Document Quality Information

General information

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History of modifications

Version	Date	Written by	Approved by
Version 01 (Draft)	27th July 2019	Edwin Anggrijatno	
Version 02	29th July 2019	Edwin A. & K. Dhakal	PMU
Version 03	16th October 2019	Edwin A. & 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.
CEMP	: 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 Ingénieurs Conseils
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

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Basic Project Information

Name of the 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	5th June 2018
Project effectiveness	26th July 2018
CDCL PMU created	26th July 2018
Project Completion Date	30th June 2025
Project Closing Date	31st 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 the Loan agreement	03rd July 2018
Loan effectiveness	01st October 2018
Elapsed loan period	272 days
Last ADB review missions	07-10th May 2019, 28-29th June 2019 (ADB, PPTA)
Reporting Period	1st April to 30th June 2019

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 (30 June 2019), for:

PIU/PMU

- The re-alignment of the diaphragm wall (on 2400m downstream to extend reclaim area): PIU/PMU informed PIC on 17 May 2019, that the implementation of re-alignment works of the diaphragm wall is cancelled. The D-Wall alignment to progress as per the master plan.
- To confirm works sanctioning for milestone (problems of issuance of Taking Over of part of works, several Defect Liability Periods and responsibility of maintenance after Taking Over);
- To resolve the issue on the removal of materials in Amochu riverbed 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 confirm and finalize the project boundary between PTDP Project and PCR Project with coordinates data. The main impact is foreseen on the Outfalls limit towards the boundary. The unclear boundary works may cause Outfalls works to be re-designed for some outfalls;
- To decide the change of embankment level through accurate topographic & bathymetric survey and 2D Hydraulic Modelling. The current level of the ground profile is found higher than the 2015 data (design stage) by around 1.5m - 2m. This has raised the embankment level
- To deal with the process of recurrent maintenance of Amochu channel levelling and its financing to be clarified;
- To calculate the dredging volume at PTDP after final result of 2D Hydraulic Modelling and final approved embankment level
- To decide the price item for earth filling and embankment works, since Contractor does not execute levelling of the river bed and disposing of surplus material as per mentioned in BoQ. It has been agreed that the Contractor would give the breakdown of rate analysis as per the required ADB's format, which will be discussed and approved by PIC/PIU and submitted to ADB for endorsement. However the contractor refused to provide the rate analysis, and PIC appled the provisional rate, which is submitted to PIU for approval. PIU will discussed the matter with ADB during the next mission.
- To confirm and finalize Variation Order-02 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 review outfalls design, since there is an issue regarding the change of embankment level and utilities crossing through the outfalls structure.
- To adapt the Construction Supervision Team to match the Contractor's activities progress, particularly for night shift supervision;
- To present Variation Order-02 to Consultant Contract for Flood Hazard Early Warning System and Flood Management Plan. To be finalized with PMU/PIU.

CW-01 (Contractor)

- To implement temporary flood protection measures and emergency plan as agreed on 27th March 2019;
- To control transit traffic (There are more than 1000 vehicles, out of which 40% are heavy vehicles that transit per day).
- To maintain the access road during monsoon period that damage easily due to heavy continuous rain.
- To provide a new rate for backfilling payment without prior riverbed levelling.

A.2 Progress made during the reporting period

Table A.2-1: Project progress during the period

Activity	% Accomplished vs. Target for the period[a]		Summary of Progress
	Accum.	Planned	
Flood and erosion protection measures	19%	21%	CW 01 diaphragm wall construction up to 1014 m length.
Municipal infrastructure	0.0%	0.0%	
Township management systems	0.0%	0.0%	

[a] Accomplishment and target refers to the 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

Below are the proposed remedies/actions taken for the pending issues encountered during the start of the project:

1. 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 is around 5.7 million cum, but due to the change of embankment level, the new approximate volume shall be confirmed after the 2D Hydraulic Modelling is done and the embankment levels are finalized. . 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 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 their method statement for earthworks related items where the 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 and moreover, it is foreseeable that the present condition as per CW-01 Contract will not resolve the requirements for channelization of the river as per geometry mentioned in the design. However, the volume that will have to be dredged to chanalize the river will be finalized only after the 2D modeling is complete. This will be made available in the 2019 end quarter report.

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 along the Zone-A area and along the 300 m width channel to be dredged. Thereafter, 2D hydraulic modelling 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.

2. Design Modifications

PTDP design modifications will be required due to the datum issue that surfaced during project execution. The modifications are to raise the embankment level with some distant (around 1–2 m), which will affect the diaphragm wall elevations, lower and upper walkway elevations, finished fill levels and cross drainage works. It includes a hydraulic, civil and structural redesign. In addition, some of the works already constructed might require remedial work including design, e.g. the top of the constructed diaphragm walls may need to be raised with additional cast in-situ concrete wall to achieve the revised design levels.

In addition, the raised embankment level of PTDP will also impact PCR project and LAP, since PCR vertical alignment was pegged on to the PTDP project finished levels.

3. PIC staffing and mobility

As expressed in the PIC Inception Report, Construction Supervision Team has been found understaffed to fulfil basic tasks of control and supervision of an admeasurement civil works contract. A first variation order (CV-01) to PIC Contract issued on 4th March 2019, improved PIC capability with inclusion of Environmentalist and Quantity Surveyor (both national and non-key experts) in the PIC Construction Supervision team. Besides, the Employer also seconded PIC in providing with supervision technical staff that includes two site inspectors, one laboratory technician, one land surveyor and his assistant. Land Surveyor assistant's input is up to 6th of July 2019 only, and PIU is in process of remobilizing the position.

However, the Contractor's work pace has 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. 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 has not changed since the start of the Project. Since the number of personnel is increased considerably it is proposed to procure 2 motorbikes (for site inspectors), and an additional vehicle.

The above-mentioned additional resources are proposed in Contract Variation-02 (CV-02) to PIC Contract. Up to June 2019, principally, it has been approved for additional 2 Site Inspectors and 1 laboratory technician. Anyhow, CV-02 has not been signed by the Employer till date.

4. CW-01 Civil Works Contract

5.1 Contract design drawings

Design drawings were stipulated as Good for Construction in CW-01 contract, were nevertheless not approved by Engineer's Representative since site conditions reported in the Contract Documents differ from those surveyed at the start of Works, some parts of the design had to be adjusted. This will be done once the embankment level is finalized after the 2D modeling works.

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

Accordingly, an extensive review of detailed design is conducted by PIC. But since it cannot be done at 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 the 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 a 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, the Contractor has to produce shop drawings, for which design & dedicated drafting team is required in their team.

5.2 Site safety

Temporary flood protection measures to protect works and installations during the monsoon period are almost complete but the progress is still slow.

Protection works are related to measuring against flooding from Amochhu and flash floods from adjacent tributary along the eastern boundary.

Details and cost for protection measures against Amochhu possible floods are agreed with CW-01 as these works are included under the Provisional Sum of CW-01 contract pay-item. For protection against the tributaries flash floods, it belongs to the Contractor to assume site safety, thus it will be at Contractor cost.

These temporary works has already commenced before the onset of Monsoon season. However, it could not be completed and the work was temporarily halted due to the invistigations by Anti-Corruption Commisions (ACC) on the project sub-contractor (M/s Rigsar Construction Pvt. Ltd). However, the contractor ensured to complete all Temporary flood protection measures by mid-July 2019. Subsequently, the contractors have been reminded, both verbally and officially,to complete the work as soon as possible so as to be ready before the major flood events, which as per history, occur between July to September. Currently, the temporary flood protection work is still on going.

5.3 Works sectioning and milestones for Delay Damage application

Particular conditions of Contract introduce 5 sections of works, a Time for Completion and a rate for application of Delay Damages is indicated.

Usually, when linear works are concerned, sections are clearly defined, since once works are completed, taking over the certificate for part of works is issued, the Defect Liability Period for the section starts, and Employer is responsible for any damages due to external activities.

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

In these conditions, issuance of taking over the certificate of part of works would be difficult to apply since it will discharge Contractor for 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 on, when the contractor has to construct cast in situ walls or any other structure linked to the D-wall section, Employer has to hand over the site to the Contractor again. This situation doesn't seem actually practicable.

As a result, Engineer's Representative will not be incapacity 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.

5.4 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 underpay items described in the General Earth Filling section of CW-01 Contract, since every item description includes "excavation in river bed, levelling the river bed as per the levels provided in the drawings" works, which will not be executed by Sub-contractor.

Therefore, the Contractor has been requested:
1. to confirm that works will be performed as per item description in Bill No-02 c for General Earth 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 item Contract rates (in particular rate of item n°401).

The contractor did not respond to the Engineer's letter however submitted a statement still using Item 401.

As the Engineer has the option to either reject the statement, or determine a provisional rate, until an appropriate rate is agreed by both parties, Engineer applied a provisional rate for the payment of backfilling works.

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

From PIU/PMU side

- Prepare a framework for CW-02 bidding documents;
- Finalize Variation Order-02 with PIC for establishing the Flood Management System development and 2D modelling
- Coordinate with PCR regarding information exchange and project updates.

From PIC

- Conclude and submit Variation Order-02 to PIU/PMU for approval
- Mobilize Flood Management consultancy, 2D Modeling, and enhance Construction Supervision team, and miscellaneous logistics issues.
- Continue supervision of Civil Works Contract N°01 and management of Contract under FIDIC General Condition of Contract
- Prepare and conduct an overseas training session for PIU & PMU.
- Assist PIU/PMU to finalize canvass for preparation of CW-02 bidding documents;
- Propose and Initiate procurement process for Biodiversity Monitoring and Bench Marking Study (BMBMS).

From Contractor CW-01

- Continue implementation of C-EMP.
- Continue Diaphragm Wall construction, and connect D-wall to Zone A termination point at North end (Rock outcrop).
- Continue backfilling works.
- Implement flood protection measures and an emergency plan to counter possible monsoon floods.
- Continue actions to effectively manage traffic route within PTDP area for the project vehicle and the external commuters (using Phuentsholing- Samtse route) and private parties (for surface collection and dredging activities outside the project premise)

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 of the Amochhu River on Bhutan's south-western border with India. The project will provide protection from floods and erosion and will address the 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.

