			**10 µg/m³**	**365 µg/m³**	**100 µg/m³**	**65 µg/m³**	**150 µg/m³**
Value of Sample			Avg	Avg	Avg	Avg	Avg
Jun 2018	A	1000	0.09	166.94	2.0	51.27	51.82
		1400					
	B	1400	0.00	17.63	2.0	40.37	41.82
		1800					
Result Status			OK	OK	OK	OK	OK
Project Effect			NA	NA	NA	NA	NA
Location			**Ramu Station Ch 89+129**				
Parameter			**CO**	**SO_2**	**NO_2**	**PM 2.5**	**PM 10**
GOB Air Quality Standard ERC-1997.			**10 µg/m³**	**365 µg/m³**	**100 µg/m³**	**65 µg/m³**	**150 µg/m³**
Value of Sample			Avg	Avg	Avg	Avg	Avg
Jun 2018	A	1000	0.36	33.30	2.0	16.19	21.91
		1400					
	B	1400	0.09	39.3	2.0	41.02	42.42
		1800					
Result Status			OK	OK	OK	OK	
Project Effect			NA	NA	NA	NA	NA
Location			**Islamabad Station Ch 72+480**				
Parameter			**CO**	**SO_2**	**NO_2**	**PM 2.5**	**PM 10**
GOB Air Quality Standard ERC-1997.			**10 µg/m³**	**365 µg/m³**	**100 µg/m³**	**65 µg/m³**	**150 µg/m³**

Location			Cox's Bazar Station Ch 100 +126				
Parameter			CO	SO_2	NO_2	PM 2.5	PM 10
Value of Sample			Avg	Avg	Avg	Avg	Avg
Jun 2018	A	1000	0.02	25.20	2.0	19.96	24.0
		1400					
	B	1400	0.17	39.00	2.0	33.23	46.46
		1800					
Result Status			OK	OK	OK	OK	OK
Project Effect			NA	NA	NA	NA	NA
Location			**Dulahazra Station Ch 59+625**				
Parameter			**CO**	**SO_2**	**NO_2**	**PM 2.5**	**PM 10**
GOB Air Quality Standard ERC-1997.			**10 µg/m³**	**365 µg/m³**	**100 µg/m³**	**65 µg/m³**	**150 µg/m³**
Value of Sample			Avg	Avg	Avg	Avg	Avg
Jun 2018	A	1000	0.29	72.44	2.0	17.73	22.24
		1400					
	B	1400	0.21	33.80	2.0	35.78	47.36
		1800					
Result Status			OK	OK	OK	OK	OK
Project Effect			NA	NA	NA	NA	NA

46. Comment on AAQ result: The results for NO_2 is 2.0 every location every point, it raised the question of malfunctioning of device's this function.

v. Control of Petroleum Product

47. According to the Subsection H, presence of all precautionary measures (sand/saw, fire extinguisher etc.) should ensure to avoid environmental pollution or fire hazard.

48. Result and Findings: At Dohazari, Harbang, Napitkhali and Ramu camp fuel storage area is under construction. At Napitkhali and B # 79 camps construction vehicle currently use an oil tanker for refuelling. The camp incharge of Napitkhali has been advised to create a designated area for refuelling purposes with a concrete floor till a permanent structure is constructed. At Harbang and Dohazari camps, all vehicles use local fuel station for refuelling purpose. All camp's safety officers have been instructed what to do in any accidental spillage occur during the site visit. All site incharge give their commitment to adopt spill abatement measures as soon as they finish their construction of fuel storage area.

vi. Dust Control

49. According to the Subsection H: Environment Safeguard, it is stated that, all roads, permanent or temporary, pukka or katcha, that become dusty and all areas where construction related activities are carried out, shall be subject to necessary suppression measures by watering, sweeping or other measures approved or directed by the Engineer.

