



Asian Development Bank



(CDCL)



Kingdom of Bhutan

Phuentsholing Township Development Project

Project Number: 50165-002
Loan Number: 3668-BHU(COL)
Grant Number : 0573-BHU(SF)
Contract N°:PTDP-PIC-1

Quarterly Project Report n°2

Period from 1 January 2019 to 31 March 2019

[PIC Report Cataloguing n° PTDP- 020 – 16 April 2019]



Phuentsholing Township Development Project
Project Implementation Consultant
PIC Site Office, Near NHDCL Housing Colony
Amochu, Phuentsholing, Chukha

Document quality information

General information

Author(s)	R Jeancenelle (TL, PIC) & Kamal Dhakal (PM, PIU)
Projects Name	Phuentsholing Township Development Project (PTDP)
Document Name	Project Quarterly Report n°02
Date	Period from 1 January 2019 to 31 March 2019 (2019Q1)
Reference	Version n° 02

Addressee(s)

Sent to:		
Name	Organisation	Sent on (date):
Tshering Dupchu	Project Director, PMU, CDCL	28 Apr. 2019

Copy to:		
Name	Organisation	Sent on (date):

History of modifications

Version	Date	Written by	Approved by
Version 01 (Draft)	15 Apr. 2019	R.Jeancenelle	
Version 02	24 Apr. 2019	R.Jeancenelle & K. Dhakal	PMU

Abbreviations

ADB – Asian Development Bank
ADF – Asian Development Fund
ALDTP – Amochhu Land Development and Township Project
APFS – Audited Project Financial Statement
DMF – Design Monitoring Framework
CDCL – Construction Development Corporation Ltd.
C-EMP- Contractor-Environmental Management Plan
CW – Civil Works
DHI – Druk Holdings and Investment Ltd.
EA – Executing Agency
EIA - Environmental Impact Assessment
EMP – Environmental Management Plan
FIDIC – Fédération des IngénieursConseils
GAP - Gender Action Plan
GFC – Good For Construction
GRC - Grievance Redress Committee
GRM - Grievance Redress Mechanism
IA – Implementing Agency
ICB – International Competitive Bidding
MoF – Ministry of Finance
MOM - Management, Operation and Maintenance
MoWHS – Ministry of Works and Human Settlements
NCB – National Competitive Bidding
NC - Non Conformance
Nu – Ngultrum
PT – Phuentsholing Thromde (city council)
PAC – Project Advisory Committee
PCR – Phuentsholing – Chamkuna - Road
PIC – Project Implementation Consultant
PIU – Project Implementation Unit
PMU – Project Management Unit
PS – Provisional sum
QAP – Quality Assurance Plan
RGoB – Royal Government of Bhutan
RFQ – Request For Quotation
PTDP – Phuentsholing Township Development Project
PPTA – Project Preparatory Technical Assistance
RENEW- Respect Educate Nurture Empower Women
SEMR – Semi annual Environmental Monitoring Report
TN – Technical Note
ToR – Terms of Reference
VO - Variation Order

Contents

Contents.....	IV
Basic Project Information.....	VI
A. Executive Summary.....	7
A.1 Major issues	7
A.2 Progress made during the reporting period.....	7
A.3 Problems encountered.....	8
A.4 Proposed program of activities/work plan for the next quarter	10
B. Project activities	11
B.1 Project Organization Management.....	11
B.2 Consultant Activities:.....	12
B.3 Implementation of physical works	14
B.4 Field Monitoring visits, workshops, training and particular meetings	17
B.5 Status of Contract Awards	17
B.6 Disbursement of Project Funds	18
B.7 Details of Counterpart Contribution.....	18
B.8 Implementation Schedule	18
C. Environmental aspects.....	19
C.1 Environmental Monitoring Review	19
C.2 CW-01 Contractors – Implementation of the C-EMP	20
C.3 Comments/ Observations on CEMP and annexures by ADB	20
C.4 Comments / Observation on CEMP and other annexures by PIC.....	21
C.5 Comments and Revision proposed by PIC.....	23
D. Health and Safety Aspects	24
D.1 Health and Safety aspects	24
D.2 Accident prevention	24
D.3 HIV / AIDS Prevention	25
D.4 Traffic Safety	25
D.5 Labour Engagement Statistics at end of the Reporting Period.....	25
D.6 Engagement of Vehicle, machines and equipment.....	25
D.7 Other Related Issues.....	25
E. Social Safeguard and Communication	27
E.1 Social Safeguard	27
E.2 Communication action (website, events...).....	27
E.3 Updated Stakeholder Communication Plan	27
F. Grievance Redress Mechanism.....	28
F.1 Grievance Redress Mechanism set-up	28
F.2 Revised GRM	28
F.3 Grievances registered.....	29
G. Design Monitoring Framework and actions agreed during last ADB review mission.....	30
G.1 Performance against DMF Indicators	30
G.2 Action agreed during last ADB review mission	30
Appendixes.....	31

Appendix 1: Design and Monitoring Framework	32
Appendix 2: Updated Implementation Schedule	33
Appendix3: PMU and PIU Positions	34
Appendix 4: List of particular meetings, trainings/workshops and visits	35
Appendix 6: Traffic study	36
Appendix 6:Updated Procurement Plan and Contract Award Schedule	37
Appendix 7:Update Investment Cost	38
Appendix 8: Contract and disbursement S-Curve, ADB Loan and ADB Grant	39
Appendix 9: Monthly Environmental Monitoring Review for	42
Quarter 1/ 2019	42
Appendix 10: Health and safety monitoring for Quarter 1 /2019	47
Appendix 11: Compliance with Loan and Grant Covenants	50
Appendix 12:Photographs album	54

List of tables

Table A.2-1: Project progress during period	7
Table B.2-1PIC staffing bar schedule (reporting quarter and next quarter)	12
Table B.2-2: PIC logistics	13
Table B.2-3: Status of use of PIC Contract Provisional Sum	14
Table B.3-1: CW-01 Summary of physical and financial progress	15
Table B.3-2: CW-01 - Physical progress per major works items	17
Table B.5-1: Status of Contract award	17
Table B.6-1: Financial Status of PTDP Civil Works, Goods & Consultancy Contracts	18
Table B.6-2: Status of Disbursement of Project Fund (till report date)	18
Table C.1-1: Environmental Deliverables	19
Table C.3-1: Comments and observation on CEMP and annexures by ADB	20
Table C.4-1: Comments and observation on CEMP and annexures by PIC	21
Table C.5-1: Comments and Revision proposed by PIC on CEMP	23
Table D.1-1: recommendation on Safety and related health issues	24
Table C.3-1: Other related issues to be monitored	25
Table C.3-1: Updated stakeholder communication plan	27
Table F.1-1: Composition of the First Tier GRM	28
Table F.1-2: Composition of the Second Tier GRM	28
Table F.2-1: Comments and observation on GRM by PIC	28
Table G.2-1: Status of actions agreed during last ADB review mission	30

Basic Project Information

Name of project	Phuentsholing Township Development Project
Cost of project	63.00 \$million
Name of Agency	Druk Holding and Investments Limited
Implementing Agency	Construction Development Corporation Ltd
Approval Date	5 June 2018
Project effectiveness	26 July 2018
CDCL PMU created	26 July 2018
Project Completion Date	30 June 2025
Project Closing Date	31 December 2025
Project Location	Bhutan / Phuentsholing
PTDP anticipated impact	Impact 1: Balanced and sustainable development of human settlements ensured; Impact 2: Smart growth principles applied in planning and development.
PTDP anticipated outcome	Phuentsholing's urban area protected from floods and expanded with improved amenities and services
PTDP Outputs	Output 1: Flood and erosion protection measures installed Output 2: Municipal infrastructure constructed Output 3: Township management systems installed
Date of Loan agreement	03 July 2018
Loan effectiveness	01 October 2018
Elapsed loan period	91 days
Last ADB review mission	12-20 November 2018
Reporting Period	1 st October to 31 st December 2018

Project funding source	Amount (\$million)	Share of Total (%)
Asian Development Bank ^a	53.00	84.1
Ordinary capital resources (concessional loan)	28.74	45.6
Special Funds resources (ADF grant)	24.26	38.5
Government	10.00	15.9
Total	63.00	100.0

^a Disaster Risk Reduction Fund will finance \$6.07 million equivalent of the concessional OCR loan and \$6.07 million of the ADF Grant.

Source: Asian Development Bank.

A. Executive Summary

A.1 Major issues

Major issues pending at end of period (31 March 2019), for:

PIU/PMU

- To decide on the implementation of the re-alignment works of the diaphragm wall (realignment of Diaphragm wall on 2400m downstream to extend reclaim area);
- To confirm works sectioning for milestone (problems of issuance of Taking Over of part of works, several Defect Liability Periods and responsibility of maintenance after Taking Over);
- To deal with third parties dumping uncontrolled materials at the project area.
- To resolve issue on removal of materials in Amochhu river bed following estimate of present dredging needs (5,7 million cum) for Zone A. Decision to include the first river channelization in CW01 Contract, or not;
- To deal with process of recurrent maintenance and financing of Amochhu channel levelling (1.0 million cum or more) to be clarified.
- To confirm and finalize Variation Order to PIC Consultant Contract to develop 2-D hydraulic modelling;
- To finalize on CW-02 procurement plans and principles (ad measurement contracts, packaging in several lots, etc...).

PIC

- To adjust outfall design, for outfalls North of Zone A to be completed before monsoon.
- To adapt Construction Supervision Team to match Contractor's activities progress, particularly for night supervision;
- To present Variation Order to Consultant Contract for Flood Hazard Early Warning System and Flood Management Plan. To be finalized with PMU/PIU.

CW-01 (Contractor)

- To implement flood protection measures and emergency plan as agreed on 27th March 2019.
- To speed-up progress of diaphragm wall construction works, in particular after seeking clarification on Geotechnical conditions on North end of Zone A. CW-01 to comply with Engineer's and Design Consultant's analysis to resume works.
- To control transit traffic (There are more than 1000 vehicles, out of which 40% are heavy vehicles that transit per day Project).
- To provide new rate for backfilling payment without prior riverbed levelling.

A.2 Progress made during the reporting period

Table A.2-1: Project progress during period

Activity	% Accomplished vs. Target for the period ^a		Summary of Progress
	Accom.	Target	
Flood and erosion protection measures	8.9%	10.0%	CW 01 diaphragm wall construction on 282m.
Municipal infrastructure	0.0%	0.0%	
Township management systems	0.0%	0.0%	

^a Accomplishment and target refers to financial forecast

Progress of activities against output indicators are listed in **Appendix 1**, Design and Monitoring Framework. The updated implementation schedule showing actual progress to the one anticipated in shown in **Appendix 2**.

A progress photographs album is attached in **Appendix 11**.

A.3 Problems encountered

The problems encountered since the start of Project, still pending, and its remedial/proposed action taken are as follows.

1. Adjustment of design

Re-positioning of diaphragm wall, west ward on more than half of its extension, to extend the land reclaimed area on Phase 1 of Project has been suggested. However, since its implication would lead to a substantial change of design and probably rescheduling of some of Project implementation components, decision on pursuing with this option will be required as early as possible.

PIC has prepared a Technical Note (TN°4) on this subject and the final decision on its implementation is awaited.

2. Sediment management

As per the analysis of the PIC Sediment Management Expert/Hydrologist, the volume of sediment excavation required to establish a uniform bed level across the 300 m wide design channel amounts to 5.7 million cum. Moreover, the volume of annual sediment deposition that should be expected within the design channel after its construction is at least one million cubic meters. More than double that amount is possible, if not probable, during a large flood event with the potential to completely infill the design channel.

Failure to remove the large volumes of sediment deposited in the design channel each year (or rapid accumulation in a single monsoon season before removal can occur) could lead to serious consequences, including flood inundation of the embankment level, rapid erosion of the embankment, and back-watering and sedimentation within the tributary outfall channels.

Removal of existing deposited materials

For earthworks related pay-items in the CW-01 bill of quantities, Contractor has to conduct excavation within the 300m channel corridor. However, Contractor produced his method statement for earthworks related items where production of backfilling is entrusted to a sub-contractor, of which materials (coming from riverbed) stockpiles are already available. Therefore, no additional materials will be removed. It is foreseeable that present condition of CW-01 Contract will not be the solution for channelization of river as per geometry mentioned in design.

An alternative solution has to be found, to remove the 5.7 million cum already deposited.

Recurrent sedimentation

Several options would have to be studied to address the recurrent sedimentation, some of which are proposed as follows:

- Systematic removal of sediment materials, which means to organize and finance it;
- Construction of additional protection infrastructure;
- Re-assessment of river training measures, considering the actual site condition (riverbed roughness value) and change in Project concept (postponing of right bank development).

However, prior to undertaking the above activities, quantities of sedimentation have to be confirmed first. Then, a comprehensive topographic survey has to be conducted on the Zone A area and along the 300 m width channel to be dredged. Afterward, 2D hydraulic modeling has to be conducted; Monitoring of sediment deposition in areas of gravel removal is also required to more thoroughly evaluate the pros, cons, and feasibility of the various options.

3. PIC staffing and mobility

As expressed in the PIC Inception Report, Construction Supervision Team has been found understaffed to fulfill basic tasks of control and supervision of an admeasurement civil works contract. A first variation order (CV-01) to PIC Contract issued on 4 March 2019, improved PIC capability with inclusion of Environmentalist and Quantity Surveyor, both national non-key experts, in PIC Construction Supervision team. Besides, Employer also seconded PIC in providing with supervision technical staff that includes two site inspectors, one laboratory technician, one land surveyor and his assistant

However, the Contractor's work pace have increased sharply and work activities are conducted on multiple sites that sometimes include night shifts as well. Hence additional resources are required for proper quality control and monitoring. An additional manpower is proposed as follows:

- 2 Site Inspectors;
- 1 laboratory technician;
- 1 Land surveyor;
- 1 Land surveyor assistant.

Further, the number of PIC vehicles have not changed since the start of the Project. Since the number of personnel is increased considerably it is proposed to procure 3 motor bikes (for site inspectors), and an additional vehicle

The abovementioned additional resources are proposed to be included in a Variation Order n°2 to PIC Contract which is currently in draft/discussion stage with Employer.

4. CW-01 Civil Works Contract

4.1 Contract design drawings

Design drawings, stipulated as Good For Construction in CW contract, were nevertheless not approved by Engineer's Representative, since site conditions reported in the Contract Documents differ from those surveyed at start of Works, some part of design had to be adjusted.

The adjustments are linked to all 12 out-fall geometry, which is necessary to connect properly with adjacent and upstream structures of Phuentsholing–Chamkuna Road project (PCR), and to improve their functionality.

Accordingly, extensive review of detailed design is conducted by PIC. But since it cannot be done on once for all components, it is conducted in accordance with Contractor's progressive needs, which shall be as per their baseline schedule. However, the issue is Contractor does not follow its initial baseline schedule, and frequently changes its work location where works are easier to manage.

As a result, redesigning on case by case basis requires some flexibility for PIC Experts which are not easy to manage. The expertise concerned is mostly for structures and geotechnical engineering.

Furthermore, Contractor has to produce shop drawings, for which a design & dedicated drafting team is required. In that respect Contractor capacity are weak, since such type of services was not anticipated.

4.2 Site safety

Temporary flood protection measures to protect works and installations during flooding period have not started.

Protection works are related to measure against flooding from Amochhu and flash floods from east hill side adjacent tributary.

After lengthy deliberations, details and cost for protection measures against Amochhu possible floods have been agreed with. These works are included in the Provisional Sum CW01 contract pay-item. After the submission of an acceptable method statement by the Contractor, works will be immediately ordered. The works have to be completed before the beginning of Monsoon season.

These temporary works shall start during next quarter, and be completed for end of May 2019

For protection against Amochu tributaries flash floods, it belongs to Contractor to assume site safety, thus it will be at Contractor cost. Some principles have been agreed with, but details of measure and schedule have still to be submitted.

4.3 Works sectioning and milestones for Delay Damage application

Particular conditions of Contract introduce 5 section of works, and with every one, a Time for Completion and a rate for application of Delay Damages is required.

Usually, when linear works are concerned, sections are clearly defined, since once works are completed, taking over certificate for part of works is issued, the defect Liability Period for the section starts, and Employer is responsible for works maintenance.

However, in the case of CW-01, no sections have been geographically determined and works to be accomplished are just related to quantities of some items.

In these conditions, issuance of taking over certificate of part of works, would be quite acrobatic, and then will discharge Contractor about further responsibility, besides defect repair on works taken over. This would mean for example that, if a section of diaphragm wall is taken over by Employer, then later one, when Contractor's has to construct cast in situ wall, or any other structure linked to the D-wall section, Employer has to hand over again the site to Contractor. This situation doesn't seem actually practicable.

As a result, Engineer's Representative will not be in capacity to produce a taking over for part of works, therefore there will be no ground for Delay Damages notice.

Hence, it is suggested that:

- Either works sectioning be clearly defined with linear works functional section; or
- works sectioning, with intermediate milestones be abandoned, as unpractical.