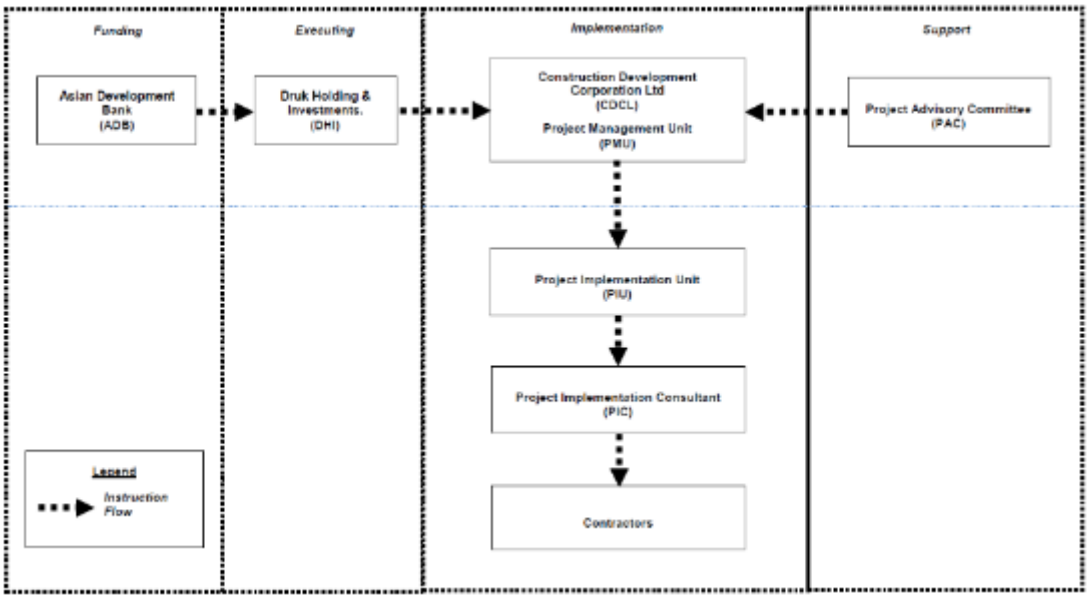


Figure 1: PDTP (Phase 1) Implementation Arrangements

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 has been signed with M/s. Egis International -Egis India Joint Venture, in association with M/s. Gyaltshen Consultancy for Project Implementation Consultant services on 18 July 2018. Services started on 28 October 2018.
Procurement of Independent Environmental Monitoring Expert, including negotiations, has been conducted by PIU/PMU and the contract signed on April 4, 2019.

B.2.2 Status of Variation Orders

PIC contract Variations:

A first Variation Order (CV - 01) was signed on 4th March 2019. The CV-01 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 amount remained unchanged in CV-01. However, contingencies increased slightly from USD 939,453.00 to USD 946,155.00.

A second Variation Order (CV-02) is in process of signing that will cover the following aspects:

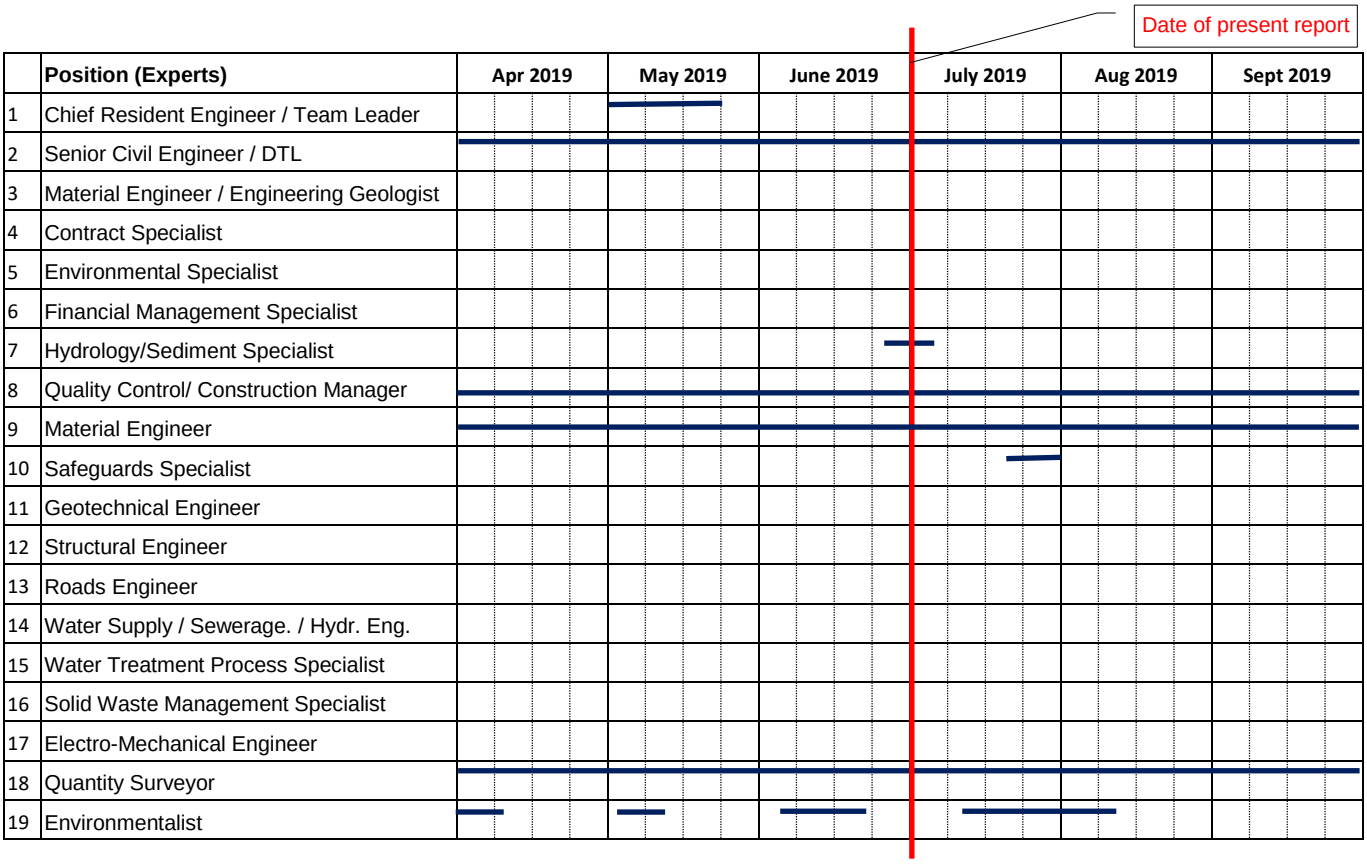
- Additional Construction Supervision PIC technical staffing (Site Inspectors, Laboratory Technician and Land Surveyor)
- Reshuffling of Contract Items in order to include the Flood Early Warning System and Flood Management Plan preparation;
- Maintenance of current project vehicles;
- Improvement of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

The Contract amount would remain unchanged, but Contingencies is expected to decrease by a 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)
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	Material 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 reflected 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 “admeasurement”, 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 (CV-01) and secondment of personnel by Employer answered to immediate Construction supervision needs. The second variation order (CV-02) which is in the process of finalizing, expected to be signed in July 2019 will take care of other supervision requirements.

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	UPS 1VA was purchased on 8th April 2019 and the UPS 600VA was purchased on 9th April 2019. The Cameras for use of Site Inspectors were purchased on 3rd April 2019. Other equipment will be procured as per the requirement.
Transportation	2nd Vehicle (ISUZU V-Cross High) was procured on 17th April 2019.
	The Rental Car which was initially used by PIC office had not been used after procurement of 2nd Vehicle on 17th April 2019.

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 IPC n°07 (March 2019 works), IPC n°08 (April 2019 works), IPC n°09 (May 2019 works)

Core Team activities

- Production of 11 Technical notes (from inception till the reporting date) as follows:
    - Procurement of CW-02 package (TN n°1)
    - Improvement of Contract Documents (TN n°2)
    - Design Review – Outfalls / Omchhu unprotected stretch (TN n°3)
    - Recommendation to change the diaphragm wall upstream connecting point to foothill on North of zone A (TN n°4)
    - Proposal for Change of Revision of alignment of Diaphragm Wall at North End of Zone A (TN n°5)
    - Analysis of outfalls details to improve geometry, Outfalls Design Review and Recommendations (TN n°6)
    - Proposal for temporary flood protection measures, 2 technical documents (TN n°7)
    - Method of procurement of services for preparation of Flood Emergency Warning Management System. Flood Management (FEWS/FMP) Consultancy recruitment (TN n°8)
    - PIC deliverables contents and schedule (TN n°09)
    - Sediment Management & Design Implication (TN n°10)
    - Revisions to Temporary Flood Protection Measures (TN n°11)
    - Project Performance Management Evaluation (TN n°12)

Mobilization of intermittent Specialist (till date):

- Hydrology / Sedimentation specialist:
- remobilized on 24 June to 04 July 2019 to prepare:
    - Response to ADB's comments on PIC Technical Note No. 10;
    - Implications for a +1 m Rise in the PTDP Embankment Level and recommendation;
    - Update on Temporary Flood Protection Measures

- Structural Designer mobilized on 18 March 2019 to review the design of Outfalls as per changed ground profile. He was demobilized on 15 April 2019.
-
- Quarterly Project Report No.2 (Revision 1) had been submitted on 24th April 2019**.**
- Risk Management Plan Framework had been submitted on 20th May 2019.
- Project Monthly Report (M7) – May 2019 had been submitted on 19th June 2019.
- Management Information System was presented and submitted on 31st May 2019.
- TOR and Quotation for BMBMS (Biodiversity Monitoring and Bench Marking Study) of PTDP at 04 April 2019
- 2nd PCR & PTDP coordination meeting on 27th May 2019.
- Monthly Coordination Meeting – 1 (PIU, PIC & CW01) on 9th April 2019 (prior to this weekly joint meetings were conducted between PIU, PIC and CW-01)
- Monthly Coordination Meeting – 2 (PIU, PIC & CW01) on 10th June 2019
- ADB Mission Meeting in Thimphu on 7th May 2019
- ADB & Thromde Meeting with PIU & PIC on 10th May 2019
- ADB Technical Assistance Meeting with PIU & PIC on 28th, 29th and 30th June 2019
- MIS Presentation & Training by QLE/IT on 10th June 2019
- Meeting with HCP (IDPR design consultant) - 1 (PIU, PIC & HCP) on 25th June 2019.
- Meeting with HCP - 2 (PIU, PIC, HCP & CW01) on 26th June 2019
- Factory Visit for Anchor bars & Couplers material (KRIDHAN INFRA, INDIA) on 21st to 25th April 2019
- Factory Visit for Wire Crates material (TECHFAB, INDIA) on 16th to 20th June 2019

Use of Provisional Sum

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

Item	Status	Amount (USD)
Purchase of 2 Vehicles & Motor Cycle	2-Pick-up type and 1- motorbike Procurement has been conducted as per ADB guidelines for vehicles. 1st vehicle purchased (Pick-up standard) on 11 December 2018. 2nd vehicle purchased (Full options) on 17th April 2019.	122 500.00
Office Equipment	Computers, software, printers, photocopiers, furniture, GPS power inverter, etc. for the field office. Procurement conducted as per ADB Guidelines. Procurement of 1UPS for the internet, 5UPS for 5 desktops and 3 cameras for site inspectors were procured as per the approval from PIU.	10,000.00
Seminars, Workshops, and Training Sessions	No seminars, workshops and training sessions conducted in April month. As per contract variation-1 (CV-01), the budget for seminars, workshops and training sessions has been revised from USD 10, 000.00 to USD 50,000.00.	50,000.00

Studies, Surveys and Reports	a) Biodiversity Monitoring and Benchmarking Survey. 1. TOR has been submitted by PIC to PIU in the month of April 2019 2. In the month of May, TOR prepared by PIC, reviewed by PIU/PMU and submitted to ADB has been approved by ADB. Direct contracting as recommended by PIC & PIU/PMU was not allowed by ADB. Till the report date, PIU/PMU and ADB are under discussion on the method of BMBMS procurement process. b) Preparation of Flood Early Warning System Management Plan. 1. In the month of March 2019, TOR for Flood Management Consultancy has been prepared, but due to complexity of procurement of services, it is proposed to include under PIC contact under time-based PIC Experts costs; PIC needs Variation Order from PIU. 2. In the month of May 2019, employer approved and Services are included in CV-02.	230,000.00