50. Results and Findings: In Lot 1 Dohazari base camp and adjacent bridge site, a watering truck is yet to be deployed. At Dohazari bridge site the muddy conditions are more of a problem than dust at this stage. The site safety person agreed to work on improving the conditions to comply with the EMP. At the Harbang base camp the main facility is still under construction, and at B # 79 camp sprinkling of water is done by a handheld pipe since the camp area is not very

spacious. During the site inspection no dust emission was observed as construction works were minimal. However, dust emission is expected to increase when earthworks commence.

51. In Lot 2 Napitkhali camp was seen to have their own watering truck. A similar truck is expected to be kept at the Ramu Base camp.

Figure 2: Until recently, the only water sprinkling truck at Napitkhali camp.

vii. Waste Management

52. In lot 1 inspection of waste bins were conducted at Dohazari base camp and Bridge # 79 camp. Both camps give their waste to municipal waste collectors. But no camp has waste log book to quantify waste so it is advised to the all designated people to maintain a book where everyday waste generation will be logged. The health and safety managers at Dohazari, B # 79, Napitkhali and Max Lab of Lot 2 were advised to segregate the biodegradable and plastic waste - an important waste management practice.

53. Initially, no waste bins were seen at the Harbang campsite. According to the contractor the waste bins will be installed when the facility will be fully operational. The site incharge was instructed to immediately place waste bins and start a waste log book. Within 2 days the site manager complied with the instruction and two bins were placed for plastic and biodegradable wastes.

Figure 3: Bins at B # 79 camp and Napitkhali camp

viii. Erosion

54. Earthwork has not commenced fully but temporary stockpile of topsoil has been observed in Lot 2. Construction of trench to avoid siltation on adjacent agricultural land around the site is on-going. No issues have been observed on this site. Back filling activity has been observed at Cox Bazar station area, no accidental spillage seen on the dredge sand pipeline.

Figure 4: Sandfilling at Cox Bazar Station yard and Access road for B # 124

ix. Terrestrial and Aquatic Flora and Fauna

55. During the site inspection, both CSC and contractor's environmental specialist is advised to look for availability of biodiversity specially at water bodies. They also asked to document and take photo of any wildlife they can capture during their regular site inspection.

b. Occupational Health and Safety

i. Personal Protective Equipment (PPE)

56. This is the most crucial parameters where getting full compliance is difficult. The first step is to ensure every worker gets their designated PPEs; hard hat, safety boots, reflective jacket, gloves, ear plugs, goggles for welders, harness for bridge workers, gumboot during the monsoon etc. During the site visit, all the site's safety managers were asked to show the PPE's log book to understand the how many PPEs were distributed. Both lots have maintained a PPE log book which was found to be satisfactory. All the camps also have adequate number of first aid boxes in both lots. The first aid boxes were also inspected to check the items. It is advised to the contractors as well as CSC staff to arrange more safety program to the workers and take necessary action when there is non-compliance.

ii. Labor Standard

57. During the inspection, no underage or bonded workers have been found. CSC inspector handled this issue very professionally.

iii. Worksite Safety Management and Training

58. In Napitkhali camp and B # 79 camp regular tool box trainings are being held. Other camp's workers also received training regarding safety and environment. However, the worksite including permanent base camp and temporary work camps needs to be managed and supervised properly.

iv. Fire Safety Management

59. Fire safety items such as fire extinguishers and dry sand buckets were observed at all camps. However, there is a need for installing more fire safety equipment. This observation has also been made by the CSC safety inspector for both lots. In addition, the site in-charge has been advised to check the expiry date of the fire safety equipment on a regular basis.