4.4 Pay Item for payment of backfilling works

Contractor has been warned, on 8th March 2019, that works carried out by Sub-contractor for backfilling cannot be covered under pay items described in the General Earth Filling section of CW Contract, since every item description includes "excavation inriverbed, levelling the river bed as per the levels provided in the drawings" works, which will not be executed by Sub-contractor.

Therefore, Contractor has been requested:

1. to confirm that works will be performed as per item description in Bill no-02 c for GeneralEarth Filling of Bill of Quantities, or
2. Submit a proposal of Variation to Contract, as per GCC 13.2, "Value Engineering"justifying and introducing a new unit rate, which can only be less than itemContract rates (in particular rate of item n°401).

Contractor did not answer to Engineer's letter but submitted a Statement still using Item 401

Engineer's has the option to reject statement, or determine a provisional rate, until an appropriate rate is agreed by both parties.

A.4 Proposed program of activities/work plan for the next quarter

From PIU/PMU side

- Contract signingof External Independent Environmental Expert
- Prepare framework for CW-02 bidding documents;
- Finalize Variation Order with PIC for establishing the Flood Emergency Warning System development
- Finalize Variation Order with PIC for Hydraulic 2D- modelling as per ADB requirement

From PIC

- Conclude Variation Order n°2 related to Flood Emergency Warning System development and to enhancement of Construction Supervision team, and miscellaneous logistics issues.
- Preparation of draft Management Information System.
- Continue supervision of Civil Works Contract n°01 and management of Contract under FIDIC General Condition of Contract
- Prepare and conduct overseas training session for preparation of CW-02 bidding documents.
- Assist PIU/PMU to finalize canvass for preparation of CW-02 bidding documents;
- Initiate Biodiversity Monitoring and Bench Marking Study (BMBMS) as per the proposed procurement plan included in Variation Order n°02.

From Contractor CW-01

- Continue implementation of C-EMP.
- Continue Diaphragm Wall construction, and connect D-wall to Zone A North end (R-Rock).
- Continue backfilling construction;
- Implement flood protection measures and emergency plan to face monsoon period.
- Continue actions to manage through traffic, or to divert it out of site works.

B. Project activities

B.1 Project Organization Management

General

The proposed PDTP will reclaim 464 hectares (ha) of riparian land near Phuentsholing Thromde (Municipality) located along both sides the Amochhu River on Bhutan's south-western border with India. The project will provide protection from floods and erosion, and will address scarcity of land for housing, ease the pressure on human settlements in the project area by providing ample water supply, improving access, solid waste management, etc.

Organization

Within the ADB Project agreements, the Executing Agency (EA) of the project is Druk Holding and Investments Limited (DHI), a government owned enterprise. The Implementing Agency (IA) is Construction Development Corporation Limited (CDCL), a subsidiary of DHI specializing in urban and infrastructure development, who has established a Project Management Unit (PMU) at Thimphu and a Project implementation unit (PIU) in Phuentsholing for the sole purpose of implementing the Project.

The PIU is headed by a Project Manager and is well staffed. The PIC reports to the Project Manager and supports PIU. The Project management organization chart is displayed here-after.

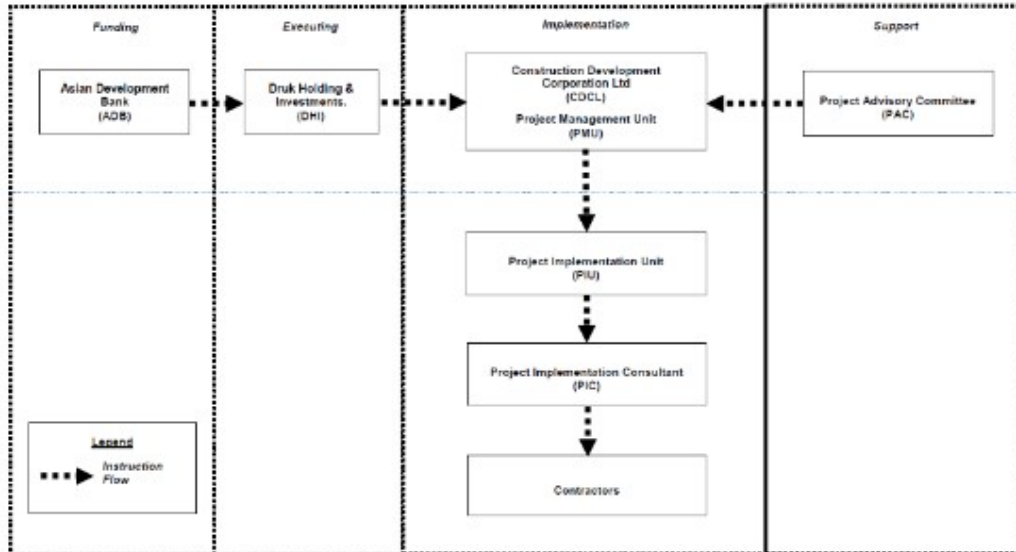


Figure 1: PDTP (Phase 1) Implementation Arrangements

The PMU and PIU positions staffed related to Project management, but not the one related to construction supervision activities, which are under PIC responsibility, are listed in **Appendix 3**.

B.2 Consultant Activities:

B.2.1 Signed Consultancy Contracts data / Ongoing Procurement

Only one Consultancy services contract have been signed with M/s. Egis International -Egis India Joint Venture, in association with M/s. Gyaltsen Consultancy for Project Implementation Consultant services on 18 July 2018. Services started on 28 October 2018.

Procurement of Independent Environmental Monitoring Expert has been conducted and negotiations are completed. The final contract signing is due on first week of April, 2019

B.2.2 Status of Variation Orders

PIC contract only is concerned.

A first Variation Order (VO n°01) was signed on 4th March 2019. The VO n01 includes:

- Re-defined task assignments of Material/Engineering Geologist, Geotechnical Engineer, to clarify their activities, and saved experts input.
- Included provision for a National Environmentalist expert, on intermittent, but monthly regular presence, in order to monitor the C-EMP Contractor's activities.
- Included provision for a permanent national Quantity Surveyor position to reinforce the PIC Construction Supervision management team.

The Contract remained unchanged. Contingencies increased slightly from USD 939,453 to USD 946,155.

A second Variation Order is under preparation that covers the following aspects:

- Additional Construction Supervision PIC technical staffing (Site Inspectors, Laboratory Technician and Land Surveyor)
- Reshuffling of Contract Items in order to include the Flood Early Warning System and Flood Management Plan preparation;
- Maintenance of current Project vehicles;
- Improvement of PIC mobility adding a Project Vehicle;
- Proposal of revision of the Advance Payment recoupment method.

The Contract amount would remain unchanged, but Contingencies would decrease by certain amount.

B.2.3 PIC Organization and Personnel Activities

Consultant Staffing

Table B.2-1 PIC staffing bar schedule (reporting quarter and next quarter)

	Position (Experts)	Date of present report					
		Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019
1	Chief Resident Engineer / Team Leader						
2	Senior Civil Engineer / DTL						
3	Material Engineer / Engineering Geologist						
4	Contract Specialist						
5	Environmental Specialist						
6	Financial Management Specialist						
7	Hydrology/Sediment Specialist						
8	Quality Control/ Construction Manager						
9	Geotechnical Engineer						
10	Safeguards Specialist						
11	Geotechnical Engineer						
12	Structural Engineer						
13	Roads Engineer						
14	Water Supply / Sewerage. / Hydr. Eng.						
15	Water Treatment Process Specialist						
16	Solid Waste Management Specialist						
17	Electro-Mechanical Engineer						
18	Quantity Surveyor						

19	Environmentalist																				
----	------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

As noticed in the PIC Inception Report, PIC staffing is insufficient to conduct proper Construction Supervision (CS) of civil works contracts, ruled by FIDIC for General conditions of Contract, with payment based on “ad measurement”, as it is the case with first and main civil works contract procured, CW-01.

The following additional personnel (all national) is proposed:

- For quality control: Permanent Material Engineer, Laboratory personnel (Technician and Assistant, or 2 technicians), Land Surveyor and Assistant (together with survey equipment);
- For quantity control: Quantity Surveyor, Site Inspectors (2, 3, 4...) depending on the pace and locations of works;
- For regular environmental monitoring, a National Environmentalist.
- For Contract administrative management: Civil Works secretary.

First Variation order and secondment of personnel by Employer answered to immediate Construction supervision needs, but it appeared that, due to Contractor’s increasing activities, more resources would be needed for proper CS services. These resources are listed in B2.2 here above, within content of proposed Variation Order n°02.

PIC Logistic

Table B.2-2: PIC logistics

Site office	PIC at site office provided under CW-01 Contract since 11 February 2019.
Office equipment	5 Desktop computers and the data bank have been supplied, with last delivery on 25Feb. 2019. Procurement of set of UPS and cameras are under process.
Transportation	Isuzu D-Maxis Used since 15 December 2018. Sales Tax Payment Exemption was paid by PIC at 08 February 2019 after get approval from PIU 2nd Vehicle - Procurement is still in process. See section Provisional Sum here below. In the mean-time Rental Car is used, initially from 28 Oct. 2018, awaiting for first vehicle purchase, and since 01 January 2019 waiting for 2nd Vehicle procurement.

Construction Supervision Team Activities

- Mobilization from 28 October, Organization of Supervision activities, sharing of tasks among personnel, preparation of Quality Assurance plan and starting to and tasks assignment among CS personnel.
- Review of design: Design review for CW-01 works done but needed updated surveys. Engineer considered that detailed as per Contract documents cannot be considered as “Good for Construction” drawings. Thus shop-drawings have to be prepared after updated site survey being implemented.
- Outfall invert levels between PCR design and HCP design at the Project boundary do not match. Slopes of Outfalls need to be changed to follow PCR invert level at project boundary. PIC prepared revised sketches and slope tables
- Certification of CW-01 IPCn°03 (December 2018 works), IPCn°04 (February 2019 Advance payment- Instalment n°02), IPCn°05 (January 2019 works) and IPCn°06 (February 2019 works).

Core Team activities

- Production of 6 Technical notes related to:
 - o Recommendation to change the diaphragm wall upstream connecting point to foot hill on North of zone A.
 - o Analysis of outfalls details to improve geometry;
 - o Proposal for temporary flood protection measures (2 technical documents);
 - o Method of procurement of services for preparation of Flood Emergency Warning Management System;
 - o PIC deliverables contents and schedule;
- Hydrology / Sedimentation specialist mobilized in two stages from 31 December 2018 to 13 January 2019 and from 26 February 2019 to 15 March 2019, to prepare:

- TOR for Flood Management Consultants;
 - recommendation to adapt outfalls design to Project boundary constraints (see A2 point 6 above);
 - Analyse CW-01 Contractor proposal for temporary measures against floods during construction;
 - Determine quantities and analyze consequences, of substantial sedimentation in Amochu river bed.
- Senior Environmentalist was mobilized from 4 to 17 January 2019 to produce the first Semi-Annual Environmental monitoring Report.
 - Materials/Engineering Geologist was mobilized from 19 December 2019 to check materials sources, Contractors laboratory equipment and first mixtures formulae. Besides Materials/Engineering Geologist analyses sub-soil conditions at North end of Zone A.
 - Finance Specialist mobilized on 26 February 2019 to 22 March 2019 to prepare Project financial and accounting reporting and train PMU personnel for use of ADB FIS system.
 - Team Leader:
 - Prepared in February and March 2019 the Project Quality Assurance Plan/ Construction Supervision Manual (submitted on 22 March 2019).
 - Prepared a Civil Works Contract Administration Manual under FIDIC GCC, and conducted training.

Use of Provisional Sum

Table B.2-3: Status of use of PIC Contract Provisional Sum

Item	Amount (USD)	Status
Purchase of 2 Vehicles & Motor Cycle	122 500	Procurement conducted as per ADB guidelines for vehicles. Completed on 3 Dec. 2018. One vehicle purchased on 15 December 2018. The other purchase has been cancelled, due to impossibility to waive sale taxes, then costs of vehicle was out of budget. Second procurement has been advertised on 14 March 2019, then following successful bid, purchase is to be made for mid April 2019.
Office Equipment	10 000	Computers, software, printers, photocopiers, furniture, GPS power inverter, etc. for field office. Procurement conducted as per ADB Guidelines. Completed on 22 Nov. 2018. Purchase done 2 nd week Dec. 2018. Remaining desktop, one laptop, one printer and one digital camera were supplied on 25 th February 2019 and last week of March 2019.
Seminars, Workshops, and Training Sessions	50 000	Amount increased from USD10000 with Variation Order n°01. No action yet. First action to be scheduled in June 2019.
Studies, Surveys and Reports	230 000	a) Biodiversity Monitoring and Benchmarking Survey. No action yet. Advertising scheduled in April 2019 b) Preparation of a Flood Emergency Management Plan. TOR prepared for incorporation in Variation Order (proposal in VO n°02) of PIC Contract.

B.3 Implementation of physical works

B.3.1 Signed Civil Works Contracts data / Ongoing Procurement

Only One CW contract signed - CW-01 with AFCONS for river training works on 18 July 2018. Site handed over on 27 September 2018. Notice to start works on 1st November 2018.

B.3.2 Status of variation orders

No Variation Order initiated

B.3.3 Civil Works package summary of physical and financial progress

Table B.3-1: CW-01 Summary of physical and financial progress

Contract	Contract Date	Start date	Time for completion (days)	Completion date	Physical progress (%)		Financial progress (%) ^a		Elapsed time (days)
					Target	Actual	Target	Actual	
CW-01	18 Jul. 2019	01 Nov.2019	912	01 May 2021	10.0	8.9	9.2	14.6	151

^aActual Payment includes Advance Payment (2 instalments paid)

B.3.4 CW-01 Contractor's establishment

N°	Description	Status
1	Project Management	At end of period, 37 expatriat staffs, 10 national staffs and 23 Sub-Contractor national staffs mobilized. Total: 70 Management Staff available.
2	Manpower	At end of period, there are 358 manpowers available Contractor: 59 National Manpowers and 141 Expatriate Manpowers. Sub-Contractors: 65 National Manpowers and 93 Expatriat Manpowers.
3	Plant and Equipment	All key equipments as per required by Contract Document – General Specifications, Section-7 had been mobilized to project site. <i>The last key equipment arrived at project site on 01 March 2019.</i> <i>Totally there are 2 Nos of Hydraulic Grabbing Machine Cassagrande and 1 Nos of Mechanical Grabbing Machine</i>
5	Quarry / Crusher	No Quarry / Crusher is provided by Contractor. <i>Source of coarse aggregates and fine aggregates are from Quarry / Crusher supplier located at project site.</i>
6	Pre-casting Yard	No pre-casting yard is required at this time of period
7	Borrow Pits / Disposal Sites	General waste and Structural waste, including for bentonite: Contractor to dispose general waste at Phuensholing Thormde Waste Disposal Site Borrow Pits: <i>Particularly for boulders laying on the river bed beside of D-Wall with min. size 500mm and also large boulders for temporary flood protection with 1000 mm dia. are still not available.</i>
8	Filling Material	No Quarry will be provided by Contractor <i>Source of filling material is from Quarry / Crusher supplier located at project site</i> <i>Approximately 1,5 million m3 for filling material available from RIGSAR Supplier (Sub Contractor).</i>

B.3.5 CW-01 Works Progress

General Requirements

N°	Description	Status
1	Site Possession	Handover of Hindrance Free Area for the project at 27 September 2018 Area handover for Site Installation 01 November 2018
2	Obstructions	Traffics from public / private vehicles inside project site It was noticed at several times there is unsuitable material was dumped inside project site by third party
3	Utilities [electrical poles etc]	Regular failures of electrical power supply happen on site offices. Tap water supply for site offices is not continuous during the day work. <i>Contractor to provide suitable generator set to supply electricity temporarily during blackout time.</i> <i>Contractor to make sure the tap water supply is available continuously by providing the proper pump.</i>
4	Health & Safety	No NCR / CAR issued No accidents reported but 2 minor incidents were reported during the period.
5	Maintenance of Site Road	Contractor conducted dust control by watering the road periodically. Contractor to rectify periodically the surface of temporary road.
6	Environment	No NCR / CAR issued.No environmental accidents reported.
7	GRM	No grievances related to Contractors activities registered during the last 3 months.
8	Design	Contractor is required to review all the latest revision working drawing (good for construction) and submit discrepancy list (if any). The location change of D-Wall termination had been approved by Employer.