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 new Variation Order initiated for CW-01

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 (%)		Elapsed time (days)
					Target	Actual	Target	Actual	
CW-01	18 Jul. 2019	01 Nov.2019	912	01 May 2021	16.81	15.79	16.81	15.4	241

Advance Payment (2 instalments paid) and Material Advance (1 instalment paid)

B.3.4 CW-01 Contractor's establishment

N°	Description	Status
1	Project Management	At the end of the period, 39 expatriate staff, 4 national staff and 21 Sub-Contractor national staff mobilized. Total:64 Management Staff available.
2	Manpower	At the end of the period, there was 287 manpower available. Contractor: 25 National Manpower and 158 Expatriate Manpower. Sub-Contractors: 64 National Manpower and 40 Expatriate Manpower.
3	Plant and Equipment	All key equipment as per required by Contract Document – General Specifications, Section-7 had been mobilized to the project site. *The last key equipment arrived at project site on 01 March 2019.* *Totally there are 2 Nos of Hydraulic Grabbing Machine Cassagrande and 1 Nos. of Mechanical Grabbing Machine (will be soon replaced by higher capacity Hydraulic Grab).*
5	Quarry / Crusher	No Quarry / Crusher is provided by Contractor. *Source of coarse aggregates and fine aggregates are from Quarry / Crusher supplier located within the vicinity of the project site*.
6	Pre-casting	No pre-casting yard is required at this time of period

	Yard	
7	Borrow Pits / Disposal Sites	General waste and Structural waste, including bentonite: Contractor to dispose of general waste at Phuensholing Thromde Waste Disposal Site.
		Borrow Pits: *Particularly for boulders laying on the river bed beside of D-Wall with 0.5 MT was procured (2749 MT) and also large boulders for temporary flood protection with 2-3 MT was procured (2921 MT).*
8	Filling Material	No Quarry will be provided by Contractor *Source of filling material is from Quarry / Crusher supplier located at project vicinity* *Approximately 1,5 million m^3 for filling material available from RIGSAR Supplier (Sub Contractor).*

B.3.5 CW-01 Works Progress

General Requirements

N°	Description	Status
1	Site Possession	Handover of Hindrance Free Area for the project on 27 September 2018. Area handover for Site Installation 01 November 2018
2	Obstructions	Traffics from public / private vehicles moves inside project site at some locations.
3	Utilities [electrical poles etc]	Frequent failures of electrical power supply at site offices. Tap water supply for site offices is not continuous during the day work. *Contractor to provide suitable generator set to supply electricity temporarily during blackout time.* *Contractor to ensure the continuous supply of tap water supply by providing a proper pump.*
4	Health &Safety	No NCR / CAR issued. No major accidents reported but 2 minor incidents were reported during the period.
5	Maintenance of Site Road	Contractor conducts dust control by a periodic sprinkling of water on the road. Contractor to periodically maintain the 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	The contractor is required to review all the latest revision working drawing (good for construction) and submit a discrepancy list (if any). There is no discrepancy, querries submitted by Contractor. The location change of D-Wall termination (at the north end) had been approved by the Employer. Outfalls design may be changed due to datum issues and erroneous contour and may need to follow PCR design at project boundary. *Shop drawings are prepared by the contractor for approval from PIC. Hence, Contractor to submit the shop drawings for the detail locations, arrangement of structural joints, shuttering, finishing works, etc. refer to the typical detail drawings from Good for Construction Drawings including all the work modifications, especially for outfall works.*

Quality Control Activities

N°	Description	Status
1	Contractor Quality Control Plan	Quality Control Plan has been submitted to PIC by contractor. Quality Control Plan is very broadly and refers to an internal set of procedures from Contractors, submitted on case by case basis. PIC checks when required and sometimes may request for improvement, depending on its requirement. PIC, in particular, requires the 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 the engineer's representative. *Testing frequency shall be as per the technical specification and standard* *QCP shall be submitted for all work activities.*
2	Material Source Approval & mix designs	Materials source have been approved: - *Wire Crates (TECHFAB INDIA), Silicone Paint (EXCEL, India);* - *Polysulfide Sealant (CERA CHEM, INDIA), Coal Tar Epoxy (CERA CHEM, INDIA);* - *Wire Crates (GABION TECHNOLOGY, INDIA), SS316 mesh.*
3	Materials Testing	Compressive strength results of Mix Design with Penden Cement and Fosroc Admixture & Penden Cement and Sika Admixture concluded. Anchor bar and couplers had been tested and approved, Wire Crates had been tested and approved.
4	Inspection	PIC able to mobilize two site inspectors and one survey inspector, and one laboratory technician within and prior to this report period. *But these supervision staffs need to be strengthened. Additionally, one laboratory technician, two site inspectors, one land surveyor and one assistant land surveyor are proposed in PIC Contract VO n°02 (CV-02).* Checklist in RFI still needs to be improved by the Contractor.
5	Non-Conformance	No Non-Conformance Registered (NCR) / Corrective Action Report (CAR) was issued during this period.

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 established.
2a	River Training Works	Guide Wall work: 2082 m cumulative length completed (44%) at Part-3, 4 & 5 Diaphragm Wall: 1014 m cumulative length completed (21%) at Part-5 & 6
2b	Embankment Works	Open Outfall N° 8 (69m length). Construction started on 22 Dec. 2018, *however, stopped because PCR public road on part of outfall layout still not diverted.* Open Outfall N° 02 (188m length). Construction started on 15 Jan. 2019 *Works on-going. Contractor temporarily halted the works due to a high water table.* Open Outfall N°03(169m length). Construction started on 04 Feb 2019 *Works ongoing. Contractor temporarily halted the works due to a high water table.*
2c	General Earth Filling	Started on 18 Feb. 2019. Earthworks are executed by Sub-Contractor, M/s Rigsar Construction Company Pvt. Ltd. *At the end of this period, 202,612 cum was completed (6.5 %) of a total of 3,140,000 cum*
2d	Promenade Finishing	Not yet started
2e	Irrigation & Landscape	Not yet started
3	Provisional Sum	For Survey Equipment, Office Camera, Projector and Radio Handset. *Procurement conducted and equipment received.* For pickup vehicles. *Procurement cancelled by the employer. Vehicle procured from employer's fund.*

		For electricity main supply: partially used for installing the main transformer for the project
		For Geological Investigations. *Partially used for geotechnical investigation to check the possibility of bed rock, which the contractor claimed to have encountered at North end part-08*
		For Temporary Flood Protection *Partially used for strengthening existing long spur and existing big bund and to construct new spurs*
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 30/06/2019	Achieved 30/06/2019
Diaphragm wall	M	4,509	918	1,014
Cast in situ wall	M^3	6,000	0	0
Retaining wall	M^3	8,600	0	0
Ducted and open outfalls	M	2,562	0	3 structures started
Embankment construction	M^3	3,140,000	249,370	202,612
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

The list of field monitoring visits, workshops, training and 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
Civil works packages					
CW-01 River Training	Q1 2017	Q1& Q2 2017	Q2 2017	Q2 2018	12 Sep. 2018
CW-02 Common urban infrastructure	Q3 2019				
CW-03 Flood early warning system	Q3 2019				
CW-04 Power transmission infrastructure					
CW-05 ICT infrastructure					
Consultancy services packages					
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 Procurement plan and Contract Award schedule. There is no change compared to the initial PAM Procurement Plan.

B.6 Disbursement of Project Funds

The total and breakdown of investment costs remain 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)		Certified until this month* (Feb 2019)		Certified this Month* (March 2019)		Certified this Month*(April 2019)		Certified this Month*(May 2019)		Total Certified incl. this month*	
	Cur;	Amount	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
Civil Works Contracts (CW-01)	BTN	2,934,669,207	177,436,834	6.0	76,266,226	2.6	94,540,079	3.2	78,131,331	2.7	426,374,470	14.5
Consultancy Services (CS-01 PIC)	USD	4,138,144	202,078.20	4.9	91,137.85	2.2	68,988	1.7	38,917	0.9	401,121	9.7
	BTN	91,474,227	4,734,500.00	5.2	1,607,333	1.8	1,716,500	1.9	1,712,600	1.9	9,770,933	10.7

* Amount of works and services billed in the table above excludes taxes. The data are from invoice of March, April and May 2019

Summary of disbursements for the 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	2.073	0.65	6.77
	Independent Environment Expert		0.077			
	Others					
	Total	**22.47**	**20.397**	**2.073**	**0.65**	**21.82**
Grant	Civil Works (CW-01)	19.57	19.57	**0**	7.4	12.17
	Others			0.37		
	Total	**19.57**	**19.57**	**0.37**	**7.4**	**12.17**
DHI	PMU and PIU Expenditures	1.67	N/A		0.11	1.56
	Training	0.21	0	0.21	0	0.21
	Operation and Maintenance	0.86	0	0.86	0.49	0.37
	Subtotal	**2.74**			**0.60**	**2.14**

*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 which the counterpart disbursements are made.

B.8 Implementation Schedule

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

Environmental aspects

C. Environmental Aspects

C.1 Environmental Monitoring Review

A Summary of Environmental Monitoring Review from April to June 2019 is attached in **appendix 9.**

In addition to above, there are some activities that have been carried out as part of the submission from the PIC or Contractor side during the quarterly review period, which is listed in the **Table C.1-1** below:

Table C.1-1: Environmental Deliverables

No	Subject/ Deliverables	Date
1	Resubmission of BMBMS by PIC	4th April 2019
2	Revised CEMP endorsed by ADB	25th April 2019
3	Submission of Aquatic Survey by Contractor	14th May 2019
4	Submission of Risk Management plan framework by PIC	18th May 2019
5	Submission of Emergency evacuation plan by AFCONs	12th June 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 has been duly reflected as follows:

- The first Water Regime monitoring was conducted on the 1st of April. Pictures of the river will be taken by the contractors twice every week. This monitoring is being conducted, so that the project can record the change in waterways and water level, and examine and analyse the information to ensure that the project will not be impacted.

- Eco lab conducted the first aquatic survey on 27th April – 1st May 2019. The objective of the survey is to assess and determine the diversity of fish species in the Amochhu basin. Electrofishing is the method being used to conduct the survey. During the survey, 27 species of fishes were found, out of which two species were on the endangered list: Tor Putitora and Amblycepsarunchalensis.

- The first water level monitoring was conducted on 4th May 2019. This monitoring will be conducted twice every week (Mondays and Saturdays) between part 5 & 6, where construction activities are currently ongoing. This monitoring is conducted to monitor the increase and decrease in the Amochhu water level. This monitoring is also another way to foresee any warning signs of flooding in the project area.
- Fire mock drill was conducted by the contractors on 13th May 2019.

- Road diversion at part 7 was created on 17th May, due to the monsoon season and possibility of flooding.

- On 24th May AFCONs installed the safety raft and purchased 40 life jackets and 40 safety lifebuoy.

- On 5th June the PTDP project celebrated World Environment Day by planting palm trees at the campsite and potting 100 palm trees which were placed around the project office and campsites.

- On the 27th of June, an Emergency mock drill for the flood was conducted by AFCONs. The drill is to prepare employees to respond quickly, calmly and safely in case of a flood.