60. Potential Risk factor: In Environmental management plan parameter only *2.11.2 Worksite Safety* Management talks about fire safety. It only states site manager should provide fire-fighting equipment. But in reality, there are large scope to cause fire, from welding equipment, oxygen cylinder and mainly from electric short circuit. Inspection finds out many active electrical wires are open without any conduit which runs a risk for electrocution of people or getting a fire by short-circuit

v. Log Book Management

61. The contractor's safety officers on site for both lots; Toma Base camp at Dohazari and Harbang, CREC B # 79 camp, Napitkhali Base Camp were advised to maintain several log books related with safety namely accident/injury, safety training, PPE receive and given to worker, first aid box etc.

vi. Drinking Water

62. In Lot 1, this area needs to be improved though the camp construction is still ongoing at Dohazari and Harbang. In Lot 2 adequate measures has seen (supply of potable water, water filter etc) at Napitkhali camp and Lab, the Ramu base camp is still under construction.

***Figure 5*: Drinking water facility at B # 79, Dohazari camp and Max Lab.**

vii. Fencing and Lighting

63. The boundary fencing is seen all temporary and permanent camps at Lot 2. The lighting facility is also adequate in Lot 2. In Lot 1, Dohazari Base camp and B # 79 camp has necessary fencing and lighting. After inspection at Harbang camp by ADB consultant the site incharge take necessary action to provide yard lighting and put boundary barrier, it is also planned to build permanent wall at Harbang camp.

viii. Health and Vector Borne Diseases

64. In Lot 2 some stagnant water was observed at the camp sites at the drainage facility. The site safety incharge was advised to regularly clear the drain way. All the people live in the camp were given mosquito net and aerosol spray can.

65. In Lot 1 Dohazari base camp, B # 79 camps also reveals stagnant water in drain system, but the drain network is not totally completed till now. At Harbang the drainage structure just started. Inspection finds people who live at camp are given mosquito net and coil. No vertically suspended trye were found at any sites which could be a source of stagnant water and harbor mosquito. Similarly, no empty boxes were found left open.

ix. Toilet facility

66. In Lot 1 Dohazari Base camp and B # 79 camp has toilet facility but MBEC is instructed to make some change in style in compliance with Bangladeshi custom. The Harbang base camp still has no latrine since their main building is under construction.

Figure 6: Water logging situation at Dohazari Base camp and Napitkhali Base camp.

67. In Lot 2 Napitkhali camp has good toilet facility also found it in Max Lab in Ramu.

Figure 7: Dohazari base camp and Napitkhali camp

x. Security Guards

68. All the temporary and permanent work camp has appointed guard by the base camp.

c. Biodiversity and Ecological Components

i. Tree Planting and Replacement Program (TPRP)

69. The Project EIA and EMP estimate that 239,000−240,000 trees will be harvested within the railway alignment ROW along the entire 102 km length of the Project. The TPRP is intended to compensate for the loss of trees, protect culturally sensitive areas and the railway embankment from erosion, enhance ecosystem health and provide habitat, improve visual aesthetics, and provide commercial benefits to local villagers. The EMP stipulates that three (3) sapling trees will be planted for each one harvested, and the selection of tree species for use in the TPRP is based on the characteristics of the cut forests and its intended uses; the EMP and Contract Subsection H: Environmental Safeguards provide detailed guidance for tree planting and replacement. As many as 720,000 sapling trees need to be planted as part of the TPRP.

70. Status: To date, no activity has occurred with regard to the TPRP; thus, there is no activity to assess for compliance or report at this time.

ii. Pilot Testing Program of Cameras

71. The EMP includes provisions to pilot test two (2) approaches to detecting elephants that may approach and cross the railway alignment in an effort to avoid and prevent potential train-elephant collisions: 1) locomotive-mounted infra-red thermal imaging cameras (TIC; 2 sets) with personal computer interface, and 2) 4 different types of camera trap systems. Should the pilot testing program be successful, the purchasing and further testing of up to 20 locomotive-mounted TIC camera systems could occur.

72. Status: To date, no activity has occurred with regard to the pilot assessment of TIC, nor the purchase and deployment of camera trap systems; thus, there is no activity to assess for compliance or report at this time.

iii. Elephant Awareness Training Program for BR Staff and Train Operators

73. The EMP details an elephant awareness training program to establish best management procedures for operating trains when nearing and passing through key elephant habitat along the railway corridor. The program would also provide training to train operators on the locomotive-mounted TIC system operation and maintenance, should it be implemented.