		Outfalls design are changed and to follow PCR design at project boundary. <i>Contractor to submit the shop drawings for all the modification of the work, especially for the changes of outfall works.</i>
--	--	---

Quality Control Activities

N°	Description	Status
1	Contractor Quality Control Plan	Quality Control Plan has been submitted to PIC. Quality Control Plan is general and refers to internal set of procedures from Contractors, submitted on case by case basis. PIC checked when required and could request improvement, depends on the requirement condition. <i>PIC in particular required Contractor to revise QCP as follows: Method Statement for all work activities with shop drawings shall be submitted and approved prior to the commencement of work Test shall be conducted for all materials to be used for construction as per the technical specifications and as per the instruction of engineer's representative Testing frequency shall be as per the technical specification and standard QCP shall be submitted for all work activities</i>
2	Material Source Approval & mix designs	Materials source have been approved excepted for - <i>Wire Crates, Rock Boulders, Silicone Paint to be resubmitted,;</i> - <i>Anchor Bar Coupler to be submitted with samples;</i> - <i>Waterstop sample of joints to be submitted.</i> Mix designs have been approved
3	Materials Testing	Compressive strength results of Mix Design with Penden Cement and Fosroc Admixture & Penden Cement and Sika Admixture, conclusive. Anchor bar and couplers to be tested
4	Inspection	PIC able to mobilize two site inspector and one survey inspector, one laboratory technician for the period <i>But this supervision staff needs to be strengthened. One laboratory technician, two site inspectors, one land surveyor and one assistant land surveyor are proposed in PIC Contract VO n°02</i> Checklist in RFI still need to be improved by Contractor
5	Non Conformance	One Non-Conformance Registered (NCR) / Corrective Action Report (CAR) was issued on 11 th Mar. 2019, for defaults in quality materials construction from CW-01 sub-contractor. The NCR was closed on 14 Mar. 2019 after correction by sub-contractor

Works Status

N°	Description	Status
1	General Items	Site offices, Contractor's Staff and Labour accommodation, Materials Stock Yards, Testing Laboratory and Batching Plant with Silos have been completed.
2a	River Training Works	Guide Wall work is in progress <i>702m (on 4500m) length cumulative completed</i> Up to this month: 47 panels, (6m each), on 745 n° were completed at end of period. <i>According to Contractor no more penetration can be executed at North end, from panel 710 and above. CW-01 asked solution from Client / PIC. Soil Investigation had been done. PIC and Contractor disagree on interpretation. The results are under evaluation by independent body.</i>
2b	Embankment Works	Open Outfall N° 8 (69m length). Construction started on 22 Dec. 2018 <i>But then stops because PCR public road on part of outfall layout still not diverted.</i> Open Outfall N° 02 (188m length). Construction started on 15 Jan. 2019 <i>Works on going</i> Open Outfall N° 03 (169m length). Construction started on 04 Feb. 2019 <i>Works on going</i>
2c	General Earth Filling	Started on 18 Feb. 2019. Earth works are executed by Sub-Contractor, Rigсар Company. <i>At end of period 75000 cum was completed. (on a total of 3,140,000 cum)</i>
2d	Promenade Finishing	Not yet started

2e	Irrigation & Landscape	Not yet started
3	Provisional Sum	For Survey Equipment, Office Camera, Projector and Radio Handset. <i>Procurement conducted and equipment delivered</i>
		For pickup vehicles. <i>Procurement purchase cancelled</i>
		For electricity main supply: partially used for installing main transformer for the project
		For Geological Investigations. <i>Partially used for investigations at North end</i>
		For Temporary Flood Protection <i>Discussion regarding to the price and schedule, in process, to be finalized by 30 Apr. 2019</i>
4	Day works	No day works ordered

Table B.3-2: CW-01 - Physical progress per major works items

Major works items	Unit	Contract quantity	Target 31/03/2019	Achieved 31/03/2019
Diaphragm wall	M	4509	400	282
Cast in situ wall	M ³	6000	0	0
Retaining wall	M ³	8 600	0	0
Ducted and open outfalls	M	2562	0	3 structures started
Embankment construction	M ³	3 140 000	0	75000
Lower Level walkway	M ²	4 600	0	0
Upper Level walkway	M ²	23 800	0	0

B.4 Field Monitoring visits, workshops, training and particular meetings

ADB conducted the Loan Inception Mission from 12 to 20 November 2018. The Mission's findings were discussed at a wrap-up meeting on 20 November 2018 with DHI, CDCL and the Ministry of Finance. Main findings of the Mission are detailed in the "Aide Mémoire of the Loan Inception Mission" of which understandings was approved by the higher authorities of the Bhutanese Government and ADB.

The list of field monitoring visits, workshops, training and particular meetings is presented in **Appendix 4**

B.5 Status of Contract Awards

Table B.5-1: Status of Contract award

Contract	Bid preparation.	Bid period	Bid evaluation	Award & Negotiation	LTP
<u>Civil works packages</u>					
CW-01 River Training	Q1 2017	Q1& Q2 2017	Q2 2017	Q2 2018	12 Sep. 2018
CW-02 Common urban infrastructure	Q2 2019				
CW-03 Flood early warning system	Q3 2019				
CW-04 Power transmission infrastructure					
CW-05 ICT infrastructure					
<u>Consultancy services packages</u>					
CS-01 PIC	Q1 2017	Q2 & Q3 2017	Q3 2017	Q3 2017	17 Sep. 2018
CS-02 Environment monitoring expert.	Q4 2018	Q1 2019	Q1 2019	Q2 2019	
CS xx 2D hydraulic model					
CS-03 Urban Management Advisor					
CS-04 Investment Promotion Advisor					
CS-05 Sustainable Township management capacity development consultants					
CS-06 Investor promotion and transaction advisory consultants					

Appendix 6 shows the Updated Procurement plan and Contract Award schedule. There is no change compare to initial PAM Procurement Plan.

B.6 Disbursement of Project Funds

The total and breakdown of investment costs remains unchanged (see **Appendix 7**), per awarded Contract the invoiced amounts are as follows (extract from **Appendix 7**).

Table B.6-1: Financial Status of PTDP Civil Works, Goods & Consultancy Contracts

Investment costs	Contracts Amount (Taxes included)		Billed until last Quarter*		Invoiced this Quarter ^a (Q1 2019)		Total Billed incl. this Quarter*	
	Cur;	Amount	Amount	%	Amount	%	Amount	%
Civil Works Contracts (CW-01)	BTN	2,934,669,207	123,930,570	4.2	137,618,977	5.7	261,549,547	8.9
Consultancy Services (CS-01 PIC)	USD	4,138,144.85	49,507.98	1.2	244,604.78	5.9	294,112.76	7.1
	BTN	91,474,227	971,496	1.0	6,271,906	6.9	6,363,402	7.9

^a Amount of works and services billed, taxes included but advance payment not included. IPC March 2019 included

Summary of disbursements for reporting period showing actual payments against each contract is indicated in the table below.

Table B.6-2: Status of Disbursement of Project Fund (till report date)

Cat	Description/ Name	Budget Allocation (Mil. US\$)	Contracts Awarded (Mil. US\$)	Uncontracted Balance (Mil. US\$)	Total Disbursed (Mil. US\$)	Undisbursed Amount (Mil. US\$)
		(a)	(b)	(c) = (a - b)	(d)	(e) = (a - d)
Loan	Civil Works	15.05	15.05	0	0	15.05
	Consulting services (PIC)	7.42	5.27	2.15	0.58	5.2
	Others					
	Total	22.47	20.32	2.15	0.58	21.89
Grant	Civil Works (CW-01)	19.57	19.57	0	5.9	13.67
	Others					
	Total	19.57	19.57	0.37	5.9	13.67
DHI	PMU and PIU Expenditures	1.67	N/A		0.1	1.57
	Training	0.21	0	0.21	0	0.21
	Operation and Maintenance	0.86	0	0.86	0.05	0.81
	Sub total	2.74			0.15	2.59

*1US\$ = 70.5 BTN

Appendix 8 displays the S-curves and quarterly details for Loan 3668-BHU and Grant 0573-BHU contracts awards and disbursements.

B.7 Details of Counterpart Contribution

Within the report date DHI has disbursed an amount of Nu. 58.1 Million (US\$ 0.82 mil.) as equity fund to CDCL from where the counterpart disbursements are made.

B.8 Implementation Schedule

Appendix 2 display update Implementation schedule for Outputs (actual vs. scheduled).

C. Environmental aspects

C.1 Environmental Monitoring Review

A Summary of Environmental Monitoring Review from Jan to March 2019 is attached in **Appendix 9**.

In addition to above, there are some activities that has been carried out as part of the submission from PIC or Contractor side during quarterly review period, which is listed in the Table below:

Table C.1-1: Environmental Deliverables

No	Subject/ Deliverables	Date
1.	Environmental Monitoring Training by PIC environmental Specialist Venue: CW-01 office, Upper Kabraytar, Phuentsholing Attendees: PIU, PIC, CW-01	16/01/2019
2	Approval of revised CEMP by PIC environmental specialist.	24/01/2019 and ADB endorsed on 07/02/2019
2	Submission of draft ToR for BMBMS by PIC	06/03/2019
4	Bid Preparation and evaluation period for External Environmental Monitoring Expert	Feb - March 2019

Some environment related issues had been observed as part of the monitoring at the project site. The major issues have been highlighted and observation/action taken have been duly reflected as follows:

- Bentonite sacks were just piled up in different locations and farm animals were seen feeding it, which could lead to serious repercussions. Disposal pit or waste locations were well barricaded, and if necessary covered with tarpaulin. Bentonite material was also properly stacked and barricaded
- Unhygienic restrooms at construction site leading to open defecation near project vicinity. All restrooms were cleaned regularly, sewage tanks were cleared whenever full, ensured water is available for washing and flushing, and any malfunction with the restroom especially the ones at the construction site were to be immediately mitigated. Workers were ensure to use toilet and not defecate anywhere in the project vicinity.
- Road diversion was created in March 2019, due to which the number of vehicular movement within the camp and office site has drastically reduced in comparison to the traffic survey conducted in February. This has reduced the dust pollution generated within the camp and office sites.
- The vehicular movement along the Phuentsholing-Samtse highway is still high, but signboards and speed limit panels have been allocated in strategic locations. Multiple speed bumps have been created, to minimize speeding and to reduce dust generation.
- Sprinkler trucks are being dispatched every 2 hours throughout the project corridors, to suppress dust. Sprinkler trucks are also being deployed during night shifts as and when required. The contractors have also generated a checklist to maintain information on the amount of water sprinkled, location, and the number of times the truck is being deployed.
- Two color-coded bins, blue for degradable and green for non-degradable waste have been installed in all strategic locations along the camp, lay down and work-sites.
- Safety posters have been displayed at all vantage points such as restrooms, walkways and along the road and parking areas.

- Fire extinguishers and buckets have also been placed in all strategic locations along the office and campsites.
- To prevent ground contamination, impervious concrete flooring has been placed in all oil storage/handling areas.
- Bulkheads are being for filling cement silos, to prevent the ground/soil from cement dust, and also reduce cement wastage.
- Various activities like car washing, illegal waste dumping, approach road towards the riverside which is used by the public for a picnic have been blocked/stopped, but permanent vigilance is needed.
- For the month of March, the second sprinkle truck was dysfunctional, and only one truck was sprinkling the project corridors. For the safety of the project, workers and the environment, we recommend a third sprinkler truck.

C.2 CW-01 Contractors – Implementation of the C-EMP

This environmental aspect is in compliance with the Contractors Environmental Management Plan (CEMP) for the Phuentsholing Township Development Project (PTDP). The project is financed with support from Asian Development Bank (ADB) & Druk Holding and Investments (DHI). DHI is the Project Owner and the Executing Agency (EA) and Construction Development Corporation Limited (CDCL), is the Implementing Agency (IA). The Civil work contract of package CW-01 has been awarded to M/s AFCONS Infrastructural Limited, India. For supervising the Contractor's works, the CDCL has appointed M/s EGIS International as Engineer.

A draft contractors Environmental Management Plan was submitted as part of the Semi-annual Environmental Monitoring Report. Clarifications were sought by ADB on the CEMP. After the visit of PIC environmental specialist, the CEMP was re-visited and was jointly agreed between PIC and PIU and forwarded to ADB for final endorsement. A matrix was prepared as part of the new submission to ADB in the draft CEMP which is submitted as part of the quarterly progress report.

C.3 Comments/ Observations on CEMP and annexures by ADB

Table C.3-1: Comments and observation on CEMP and annexures by ADB

Items	Suggestions/reminders from ADB	Response – changes made by PIC/ PIU
Figure 2: Map Showing Sampling Locations of Surface Water (SW01-SW10) and Ground Water (GW01 & GW02)	Why GW1 and GW2 are adjacent to each other? It is likely they will have the same results. If possible, it is better to place at downstream near the Bhutan-India boundary.	GW1 and GW2 are the two tube wells that are dug at the site – one in yard area and another one in camp area. We thought its best to review water quality of both of these locations even if they are nearby. Digging a well in the downstream side will be too expensive without actual need.
Table 5: Project Impact Monitoring Plan S. No. 3. Water Regime	I suggest taking photographs twice a week. It is not complicated to take photographs in two locations. Moreover, frequent photo documentation will provide good information of the change in river water course and water level during project implementation.	Agreed. Incorporated. There will be daily pictures of the site as per the contract. Photo album and video files shall be submitted by contractor to PIC/PIU. Changed in table 5.
Annexure 6: Construction and Demolition Waste	I was informed that there is already a landfill that will serve as final disposal area. If this is true, I think there is also an	Yes, local landfill will be used. Changes made in the C&D rule.

Management Plan	agreement between PMU/PIU on the use of landfill. If there is no landfill yet, please identify the final waste disposal area as soon as possible to avoid waste related problems.	
Annexure 7: Weekly Environment Inspection Checklist	There could be a possibility that some items may be added during the course of the construction. If there are new items found during construction and not in the list, please revise the checklist by and inform ADB the revision through the Environmental Monitoring Report (EMR).	Ok.
Others	I suggest the conduct of trainings or orientations for all workers on the different plans (e.g. CEMP, camp management plan, OHS, emergency plan) at the early stage of construction and repeated semi-annually. In this manner, all workers will be aware of their tasks and how to participate in the CEMP implementation.	Training on OHS and environment provided on Jan 16, 2019. Attended by 15 participants from PIU and contractor.
	In locations where people can see, the contractor will place large outdoor board for displaying (i) project information and (ii) contacts details for any grievances.	Agreed, incorporated in GRM plan

C.4 Comments / Observation on CEMP and other annexures by PIC

Table C.4-1: Comments and observation on CEMP and annexures by PIC

Clause/ Section	Comment	Section/Clauses incorporate with by AFCONS
Overall	Many grammatical and incomplete sentences- please double check Page numbering is required	Noted and incorporated accordingly.
3.3 OHSE Organization of Afcons	The responsibility of OHSE and Environment Manager are given in the description. However, in the list of officials, the names of officials for these positions are missing. It is required to match the position of the staff which is proposed in the organizational structure	The position and name of the officials as per given description is made in Section 3.3 OHSE Organization of AFCONS of CEMP and the table 4 is also updated with names of officials (Page No. 15-16)
4.2 Environmental Project Impact Monitoring Plan	Rename as "Environmental Monitoring Plan" Table 5, sl 2: Soil Testing should be replaced by Ground Contamination. Every month; visual observation for contamination by oil, grease and other foreign substances, across the whole project site. Table 5, sl 3: photograph record should be twice a week and not once a week.	Changes are incorporated in section 4.2 Project Impact Monitoring Plan of CEMP in Table 5 at Page No. 20Changes are in Section 4.3 Environmental Monitoring Plan in Table 6 at page no. 21
4.3 Environmental Quality Monitoring Plan	Table 6 Sl. 2; Meteorology; month of measurement should be – every month. Compilation of daily data to be reported in monthly mean.	Defined in section 4.3 of CEMP below Table 8 at page no. 26

	<p>Sl. 3; Air Quality; month of measurement should be – every month. Only compilation should be monthly. (Max, Min, Average)</p> <p>Sl. 4; SW Quality; Month of measurement should be SW 04 &05– monthly.</p> <p>Rest of the locations; April and October to capture Pre and Post Monsoon.</p> <p>Sl,5: GW quality; change months to April and October to capture Pre and Post Monsoon data on Water Quality</p>	
Table 8	Define significance of Category A, B and C for water quality as per NEC water Quality Standards	Mentioned in section 4.3 of CEMP below the Table 9 at Page no. 27
Table 9	Day and Night –duration and actual times? Mention the duration for nighttime data and day time data of ambient noise level (dB(A))	ok
Traffic Safety and Management Plan	Valid emission test certificate required for all sections where vehicles and equipment are engaged. Please incorporate the checking and recording of valid Emission Certificate for all construction vehicles and equipment, periodical checking of reverse Horn, lighting, breaks and other safety measures.	Solid waste management plan is mentioned in Annexure 4 Camp Management Plan
Waste Management Plan	Method statement of Waste management plan- collection and disposal is required. This should apply for both general waste and construction waste/ debris/ muck.	
HIV/STD Trainings	HIV/STD Trainings should be provided for all workers at the site + the local community through appropriate mechanisms. Once every two months as per the contract agreement. Include the protocol for carrying out HIV/AIDS awareness programme alongwith proposed schedule	For Construction waste disposal and management Annexure 9 C&D waste management is attached.
Bentonite disposal	Bentonite shall be disposed of to the local landfill after drying and mixing in the form of cakes. Necessary permit shall be sought by the client. Proper storage at site and drying/ mixing shall be done by the contractor.	HIV/STD Training Programme is mentioned in Annexure 7
Drinking Water	Depending on the quality of water, appropriate filtering system should be installed. It has been mentioned about only RO system. If the TDS level is below 400, then it is not advisable to install RO system. So some alternatinve system may be mentiones such as UV filtration.	Protocols of controlling pollution are defined in Annexure 2 Standard Measures for Controlling Pollution and same is referred in Impact matrix table in Chapter 5 of CEMP at
Measures for Management of Air Pollution, Water Pollution and Noise	The protocol for application for measures for controlling different pollution is not given. Separate protocol for Air Pollution, Water Pollution and Noise Pollution control	