- The contractor started submitting metrics on the amount of solid waste generated from the project and campsites. For the month of April, 1.8 metric tons of degradable and 1.6 metric tons of biodegradable waste was generated. In May 1.9 metric tons of degradable and 1.8 biodegradable waste was generated and for the month of June, 1.83 metric tons of degradable and 1.7 tons of biodegradable waste generated.

- The Phuentsholing Municipality makes trips to the project site once every two weeks to collect waste, and the municipality is also contacted as and when required.

- Sprinkler trucks are being dispatched every two hours or as and when required 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 locations sprinkled and the number of times the truck is being deployed.

- Two colour-coded bins, blue for degradable and green for biodegradable waste have been installed in all strategic locations along with the camp, lay down and work-sites.

- Fire extinguishers and buckets have also been placed in all strategic locations along with the office and campsites.

- To prevent ground contamination, impervious concrete flooring has been placed in all oil storage/handling areas.

- Bulkers are used for filling cement silos, to prevent the ground/soil from cement dust, to reduce cement wastage and do reduce dust pollution in the area.

D. Health and Safety Aspects

D.1 Health and Safety aspects

- 16th April Fire safety and hygiene workshop was conducted by the contractors to inform and ensure that all employees were aware of the importance of practising and maintenance of a clear and salutary cooking environment.

- Since Bhutan does not allow fog machines, AFCONs contacted the Phuentsholing General Hospital on 27th April to the PTDP project site to do a general pest control treatment in the offices and at the camps.

- On 31st May AFCONs collected information from individuals from PIU, PIC and AFCONs who were interested in volunteering to register for blood donation.

- On June 8th AFCONs conducted a Log Out Tag Out (LOTO) workshop to ensure that all respective workers were aware on necessary safety measures that need to be checked and taken care off while tagging out or logging out after work.

- On 24th May AFCONs installed and assembled the safety raft and purchased 40 life jackets and 40 safety lifebuoy.

- On 15th June Hot Work Permit Workshop was conducted by AFCONs to all the Welders and hot work-based helpers to inform and ensure all safety measures are taken while working.

- On 18th June AFCONs installed gym equipment at the worker's camps. The installation was in observation of International Yoga Day, which is celebrated on 21st June. AFCONs also informed and emphasised to PIC, PIU and AFCONs workers on the importance of a healthy body and mind.

- On 22nd June AFCONs conducted a workshop on working with heights to ensure that all workers involved in this particular activity were aware of the importance of PPEs, managing and buckling of the safety belt.

- Necessary Safety Induction training has been provided to all new recruits (staff and workers). 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 before for safety and health awareness.

- Caution board, PPE display board, safety awareness board provided at the site to a large extent.

- 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.

Health and safety-related issues have been observed at the site as mentioned below:

Table D.1-1: Recommendation for Health and Safety issues

Issue	Recommendation and action taken
Installation of mosquito nets on windows	Since fog machines are not allowed in Bhutan, and Phuentsholing General Hospital will only conduct pest control treatment every six months, AFCONs was recommended to provide workers with mosquito nets, or repellents for the dorms, and to secure mosquito nets on the windows. They

	have complied and fixed the nets on some windows, and yet to complete the rest, and they have provided each dorm with repellents. They are in the process of procuring the mosquito nets for individual workers.
Allocation of space for workers to dry damp clothes	Initially, the workers were all drying their clothes outside their rooms. After pointing out the risk and health factors involved with drying wet clothes outside the rooms, the Contractor has ensured to allocate clothe hanging stands away from the dorms.
Leaking taps at workers camp bathroom	The contractors have been informed about the leaking taps in the worker's toilet at the campsite.

D.2 Accident prevention

For the month of April and May, no serious or near-miss incidents have been reported. For the month of June, there was one near-miss incident which was reported.

The incident included:

- On 14th June at 5:45 AM a carry crane toppled during shifting of a reinforcement steel cage at part 5. According to the investigation conducted by AFCONs, it was found that the root cause of the accident was due to an increase in wind, due to which there was sudden movement in the cage, which caused the tag line to slip from the riggers hand, causing the crane boom to lose its stability and topple. All lifting work was immediately stopped, the operator was safely removed from the operating cabin and taken to Phuentsholing General Hospital for a thorough check-up for any internal or external injuries. The results were all negative.

All other cases reported to the First Aid Station were minor issues. 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

The first Health and Safety Campaign on "HIV / AIDS prevention, Malaria, Dengue Fever, and Menstrual Health and Safety" was conducted by Phuentsholing General hospital from 21st – 23rd March 2019. 12 officials from the project have volunteered for blood donation during emergency requirements.

D.4 Traffic Safety

The contractor, as per the site requirements, constructed traffic diversion and rerouting of heavy vehicles. Traffic surveys in March was conducted in two locations: Front and Rear gate of camp and office site area. This was done to investigate the 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 Labor Engagement Statistics at the 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 June 2019, the contractor has employed the following:

- Bhutanese Day Labour (Female) – 19

- Non-Bhutanese Day Labour (Female) – 1
- Bhutanese Day Labour (Male) – 73
- Non-Bhutanese Day Labour (Male) – 10
- Non-Bhutanese Resident Labour (Male) – 144

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 subcontractors. Vehicles are also checked for proper registration, fitness, and emission certificates. Please refer to **Appendix 3** for all vehicle clearance certificate.

E. Social Safeguard and Communication

E.1 Social Safeguard

No specific action conducted this quarter but details and given in the HSE semi-annual report

E.2 Communication action (website, events…)

CDCL Information Technology team visited the project site on 26th March 2019 and has developed the CDCL website. Information on the PTDP is already available in CDCL website (www.cdcl.bt).

HIV/AIDS awareness, Yoga Day observed by the contractor at the Indian Consulate, Phuentsholing.

See **Appendix 4** for a 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. Project Quarterly Report 2. 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. Reported Monthly in Monthly Progress Report 2. For the 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 DMF (Design and Monitoring Framework) is set-up.
Safeguard monitoring (Environment and Social monitoring reports)	ADB websites	ADB and CDCL	ADB, DHI, CSOs, beneficiaries and RGoB	Semi-annually (January to June 2019)
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 is adopted by the project. The first tier is in the field at the PIU level led by PIU head and the second level/tier GRM is led by the PMU head.

Secretariat

The first level secretariat of GRM is 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)' is 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 hereafter.

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	TL / 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 hereafter.

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 approve 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
Issues	It should be mentioned that Grievances related to the Social and Environmental Concerns of the project shall be covered by the GRM
Complaint/ Feedback/ Dropbox	Shall be at the contractor's site office and PIU office with a proper signboard with names and numbers of contact person at all these locations.
Dealing with complaints	It was suggested that minor issues/complaints received may be dealt by PIU and contractor directly as appropriate. But proper recording should be done and reported to the committee.
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.
Corrective Measures to be done by the contractor	Please include how corrective measures would be addressed and borne by the contractor

All the comments have been incorporated and are part of the GRM in the CEMP

F.3 Grievances registered

As of now, no grievances have been registered and grievance reporting format has also been uploaded on the CDCL website (www.cdcl.bt/ptdp/).

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 6 to 12 May 2019 are as follows:

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

Sl no	Activity	Due Date (ADB)	Responsibility	CDCL Proposal (Revised Due Date)	Remarks/Comments
Project Management					
1	Thromde letter – clearance for material extraction for PTDP	Immediately	PIU	Complied	letter copy sent to ADB on May 6, 2019, Response received, PIC informed.
2	Contract Variation No. 2 (hydraulic model, FFEWS)	7-Jun-19	PMU/PIU	15-Jun-19	Contract Variation-02 will be signed in July, 2019
3	MIS system fully operational and documented	30-Jun-19	PIC	Agreed	To be submitted to ADB in July, 2019.
4	RMP prepared	30-Jun-19	PIC/PMU	Agreed	RMP to be submitted to ADB in July, 2019.
5	PPMES included in QPR	15-Jul-19	PIC	Agreed	Submitted to ADB on 20th May 2019, eviewed and approved by ADB on June 6, 2019
6	Submit Quarterly Progress Report to ADB	15-Jul-19	PMU	Agreed	To be Submitted to ADB on July, 2019
7	PMC to hold a meeting with all stakeholders	30-Sep-19	PMU	Agreed	Under Process. Will be done in Dec (sl. No.22)
8	Omchhu project inclusion in project action plan	October Mission	PMU/ADB	Agreed	to be discussed in next mission
9	Coordination meeting with PCR and LAP	Monthly	PIU	Agreed	2nd Coordination meeting to be held in July, 2019.

CW01 -Technical					
10	NCHM MOU	7-Jun-19	PMU/PIU	30-Jun-19	Draft MoU prepared. To be put up to PMC for discussion
11	Conduct Contractor Emergency flood drill	30-May-19	PIU/PIC	15-Jun-19	Carried out on June 27 2019
12	Temporary flood management measures completed	31-May-19	PIU/PIC	30-Jun-19	80% completed till June end. Will be fully complete within 2019
13	Verify the datum used by NLS in the 2015 survey	7-Jun-19	PIU	12-Jun-19	NLCS engaged from 6th June. Final Report received on June 14, 2019. Sent to ADB
14	Response to ADBs sediment technical note comments	7-Jun-19	PIC	30-Jun-19	Responded to ADB
15	Topography and bathometry survey completed (as much as possible)	30-Jun-19	PIU	30-Oct-19	Topo Survey mobilization underway.
16	CW01 Backfill BOQ rate analysis	30-Jun-19	PIU/PIC	Agreed	Still Under Discussion
17	Hydraulic 2D model finalized	30-Sep-19	PMU	30-Dec-19	Included under PIC scope of work in Contract Variation CV-02 to be signed in July 2019
Procurement					
18	Flood management experts mobilized	3-Jun-19	PIU/PMC	1-Jul-19	Included under PIC scope of work in Contract Variation CV-02 to be signed in July 2019
19	BMBMS recruited under PIC	30-Jun-19	PIC	15-Jul-19	Will be done once CV-02 is signed
20	Comments received from HCP on CW02	30-Jun-19	PMU	Complied	Comments received and forwarded to ADB on May 30, 2019
21	Submission of Bid Documents CW02	30-Sep-19	PMU	Dec 1st Week	Under Process. Revised Proposal 1st week of December, 2019

Safeguards					
22	Public consultation meeting	30-Dec-19	PIU	30-Dec-19	Under Process
23	SEMR (Jan-Jun 2019) to ADB	31-Jul-19	PIU	31-Jul-19	will be submitted to ADB in July, 2019
Finances					
23	Submit APFS to ADB	31-Dec-19	PMU	31-Dec-19	Royal Audit to visit PTDP on November 2019.

H. Project Performance Management Evaluation System (PPMES)

H1. Description in the TOR

As per TOR point 17. "Project Administration" bullet (iii), PIC shall develop:

"The design and establishment of a project performance management evaluation system (PPMES) that will allow PIU to (a) monitor and evaluate implementation of the project; (b) identify performance constraints; and (c) formulate and implement practical measures to address shortcomings. Frequent performance evaluations will be carried out based on assessment of the project. It should include secure financial management and accounting reporting, and be accessible to the PIU and ADB".