74. Status: To date, no activity has occurred with regard to the elephant awareness training program; thus, there is no activity to assess for compliance or report at this time.

iv. Biodiversity Mitigation Strategy

75. BBA Goals: As provided in the EIA report, a BBA was carried out by the International and National Biodiversity consultants. Its goals included to: 1) conduct a full year of biodiversity baseline assessment across all seasons within the PA and assess Project impact to biodiversity, 2) assess the spatial and temporal distribution of Asian elephants along the railway alignment, 3) develop recommendations for elephant passage structures and other mitigation measures, and 4) develop a strategy to enhance Asian elephant habitat quality/connectivity and reduce Human-Elephant Conflict (HEC) as project mitigations and conservation offsets.

76. BBA Methods: The foundation of the BBA and elephant distribution assessment was reconnaissance survey transects extending 10−15 m on each side of the entire alignment through the PA along which evidence of elephant presence was quantified; these surveys were conducted during 2 seasons. Cameras were installed at 20 sites across the 3 PA to inventory mammalian species diversity. These cameras "trapped" 10 species of mammals comprising 237 groups and 325 individual animals; the Asian elephant was the only species recorded at all 3 PAs. Cameras were operational an average of 6.8 months. Avian (bird) surveys were conducted over 3 seasons, and forest tree and understory were inventoried.

77. BBA Findings: During the elephant transect surveys, elephant signs were documented at 21 sites; 13 in CWS, 7 in FWS, and 1 in MNP. The CWS peak zones of elephant activity corresponded closely to the forested Core Zone habitat fingers and well-used trails. At FWS, a peak in elephant sign occurred along the section where the railway alignment abuts Core Zone habitats that lie immediately to the east; most sign was associated with elephant crop damage along the edge of fields near Highway NH1. Cameras "trapped" 10 species of mammals comprising 237 groups and 325 individual animals, at 13 of 20 cameras sites at the PA; the Asian elephant was the only species recorded at all 3 PA.

78. While habitats within the PA have been impacted by past human activities, all 3 support populations of endangered Asian elephant and still provide high biodiversity values. The BBA data supports concurrence with the Project EIA that all 3 PA constitute critical habitat for the Asian elephant, as well as the vital ecosystem services the biodiversity provides to local villagers.

79. The BBA documented both direct and indirect impacts associated with construction. The 15.8 km of planned railway that crosses CWS will directly impact 86.9 ha, 31.7 ha within the critical habitat Core Zone and 14.1 ha of Buffer Zone will be impacted of which 8.6 ha constitutes forested habitat requiring mitigation. Construction within FWS will impact a total of 49.4 ha along the 10.3-km alignment. Of this, approximately 19.0 ha of forested habitat within the Buffer Zone community forest requires mitigation. The railway alignment crosses only a short stretch of forested habitat at MNP, 0.3 km, affecting 2.3 ha by construction. This forest habitat loss and clearing will have an impact on forest integrity and contributes to an edge affect, invasive plant establishment, and soil instability and degraded water quality.

80. BBA Mitigation Strategy: The BBA developed a data-driven and comprehensive strategy to address elephant and other biodiversity needs, individually tailored to the 3 different PA. The structural and management measures incorporated into the strategy are listed in Table 12.

81. At CWS the mitigation strategy focuses on protecting its vital Asian elephant corridors. It employs a variety of measures including 2 overpasses and 2 underpasses including an enlarged planned bridge. Funnel fencing (6.8 km including both sides of the railway) is necessary to ensure that these elements are effective. Three at-grade crossings will be integrated with elephant sensor technology at the termini of fencing to prevent collisions at end runs. This strategy will promote permeability and landscape connectivity, as well as prevent elephant-train collisions that would occur at concentrated elephant crossings and where they could become trapped in extensive cut slope sections. Habitat enhancement activities on 40.3 ha will mitigate the direct construction impacts and promote elephant recovery. Establishment of a 0.7-km Quite Zone with no disturbance while construction proceeds elsewhere will help prevent potential Asian elephant abandonment of the sanctuary.