Pollution	measures is required to be incorporated and the same should be referred in the Impact table.	
Debris Management	A protocol is required to be developed for managing the Debris/ solid waste. The mitigation measure has been mentioned in the Impact Table but the detailed protocol is not given. The same is required to be added in the CEMP at appropriate location.	Defined in Annexure-9 (C&D waste management)

C.5 Comments and Revision proposed by PIC

Table C.5-1: Comments and Revision proposed by PIC on CEMP

S. No.	Comments	Revision/ changes made by PIC/Contractor
1.	The responsibility of OHSE and Environment Manager are given in the description. However, in the list of officials, the names of officials for these are missing.	The position and name of the officials as per given description is made in Section 3.3 OHSE Organization of AFCONS of CEMP and the table 4 is also updated with names of officials (Page No. 15-16)
2.	Soil testing to be replaced with Ground Contamination. Photographs should be recorded twice a week instead of once a week	Changes are incorporated in section 4.2 Project Impact Monitoring Plan of CEMP in Table 5 at Page No. 20
3.	In Meteorology month of measurement should be every month. Change month of monitoring to April and October to capture Pre-Monsoon and Post-Monsoon data of both Surface and Ground Water Quality	Changes are in Section 4.3 Environmental Monitoring Plan in Table 6 at page no. 21
4.	Define Significance of Category A, B and C for Water Quality as per NEC water quality Standards.	Defined in section 4.3 of CEMP below Table 8 at page no. 26
5.	Mention the duration of Daytime and Night time in Ambient Noise level Standards.	Mentioned in section 4.3 of CEMP below the Table 9 at Page no. 27
6.	Method Statement of Waste Management plan- collection and disposal is required for both general and construction-waste	Solid waste management plan is mentioned in Annexure 4 Camp Management Plan For Construction waste disposal and management Annexure 6 C&D waste management is attached.
7.	HIV/STD Trainings as per contract agreement	HIV/STD Training Programme is mentioned in Annexure 7
8.	Define Protocols for Air, Water and Noise Pollution control and same will be referred in the impact matrix table.	Protocols of controlling pollution are defined in Annexure 2 Standard Measures for Controlling Pollution and same is referred in Impact matrix table in Section 5 of CEMP at
9.	Debris Management	Defined in Annexure 6 C&D waste management
10.	Quarry Management plan for getting filling material if not adequate from the project area	Annexure 2 Quarry Management Plan
11.	Mention page number and caption/description for every table or image attached.	Page numbers are mentioned in all the documents and the description related to each tables and images are mentioned in CEMP

D. Health and Safety Aspects

D.1 Health and Safety aspects

- Approval of health and Safety Manual prepared for the project.
- Safety Day observed at Project site on 4th March 2019
- Necessary Safety Induction training has been provided to all new recruits (staff and workers).
- Company's regulations against on-site tobacco, alcohol and sexual harassment and their consequences are informed to the new recruits
- New recruits are familiarized of the assembly point and the medical unit in case of hazards or injury
- Tool Box talk and exercise are carried out daily for safety and health awareness.
- Caution board, PPE display board, safety awareness board provided at the site to a large extent.
- Identification of hazards (unsafe act and unsafe activity) and mitigate and minimization on a daily basis are being carried out.
- All necessary PPE is provided to workers and staffs and is being strictly enforced by the safety officer.
- Unauthorized entry to the site is prohibited.
- Helmets and reflective vests are provided to all visitors for safety.

Several health and safety related issues have been observed at the site as mentioned below:

Table D.1-1: recommendation on Safety and related health issues

Issue	Recommendation and action taken
Sign Boards	25 new signboards are erected at strategic locations. There were a few signboards that were kept facing down, as it needed to be replaced. The signboards have been replaced immediately.
Fire Extinguishers and Buckets	Fire Extinguishers and buckets have been installed in all required locations. Monsoon season has started, so it was informed to the contractors to ensure that the fire buckets are filled with sand or gravels, and not with stagnant water, which would cause malarial and other diseases later.
Noise activity at the site	Contractor to ensure that workers are all using their ear protection gear, especially if they are linked to a task or is functioning heavy machinery which generates loud noise.
Mosquito nets or fog machines	Summer in Phuentsholing attracts a lot of mosquitoes. The contractors were advised to use mosquito nets, or mosquito repellents to prevent infection. Another alternative suggested was the use of fog machines.
Allocate an empty space for workers to dry damp clothes	Contractor to allocate a separate space for the workers to dry off their damp clothes. Drying of clothes in their rooms or outside their rooms are discouraged, in view of good housekeeping.

D.2 Accident prevention

So far in the project, there has been no serious incident or near-miss serious incident, but in the month of March two minor incidents have been reported. Both incidents did not require emergency evacuation.

The two incidents include:

- While fixing the panel, and due to heavy wind, the panel fell on the worker. The worker was rushed to the hospital to treat his bruises and eliminate any internal issues. No major internal or external injuries were identified.
- Grabbing works were being carried out along the diaphragm wall, and was waiting for approval from the client. The area was barricaded, but due to heavy rainfall the night before, and loose soil, the engineer who was making the site visit on that day, had a minor slip. No major injury was caused, but

to eliminate any internal injuries, he was sent to the hospital for a thorough check up. The reports were all positive and no serious injuries indicated.

About 20 cases of first aid on a few minor issues have been reported. All issues or cases are registered at the First Aid Station located at the Project site. The signboard display with accident statistics has been erected at the entrance of the office zone.

D.3 HIV / AIDS Prevention

CW-01 conducted the first Health and Safety Campaign on “HIV / AIDS prevention, Malaria, Dengue Fever, and Menstrual Health and Safety” by Phuentsholing General hospital took place from 21st – 23rd March 2019.

D.4 Traffic Safety

CW-01 constructed traffic diversion and rerouting of heavy vehicles. Traffic survey for March was conducted in two locations: Front and Rear gate of camp and office site area. This was done to investigate the percent of pollution generated by PTDP vehicle. Speed bumps and safety signage are placed in strategic locations

The detail on the traffic study is attached as **Appendix 5**.

D.5 Labour Engagement Statistics at end of the Reporting Period

The contractor only recruits Bhutanese with proper documents and other foreign workers with authentic permits. Work permits are issued to all the Non-Bhutanese Engineers, workers and labours working in Bhutan. As of March 2019, the contractor has employed the following:

- Bhutanese Day Labour (Female) – 20
- Non-Bhutanese Day Labour (Female) – 2
- Bhutanese Day Labour (Male) – 82
- Non-Bhutanese Day Labour (Male) – 87
- Non-Bhutanese Resident Labour (Male) – 141

The labour register and muster roll of the main contractor are maintained and updated.

D.6 Engagement of Vehicle, machines and equipment

The contractor has deployed various vehicle, machines, and equipment at the site either directly or through sub-contractors. Vehicles are also checked for proper registration, fitness, and emission certificates.

D.7 Other Related Issues

There are also few management and coordination issues that needs to be monitored as below.

Table D.7-1: Other related issues to be monitored

Status of Vehicle and equipment	Status of monthly vehicle and equipment engaged at the site. A record shall be maintained with the details of the vehicle type, model, emission certification validity/date, condition, etc. This shall include not only the vehicles and equipment engaged contractor but by sub-contractor/s as well.
Labour Details of the Month	Status of monthly labours engaged for the site. The details of a number of people engaged with their skills, gender, nationality and period engaged in a tabular format has been provided but permanent update is required. A site register to be displayed at PIU/PIC disposal is necessary to provide this information.
Visitor Registration	Security Agency to ensure that the visitor registration is properly maintained and updated. This information needs to be jointly inspected/monitored by PIU/PIC and Contractor.

Mock Drill	CW-01 plans to conduct a mock drill for the project site in case of any natural hazard. Since the project is located in close proximity to a water body, and monsoon is close to come, it is recommended to look into flooding as their first mock drill. This shall be conducted before monsoon starts.
------------	--

E. Social Safeguard and Communication

E.1 Social Safeguard

No specific action conducted this quarter.

E.2 Communication action (website, events...)

CDCL Information Technology team visited project site on 26 March 2019 to discuss on the development of CDCL website to adapt Project needs. Information on the PTDP is already available in CDCL website (www.cdcl.bt). The IT team is under process of creating a separate webpage for PTDP.

See **Appendix 4** for comprehensive list of meetings.

E.3 Updated Stakeholder Communication Plan

The Project Administration Manual has developed a stakeholder communication plan which was updated as follows:

Table E.3-1: Updated stakeholder communication plan

Project information to be communicated	Means of communication	Resp. Agency	Audience(s)	Frequency
Report and Recommendation of the President	ADB Website (linked documents)	ADB	ADB, DHI, CSOs, beneficiaries and RGoB	Once at Project inception
Procurement and bidding documents	Invitations for bids published on the DHI and CDCL websites and in the newspapers. Information for pre-bid meetings to be published likewise	PMU	Contractors and local suppliers of goods and services ADB, DHI, CDCL	During the procurement period. 1. For ADB, DHI, CDCL Reported Quarterly in Project Quarterly Report 2. For interested bidders, As per the procurement plan
Construction	The selected construction company(s) will ensure that the construction areas will have signage boards with their contact information	PIU	ADB, DHI, CDCL, Stakeholders	During the construction period. Reported Monthly in Monthly Progress Report
Progress status during construction works and construction issues	Signage boards on site	PIU	ADB, DHI, CDCL General Public	During the construction period. 1. For ADB, DHI, CDCL 2. Reported Monthly in Monthly Progress Report 3. For general public. Within Specific Public event (once a year)
Project performance reports	ADB and DHI Websites	ADB and DHI	Beneficiaries, stakeholders and RGoB	Either Semi-annually or annually once PPMS (project performance management evaluation system) is set-up.
Safeguard monitoring (Environment and Social monitoring reports)	ADB websites	ADB and CDCL	ADB, DHI, CSOs, beneficiaries and RGoB	Semi-annually
Project completion Report	ADB Websites	ADB and CDCL	ADB, DHI	At Project closure

F. Grievance Redress Mechanism

F.1 Grievance Redress Mechanism set-up

A two tier mechanism will be adopted by the project. The first tier will be in the field at the PIU level led by PIU head and the second level/tier GRM will be led by the PMU head.

Secretariat

The first level secretariat of GRM will be established in the PIU office, with PIC/PIU's Health and Safety officer acting as the secretary.

Composition

At the first level GRM, the team called the 'Grievance Redress Committee (GRC)' will be established at the PIU level and consist of the PIU head as the lead of GRC. The composition of the first tier GRM is shown in Table 1 here after.

Table F.1-1: Composition of the First Tier GRM

Organization	Positions	Names
PIU	Project Manager	Mr. Kamal Dhakal
PIU	Dy Project Manager	Mr. Dawa Tshering
PIU	Environment Manager	Mr. Pushpa Raj Pradhan
PIC	Team Leader / Dy Team Leader	Mr. Robert Jeancenelle / Edwin Anggrijatno
PIC	Safeguard and H&S Specialist	Mr Megay Penjore
Phuentsholing Constituency	Representative	Mr. Nar Bahadur Rai
Phuentsholing Thuemi	Representative	Mr. Sonam Tenzin
RENEW (Community based org.)	Representative	Ms. Dechen
Members on call basis based on the nature of grievance representing relevant section of district office		
Contractor CW-01	Project Manager	Mr. Ravichandran

The composition of the second tier GRM is shown in Table 2 here after.

Table F.1-2: Composition of the Second Tier GRM

Organization	Positions	Names
PMU	Project Director	Mr. Tshering Dupchu
PMU	Urban Planner	Ms. Kamala Thapa
PIU	Project Manager	Mr. Kamal Dhakal
PIU	Environment Manager	Mr. Pushpa Raj Pradhan
Central Government / MOWHS	Representative	Mr. Namgay Tshering
RENEW (Community based org.)	Representative	Ms. Lhaden

F.2 Revised GRM

As part of the site visit by PIC environmental specialist to review and approved the draft CEMP, revisions were proposed in the draft GRM which was endorsed by ADB as part of the CEMP. The changes made were as follows:

Table F.2-1: Comments and observation on GRM by PIC

Chapter; Section Comment	Comment	Revision/ changes made by PIC
Issues	It should be mentioned that Grievances related to the Social and Environmental Concerns of the project shall be covered	Incorporated in 6.1 GRM objectives

	by the GRM	
Complaint/ Feedback/ Drop box	Shall be at contractor's site office, and PIU office with a proper sign board with names and numbers of contact person at all these locations.	Changed in 6.1.3
Dealing with complaints	It was suggested that minor issues/complaints received maybe dealt by PIU and contractor directly as appropriate. But proper recording should be done and reported to the committee.	Changed in 6.1.3 , paragraph 14
Register of complaints	All complaints received- written, telephonic, email, verbal, anonymous etc shall be recorded and verified. A proper register should be maintained and reported to the GRM committee.	Changed in 6.1.3 , paragraph 16
Corrective Measures to be done by the contractor	Please include on how corrective measures would be addressed by the contractor	6.1.4 Cost, updated with paragraph 18

F.3 Grievances registered

No grievance have been registered during this period.

G. Design Monitoring Framework and actions agreed during last ADB review mission

G.1 Performance against DMF Indicators

Status of performance against Project Design and Monitoring Framework indicators is shown in **Appendix 1**.

Compliance with loan and grant Covenant updated table is attached in **Appendix 11**.

G.2 Action agreed during last ADB review mission

Last ADB mission was the Loan Inception Mission. The progress made in the priority actions of CDCL and DHI mentioned in the Aide Memoire of the ADB loan inception mission from 12 to 20 November 2018 are as follows:

Table G.2-1: Status of actions agreed during last ADB review mission

Actions	Responsible Party	Due Date	Status
Project Management			
Staffing of PMU and PIUs	CDCL	Immediate	Completed
Submit to ADB variation for hydraulic model	PMU	10 Jan. 2019	TOR prepared. To be included in PIC Contract Variation (VO n03)
Submit Project Quarterly Report to ADB	PMU	30 Jan. 2019 30 Apr. 2019	Being submitted
Submit Inception report to ADB and PMU	PIC	26 Nov. 2018	Submitted 4 Dec. 2018
CDCL staff secondment to PIC finalized	CDCL	30 Nov. 2018	Staff seconded by stages: from 30 Nov. 2018 to 1 st Feb 2019. 5 staff seconded.
Consultant Recruitment			
<u>External Environmental monitoring expert</u>			
Advertise position on CMS	PMU	30 Nov. 2018	Completed
Award contract and mobilize consultant	PMU	31 Jan. 2019	Negotiation completed within report period. Contract to be signed in April 1 st Week.
<u>Flood management consultancy</u>			
Award contract and mobilize consultant	PIC	31 Jan. 2019	TOR prepared. To be included in PIC Contract VO n02, proposed on 14 Apr. 2019
Civil Works Packages:			
Confirm whether Zone A+ will be investigated	PMU	31 Dec. 2018	Confirmed.
Comments received from HCP on CW02	PMU	Q2 2019	Initiated
Submission of Bid Documents CW02	PMU	Q3 2019	Initiated
Safeguards			
GRM sanctioned and procedure finalized	PMU/PIU	31 st Jan. 2018	GRM installed
Submit to ADB Environment Monitoring Report	PMU	28 Feb. 2019	Submitted on 31st December 2018
Finances			
Submit Withdrawal applications	PMU	30 Nov. 2018	Submitted for advances and subsequent Contractor IPC or PIC invoices
Submit APFS to ADB	CDCL	31 Dec. 2019	Will be done