As per TOR Table 4, listing the deliverables*:*

"Design of the PPMES appropriate for the project. The content of the PPMES should be discussed in the inception report and agreed with the PIU and ADB prior to developing the system. The system should be flexible to allow routine changes as necessary and it should be accessible from the PIU and client's project offices. A manual will be prepared that shows users how to update and use the system".

H2. Comments and proposal

A Project Performance Management Evaluation System is usually developed to detail the Project monitoring indicators as listed is the Design and Monitoring Framework (DMF), and when there are several components and numerous implementation activities (several simultaneous civil works contracts, procurements of goods and services contracts) to weight each of them, to be able to produce a global figure showing the performance, practically the progress of Project. Therefore, the PPMES is mostly used for complex and multi components Projects, for which the Borrower needs to have a system that guides him in the global evolution of the Project. Usually a Project Management Expert is also mobilized to design the system, and assist Borrower to weight Project components, and prepare the baseline anticipated progress data.

In PDTP case, the DMF performance indicators are quite clear, immediately quantifiable and could be directly organized in types of output and weighted. Moreover, there are just sequential activities (CW-03 & CW 04 works which follow CW-02 works which follow CW-01 works…), hence the development of a PPMES will just be a trivial development of the DMF.

The purpose of the PPMES in the PTDP context, which is a linear and sequential Project, is not clear. Indicators have already been developed and detailed in the DMF, it is therefore proposed to waive the development of PPME system, but to follow up progress of Project Implementation based directly on weighted indicators as listed in the DMF Outputs. However, a draft PPMES format is developed by PIC which is endorsed by ADB and this will be made use if required while implementing CW-02.

DMF indicators, as per the Project Output are listed as below:

Project Outcome and Outputs from Design and Monitoring Framework

	Indicator	Progress (on 31 April 2019)
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 scheduleQ2/2024

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 pipes 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 2i. 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

However, to DMF indicators, it is proposed to add two types of major component of the Project Progress, specific of any land development project:

- Implementing Agency capacity, and;
- Site possession,

which are necessary conditions to achieve the goal of an urban project.

On the other hand, consultancy services are usually not considered, since being just a support to the Implementing Agency. Then progress of consultancy services is not considered as representative of the Project progress.

Progress of Project could then be assessed through the weighting of the Project components, which are detailed, hence itemized, and at last, by the estimate of the progress of every item.

It is hereby proposed to regroup the Project components into the following 5 major components/outputs, together with the proposed weight for each of them:

- Implementing agency capacity: 5%;
- Site possession: 5%;
- Output 1 - Flood and erosion protection measures installed: 40%;
- Output 2 - Municipal infrastructure constructed: 40%;
- Output 3 - Township management systems installed: 10%.

For every component, indicators have been, either proposed, or extracted from the DMF, and for each of them, a weight assigned, in percent, in order to get a total of 100% when Project is completed. An example of tentative PPMES table is presented as below:

PTDP Proposal for Project Performance Indicators

Components / Outputs	Target quantity / Value (US$)	Proposed Weight
Implementing agency capacity		**5.0%**
Establish PMU/PIU		*3.0%*
PMU/PIU Staff training and development		*2.0%*
Site possession		**5.0%**
Site possession legal documents		*4.0%*
Third parties activities cessation		*1.0%*
Output 1 Flood protection measures installed		**40.0%**
1a. River training works on 4.5km	*4,500m*	*20.0%*
1b. Land reclamation on 66ha	*66ha*	*15.0%*
1c. Flood early warning system installed	*130,500$*	*5.0%*
Output 2 Municipal infrastructure installed		**40.0%**
2a. 10 km of urban roads built	*10,000m*	*10.0%*
2b. Water treatment plant constructed	*xxx$*	*5.0%*
2c. 12km of water distribution pipes constructed	*12,000m*	*5.0%*
2d. 9km of sewage pipes and 9 km of storm drains constructed	*18,000m*	*5.0%*
2e. Sewage treatment plant constructed	*xxx$*	*5.0%*
2f. System for solid waste management installed	*xxx$*	*2.0%*
2g. 630kva grid substation constructed	*xxx$*	*2.0%*
2h. 16km of HV power distribution lines installed	*16,000m*	*3.0%*
2i. 11 km of telecom cables installed	*11,000m*	*3.0%*

Output 3 Township management systems installed		**10.0%**
3a. Township management staff improved knowledge of urban management	*80% of staff*	*5.0%*
3b. Asset management system installed	*100% of infra*	*4.0%*
3c. Potential investors to attend investor outreach campaign	*10 investors*	*1.0%*
Overall Project Progress		**100.00%**

H3. Project Performance Management Monitoring

Once Implementing Agency has, either confirmed, or corrected, the list and weights of every PPME indicators, a baseline forecast of value of every indicator can be assessed, from start to end of Project, for example per quarter, from Q3 2018 to Q2 2025, as per the Project Administration Manual. Actual progress can therefore be compared to the one scheduled, on quarterly basis, see Table as below for an estimate of progress at Q2 2019.

In this example, based on the preliminary assessment and weighting rates proposed, anticipated overall Project progress would reach11.2% on 30 June 2019, to be compared to 11.1% forecast,

Hence, once indicators, their weighting and anticipated evolution, be approved, it is suggested to update regularly the synthetic table, at least once every quarter, in order to include it within the Quarterly Progress Report.

PTDP overall progress as of Q2 2019, compared to scheduled

Components / Outputs	Target quantity / Value (US$)	Proposed Weight	Schedule Progress (Qty)	Scheduled Progress (%)	Weighted Scheduled Progress	Actual Progress (Qty)	Actual Progress (%)	Weighted Actual Progress
Implementing agency capacity		**5.0%**			**3.0%**			**3.2%**
Establish PMU/PIU		*3.0%*	*3.0%*	*100%*	*3.0%*		*100%*	*3.0%*
PMU/PIU Staff training and development		*2.0%*	*0.0%*	*0%*	*0.0%*		*10%*	*0.2%*
Site possession		**5.0%**			**5.0%**			**4.7%**
Site possession legal documents		*4.0%*	*4.0%*	*100%*	*4.0%*		*100%*	*4.0%*
Third parties activities cessation		*1.0%*	*1.0%*	*100%*	*1.0%*		*70%*	*0.7%*
Output 1 Flood protection measures installed		**40.0%**			**3.1%**			**3.3%**
1a. River training works on 4.5km	*4,500m*	*20.0%*	*700m*	*15.5%*	*3.1%*	*750m*	*16.6%*	*3.3%*
1b. Land reclamation on 66ha	*66ha*	*15.0%*	*0ha*	*0.0%*	*0.0%*	*0ha*	*0.0%*	*0.0%*
1c. Flood early warning system installed	*130,500$*	*5.0%*	*0$*	*0.0%*	*0.0%*	*0$*	*0.0%*	*0.0%*
Output 2 Municipal infrastructure installed		**40.0%**			**0.0%**			**0.0%**
2a. 10 km of urban roads built	*10,000m*	*10.0%*	*0m*	*0.0%*	*0.0%*	*0m*	*0.0%*	*0.0%*
2b. Water treatment plant constructed	*xxx$*	*5.0%*	*0$*	*0.0%*	*0.0%*	*0$*	*0.0%*	*0.0%*
2c. 12km of water distribution pipes constructed	*12,000m*	*5.0%*	*0m*	*0.0%*	*0.0%*	*0m*	*0.0%*	*0.0%*
2d. 9km of sewage pipes and 9 km of storm drains constructed	*18,000m*	*5.0%*	*0m*	*0.0%*	*0.0%*	*0m*	*0.0%*	*0.0%*
2e. Sewage treatment plant constructed	*xxx$*	*5.0%*	*0$*	*0.0%*	*0.0%*	*0$*	*0.0%*	*0.0%*
2f. System for solid waste management installed	*xxx$*	*2.0%*	*0$*	*0.0%*	*0.0%*	*0$*	*0.0%*	*0.0%*
2g. 630kva grid substation constructed	*xxx$*	*2.0%*	*0$*	*0.0%*	*0.0%*	*0$*	*0.0%*	*0.0%*
2h. 16km of HV power distribution lines installed	*16,000m*	*3.0%*	*0m*	*0.0%*	*0.0%*	*0m*	*0.0%*	*0.0%*
2i. 11 km of telecom cables installed	*11,000m*	*3.0%*	*0m*	*0.0%*	*0.0%*	*0m*	*0.0%*	*0.0%*
Output 3 Township management systems installed		**10.0%**			**0.0%**			**0.0%**
3a. Township management staff improved knowledge of urban management	*80% of staff*	*5.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
3b. Asset management system installed	*100% of infra*	*4.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
3c. Potential investors to attend investor outreach campaign	*10 investors*	*1.0%*	*0*	*0.0%*	*0.0%*	*0*	*0.0%*	*0.0%*
Overall Project Progress		**100.00%**	**100.00%**		**11.1%**			**11.2%**

Appendixes

Appendix 1: Design and Monitoring Framework

Appendix 2: Updated Implementation Schedule

Appendix3: PMU and PIU Positions

Appendix 4: List of particular meetings, training/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

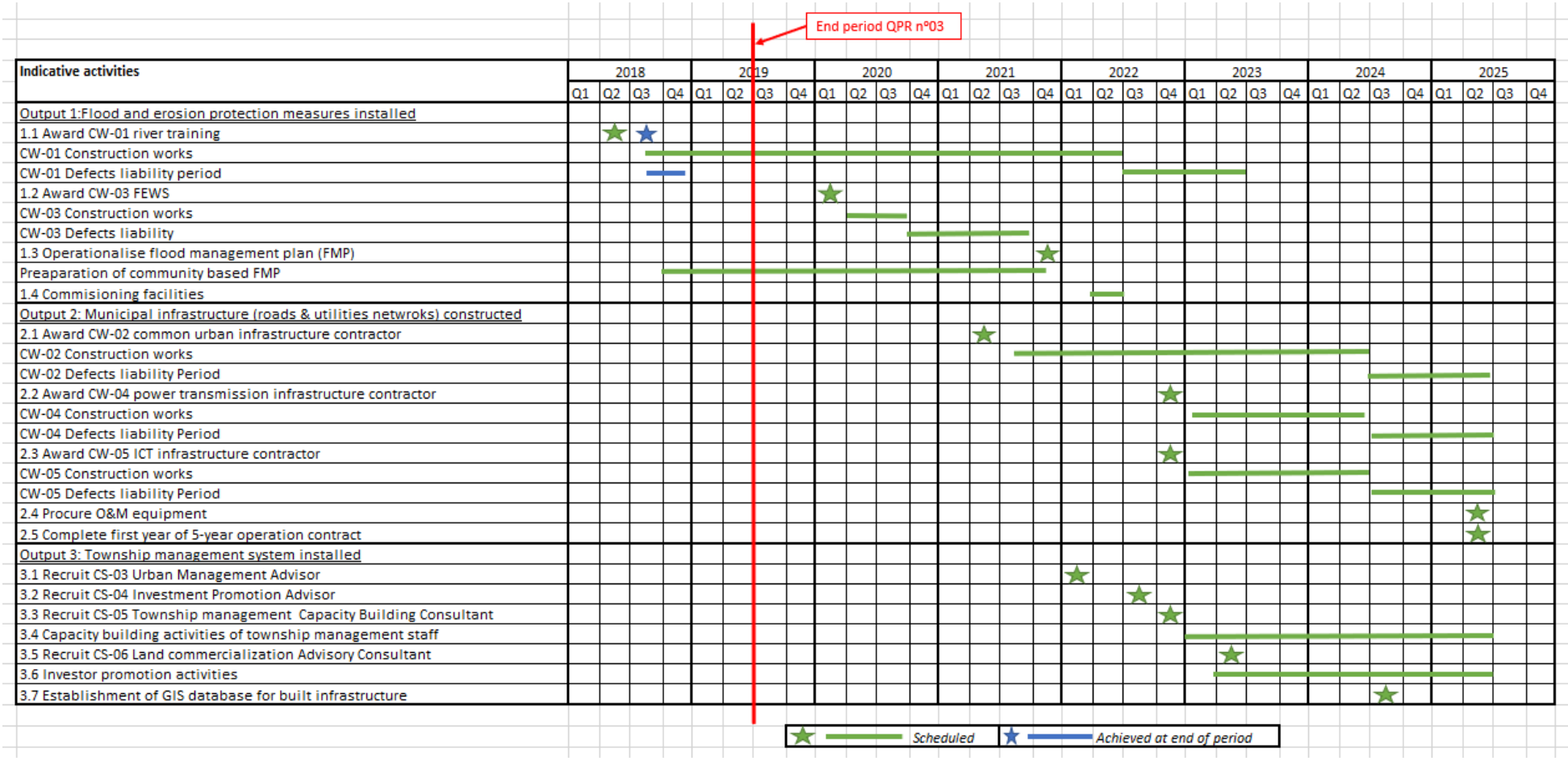
Appendix 11: Compliance with Loan and Grant Covenants