82. At FWS, the goal will be to resolve HEC, which are typically very challenging to address; the strategy recognizes that elephant use outside the FWS Core Zone is largely related to seasonal crop raiding. Limiting elephants to the FWS Core Zone and precluding their passage across the railway alignment (and even Highway NH1) would present a long-term means to resolve HEC. This will require approximately 5 km of elephant exclusion fencing of varying types, which would also prevent elephant-train collisions. Habitat enhancement activities on at least 19 ha in and around the Core Zone would mitigate forested Buffer Zone impact, offset the lost foraging access by elephants to croplands, and promote elephant recovery. A medium sized underpass is recommended at the high biodiversity site within community forest to protect biodiversity and allow animal passage, including for medium-sized predators suing the area.

83. The Project railway alignment lies at the far western edge of MNP where one elephant crossing was documented during the BBA. Here, 2.8 km of funnel fencing and 2 sensor systems will allow safe at-grade passage at the fence ends, and to prevent elephant-train collisions along a cut slope section. Habitat enhancement on 2.3 ha will mitigate construction impact.

84. Status: To date, no activity has occurred with regard to the Asian elephant and biodiversity mitigation strategy as land survey, geotechnical survey where needed, and structural design has not been initiated while BR and the Forest Department complete transfer of lands within the 3 PA. As such, there is has been no activity to assess for compliance or to report at this time. Once land transfer has occurred, the International Biodiversity Consultant is prepared to work closely with the CSC, the contractor, and BR on structural design

v. Habitat Enhancement Plan

85. To further mitigate the impact of the railway construction on biodiversity, and to achieve no net loss of biodiversity value, off-alignment habitat enhancement activities and offsets will be pursued. These activities range from Asian elephant forage/fodder plantations in all 3 PA to support recovery, to extensive exclusion fencing along the FWS Core Zone to prevent elephants from leaving and continuing to cause Human-Elephant Conflicts, to utilizing some the TPRP tree plantings to enhance/restore elephant movement corridors leading to and from CWS and FWS. The conceptual off-alignment mitigation activities in a draft Habitat Enhancement Plan were approved during a July 2018 ADB Mission and Aide Memoire (**Table 13**).

Table 12. Structural and management elements associated with the comprehensive Asian elephant and biodiversity strategy developed during the BBA conducted in 2017−2018 within the 3 protected areas.

RAILWAY ALIGNMENT MITIGATION MEASURES			
Mitigation measure	**Chainage location**	**Current status**	**Remarks (PA)**
Elephant underpasses	KM 27+120 (#1)	Awaiting design	CWS
	KM 28+036 (#2)	Awaiting design	Planned bridge; CWS
Elephant overpasses	KM 28+500 (#1)	Awaiting design	8-m deep cut; CWS
	KM 29+000 (#2)	Awaiting design	Overpass 2; CWS
At-grade crossings with activated sensor system	KM 26+950	Awaiting design	CWS
	KM 27+350	Awaiting design	CWS
	KM 29+500	Awaiting design	CWS
	KM 64+500	Awaiting design	MNP
	KM 64+950	Awaiting design	MNP
Funnel fencing	KM 26+950 – 27+350	Awaiting design	0.9-km total; CWS
	KM 28+040 – 29+500	Awaiting design	3.0-km total; CWS
	KM 64+500 – 64+950	Awaiting design	0.9 km total; MNP
Mid-size underpass	KM 55+100	Awaiting design	FWS
Construction scheduling	KM 28+036 – 29+000	Pending	Quiet Zone; CWS

86. The specific locations and delineation of areas for the mitigation activities will be determined with the assistance of Forest Department personnel during November 2018; they will be incorporated into a Habitat Enhancement Plan by December 2018. Also, the accomplishment of these off-alignment (and thus off-BR ROW) habitat enhancements will require an Intergovernmental Agreement (or MOU) between BR and the Forest Department.