Appendixes

Appendix 1: Design and Monitoring Framework

Appendix 2: Updated Implementation Schedule

Appendix 3: PMU and PIU Positions

Appendix 4: List of particular meetings, trainings/workshops and visits

Appendix 5: Traffic Study

Appendix 6: Updated Procurement Plan and Contract Award Schedule

Appendix 7: Update Investment Cost

Appendix 8: Contract and disbursement S-Curve, ADB Loan and ADB Grant

Appendix 9: Monthly Environmental Monitoring Review for Quarter 1/2019

Appendix 10: Health and safety monitoring for Quarter 1 /2019

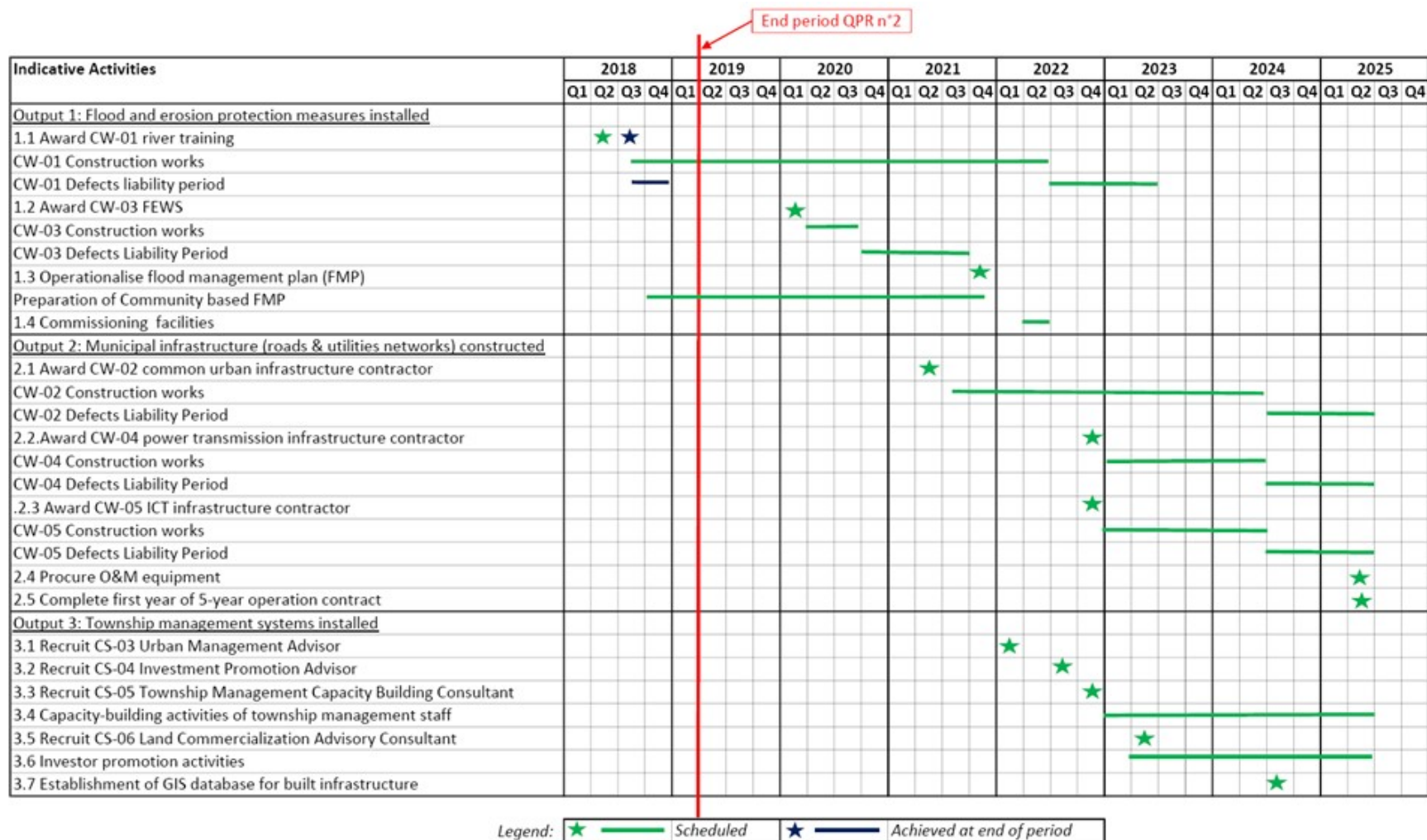
Appendix 11: Compliance with Loan and Grant Covenants

Appendix 12: Photographs album

Appendix 1: Design and Monitoring Framework

	Indicator	Progress
Outcome Phuentsholing's urban area protected from floods and expanded with improved amenities and services	By 2026: a. Phuentsholing and reclaimed land protected from 100-year flood events in the Amochhu River (2018 baseline: Phuentsholing is protected from mean annual floods) b. At least 10% of fully serviced plots tendered for development (2018 baseline: NA)	a. First assessment of progress of achievement when cast in-situ wall achieved. Q2/2020. b. confirmation of tender schedule Q2/2024
Outputs 1. Flood and erosion protection measures installed	By 2025: 1a. 4 km of climate- and erosion-resilient river walls constructed to protect against 100-year probable flood (2018 baseline: 0) 1b. At least 66 ha of land reclaimed (2018 baseline: 0) 1c. A flood early warning system and community-based flood management plan established and operational (2018 baseline: NA)	1a. Construction of river protection started in Jan 2019. 7% Achieved. 1b. Construction of backfilling started in Feb 2019. 3 % Achieved. Land reclaimed when walkways finished. 1c. Not yet started. FEWS to be installed from Q2/2020 to Q4/2021
2. Municipal infrastructure constructed	2a. 10 km of roads with footpaths, landscaping, and streetlights planned with at least 30% female participation (2018 baseline: 0) 2b. Water treatment plant with a capacity of 4 MLD constructed (2018 baseline: none) 2c. 12 km of new primary and secondary water mains constructed (2018 baseline: 0) 2d. 9 km of new sewer mains and 9 km of new storm drains constructed (2018 baseline: 0) 2e. A sewerage treatment plant with a capacity of 3 MLD constructed (2018 baseline: 0) 2f. A resource recovery system for solid waste management installed (2018 baseline: 0) 2g. A 630 KVA grid substation constructed (2018 baseline: 0) 2h. 16 circuit-km of 415-volt power distribution lines installed (2018 baseline: 0) 2i. 11 circuit-km of telecommunication transmission cables installed (2018 baseline: 0)	To be started with CW02, CW3, CW4 & CW5 start. 2a. To be assessed from Q3/2021. 2b. To be assessed from Q3/2021 2c. To be assessed from Q3/2021 2d. To be assessed from Q3/2021 2e. To be assessed from Q3/2021 2f. To be assessed from Q3/2021 2g. To be assessed from Q2/2022 2h. To be assessed from Q2/2022 2h. To be assessed from Q2/2022
3. Township management systems installed	3a. At least 80% of township management staff reported improved knowledge of modern urban management (2018 baseline: NA) 3b. An asset management system established with 100% of project infrastructure and facilities geocoded in a database (2018 baseline: NA) 3c. At least 10 potential investors attended investor outreach campaigns (2018 baseline: NA)	3a. First assessment in Year 2024 3b. To be assessed from Q2/2022 3a. To be assessed on Q3/2024

Appendix 2: Updated Implementation Schedule



Appendix 3: PMU and PIU Positions

STAFFS OF PHUNTSHOLING TOWNSHIP DEVELOPMENT PROJECT , CDCL		
Project Management Unit (PMU), CDCL		
Sl.No	Name	Function
1	Chief Executive Officer	Mr. PhuntshoGyeltshe
2	Director, Department of Engineering and Construction	Mr. ReezangWangdi
2	General Manager, Finance and Investment Division	Ms. Dechen Wangmo
3	Project Director	Mr. Tshering Dupchu
4	Finance Manager	Mr.Phurba Dorji
5	Project Accountant	Mr. LhatenTshering
6	Urban Planner	Ms. Kamala Thapa
7	Legal Officer	Mr. Kinley Dorji
8	Human Resources Manager	Mr. Kencho Tshering
Project Implementation Unit (PIU), CDCL		
Sl.No	Function	Name
1	Project Manager	Mr. Kamal Dhakal
2	Dy. Project Manager	Mr. Dawa Tshering
3	Environment Manager	Mr. Pushpa Raj Pradhan
4	Stakeholder Manager	Mr. D.B Ghalley
5	Adm.Officer (Document Control)	Ms. Tshering Pelden
6	Asst. Document controller	Ms. Kezang Lhaden
7	Driver	Mr. Rinzin Dorji

Appendix 4: List of particular meetings, trainings/workshops and visits

Appendix 4.1 List of particular meetings from 1st January to 31st March 2019

No.	Subject	Date	Location	Attendee
1.	1 st Coordination Meeting	12 th January 2019 (10:00 AM)	PTDP, PIC Office Phuntsholing	PCR (DoR) PIU, PIC
2.	Stakeholder Consultation Meeting for PTDP	23 rd January 2019 (09:30 AM-14:00 PM)	Hotel Druk Conference Hall, Phuntsholing	PIU, PIC, CW-01. Stakeholders (CDCL, Thromde, Plot owners & etc.)

Appendix 4.2 List of training and workshops from 1st January to 31st March 2019

No	Subject	Date	Location	Attendee
1.	Environmental Monitoring Training	16 th January 2019	CW-01 office, Upper Kabraytar, Phuentsholing	PIU, PIC, CW-01
2.	Training for Fund Disbursement by PIC Financial Specialist	13 th March 2019 & 20 th March 2019	PMU Thimphu Office PIU Meeting Hall	DHI Finance Dept. & PMU PIU, PIC
3	Safety Day by CW-01	4 th March 2019	CW-01 Assembly Point	PIU, PIC, CW-01
4	Diaphragm Wall Design, Construction Technique Workshop by AFCONS Head Office Experts	4 th March 2019	CW-01 Conference Hall	PIU, PIC, AFCONS/CW-01
5	Health Awareness Programme on HIV/AIDS, Dengue Fever, Water Borne Diseases & Menstrual Hygiene by Phuentsholing General Hospital	21 st -23 rd March 2019	CW-01 Conference Hall	Phuentsholing General Hospital PIU, PIC, CW-01
6	Presentation on Management of Contracts using FIDIC by PIC Team Leader	23 rd March 2019	PIU Meeting Room	PIU, PIC

Appendix 4.3 List of visits from 1st January to 31st March 2019

No.	Subject	Date	Location	Attendee
1.	Ministry of Labour and Human Resources	2 nd February 2019	Site Project	MoLHR PIU, PIC, CW-01
2.	Druk Holdings & Investments (DHI) CEO & Chairmen	23 rd & 24 th February 2019, respectively	Site Project	DHI PIU, PIC, CW-01
3.	Ministry of Finance (MoF) Staffs	8 th March 2019	Site Project	Ministry of Finance (MoF) PIU, PIC, CW-01
4	CDCL Board Directors	25 th March 2019	Site Project/ PIU Meeting Room	CDCL Board Directors PMU, PIU

Appendix 6: Traffic study

The project site has the Samtse-Phuentsholing highway (diverted) running through it and a private quarry is located at the northern end of the project site. This quarry has its approach road crossing the project diaphragm wall alignment. Every day heavy vehicles ply on this road which poses risk to the project vehicles as well as the project employees. Often heavy vehicles are seen speeding on this road that not only generates a lot of dust but also poses risk to the project workers. Despite speed breakers and speed limit signage that have been placed at strategic locations, the risk factor is still present.

After the diversion was created on March 1st the approach road to the project office site is not as hazardous as compared to the month of February. It is mainly project vehicles plying in and out of the site, or small private vehicles dropping off individuals working in the project or the other construction sites. Although there has been a drastic reduction in vehicles along the project office site, there are instances when heavy vehicles ply in and out of the backfilling and collection sites, which could pose a risk. This is because the heavy vehicles are plying in and out for a collection of boulders/aggregates which are not well covered, and due to roads being unpaved and bumpy, materials from the truck could fall on the roads, and in worst case scenario hit a person or a vehicle crossing them. Although a footpath is in place still there can be safety risks with the project vehicles and employees. The stretch between the project office entry point and the current diaphragm construction site is the place where vehicles ply with relatively high speed which sometimes can be risky to the project employees as well as the project vehicles.

To illustrate interference with third parties vehicles, PIC asked the Contractor to conduct simple traffic counts on Project identifying type and vehicle origin. The traffic counts were conducted on the 28th and 30th of March 2019. Table 1 & 2 below provides traffic results.

Table 1: Traffic counts conducted on 28/30 March 2019

DAY									
Location / Date / Time	Project LV	Project HV	Trailer	Project Total	Others LV	Others HV	Trailer	Others Total	Total Veh
Entrance gate (28/03)	73	32	4	109	153	115	2	270	379
Rear gate Project camp (30/03)	50	33	4	87	154	200	2	356	443
NIGHT									
Location / Date / Time	Project LV	Project HV	Trailer	Project Total	Others LV	Others HV	Trailer	Others Total	Total Veh.
Entrance gate (28/03)	24	20	0	44	207	91	2	300	344
Rear gate Project camp (30/03)	4	12	0	16	34	42	0	76	92

Result

- The survey was conducted from 9:00 – 1:00 PM & 2:00 – 5:00 PM during the day time and night survey were carried out from 8:00 PM – 8:00 AM.
- Vehicles related to Project during the day time account to an average of 24% & 14% during the night hours of total traffic.
- Other vehicles during the day time account to an average of 76% & 86% during the night hours of total traffic.
- For this month the contractors only selected two locations the front and rear gate as the PM10 concentration was noted to be high in the AA03 location. The AFCONS environment team was investigating on what percent of the pollution was generated from the PTDP project vehicles.

Appendix 6: Updated Procurement Plan and Contract Award Schedule

Amochhu Land Development & Township Project															
No.	Package	Procurement Plan Amount (\$ millions)		Note	Type	Implementation Period	Current Status of Designs/Bid Documents	Submission Date to CDCL	Submission Date to ADB for Clearance	Advertise Bid	Bids Submitted	Submission Date of TBER to ADB for Clearance	Submission Date of FBER to ADB for Clearance	Target Date of Contract Award	Start Date
Works & Goods															
1	CW-01	35	River training and land reclamation	1	ICB	Q4-2018 to Q2-2022			14-Mar-17	25-May-17				18-Jul-18	27-Sep-18
2	CW-02	11.2	Common urban infrastructure		ICB	Q3-2021 to Q2-2024		10-Dec-20	24-Dec-20	28-Jan-21	11-Mar-21	8-Apr-21	13-May-21	3-Jun-21	1-Jul-21
3	CW-03	0.2	Flood warning system		ICB Goods	Q2-2020 to Q3-2020		11-Nov-19	18-Nov-19				12-Feb-20	11-Mar-20	1-Apr-20
4	CW-04	0.5	Power transmission infrastructure		FA	Q1-2023 to Q2-2024									
5	CW-05	0.9	ICT infrastructure		FA	Q1-2023 to Q2-2024									
Consultants															
1	CS-01	5.70	Project implementation consultant	2	QCBS 90:10	Q3-2018 to Q2-2025	30 FOIs received, Sub 1 approved,		06-Dec-16	21-Feb-17	15-May-17				29-Oct-18
2	CS-02	0.25	Independent environmental monitoring expert		ICS	Q4-2018 to Q2-2025		16-Sep-18	23-Sep-18	28-Oct-18		2-Dec-18			30-Dec-18
3	CS-03	0.10	Urban management advisor		ICS	Q2-2022 to Q1-2025		18-Mar-22	25-Mar-22	29-Apr-22		3-Jun-22			1-Jul-22
4	CS-04	0.10	Investment promotion advisor		ICS	Q4-2022 to Q1-2025		18-Jun-22	25-Jun-22	30-Jul-22		3-Sep-22			1-Oct-22
5	CS-05	1.30	Sustainable township management capacity development		QCBS 90:10	Q1-2023 to Q2-2025		06-May-22	13-May-22	10-Jul-22	4-Sep-22	2-Oct-22	30-Oct-22	4-Dec-22	1-Jan-23
6	CS-06	1.10	Investor promotion and transaction advisory services		QCBS 90:10	Q3-2023 to Q2-2025		03-Nov-22	10-Nov-22	7-Jan-23	4-Mar-23	1-Apr-23	29-Apr-23	3-Jun-23	1-Jul-23
								Indicative Durations							
								ICB Works	14	35	42	28	35	21	28
								ICB Goods	7			86	28		
								NCB Goods	7			72	28		
								QCBS	7	58	56	28	28	35	28
								ICS	7	35		35			28
<p>Notes:</p> <p>1 includes cross drainage structures, land formation, and about \$250K for supply and to include prov sum packages for traffic management study (\$100K), preparation of emergency management plan (\$200K), and</p> <p>2</p>															

Detail on Contract award process

Contract	Bid prepa.	Bid period	Bid evaluation	Award & Nego	LTP
CW-01 River Training	Q1 2017	Q1 & Q2 2017	Q2 2017	Q2 2018	12 Sep. 2018
CW-02 Common urban infrastructure	Q2 & Q3 2019				
CW-03 Flood early warning system	Q3 2019				
CW-04 Power transmission infrastructure	Q3 2020				
CW-05 ICT infrastructure					
CS-01 PIC	Q1 2017	Q2 & Q3 2017	Q3 2017	Q3 2017	17 Sep. 2018
CS-02 Environment monitoring expert.	Q4 2018	Q1 2019	Q1 2019	Q2 2019	
CS xx 2D hydraulic model				Q2 2019	

Appendix 7: Update Investment Cost

Project Investment Plan

(in \$ million / Assumption Nu.67.97=\$1.00 as of 31 Dec.2016)

Sources	Amount / Share	
	Amount	%
Asian Development Bank^a	53.00	84.1
Ordinary capital resources (concessional loan)	28.74	45.6
Special Funds resources (ADF grant)	24.26	38.5
Government	10.00	15.9
	63.00	100.0

^aDisaster Risk Reduction Fund will finance \$6.07 million equivalent of the concessional OCR loan and \$6.07 million of the ADF grant.