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: c. Phuentsholing and reclaimed land protected from 100-year flood events in the Amochhu River (2018 baseline: Phuentsholing is protected from mean annual floods) d. At least 10% of fully serviced plots tendered for development (2018 baseline: NA)	a. First assessment of the progress of achievement when cast-in-situ wall achieved. Q2/2020. b. confirmation of tender scheduleQ2/2024
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. 21% Achieved. 1b. Construction of backfilling started in Feb 2019. 6.5 % 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 the 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. Phuntsho Gyeltshen
2	Director, Department of Engineering and Construction	Mr. Reezang Wangdi (resigned), new to be recruited
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. Lhaten Tshering
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, training/workshops and visits

Appendix 4.1 List of particular meetings from 1st April to 30th June 2019

No.	Subject	Date	Location	Attendee
1.	1st Monthly Coordination Meeting	09th April 2019 10:00 AM	CW01 Conference Hall	PIU/PD, PIC, CW01
2.	ADB Mission Meeting	6th May-7th May 2019	CDCL Office Thimphu	ADB, PMU, PMC, PIU, PIC
3.	ADB Mission Meeting	09th May 2019	PIU Meeting Room	ADB, PIU, PIC
4.	ADB & Thromde Meeting	10th May 2019	Phuntsholing Thromde Office	ADB, PMU, PIU, PIC
5.	2nd Coordination Meeting with PCR & PTDP	27th May 2019	PIU Meeting Room	PIU, PIC, PCR
6.	2nd Monthly Coordination Meeting	10th June 2019 10: 00 AM	CW01 Conference Hall	PIU, PIC, CW01
7.	Emergency Evacuation Briefing by CW01	10th June 2019 11:30 AM	CW01 Conference Hal	PIU, PIC, CW01
8.	Project Management Committee Meeting (1st , 2nd and 3rd PMC)	3rd April, 24th May and 14th June 2019	1st & 2nd meeting at CDCL,Thimphu, 3rd PMC in PIU Meeting Room	PMC, PMU and PIU
9.	HCP Meeting 1	25th June 2019 10:00 AM	PIU Meeting Room	PIU, PIC, HCP
10	HCP Meeting 2	26th June 2019 10:00 AM	PIU Meeting Room	PIU, PIC, CW01, HCP
11	ADB Hydrologist & PIC Hydrologist & Sediment Specialist	28th June - 29th June 2019 11:00 AM	PIU Meeting Room	ADB, PIU, PIC

Appendix 4.2 List of training and workshops from 1st April to 30th June 2019

No	Subject	Date	Location	Attendee
1.	Safety Motivation Program by CW01	24th April 2019 16: 30 PM	CW01 Assembly Point	PIU, PIC, CW01
2.	Fire Briefing and Mock Drill by CW01	13th May 2019 10:00 AM	Near CW01 Batching Plant	PIU, PIC, CW01
3.	World Environmental Day (Plantation at CW01 Campsite)	5th June 2019 10:00 AM	CW01 Camp Site	PIU, PIC, CW01
4.	World Environment Day (Safety Awards by CW01)	5th June 2019 16: 30 PM	CW01 Assembly Point	PIU, PIC, CW01
5.	MIS Presentation & Training by QLE/CM & IT/MIS (PIC)	10th June 2019 15:00 PM	PIU Meeting Room	PIU, PIC,

Appendix 4.3 List of visits from 1st April to 30th June 2019

No.	Subject	Date	Location	Attendee
1.	Office of Gyalpoi Zimpon, His Majesty's Secretariat	10th April 2019 12:00 PM	Site Project/PIU Meeting Room	His Majesty's Secretariat Officials, PIU, PIC, CW01
2.	Secretary of Ministry of Work and Human Settlement	10th April 2019 17:00 PM	Site Project/PIU Meeting Room	MoWHS, PIU, PIC, CW01
3.	Bhutan Association of Women Entrepreneurs & Phuntsholing Thromde	14th May 2019	Site Project	BAoWE, Phuntsholing Thromde, PIU
4.	Dasho Chariman and CEO of Druk Holding & Investment (DHI)	26th & 27th June 2019	Site Project	DHI, PIU, PIC, CW01
6				

Appendix 5: Traffic study

The project has the Samtse-Phuentsholing highway running along its boundary and at the northern end of the project site lies a private quarry. This quarry has one of 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 road diversion works done on 1st March the approach road to the project office site is safe as compared to the months prior to that. Now it is mainly the project vehicles plying in and out of the site, small private vehicles dropping off individuals working in the project or heavy vehicles transporting construction materials to and from the project site.

To illustrate interference with third parties' vehicles, PIC asked the Contractor to conduct simple traffic counts to identify the vehicle type and origin. The traffic counts were not conducted for the month of April, but it was done on 14th May and 9th & 10th June 2019. **Table 1** below gives the traffic results, which shows that the road used by the project vehicles is minimal in comparison to third party vehicles.

Table 1: Traffic counts conducted on 14th May 2019

DAY									
Location / Date / Time	**Project LV**	**Project HV**	**Trailer**	**Project Total**	**Others LV**	**Others HV**	**Trailer**	**Others Total**	**Total Veh**
Entrance gate (14/05/2019)	1	-	**-**	**1**	741	466	**5**	**1212**	**1213**
Road between the office and camp (14/5/2019)	51	60	**-**	**111**	202	87	**2**	**291**	**402**
Part 5 Security Cabin (14/05/2019)	18	50	1	**69**	365	405	**3**	**773**	**842**
NIGHT									
Location / Date / Time	**Project LV**	**Project HV**	**Trailer**	**Project Total**	**Others LV**	**Others HV**	**Trailer**	**Others Total**	**Total Veh**
Entrance gate (14/05/2019)	21	7	1	**29**	209	172	**1**	**382**	**411**
Road between the office and camp (14/5/2019)	**Road remains closed at night**								
Part 5 Security Cabin (14/05/2019)	7	25	1	**33**	101	105	6	**212**	**245**
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

Table 2: Traffic counts conducted from 9-10th June 2019

DAY						
Location / Date / Time	**Project LV**	**Project HV**	**Trailer**	**Others LV**	**Others HV**	**Trailer**
09/06/2019	49	30	2	1110	568	3
10/06/2019	60	46	2	971	481	3
Total	106	76	4	2081	1049	6
NIGHT						
Location / Date / Time	**Project LV**	**Project HV**	**Trailer**	**Others LV**	**Others HV**	**Trailer**
09/06/2019	13	7	1	238	68	2
10/06/2019	8	5	3	347	178	1
Total	21	12	4	585	246	3

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 7.36% for May and 6% for the month of June.
- During the night hours, vehicles related to the project accounted for an average of 9.46% in May and 4% in June.
- Other vehicles during the day time account to an average of 92.64% in May & 94% in June.
- During the night hours, other vehicles accounted for an average of 90.54% in May & 96% in June.
- As the result indicates there has been a decrease in project vehicle movement both during the day and night time from May to June.

Appendix 6: Updated Procurement Plan and Contract Award Schedule

Amochu 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	Advertize Bid	Bids Submitted	Submission Date of TDER to ADB for clearance	Submission Date for 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-Aug-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									

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	Advertize Bid	Bids Submitted	Submission Date of TDER to ADB for clearance	Submission Date for FBER to ADB for Clearance	Target date of Contract Award	Start Date
Consultants															
1	CS-01	5.7	Project Implementation Consultant	2	QCBS 90:10	Q3-2018 to Q2-2025			6-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	0.1	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	0.1	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	1.3	Sustainable township management capacity development		QCBS 90:10	Q1-2023 to Q2-2025		6-May-22	23-May-22	10-Jul-22	4-Sep-22	2-Oct-22	30-Oct-22	4-Dec-22	1-Jan-23
6	CS-06	1.1	Investor promotion and transaction advisory services		QCBS 90:10	Q3-2023 to Q2-2025		3-Nov-22	10-Nov-22	7-Jan-23	4-Mar-23	1-Apr-23	29-Apr-23	3-Jun-23	1-Jul-23

achieved
pending
overdue
actual dates

	Indicative Durations						
ICB Works	14	35	42	28	35	21	28
ICB Works	7			86	28		
NCB Goods	7			72	28		
QCBS	7	58	56	28	28	35	28
ICS	7	35		35			28

Notes:
1 Includes cross drainage structures, land formation, and about $250K for supply and
2 to include prov sum packages for traffice management study ($100K), preparation of emergency management plan ($200K), and

Detail on Contract award process

Contract	Bid prepa.	Bid period	Bid evaluation	Award & Negotiation	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	4th April 2019

Appendix 7: Updated 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**

[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: 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* (Q2 2019)		Total Billed incl. this Quarter*	
	Cur;	Amount	Amount	%	Amount	%	Amount	%
Civil Works Contracts (CW-01)	BTN	2,934,669,207	121, 056,567	4.12	161,692,911	5.5	282,749,478	9.63
Consultancy Services (CS-01 PIC)	USD	4,138,144.85	51,960	1.3	47,937.88	1.2	99,897.88	2.42
	BTN	91,474,227	981,568	1.07	1,484,357	1.62	2,465,925	2.7

[a]*Amount of works and services billed, taxes included but advance payment not included. IPC March 2019 included (values in report-2 includes advance payment)*