87. Status: To date, no activity has occurred with regard to the off-alignment mitigations. Specific locations and delineations of areas will be accomplished in November 2018 and incorporated into a final Habitat Enhancement Plan by December 2018. As such, there is has been no activity to assess for compliance or to report at this time.

Table 13. Off-alignment mitigations and habitat enhancements to be accomplished with the 3 protected areas; final quantities (distance, area) will be determined and incorporated into a Habitat Enhancement Plan.

Mitigation/ enhancement	**Protected Area**	**Number/Distance/ Area**	**Current status**
Elephant exclusion fencing to prevent HEC	FWS	≈5 km; adjacent to Core Zone east of NH1	

Elephant forage/fodder plantations	CWS	TBD* ≈40.3 ha	Pending delineation in November 2018, incorporation into Habitat Enhancement Plan by December 2018, and development of Interagency Agreement between Bangladesh Railway and Forest Department
	FWS	TBD* ≈19.0 ha	
	MNP	TBD* ≈2.3 ha	
Elephant salt licks	CWS	1-2	
	FWS	2-3	
	MNP	1	
Elephant corridor tree plantings	CWS	TBD ≈20 ha	
	FWS	TBD ≈20 ha	

*TBD = to be determined; areas may differ within respective PA but total will be the same

d. Grievances and Complaints

88. On discussion with the CSC, contractors and BR staff so far, no complaints concerning environment safeguards have been formally filed by any party. The contractor and CSC have been advised to follow the grievance redress mechanism and timeline provided in the EIA report in case any complaints are filed. All future grievances or complaints if any will be documented and included in the semi-annual environmental monitoring report.

IV. FINDINGS AND RECOMMENDATIONS

89. Progress of construction works is minimal at the moment due to the non-availability of land as land acquisition is still under progress. Construction activities are limited to establishment of campsites and initiating construction of the Dohazari bridge # 3, B # 79 and B # 124. Hence, the progress on implementation of environment safeguard activities are mainly focused on pre-construction stage studies, processing of clearances and initial construction/establishment activities.

11. **Compliance to Environmental Safeguard Requirements.** The Borrower has fully complied with the environmental regulations of Bangladesh - the Bangladesh Environmental Conservation Act of 1995 and Bangladesh Environmental Conservation Rules of 1997. The Borrower has secured or in the process of securing environmental clearances relevant to the project. Most of the environmental provisions in the Framework Financing Agreement are being complied by the Borrower. As for the Facility Administration Manual, the project is also either compliant or in the process of complying with the requirements. Overall, no major issues and non-compliance on environment safeguards have been found for the project. It is recommended that BR continually engage with the relevant authorities to secure the required clearances. It is also recommended that BR continue to monitor the facility's compliance with the FFA, FAM and the applicable environmental regulations of Bangladesh.

90. **Compliance to Environmental Management Plan.** The project has yet to achieve full compliance for both Lots 1 and 2. Contractors need to improve on erosion management, waste management, personal safety equipment, worksite safety management and labour standards.

Some of the parameters in the EMP are still not yet applicable specifically on management of impacts on terrestrial flora and fauna.

91. **Compliance to Environmental Monitoring Plan**. Monitoring of the Occupational Health and Safety Components by the independent monitor during site inspections regarding personal protective equipment, worksite safety and training, toilet facilities, fire and security guards were largely adequate for the appropriate stage of construction, though some concerns with drinking water were identified.

92. Some of the environmental parameter results are questionable as in the case of oil and grease (surface water), As, Mn and oil and grease (ground water). As the civil works have just started, there are no elevated levels of noise and air quality observed. It is recommended for the subcontractor to procure another laboratory to accurately measure the environmental parameters related to surface and ground water.

V. REFERENCES

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