Source: ADB – PAM May 2018

Investment costs from Loan and Grant agreements

(in \$ million)

Investment costs	Total Amount (Taxes included)		ADB Loan		ADB Grant		Government*			
	Cur.	Amount	Amount	%	Amount	%	Costs	Taxes & duties	Total	%
Civil Works	USD	37.59	15.05	40	19.57	52	2.97		2.97	8
Consultancy Services (PIC)	USD	7.55	7.42	98				0.13	0.13	2
Recurrent Cost	USD	2.73					2.73		2.73	100
Contingencies	USD	14.07	6.27	45	4.69	33	3.11		3.11	22
Financial Charges	USD	1.05					1.05		1.05	100
	Total	63.00	28.74		24.26		9.86	0.13	10	16

Breakdown of Investment costs per Contracts and amounts used.

Investment costs	Contracts Amount (Taxes included)		Billed until last Quarter*		Invoiced this Quarter* (Q1 2019)		Total Billed incl. this Quarter*	
	Cur;	Amount	Amount	%	Amount	%	Amount	%
Civil Works Contracts (CW-01)	BTN	2,934,669,207	123,930,570	4.2	137,618,977	5.7	261,549,547	8.9
Consultancy Services (CS-01 PIC)	USD	4,138,144.85	49,507.98	1.2	244,604.78	5.9	294,112.76	7.1
	BTN	91,474,227	971,496	1.0	6,271,906	6.9	6,363,402	7.9

^aAmount of works and services billed, taxes included but advance payment not included. IPC March 2019 included

Appendix 8: Contract and disbursement S-Curve, ADB Loan and ADB Grant

Appendix 8.1 Status of Disbursement of Project Funds

Cat	Description/ name	Budget Allocation (Mil. US\$)	Contracts Awarded (Mil. US\$) ^a	Uncontracted Balance (Mil. US\$)	Total Disbursed (Mil. US\$)	Undisbursed Amount (Mil. US\$)
		(a)	(b)	(c) = (a - b)	(d)	(e) = (a - d)
Loan	Civil Works	15.05	15.05	0	0	15.05
	Consulting services	7.42	5.34	2.08	0.63	6.79
	Contingencies - Physical	1.46		1.46		1.46
	Contingencies - Financial	4.82		4.82		4.82
	Sub total	28.74	20.39	8.35	0.63	28.11
Grant	Civil Works (CW-01)	19.57	19.57	0	5.90	13.67
	Contingencies - Physical	1.96	1.96	0		1.96
	Contingencies - Financial	2.73	2.36	0.37		2.73
	Sub total	24.26	23.89	0.37	5.90	18.36
Gov.	Civil works	2.97	2.97	0	0	2.97
	Consulting services	0.13	0.13	0.0	0.006	0.124
	PMU and PIU Expenditures	1.67	N/A	1.67	0.11	1.56
	Training	0.21	0	0.21	0	0.21
	Operation and Maintenance	0.86	0	0.86	0.05	0.81
	Contingencies - Physical	1.70	1.70	1.38		1.7
	Contingencies - Financial	1.40		1.40		1.4
	Financial charges	1.05		1.05		1.05
	Sub total	10.00	3.07	6.71	0.166	9.824

^a Equivalent amount at signing date CW-01 Contract, Nu.2,934,669,207=41.63million\$ and PIC Contract, 5,44 million\$ at 1US\$ = 70.5 BTN

Note for CW-01 Contract amount, 41.63million\$, remaining balance from Loan, 15.05, Grant, 19.57 and DHI, 2.97 is 4.04million\$. If affected on equal proportion of Civil Works items (Loan, 40%, Grant, 52% and Gov., 8%) to Physical Contingencies. Loan and Grant remaining amounts insufficient.

Appendix 8.2 Schedule of contracts award and disbursement for Loan 3668-BHU

PTDP Loan: Contract Awards and Disbursements (\$million)

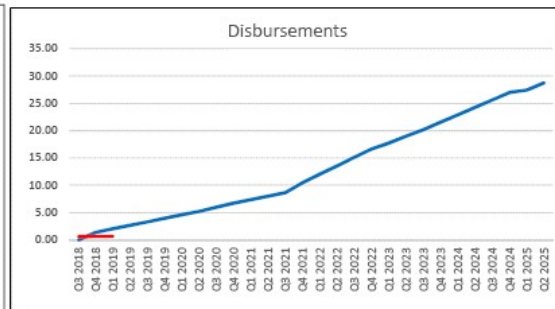
Exchange rate I/USD=7087N

Year	Contract Awards (\$million)					Disbursements (\$million)				
	Q1	Q2	Q3	Q4	Total Y	Q1	Q2	Q3	Q4	Total
2018			14.04		14.04				1.38	1.38
2019					0.00	0.64	0.64	0.64	0.65	2.57
2020	0.20				0.20	0.64	0.64	0.74	0.75	2.77
2021		11.94			11.94	0.64	0.64	0.64	1.84	3.76
2022		0.10	0.10	1.28	1.48	1.54	1.54	1.54	1.54	6.16
2023		1.08			1.08	1.10	1.22	1.22	1.36	4.90
2024					0.00	1.36	1.36	1.36	1.36	5.44
2025					0.00	0.46	1.30			1.76
	Total Contract Awards				28.74	Total Disbursements				28.74

Loan Contracts Award (\$million)

Loan Disbursements (\$million)

Quarter	Target		Actual		Quarter	Loan		Actual	
	Amount	Cumul	Amount	Cumul		Amount	Cumul	Amount	Cumul
Q3 2018	14.04	14.04	23.01	23.01	Q3 2018	0.00	0.00	0.58	0.58
Q4 2018	0.00	14.04	0.00	23.01	Q4 2018	1.38	1.38	0.05	0.63
Q1 2019	0.00	14.04	0.00	23.01	Q1 2019	0.64	2.02	0.00	0.63
Q2 2019	0.00	14.04	0.00	23.01	Q2 2019	0.64	2.66	0.00	0.63
Q3 2019	0.00	14.04	0.00	23.01	Q3 2019	0.64	3.30	0.00	0.63
Q4 2019	0.00	14.04	0.00	23.01	Q4 2019	0.65	3.95	0.00	0.63
Q1 2020	0.20	14.24	0.00	23.01	Q1 2020	0.64	4.59	0.00	0.63
Q2 2020	0.00	14.24	0.00	23.01	Q2 2020	0.64	5.23	0.00	0.63
Q3 2020	0.00	14.24	0.00	23.01	Q3 2020	0.74	5.97	0.00	0.63
Q4 2020	0.00	14.24	0.00	23.01	Q4 2020	0.75	6.72	0.00	0.63
Q1 2021	0.00	14.24	0.00	23.01	Q1 2021	0.64	7.36	0.00	0.63
Q2 2021	11.94	26.18	0.00	23.01	Q2 2021	0.64	8.00	0.00	0.63
Q3 2021	0.00	26.18	0.00	23.01	Q3 2021	0.64	8.64	0.00	0.63
Q4 2021	0.00	26.18	0.00	23.01	Q4 2021	1.84	10.48	0.00	0.63
Q1 2022	0.00	26.18	0.00	23.01	Q1 2022	1.54	12.02	0.00	0.63
Q2 2022	0.10	26.28	0.00	23.01	Q2 2022	1.54	13.56	0.00	0.63
Q3 2022	0.10	26.38	0.00	23.01	Q3 2022	1.54	15.10	0.00	0.63
Q4 2022	1.28	27.66	0.00	23.01	Q4 2022	1.54	16.64	0.00	0.63
Q1 2023	0.00	27.66	0.00	23.01	Q1 2023	1.10	17.74	0.00	0.63
Q2 2023	1.08	28.74	0.00	23.01	Q2 2023	1.22	18.96	0.00	0.63
Q3 2023	0.00	28.74	0.00	23.01	Q3 2023	1.22	20.18	0.00	0.63
Q4 2023	0.00	28.74	0.00	23.01	Q4 2023	1.36	21.54	0.00	0.63
Q1 2024	0.00	28.74	0.00	23.01	Q1 2024	1.36	22.90	0.00	0.63
Q2 2024	0.00	28.74	0.00	23.01	Q2 2024	1.36	24.26	0.00	0.63
Q3 2024	0.00	28.74	0.00	23.01	Q3 2024	1.36	25.62	0.00	0.63
Q4 2024	0.00	28.74	0.00	23.01	Q4 2024	1.36	26.98	0.00	0.63
Q1 2025	0.00	28.74	0.00	23.01	Q1 2025	0.46	27.44	0.00	0.63
Q2 2025	0.00	28.74	0.00	23.01	Q2 2025	1.30	28.74	0.00	0.63

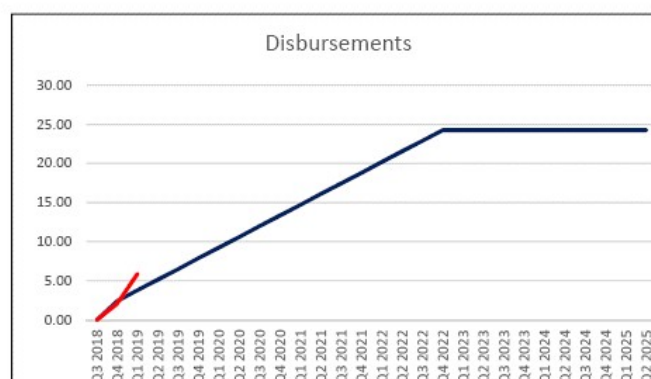
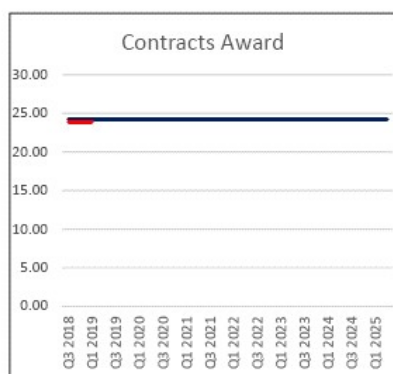


Appendix 8.3 Schedule of contracts award and disbursement for Grant 0573-BHU

PTDP Grant: Contract Awards and Disbursements (\$million) Exchange rate IUSD=70BTN

Year	Contract Awards (\$million)				Total Y	Disbursements (\$million)					
	Q1	Q2	Q3	Q4		Q1	Q2	Q3	Q4	Total	
2018			24.26		24.26				2.43	2.43	
2019					0.00	1.37	1.37	1.37	1.37	5.46	
2020					0.00	1.37	1.37	1.37	1.37	5.46	
2021					0.00	1.37	1.37	1.37	1.37	5.46	
2022					0.00	1.37	1.37	1.36	1.36	5.45	
2023					0.00					0.00	
2024					0.00					0.00	
2025					0.00					0.00	
Total Contract Awards					24.26	Total Disbursements					24.26

Quarter	Grant Contracts Award (\$million)				Quarter	Grant Disbursements (\$million)			
	Target		Actual			Target		Actual	
	Amount	Cumul	Quarter	Cumul		Amount	Cumul	Quarter	Cumul
Q3 2018	24.26	24.26	23.89	23.89	Q3 2018	0.00	0.00	0.00	0.00
Q4 2018	0.00	24.26	0.00	23.89	Q4 2018	2.43	2.43	2.07	2.07
Q1 2019	0.00	24.26	0.00	23.89	Q1 2019	1.37	3.80	3.83	5.90
Q2 2019	0.00	24.26	0.00	23.89	Q2 2019	1.37	5.16	0.00	5.90
Q3 2019	0.00	24.26	0.00	23.89	Q3 2019	1.37	6.53	0.00	5.90
Q4 2019	0.00	24.26	0.00	23.89	Q4 2019	1.37	7.89	0.00	5.90
Q1 2020	0.00	24.26	0.00	23.89	Q1 2020	1.37	9.26	0.00	5.90
Q2 2020	0.00	24.26	0.00	23.89	Q2 2020	1.37	10.62	0.00	5.90
Q3 2020	0.00	24.26	0.00	23.89	Q3 2020	1.37	11.99	0.00	5.90
Q4 2020	0.00	24.26	0.00	23.89	Q4 2020	1.37	13.35	0.00	5.90
Q1 2021	0.00	24.26	0.00	23.89	Q1 2021	1.37	14.72	0.00	5.90
Q2 2021	0.00	24.26	0.00	23.89	Q2 2021	1.37	16.08	0.00	5.90
Q3 2021	0.00	24.26	0.00	23.89	Q3 2021	1.37	17.45	0.00	5.90
Q4 2021	0.00	24.26	0.00	23.89	Q4 2021	1.37	18.81	0.00	5.90
Q1 2022	0.00	24.26	0.00	23.89	Q1 2022	1.37	20.18	0.00	5.90
Q2 2022	0.00	24.26	0.00	23.89	Q2 2022	1.37	21.54	0.00	5.90
Q3 2022	0.00	24.26	0.00	23.89	Q3 2022	1.36	22.90	0.00	5.90
Q4 2022	0.00	24.26	0.00	23.89	Q4 2022	1.36	24.26	0.00	5.90
Q1 2023	0.00	24.26	0.00	23.89	Q1 2023	0.00	24.26	0.00	5.90
Q2 2023	0.00	24.26	0.00	23.89	Q2 2023	0.00	24.26	0.00	5.90
Q3 2023	0.00	24.26	0.00	23.89	Q3 2023	0.00	24.26	0.00	5.90
Q4 2023	0.00	24.26	0.00	23.89	Q4 2023	0.00	24.26	0.00	5.90
Q1 2024	0.00	24.26	0.00	23.89	Q1 2024	0.00	24.26	0.00	5.90
Q2 2024	0.00	24.26	0.00	23.89	Q2 2024	0.00	24.26	0.00	5.90
Q3 2024	0.00	24.26	0.00	23.89	Q3 2024	0.00	24.26	0.00	5.90
Q4 2024	0.00	24.26	0.00	23.89	Q4 2024	0.00	24.26	0.00	5.90
Q1 2025	0.00	24.26	0.00	23.89	Q1 2025	0.00	24.26	0.00	5.90
Q2 2025	0.00	24.26	0.00	23.89	Q2 2025	0.00	24.26	0.00	5.90



Appendix 9: Monthly Environmental Monitoring Review for 2nd Quarter

Introduction

This environmental aspect is prepared in compliance with the Contractors Environmental Management Plan (CEMP) for the Phuentsholing Township Development Project (PTDP). The project is financed with support from Asian Development Bank (ADB) & Druk Holding and Investments (DHI). DHI is the Project Owner and the Executing Agency (EA) and Construction Development Corporation Limited (CDCL), is the Implementing Agency (IA). The Civil work contract of package CW-01 has been awarded to M/s AFCONS Infrastructural Limited, India. For supervising the Contractor's works, the CDCL has appointed M/s EGIS International as Engineer.

Purpose

Based on the Environmental monitoring carried out by PIC and PIU environment team and the Environmental monthly reports submitted by the contractor during the period January to March 2019, a summary of the environmental monitoring review has been prepared. The purpose of this section is provide review of the status of environmental safeguards and monitoring activity that is being adopted supervised at the project site.

Project Update

Mobilization of manpower, equipment, construction of office and camp area, setup of basic amenities being completed, and the project is the first stage of construction activities for river training works, such as start of construction diaphragm-wall, first outfalls construction and start of backfilling construction

Works Progress

Works Progress are detailed in Chapter B3 "Implementation of physical works" of present report.