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$) (a)	Contracts Awarded (mil. US$)a (b)	Uncontracted Balance (mil. US$) (c) = (a - b)	Total Disbursed (mil. US$) (d)	Undisbursed Amount (mil. US$) (e) = (a -d)
Loan	Civil Works	15.05	15.05	0	0	15.05
	Consulting services	7.42	5.34	2.08	0.65	6.77
	Contingencies - Physical	1.46		1.46		1.46
	Contingencies - Financial	4.82		4.82		4.82
	Sub total	**28.74**	**20.39**	**8.35**	**0.65**	**28.09**
Grant	Civil Works (CW-01)	19.57	19.57	0	7.4	12.17
	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 an 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

Exchange rate 1USD=70BTN

PTDP Loan: Contract Awards and Disbursement($Million)

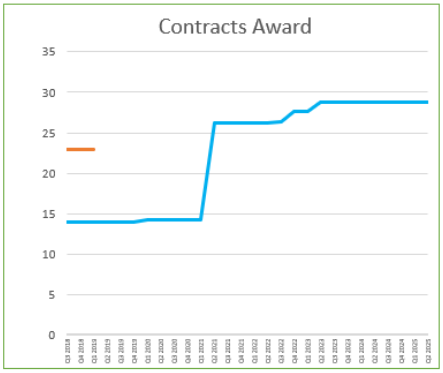
	Contract Awards($Million)					Disbursements($Million)				
Year	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total
2018			14,04		14,04				1,38	1,38
2019					0	0,64	0,64	0,64	0,65	2,57
2020	0,2				0,2	0,64	0,64	0,74	0,75	2,77
2021		11,94			11,94	0,64	0,64	0,64	1,84	3,76
2022		0,1	0,1	1,28	1,48	1,54	1,54	1,54	1,54	6,16
2023		1,08			1,08	1,1	1,22	1,22	1,36	4,9
2024					0	1,36	1,36	1,36	1,36	5,44
2025					0	0,46	1,3			1,76
	Total contract award				28,74	Total Disbursements				28,74

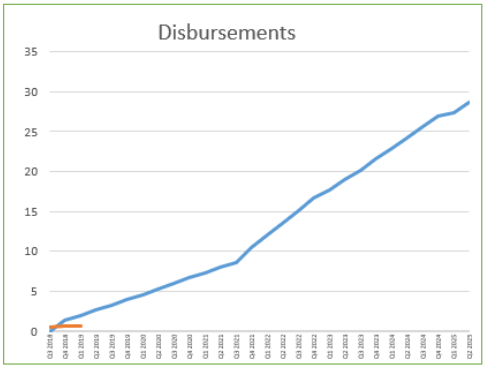
Loan conracts Award ($million)

	Target		Actual	
Quarter	Amount	Cumul.	Amount	Cumul.
Q3 2018	14,04	14,04	23,01	23,01
Q4 2018	0	14,04	0	23,01
Q1 2019	0	14,04	0	23,01
Q2 2019	0	14,04	0	23,01
Q3 2019	0	14,04	0	23,01
Q4 2019	0	14,04	0	23,01
Q1 2020	0,2	14,24	0	23,01
Q2 2020	0	14,24	0	23,01
Q3 2020	0	14,24	0	23,01
Q4 2020	0	14,24	0	23,01
Q1 2021	0	14,24	0	23,01
Q2 2021	11,94	26,18	0	23,01
Q3 2021	0	26,18	0	23,01
Q4 2021	0	26,18	0	23,01
Q1 2022	0	26,18	0	23,01
Q2 2022	0,1	26,28	0	23,01
Q3 2022	0,1	26,38	0	23,01
Q4 2022	1,28	27,66	0	23,01
Q1 2023	0	27,66	0	23,01
Q2 2023	1,08	28,74	0	23,01
Q3 2023	0	28,74	0	23,01
Q4 2023	0	28,74	0	23,01
Q1 2024	0	28,74	0	23,01
Q2 2024	0	28,74	0	23,01
Q3 2024	0	28,74	0	23,01
Q4 2024	0	28,74	0	23,01
Q1 2025	0	28,74	0	23,01
Q2 2025	0	28,74	0	23,01

Loan Disbursements ($million)

	Loan		Actual	
	Quarter	Cumul.	Quarter	Cumul.
Q3 2018	0	0	0,58	0,58
Q4 2018	1,38	1,38	0,05	0,63
Q1 2019	0,64	2,02	0	0,63
Q2 2019	0,64	2,66	0	0,63
Q3 2019	0,64	3,3	0	0,63
Q4 2019	0,65	3,95	0	0,63
Q1 2020	0,64	4,59	0	0,63
Q2 2020	0,64	5,23	0	0,63
Q3 2020	0,74	5,97	0	0,63
Q4 2020	0,75	6,72	0	0,63
Q1 2021	0,64	7,36	0	0,63
Q2 2021	0,64	8	0	0,63
Q3 2021	0,64	8,64	0	0,63
Q4 2021	1,84	10,48	0	0,63
Q1 2022	1,54	12,02	0	0,63
Q2 2022	1,54	13,56	0	0,63
Q3 2022	1,54	15,1	0	0,63
Q4 2022	1,54	16,64	0	0,63
Q1 2023	1,1	17,74	0	0,63
Q2 2023	1,22	18,96	0	0,63
Q3 2023	1,22	20,18	0	0,63
Q4 2023	1,36	21,54	0	0,63
Q1 2024	1,36	22,9	0	0,63
Q2 2024	1,36	24,26	0	0,63
Q3 2024	1,36	25,62	0	0,63
Q4 2024	1,36	26,98	0	0,63
Q1 2025	0,46	27,44	0	0,63
Q2 2025	1,3	28,74	0	0,63





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

PTDP Grant: Contract Awards and Disbursement($Million)

Exchange rate 1USD=70BTN

Contract Awards($Million) Disbursements($Million)

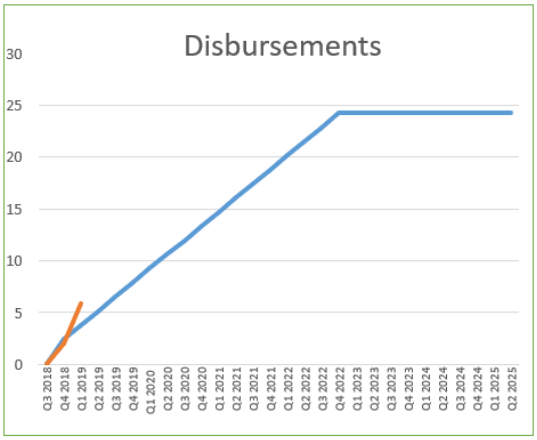
Year	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total
2018			24,26		24,26				2,43	2,43
2019					0	1,37	1,37	1,37	1,37	5,46
2020					0	1,37	1,37	1,37	1,37	5,46
2021					0	1,37	1,37	1,37	1,37	5,46
2022					0	1,37	1,37	1,36	1,36	5,45
2023					0					0
2024					0					0
2025					0					0
	Total contract award				24,26	Total Disbursements				24,26

Grant conracts Award ($million)

	Target		Actual	
Quarter	Amount	Cumul.	Amount	Cumul.
Q3 2018	24,26	24,26	23,89	23,89
Q4 2018	0	24,26	0	23,89
Q1 2019	0	24,26	0	23,89
Q2 2019	0	24,26	0	23,89
Q3 2019	0	24,26	0	23,89
Q4 2019	0	24,26	0	23,89
Q1 2020	0	24,26	0	23,89
Q2 2020	0	24,26	0	23,89
Q3 2020	0	24,26	0	23,89
Q4 2020	0	24,26	0	23,89
Q1 2021	0	24,26	0	23,89
Q2 2021	0	24,26	0	23,89
Q3 2021	0	24,26	0	23,89
Q4 2021	0	24,26	0	23,89
Q1 2022	0	24,26	0	23,89
Q2 2022	0	24,26	0	23,89
Q3 2022	0	24,26	0	23,89
Q4 2022	0	24,26	0	23,89
Q1 2023	0	24,26	0	23,89
Q2 2023	0	24,26	0	23,89
Q3 2023	0	24,26	0	23,89
Q4 2023	0	24,26	0	23,89
Q1 2024	0	24,26	0	23,89
Q2 2024	0	24,26	0	23,89
Q3 2024	0	24,26	0	23,89
Q4 2024	0	24,26	0	23,89
Q1 2025	0	24,26	0	23,89
Q2 2025	0	24,26	0	23,89

Grant Disbursements ($million)

	Target		Actual	
Quarter	Amount	Cumul.	Quarter	Cumul.
Q3 2018	0	0	0	0
Q4 2018	2,43	2,43	2,07	2,07
Q1 2019	1,365	3,795	3,83	5,9
Q2 2019	1,365	5,16	0	5,9
Q3 2019	1,365	6,525	0	5,9
Q4 2019	1,365	7,89	0	5,9
Q1 2020	1,365	9,255	0	5,9
Q2 2020	1,365	10,62	0	5,9
Q3 2020	1,365	11,985	0	5,9
Q4 2020	1,365	13,35	0	5,9
Q1 2021	1,365	14,715	0	5,9
Q2 2021	1,365	16,08	0	5,9
Q3 2021	1,365	17,445	0	5,9
Q4 2021	1,365	18,81	0	5,9
Q1 2022	1,365	20,175	0	5,9
Q2 2022	1,365	21,54	0	5,9
Q3 2022	1,36	22,9	0	5,9
Q4 2022	1,36	24,26	0	5,9
Q1 2023	0	24,26	0	5,9
Q2 2023	0	24,26	0	5,9
Q3 2023	0	24,26	0	5,9
Q4 2023	0	24,26	0	5,9
Q1 2024	0	24,26	0	5,9
Q2 2024	0	24,26	0	5,9
Q3 2024	0	24,26	0	5,9
Q4 2024	0	24,26	0	5,9
Q1 2025	0	24,26	0	5,9
Q2 2025	0	24,26	0	5,9



Appendix 9: Monthly Environmental Monitoring Review for 3rd Quarter (April – June 2019)

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 the 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 package CW-01 has been awarded to M/s AFCONS Infrastructural Limited, India. As a supervising consultants (Project Implementation Consultant, PIC), CDCL has appointed M/s EGIS International, who acts as the Engineer on behalf of the implementation agency.

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 April to June 2019, a summary of the environmental monitoring review has been prepared. The purpose of this section provides a review of the status of environmental safeguards and monitoring activity that is being adopted and 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 the start of construction diaphragm-wall, first outfalls construction and the start of backfilling construction

Works Progress

Works Progress are detailed in Chapter B3 “Implementation of physical works” of the present report.