Methodology for Environmental Monitoring

The monitoring methods used are visual inspection, informal interview of workers and residents and photographic documentation. Checklist for monitoring environmental compliances have also been developed by PIC. The Environmental monitoring implementation plan had been developed as part of the CEMP and is shown as follows:

Environment Monitoring Implementation Plan					
Activities	Locations	Numbers	Frequency	Remarks	Parameters
Contractors Environmental Monthly Report	Zone A	12	12/year	Contractor	As per Outline
PIC monthly report	Zone A	12	12/year	PIC	As per Outline
Quarterly Report	Zone A	4	4/year	PIC	As per Outline
Semi-Annual Report	All PTDP Zones	2	2/year	PIC	As per Outline
Air Quality Monitoring	All PTDP Zones	6	2/week	Based on site roster for each station	TSPM, PM2.5, PM10, SO2, NOX, CO
Noise	All PTDP Zones	6	Monthly	24 hours/ Work hours	Decibels- dB (A)
Noise	Zone A	3	Weekly	Instantaneous (1m, 3m, 5m)	Decibels- dB (A)
Water Quality Monitoring	All PTDP Zones	8	2/ year	April and October	pH, Color, Electrical conductivity, TDS, Turbidity,

Water Quality Monitoring	Zone A	2	Monthly	By 15 th of each month	Ammonia Nitrogen, Ca, Mg, Na, K, Salinity, COD, BOD, Cl, Phenol, Sulphates, Nitrate, fluoride, DO, SAR, TSS, cyanide, Heavy metals, total coliform and faecal coliform
Ground Water Quality	Zone A	2	2/ year	April and October	
Soil Testing/ Ground Contamination Monitoring	Zone A	1	Monthly	By 15 th of each month	Visual observation of contamination from oil, grease and other foreign materials.
Meteorology	Zone A	1	1 hourly	Monthly Weather Report. By 15 th of following month	Wind speed, Wind Direction, Temperature, Relative Humidity, Rainfall
Ecology	All PTDP Zones	All Zones	4/ year	January, April, July, and October	Terrestrial flora and fauna, Zooplankton, Phytoplankton, Benthos & fishes
Bio diversity monitoring and bench marking study (BMBMS)	All PTDP Zones	All	4/ year - for 3 years	January, April, July, and October. To be completed by External specialist. TOR prepared by PIC Environmental Specialist	Terrestrial flora and fauna, Zooplankton, Phytoplankton, Benthos & fishes

Environmental Monitoring schedule, activities and analysis

The comprehensive schedule of environmental monitoring activities carried out from January to March 2019 is enclosed here below:

Parameters	Location	Frequency	Jan. 2019	Feb. 2019	Mar. 2019	Results / Comments
Contractors Environmental Monthly Report	Zone A	12/year				Submitted by Contractor
PIC monthly report	Zone A	12/year	19/02/2019 for Jan 2019	19/03/2019 for Feb 2019	15/04/2019 for March 2019	Submitted by PIC
Quarterly Report	Zone A	4/year	For Oct-Dec 2018	Ø	Ø	Submitted by PIC
Semi-Annual Report	Zone A	2/year	31/01/ 2019 for June-Dec 2018	Ø	Ø	Submitted by PIC
Air quality	6 location	2/week	15/01/2019-31/01/2019	01/02/2019 to 28/02/2019	01/03/2019 to 31/03/2019	Results have been submitted in the contractor's monthly report.
Noise – All PTDP zones	6	Once every month	15/01/2019	01/02/2019	01/03/2019	Results have been submitted in the contractor's monthly report.
Water quality – All PTDP zones	8	2/ year	Ø	22/02/2019	11/03/2019	Sampling to be done in Q2/ 2019. Results have been submitted in the contractor's monthly report
Water quality – Zone A	2	Monthly	Ø	22/02/2019	11/03/2019	Results have been submitted in the contractor's monthly report
Groundwater quality	Zone A	2/ year	Ø	Ø	Ø	The 1 st ground water quality was carried out in Dec 2018. Sampling to be

						carried in Q2/ 2019
Soil Testing/ Ground Contamination	Zone A	Monthly	Ø	Ø	Ø	Visual observation have been submitted in the contractors monthly report
Meteorology	Zone A	1 hourly	Ø	Ø	07/03/2019 to 31/03/2019	Meteorology station setup place on 6th March 2019. The result has been submitted as part of the contractors monthly report
Ecology	All PTDP Zones	4/ year	Ø	Ø	Ø	To be carried out in Q4 since approval from DoFPS has not been sought
Bio diversity monitoring and bench marking study (BMBMS)	All PTDP Zones	4/ year - for 3 years	Ø	Ø	Ø	ToR for BMBMS submitted to ADB for review

Based on the above environmental monitoring carried out, an in depth analysis has been provided as follows;

Air Quality¹

The ambient air quality monitoring is being carried out along six locations of the PTDP project premises. To ensure that the project does not cause or contributes towards the already existing pollution in Phuentsholing town, parameters like TSPM, PM 10 and PM 2.5 are being carried out at each stations twice every week. Depending on the results of the monthly tests, mitigation measure are being strictly implemented. Below is a summary of the results collected for the month of January, February and March 2019.

For the month of January, the TSPM level for four locations are within the permissible limits. Whereas AA02 (Near STP) and AA05 (Toorsa Tar River) are exceeding the NEC permissible limit. The PM10 for five locations are all within permissible limits except for AA05 is exceeding the permissible limit. There was no test conducted for PM 2.5 for this due to unavailability of the equipment during that month.

Ambient air test was conducted in six locations for the month of February. The TSPM for three locations out of six were within the permissible limits, whereas locations AA01 (Near STP), AA03 (NHDCL Colony) and AA04 (Chamkuna Village) are exceeding the NEC permissible limits. The same locations have also shown high level of PM10. PM 2.5 test was conducted for this month, and since NEC does not have a required standard IFC standard has been taken. Out of the six locations, three of the test were within range whereas locations AA01 (Near STP), AA03 (NHDCL Colony) and AA04 (Chamkuna Village) are exceeding the IFC permissible limits.

For March, the TSPM for four out of six were within the permissible range, whereas two locations AA03 (NHDCL Colony) and AA04 (Near white building) were exceeding the NEC permissible limits. The same locations have shown high level of PM10. Since the NEC does not have a required standard for PM2.5, going by the IFC standards, the PM 2.5 for locations AA03 and AA04 were also above the range, whereas the other four locations were within the permissible limits.

There are multiple external factors that are contributing towards the high level of air pollution. First and foremost the two tests out of three were conducted during the winters, which is a dry season. Although the results should have improved for the month of March, but Phuentsholing has hardly received any or much rainfall so far. Secondly Phuentsholing is already experiencing vehicle congestion, which has become exacerbated over the past few months due to new developments around. Thirdly, PTDP is not

¹The air quality monitoring station (AA03 and AA06) has been shifted to NHDCL colony and near the Rigsar batching plant to assess impact on the project camp and lay down area at Zone A since Feb 2019.

the only project which is currently under progress, but multiple other projects happening simultaneously along the Toorsa area. The dust levels from the movement of vehicles are occasionally high enough to obscure vision temporarily. Natural factors such as wind are also a major factor contributing towards such alarming results.

Some of the other primary source of pollution are:

- The roads along the project vicinity are unpaved and there are multiple quarries located within the project corridors. The contractors are spraying water along the project premises, but as mentioned above, other activities in the vicinity are also contributing towards such alarming air pollution results.
- The project route is also used by commuters travelling to Samtse due to the recent completion of Amochhu Bridge connecting two districts.
- Adjacent to the project, workshops and emissions from automobiles also contributes to the air pollution.
- An asphalt plant not far from the project premises is operational where an air quality monitoring station is installed. The pollution from the asphalt plant, and natural factors like wind hence contribute to high pollution in the area.
- The project route leads to the near bridge (YDF building) location, which is paved. However, a lot of vehicular movement has been observed along the stretch of road. Heavy vehicles and machinery all line up along the road until 8:00 PM, which is when heavy vehicles are allowed to drive through town and exit into Jaigoan, West Bengal. This movement lead to congestion along the project premises, increase in automobile emission and settled dust are spiraled into the air and remain suspended in the atmosphere, before settling away from the main source.
- Due to the past few months being very dry season in Phuentsholing town, natural factors like less rain, and wind has also played a major role in high level of pollution. Although sprinkler trucks are being deployed every few hours, it is difficult to control the dust that is being generated and moved from one location to another due to wind and vehicular movement. Phuentsholing town is undergoing a major facelift, and due to the multiple developments happening simultaneously even the paved roads are currently covered in dust.

Mitigation Measures

Although difficult, the project in its capacity has been continuously monitoring and ensuring strict compliance on this issue, some of which is described as follows:

- Deployment of sprinkler truck and speed bumps initiated by the contractors. However, due to external activities simultaneously occurring within the project vicinity, the project corridors are covered in dust causing continuous exposure of duct to workers.
- Recommendation to provide N95 nasal masks or equivalent mask, and eye protection gear to all workers as a preventive measure.
- Site Inspectors to ensure that all workers use the provided gears while at the site.
- Construction materials at the site or being transported by truck are well covered with tarpaulin.
- Use of Bulklers in place of cement bags for Batching plant, which is currently being supplied by Dungsam Cement Corporation Limited (DCCL)
- Dust suppression measures such as temporary Speed bumps have been built along the project area and cautionary signage (speed limit) have been erected along the project areato reduce the speed of huge trucks and commuters.

Noise

A 24 hour noise monitoring sample is carried out once every month at 6 locations, 2 covering Zone A and 4 covering the rest of the PTDP site. Out of the 6 location, the two location NL01 (Near Zone C) and NL03 (Near mobile tower), was observed above the NEC permissible limit in January. On February, only one location, NL 04, (near Chamkuna village) was beyond the permissible limit and only NL03 (near mobile tower) was observed beyond the limit in March. The noises are being generated from the vehicular movements, workshops along the road, movement of heavy vehicles transporting materials to and from other construction and batching plant sites. This has been clearly indicated above section on Air quality.

Mitigation Measures

- The project ensures that all workers are using their ear protection gear, especially if they are linked to a task or is functioning heavy machinery which generates loud noise.
- The project also ensure that the construction activities generating excessive noise only during the daytime.

Water Quality

The water quality testing is carried out at 10 locations at Amochhu covering the entire stretch of PTDP site. 8 locations are carried out every six month as per the requirement. However, water quality test are carried out at 2 locations SW04 and SW05 every month at Zone A before and after the construction of camp and project office to ensure that the quality of the water remains the same and camp activities do not affect the river quality.

The water quality test was carried out in Feb-march 2019 at 10 locations at Amochhu. The results are all within the necessary NEC permissible limit. However, it was observed that at the TSS came higher than the NEC permissible limit at SW10 located in the intersection between Amochhu and Omchhu. TSS was high in this area due to stormwater, disposal of materials from the construction of the bridge along the Omchhu and industrial waste (from karma steel) from Phuentsholing Town.

It is also important to note that the current construction activities like diaphragm wall, filling works, outfall excavation works or the camp and office establishment site did not require any river diversion activity since the river was already flowing about 100 m away from the activities. However, impact is foreseen later due to the river bed levelling activities beyond the diaphragm wall.

Meteorology

The metrological station was installed in in March 2019. The average meteorological reading for the month of March is as follows:

Parameters	Rainfall (mm)	Relative Humidity (g/m ³)	Temperature (Degree Celsius)	Wind Speed (km/h)
Average reading	-	52.72	24	1.98
Minimum	1	32.10	17.1	0.1
Maximum	3.5	93	33.4	15.6

Water regime

No changes in the water course observed

Ground contamination

No ground contamination such as oil spillage from machineries observed.

Appendix 10: Health and safety monitoring for 2nd Quarter

Sl. No.	Monitoring activities	Refer appropriate marking	Legend for marking
A OVERALL CONSTRUCTION SITES			
1	Equipment/ Machines in Proper condition and safe	0	
2	First Aid and Medical facilities	0	
3	Any Community / Social Concerns	0	
4	NO encroachment into the farm land/ Settlement	0	
B WORK STANDARDS			
1	General work area clean and tidy	0	
2	Radio communications (emergency & general), call-up procedures adequate	0	
3	Signage (PPE, safety & restricted access) visible, legible, good condition	0	25 new signage's have been erected
4	Adequate signage at workshop yard entrance (e.g. Danger – Deep Excavation, Hazardous & Flammable materials, pressurized gasses, etc)	0	
C WORK ENVIRONMENT			
1	Stockpiles & materials stacked and maintained in a safe condition	0	
2	Adequate lighting on site, covered storage areas, vehicle maintenance pit	0	
3	Segregated work areas and signage adequate (direction, warnings)	0	
4	Dust control measures adequate (water truck & sprinklers, if necessary)	0	Checklist of sprinkler truck deployment is maintained by the driver
D HAZARDOUS SUBSTANCES OR DANGEROUS GOODS			
1	Fuel storage tank within sealed area & bonded (inside wall in case of a spill)	0	yes
2	Workers exposed to hazardous substances trained, adequate instruction provided	0	
3	Health/ Safety surveillance is undertaken where appropriate	0	
4	Material safety data sheet available for hazardous substances		
E TOILETs AND KITCHEN			
1	Offices, Toilets, and washrooms maintained in a sanitary condition	0	Women's restrooms are installed with a waste bin for disposal of sanitary pads.
2	Toilets, Septic Tanks and Soak Pits being used properly and cleaned regularly	0	
3	Properly labeled garbage bins installed around the kitchen & other areas	0	

Sl. No.	Monitoring activities	Refer appropriate marking	Legend for marking
	and emptied regularly		
4	Is the garbage in good management and disposed to the Thromde collection system?	0	yes
5	Soak pits are proper, covered, with no overflow?	0	
6	Kitchen sewage/waste disposed of in infiltration pits, with ACF, closed system?	0	
7	Adequate water supply for wash basin & flush toilets?	0	
F DUST & SMOKE			
1	No visible dust clouds from excavation/ leveling activity.	0	
2	No burning of wastes	0	Not at the project site, but there was burning of tires near NHDCL colony from a workshop
3	Waste bins facilities are available at the site	0	Blue- Degradable and Green- Non-degradable
G GENERAL HEALTH AND SAFETY DURING CONSTRUCTION			
1	All workers trained in safety and hygiene at work? (Records)		
2	Site supervisors/ safety officer gives weekly toolbox talks to reinforce training to all the labourers?	0	yes
3	Equipment (backhoe etc.), machines, and vehicles are in proper condition with details of registration- emission certificate/ fitness certificates.	0	
4	Workers equipped with PPE such as hard hats, eye and protection, ear protection, gloves, safety- shoes, and respirators	0	Contractors are handing out violation slips to workers who refuse to comply
5	High visibility clothing, including a vest to avoid "collision" in work area	0	
6	Warning signs in place to shield workers from passing vehicle and segregation such as traffic cone and barrels	0	
7	Fencing/ Markers installed on all areas such as excavation, concreting, and side of temporary work / pits greater than 1m deep	0	
8	Information for workers and adequate awareness working near construction vehicles & equipment the operator/ driver knows where the persons are located?	0	
9	Communicate with the driver using a radio, hand signals, etc.	0	
10	Reversing siren, whistle, air-horn on vehicles or another device to warn fellow workers when they are in danger.	0	
11	Flagmen in place with flags and radio fully equipped and completed training?	0	
12	Proper Traffic Management Plan is available and adhered to	0	

Sl. No.	Monitoring activities	Refer	Legend for appropriate marking
13	Training and awareness meetings for HIV/AIDs (STI) including the prohibition of drugs / alcohol on construction site.	0	Conducted from 21-23rd March
14	First aid boxes are available and well stocked with bandages, antiseptic, etc. First Aid Register is available	0	
15	Employee register with gender, nationality, skills maintained at the site	0	
16	Visitor Card, Register, Briefing, and Management System adopted	0	
H ACCOMMODATION REQUIREMENTS			
1	Domestic animals controlled to avoid nuisance?	0	Issue mitigated
2	Information board to employees/method notification in the campsite?	0	

Legend: 0– No significant concern; √ Environmental or Safety concern, action to be taken. Non Conformance or Photo taken: yes no

Appendix 11: Compliance with Loan and Grant Covenants

Reference Section	Covenant	Status of Compliance
Project agreement CDCL		
Section 2.04	CDCL shall carry out the Project in accordance with plans, design standards, specifications, work schedules and construction methods acceptable to ADB. CDCL shall furnish, or cause to be furnished, to ADB, promptly after their preparation, such plans, design standards, specifications and work schedules, and any material modifications subsequently made therein, in such detail as ADB shall reasonably request.	Being complied with
Section 2.08.	(a) CDCL shall (i) provide its annual financial statements prepared in accordance with financing reporting standards acceptable to ADB; (ii) have its financial statements audited annually by independent auditors whose qualifications, experience and terms of reference are acceptable to ADB, in accordance with auditing standards acceptable to ADB; (iii) as part of each such audit, have the auditors prepare the auditors' opinion(s) on the financial statements; and (iv) furnish to ADB, no later than 1 month after approval by the relevant authority, copies of such audited financial statements and auditors' opinion(s), all in the English language, and such other information concerning these documents and the audit thereof as ADB shall from time to time reasonably request.	To be completed within Q3 & Q4 2019. Submission due December end. 2019.
Section 2.14.	CDCL shall promptly notify ADB of any proposal to amend, suspend or repeal any provision of its constitutional documents, which, if implemented, could adversely affect the carrying out of the Project or the operation of the Project facilities. CDCL shall afford ADB an adequate opportunity to comment on such proposal prior to taking any affirmative action thereon.	Being complied with
Section 2.15.	Within 6 months after the Effectiveness Date, CDCL shall create a Project website to disclose information about various matters on the Project, including procurement. With regard to procurement, the website shall include information on the list of participating bidders, name of the winning bidder, basic details on bidding procedures adopted, amount of contract awarded, the list of goods/services procured, and the process for handling complaints related to contracts and procurement.	Being complied with
Project agreement DHI		
Section 2.04.	(a) DHI shall furnish to ADB all such reports and information as ADB shall reasonably request concerning (i) the Financings and the expenditure of the proceeds thereof; (ii) the items of expenditure financed out of such proceeds; (iii) the Project; (iv) the administration, operations and financial condition of DHI; and (v) any other matters relating to the purposes of the Financings. (b) Without limiting the generality of the foregoing, DHI shall furnish to ADB periodic reports on the execution of the Project and on the operation and management of the Project facilities. Such reports shall include updates on implementation of the SAP. Such reports shall be submitted in such form and in such detail and within such a period as ADB shall reasonably request, and shall indicate, among other things, progress made and problems encountered during the period under review, steps taken or proposed to be taken to remedy these problems, and proposed program of activities and expected progress during the following period.	Being complied with
Section 2.05	(a) DHI shall (i) maintain separate accounts and records for the Project; (ii) prepare annual financial statements for the Project in accordance with financial reporting standards acceptable to ADB; (iii) have such financial statements audited annually by independent auditors whose qualifications, experience and terms of reference are acceptable to ADB, in accordance with auditing standards acceptable to ADB; (iv) as part of each such audit, have the auditors prepare a report, which includes the auditors' opinion(s) on the financial statements and the use of the Financings proceeds, and a management letter (which sets out the deficiencies in the internal control of the Project that were identified in the course of the audit, if any); and (v) furnish to ADB, no later than 6 months after the close of the fiscal year to which they relate, copies of such audited financial statements, audit report and management letter, all in the English language, and such other information concerning these documents and the audit thereof as ADB shall from time to time reasonably request.	Being complied with

	<p>(b) ADB shall disclose the annual audited financial statements for the Project and the opinion of the auditors on the financial statements within 14 days of the date of ADB's confirmation of their acceptability by posting them on ADB's website.</p> <p>(c) In addition to annual audited financial statements referred to in section (a) herein above, DHI shall (i) provide its annual financial statements prepared in accordance with financing reporting standards acceptable to ADB; (ii) have its financial statements audited annually by independent auditors whose qualifications, experience and terms of reference are acceptable to ADB, in accordance with auditing standards acceptable to ADB; (iii) as part of each such audit, have the auditors prepare the auditors' opinion(s) on the financial statements; and (iv) furnish to ADB, no later than 1 month after approval by the relevant authority, copies of such audited financial statements and auditors' opinion(s), all in the English language, and such other information concerning these documents and the audit thereof as ADB shall from time to time reasonably request.</p> <p>(d) DHI shall enable ADB, upon ADB's request, to discuss the financial statements for the Project and DHI and its financial affairs where they relate to the Project with the auditors appointed by DHI pursuant to subsections (a)(iii) and (c)(i) hereinabove, and shall authorize and require any representative of such auditors to participate in any such discussions requested by ADB. This is provided that such discussions shall be conducted only in the presence of an authorized officer of DHI, unless DHI shall otherwise agree.</p>	
Loan Agreement		
Section 3.01(b)	Loan to be applied exclusively to the financing of expenditures on the Project in accordance with the provisions of this Loan Agreement and the Project Agreement.	Being complied with
Section 3.03	The Borrower shall procure, or cause to be procured, the items of expenditure to be financed out of the proceeds of the Loan in accordance with the provisions of Schedule 4 to this Loan Agreement.	Being complied with
Section 4.03	The Borrower shall take all actions which shall be necessary on its part to enable DHI and CDCL to perform their respective obligations under the Project Agreements, and shall not take or permit any action which would interfere with the performance of such obligations.	Being complied with
Schedule 4, para. 2	Works shall be procured and Consulting Services shall be selected and engaged only on the basis of the procurement methods and the selection methods set forth below. These methods are subject to, among other things, the detailed arrangements and threshold values set forth in the Procurement Plan. The Borrower may only modify the procurement methods and the selection methods or threshold values with the prior agreement of ADB, and modifications must be set out in updates to the Procurement Plan.	Being complied with
Schedule 4, para. 5	DHI shall not award any Works contract which involves environmental impacts until: (a) The Borrower's National Environment Commission has granted the final approval of the EIA; and (b) DHI has incorporated the relevant provisions from the EMP into the Works contract.	Being complied with a) Being complied with, NEC approved the EIA b) C-EMP for CW-01 approved end January 2019.
Schedule 4, para. 10	Contracts procured under international competitive bidding procedures and contracts for Consulting Services shall be subject to prior review by ADB, unless otherwise agreed between the Borrower and ADB and set forth in the Procurement Plan.	Being complied with
Schedule 5, para. 1	The Borrower, DHI and CDCL shall ensure that the Project is implemented in accordance with the detailed arrangements set forth in the PAM. Any subsequent change to the PAM shall become effective only after approval of such change by the Borrower and ADB. In the event of any discrepancy between the PAM and this Loan Agreement, the provisions of this Loan Agreement shall prevail.	Being complied with
Schedule 5, para. 2	The Borrower shall ensure that DHI and CDCL employ sufficient staff for the PMU and PIU for the duration of the Project, with adequate and relevant expertise in the field of project management, financial management, engineering, procurement, and environmental and social safeguards implementation. The PMU Project Director and PIU Project Manager shall hold the position not less than the rank of Class 1 engineer, or equivalent, Officers, unless otherwise acceptable to ADB.	Being complied with
Schedule 5, para. 3	The Borrower, DHI and CDCL shall (a) ensure that the majority of counterpart staff assigned to the PMU and PIU are assigned to the Project on a full-time	Being complied with

	basis; and (b) undertake best efforts to ensure that they remain in their positions for a reasonable period of time, and that staff replacements do not unduly disrupt implementation of the Project. The Borrower, DHI and CDCL shall provide ADB reasonable opportunity to comment on any proposed appointment of persons to key positions in the PMU and PIU, including the Project Director for the PMU and the Project Directors for PIU.	
Schedule 5, para. 4	The Borrower shall cause DHI and CDCL to give full, timely and efficient cooperation in issuing any licenses, permits or approvals required in connection with infrastructure work. The Borrower shall also ensure that Bhutan Power Corporation and Bhutan Telecom will provide the necessary connections in the developed areas.	Being complied with for CW-01 works To be complied with at end of construction stage
Schedule 5, para. 5	Within 36 months of the Effective Date, the Borrower through DHI shall develop and finalize, and ensure approval by the relevant government agency and implementation of, the SAP, which shall include, among other matters: (i) the required legal, policy and operational frameworks for operation of the new township that will establish institutional arrangements for sustainable township management, including the required approval process, and the allocation of roles and responsibilities between the municipality and CDCL; (ii) the allocation of sufficient municipal and CDCL human resources; (iii) a plan on the development of the surrounding area adjacent to the newly developed township, including plans for raising grounds level for the protection for surface flooding; and (iv) a time bound plan for the operation and maintenance of the newly developed township.	To be complied with for 2021 Q2
Schedule 5, para. 6 (Environment)	The Borrower shall ensure or cause DHI and CDCL to ensure that the preparation, design, construction, implementation, operation and decommissioning of the Project and all Project facilities comply with (a) all applicable laws and regulations of the Recipient relating to environment, health and safety; (b) the Environmental Safeguards; and (c) all measures and requirements set forth in the EIA and the EMP, and any corrective or preventative actions set forth in a Safeguards Monitoring Report.	Being complied with
Schedule 5, paras. 7 and 8 (Land Acquisition and Involuntary Resettlement)	The Borrower shall ensure that all land and all rights-of-way required for the Project are made available to the Works contractor in accordance with the schedule agreed under the related Works contract. The Borrower shall ensure that the Project does not involve any involuntary resettlement impacts within the meaning of the SPS. In the event the Project involves any such impacts, the Borrower shall take all steps required to ensure that the Project complies with the applicable laws and regulations of the Borrower and with the SPS.	Being complied with
Schedule 5, para. 9 (Indigenous Peoples)	The Borrower shall ensure that the Project does not involve any indigenous peoples' impacts within the meaning of the SPS. In the event the Project involves any such impacts, the Borrower shall take all steps required to ensure that the Project complies with the applicable laws and regulations of the Borrower and with the SPS.	Being complied with
Schedule 5, para. 10	The Borrower shall ensure that the core labor standards and the Borrower's applicable laws and regulations are complied with during Project implementation. The Borrower shall include specific provisions in the bidding documents and contracts financed by ADB under the Project requiring that the contractors, among other things: (a) comply with the Borrower's applicable labor law and regulations and incorporate applicable workplace occupational safety norms; (b) do not use child labor; (c) do not discriminate workers in respect of employment and occupation; (d) do not use forced labor; (e) allow freedom of association and effectively recognize the right to collective bargaining; and (f) disseminate, or engage appropriate service providers to disseminate, information on the risks of sexually transmitted diseases, including HIV/AIDS, to the employees of contractors engaged under the Project and to members of the local communities surrounding the Project area, particularly women. The Borrower shall strictly monitor compliance with the requirements set forth above and provide ADB with regular reports.	Being complied with
Schedule 5, para. 11	The Borrower shall ensure that the principles of gender equality aimed at increasing Project benefits and impact on women in the Project area are followed during implementation of the Project. These include (a) equal pay to men and women for work of equal value; (b) enabling working conditions for women workers; and (c) taking necessary actions to encourage women living in the Project area to participate in the design and implementation of Project activities.	Being complied with
Schedule 5, para. 12	The Borrower shall make available, or cause DHI and CDCL to make available, necessary budgetary and human resources to fully implement the EMP.	Being complied with
Schedule 5, para. 13	The Borrower shall ensure, or cause DHI and CDCL to ensure, that all bidding documents and contracts for Works contain provisions that require contractors to: (a) comply with the measures relevant to the contractor set forth in the EIA and the EMP (to the extent they concern impacts or affected people during construction), and any corrective or preventative actions set forth in a Safeguards Monitoring Report; (b) make available a budget for all such environmental and social measures; (c) provide the Borrower with a written notice of any unanticipated environmental risks or impacts that arise during construction, implementation or operation of the	a) Being complied with b) Being complied with c) Being complied with

	Project that were not considered in the EIA and the EMP; (d) adequately record the condition of roads, agricultural land and other infrastructure prior to starting to transport materials and construction; and (e) reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition upon the completion of construction.	d) Being complied with e) to be complied and end of works (2021 Q1)
Schedule 5, para. 14	The Borrower shall do the following: (a) submit bi-annual Safeguards Monitoring Reports to ADB and disclose relevant information from such reports to affected persons promptly upon submission; (b) if any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the EIA and the EMP, promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan; (c) no later than six months of the Effective Date, engage qualified and experienced external experts or qualified NGO[s] under a selection process and terms of reference acceptable to ADB, to verify information produced through the Project monitoring process, and facilitate the carrying out of any verification activities by such external experts; and (d) report any actual or potential breach of compliance with the measures and requirements set forth in the EMP promptly after becoming aware of the breach.	a) To be complied with b) To be complied with c) to be complied with independent environmental monitoring expert d) To be complied with
Schedule 5, para. 16	The Borrower through DHI will provide all counterpart funds, land and facilities required for timely and effective implementation of the Project, including without limitation, any funds required to (a) to meet any shortfall between cost and revenues for the operation and maintenance of the facilities developed under the Project, (b) to mitigate any unforeseen environmental and social impacts, and (c) to meet additional costs arising from design changes, price escalation in construction costs and/or unforeseen circumstances. The Borrower will make the resources thus required available on an annual basis for each fiscal year. In addition to the foregoing, the Borrower shall ensure that DHI and CDCL have sufficient funds to satisfy their liabilities arising from any Works and/or Consulting Services contract.	Being complied with
Schedule 5, para. 18	The Borrower, DHI and CDCL shall ensure that the anticorruption provisions acceptable to ADB are included in all bidding documents and contracts, including provisions specifying the right of ADB to audit and examine the records and accounts of the executing and implementing agencies and all contractors, suppliers, consultants, and other service providers as they relate to the Project.	Complied with for CW-01. To be complied with CW02, 03, 04 & 05
Schedule 5, para. 19	The Borrower shall develop and implement a program for regular and periodic maintenance of the facilities to be financed by the Project in accordance with international best practices acceptable to ADB, and make adequate resources available, through budgetary allocations or otherwise, for this purpose.	To be complied with one year before operating of every infrastructure
Grant Agreement		
Section 3.01	The Recipient shall make the proceeds of the Grant available to CDCL under the Subsidiary Financing Agreement upon terms and conditions satisfactory to ADB and shall ensure the smooth implementation of the Project and that such proceeds are applied to the financing of expenditures on the Project in accordance with the provisions of this Grant Agreement and the Project Agreements.	Being complied with
Section 4.02	The Recipient shall enable ADB's representatives to inspect the Project, the Goods and Works, and any relevant records and documents.	Being complied with

Appendix 12: Photographs album

Appendix 12.1: Works progress at QPR n°2 editions



Diaphragm wall-Stop ends installation



Diaphragm wall- Rebarcage installation



Diaphragm wall-Concrete casting



Guide wall- Night concrete cast



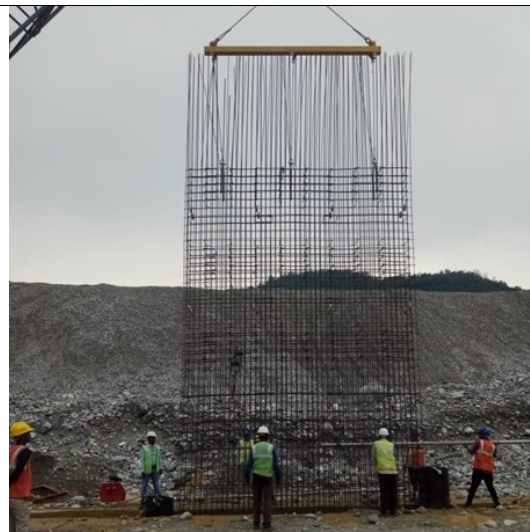
Batching Plant – Concrete production



Guide wall – Day concrete cast



Open outfall n°02 – Steel rebar installation



Diaphragm wall – Rebar cage installation



Guide wall – Concrete vibrating



Diaphragm wall – Rebar cage & weep hole



Filling works – Field density test



wall – Excavation depth measurement



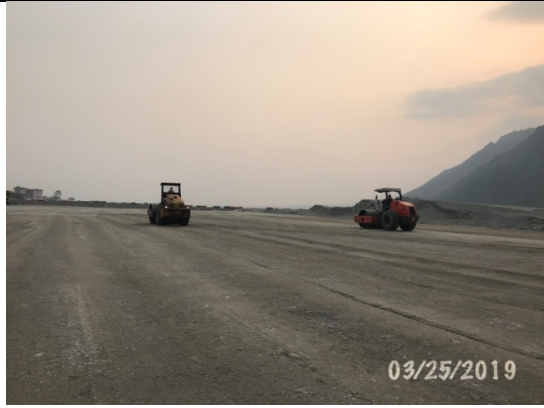
Filling works – Unloading materials



Filling works – Spreading materials w/ bulldozer



Filling works – Spreading materials w/ grader



Filling works – Compaction



Field density tests



Field density tests



Bentonite density test



Concrete test slump



Bentonite PH test



Open outfall n03 – Steel rebar installation



Filling works – Unloading materials



Diaphragm wall-Concrete casting

Appendix 12.2 :Environment and Safety

PHUENTSHOLING TOWNSHIP DEVELOPMENT PROJECT		
PROJECT HSE STATISTICS BOARD (Till March 2019)		
Project	PHUENTSHOLING TOWNSHIP DEVELOPMENT PROJECT (PTDP)	
Project Start Date	1-15-2016	
Project Duration	30months	
Number Of Days Completed	154days	
Afcons Execut Management Staff	36	
Afcons-National Management Staff	11	
Rigee-National Management Staff	24	
Afcons-Expat Workmen	103	
Afcons National Workmen	54	
Afcons-Fresh Workmen	66	
Rigee-National Workmen	9	
Rigee-Expat Workmen	48	
Others-National Workmen	37	
Sub-Total National	126	
Sub-Total Expat	226	
	352	
	For This Month March	Up to March 2019
Man-Hours Worked	22,750	248,838
Man-Hours Without LTA	92,789	248,838
Number Of Safety Violation	0	0
Number Of Injuries	0	0
Number Of First Aid Cases	0	0
Number Of Environment Violation	0	0
Number Of PNC Complaints	0	0
Average Ambient Air Quality	81.81µg/m ³ (PM10)	34.96µg/m ³ (PM10)
Average Noise Level	62.11 dBA	56.03 dBA



Monday morning Contractor's weekly safety procedure reminder & talk



First Health and safety campaign



Dust Pollution along the project corridor



Smoke from tires burning near by camp site



Safety Sign boards at works site diversion



Fuel and chemical products properly stored



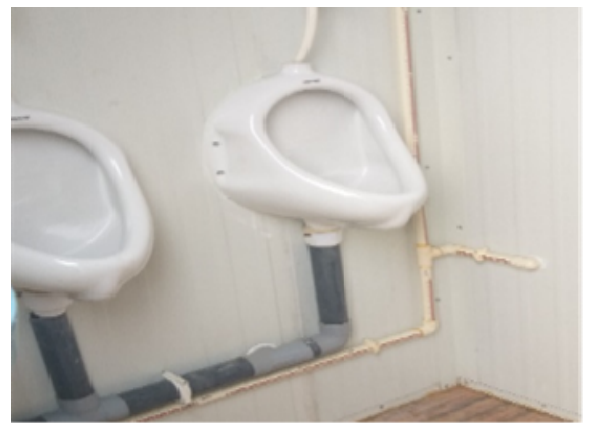
Bentonite sacks around site eaten by wandering animals



Bentonite sacks covered in Tarpaulin sheet and barricaded



Dysfunctional toilet at site



Clean but not functional toilet at office