Methodology for Environmental Monitoring

The monitoring methods used are visual inspection, informal interview of workers and residents and photographic documentation. Checklists 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	12x /year	Contractor	As per the Outline
PIC monthly report	Zone A	12	12x /year	PIC	As per the Outline
Quarterly Report	Zone A	4	4x /year	PIC	As per the Outline
Semi-Annual Report	All PTDP Zones	2	2x /year	PIC	As per the Outline
Air Quality Monitoring	All PTDP Zones	6	2x /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	2x / year	April and October	pH, Color, Electrical conductivity, TDS, Turbidity, 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
Water Quality Monitoring	Zone A	2	Monthly	By 15th of each month	
Ground Water Quality	Zone A	2	2x / year	April and October	
Soil Testing/ Ground Contamination Monitoring	Zone A	1	Monthly	By 15th of each month	Visual observation of contamination from oil, grease and other foreign materials.
Meteorology	Zone A	1	1 hourly	Monthly Weather Report. By 15th of the following month	Wind speed, Wind Direction, Temperature, Relative Humidity, Rainfall
Ecology	All PTDP Zones	All Zones	4x / year	January, April, July, and October	Terrestrial flora and fauna, Zooplankton, Phytoplankton, Benthos & fishes
Biodiversity monitoring and benchmarking study (BMBMS)	All PTDP Zones	All	4x / 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 April to June 2019 is enclosed here below:

Parameters	Location	Frequency	April. 2019	May. 2019	June. 2019	Results / Comments
Contractors Environmental Monthly Report	Zone A	12x /year	06/05/2019	04/06/2019 for May	04/07/2019 for June	Submitted by Contractor
PIC monthly report	Zone A	12x /year	25/05/2019 for April 2019	19/06/2019 for May 2019	22/07/2019 for June 2019	Submitted by PIC
Quarterly Report	Zone A	4x /year	Ø	Ø	26/07/2019 April – June	Submitted by PIC
Semi-Annual Report	Zone A	2x /year	Ø	Ø	30/07/2019 for July	Submitted by PIC
Air quality	6 location	2x /week	01/04/2019-30/04/2019	01/05/2019-30/05/2019	01/06/2019-30/06/2019	Results have been submitted in the contractor's monthly report.
Noise – All PTDP zones	6	Once every month	01/04/2019-30/04/2019	01/05/2019-30/05/2019	01/06/2019-30/06/2019	Results have been submitted in the contractor's monthly report.
Surface Water quality – All PTDP zones	10	2x / year	Ø	Ø	Ø	Sampling to be done in Q2/ 2019. Results have been submitted in the contractor's monthly report
Surface Water quality – Zone A	2	Monthly	29/04/2019	02/06/209	29/06/2019	Results SW04 & 05 have been submitted in the contractor's monthly report

Groundwater quality	Zone A	2x / year	Ø	02/06/2019	Ø	The 2nd groundwater quality was carried out in May 2019. Sampling to be carried in Q2/ 2019
Soil Testing/ Ground Contamination	Zone A	Monthly	Ø	Ø	Ø	Visual observation has been submitted in the contractor's monthly report
Meteorology	Zone A	1 hourly	01-30 April 2019	03-31 May 2019	01-30 June 2019	Meteorology station setup place on 6th March 2019. The result has been submitted as part of the contractor's monthly report
Ecology	All PTDP Zones	4x / year	27/04/2019 – 01/05/2019 Aquatic Study	Ø	22/06/209 Terrestrial Study	The terrestrial study was conducted in June due to unavailability from the Forestry Department
Biodiversity monitoring and benchmarking study (BMBMS)	All PTDP Zones	4x / year - for 3 years	Ø	Ø	Ø	ToR for BMBMS resubmitted to ADB for review

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

Air Quality[1]

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 station twice every week. Depending on the results of the monthly tests, mitigation measure is being strictly implemented. Below is a summary of the results collected for the month of April, May and June 2019.
The PTDP project site is situated along the main Phuentsholing-Samtse highway. As reflected on the table above all six locations were within the permissible limit for the month of April. Whereas for the month of May location AA05 and for June locations AA03, AA04 and AA06 were above the permissible limit.

There are multiple external factors that are contributing towards the high level of air pollution at the four locations along with the PTDP project site:

i. The test at AA05 was conducted on 22nd May 2019. The average temperature for the day was recorded at 27.1°C with 15mm of rainfall for the day. This is also the route commonly used to commute to and from Phuentsholing to Samtse. Keeping in mind factors such as high temperature, little rainfall, unpaved roads and high vehicular movement, settled dust is being suspended into the air, and the emission from the movement of vehicles are all factors contributing towards the sudden rise in pollutants in the location.
ii. The temperature recorded for AA03 on 18th June was 33.1°C, and on the same day, a high value of Nitrogen Oxide of 3.608 µg/m^3 was recorded, which indicates high movement of vehicles along with the location.
iii. Whereas for AA04 and AA06 high TSPM and PM10 is indicated because the stations are located near the highway which is unpaved and due to high vehicular movement, settled dust is being suspended into the air, and the emission from the movement of vehicles are all factors contributing towards the sudden rise in pollutants in the locations.

[1]The 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.

iv. PTDP is not the only ongoing activity in the area Rigsar and Yangkhil have resumed their work, which is located behind the PTDP project site, due to which the project has seen a sudden increase in heavy vehicles moving along the project route transporting constructions materials to and from the Rigsar&Yangkhil site. the On most days due to the roads being unpaved and movement of heavy vehicles to and from the Rigsar and Yangkhil site, settled dust soar into the air and are occasionally high enough to obscure vision temporarily.

v. Trucks are also parked along the Phuentsholing-Samtse highway, and due to congestion, the emission from vehicles are another contributor towards a high level of TSPM, PM10 and PM 2.5. In addition, there are many workshops located along the highway and emissions from vehicles and equipment used from the workshops are another contributor to the high level of pollutants in the vicinity.

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 Bulkers 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 area to reduce the speed of huge trucks and commuters.

- A traffic survey is also conducted every month by the contractors to study the number of times the project vehicles are using the highway in comparison to third-party vehicles. This study is conducted to ensure that project vehicles are not a major contributor to pollution.

- Contracts are also ensuring that all construction materials at the site are covered in tarpaulin.

Noise

Noise quality monitoring is conducted every day over a period of 24 hours by Ecolab in six locations. The test is conducted once during the day and the other at night time. Noise test is conducted to ensure that the sound generated is not only produced from project activities but from natural factors as well as other undertakings occurring in the vicinity. The test is also to ensure that the noise generated from the project area is temporary and will not have any lasting impact after its completion. Once the noise data has been gathered any mitigation measures which need to be taken care are immediately and strictly implemented.

For the month of April, four locations during both the day and night were within the permissible limit. In locations, NL01 and NL02 noise were slightly above the permissible limit. For the month of May, all six locations were within the permissible limits. Whereas for the month of June five locations were within the permissible limit, except for NL06 which was slightly above the required limit during the day time.

There are multiple external factors that are contributing towards the high level of noise pollution at the three locations along with the PTDP project site:

i. In the last month, the project has seen a growing number of trucks parked along the Phuentsholing-Samtse highway. This is not only causing air pollution due to emission from vehicles, but congestion for daily commuters leading to constant honking, and running engines all contributing towards the rise in noise level in the vicinity.

ii. There are also many workshops located along the highway and noise from the use of equipment are another contributor to the high level of noise in the vicinity.
iii. Also dredging work by Rigsar and Yangkhil has resumed, which is located behind the project site, use of heavy machinery and constant movement of heavy vehicles with construction materials are all contributors towards the rise in noise especially in location NL06.
iv. Also, work at part five of the PTDP project started, and location NL06 is not far from the activities. Noise is mostly being generated from the use of heavy machinery for the construction of D-wall and movement of project vehicles. Work which requires the use of heavy and loud machines are only allowed to function until regular working hours.
v. During the month of May and mostly in June, Phuentsholing received heavy rainfall and thunderstorm, which are also major contributors to the rise in noise pollution.
vi. Locations NL01 and NL02 are situated away from the main PTDP project site. So a high level of noise indicated are not due to the PTDP project but rather caused by other external factors and activities ongoing along with the two locations. One of the major factors is the problem of vehicle congestion which has exacerbated over the past few months due to developments happening around Phuentsholing town. Other factors include the multiple ongoing activities happening along with the two locations, such as construction activities like drilling, and movement of heavy vehicles carrying construction materials, are all contributors towards the high level of noise pollution in the two locations. The noise generated during the testing are not permanent, and will not have any future impact.

Mitigation Measures

There are many external factors contributing to the rise in noise pollution which cannot be controlled, but sounds generated from the PTDP project activities are monitored and controlled. Contractors are advised to complete all work which requires the use of heavy machinery, which could generate loud noise during normal working hours. Contractors are also informed to ensure that all workers living in the camps do not create too much noise which could disturb the neighbouring households. All project drivers are also prohibited from unnecessarily honking in the vicinity.

All workers at the site have been informed and encouraged to wear suitable gears and wear their earplugs at all times or while functioning machines which generate loud noise.

Surface Water Quality

The surface water test is conducted to ensure that the project does not pollute and impact the Amochhu River. Ten locations (SW01-SW10) have been identified to conduct the water quality test. Out of the ten locations, a monthly test is conducted for SW04 & SW05 which are points right above and below the project camp area. This is to monitor and ensure that any camp or project activities are not contributing towards any form of pollution along that stretch of the river. Whereas a pre and post-monsoon water quality test encompassing SW01-SW10 are conducted every six months.

The surface water test was conducted for SW04 & SW05 for the months of April, May and June. The data for the month of April, May and June reflects that all parameters are within the permissible limits except the TSS and dissolved Oxygen which is slightly above the permissible limits.
The surface water test for the three months was conducted during the start and peak of monsoon season, where Phuentsholing received heavy rainfall. Due to frequent rainfall, an average of 8 mm was recorded for April, an average of 29.71 mm and highest of 170 mm for May and an average of 41.27 mm and highest of 421 mm of rainfall was recorded for June. Due to the heavy rainfall, there was an increase in the river turbidity, which increased siltation and sedimentation in the river. Other factors such as disposal of materials from construction sites along the Omchhu, and industrial waste (from Karma steel) and settlements along the Omchhu are all factors contributing towards high TSS.
The data for surface water for all three months also indicated high dissolved oxygen. Dissolved Oxygen concentration in a freshwater system like the Omchhu and Amochhu river will vary depending on the season, location and water depth. Due to Phuentsholing town's geographical location at a lower altitude, the rivers are able to hold more dissolved oxygen in comparison to a higher altitude. In addition to the change in climate, heavy rainfall causing an influx of stormwater, which leads to an increase in the water level and decrease in the water temperature are all contributors towards a higher DO.

Mitigation Measures

Since the cause of high TSS and DO in locations SW04 & SW05 are due to external and natural factors, the PTDP can only ensure that our project and camp activities are not contributing towards the pollution. This can be achieved by ensuring that camp or project sites are:

- Properly collecting and disposing of all waste
- No dumping of construction materials along the riverbed or in the river
- Ensure that all construction materials are well covered
- Ensure that all restrooms in the project and campsites are well maintained so that workers are discouraged from defecating around the project vicinity or near the river
- Making sure to service the septic system at the project site and camps
- Landscaping the project office and camps with native plants

Meteorology

The metrological station was installed in March 2019. The average meteorological reading for the month of April, May and June are as follows:

Meteorological data for April

Parameters	Rainfall (mm)	Relative Humidity (g/m^3)	Temperature (Degree Celsius)	Wind Speed (km/h)
Average readings	8	62.07	26.54	11
Minimum	-	40.1	18.1	-
Maximum	-	94.4	35.3	-

Meteorological data for May

Parameters	Rainfall (mm)	Relative Humidity (g/m^3)	Temperature (Degree Celsius)	Wind Speed (km/h)
Average readings	29.71	75.05	27.09	-
Minimum	BDL	47	23.1	0.1
Maximum	170	94.5	34.3	3.3

Meteorological data for June

Parameters	Rainfall (mm)	Relative Humidity (g/m^3)	Temperature (Degree Celsius)	Wind Speed (km/h)
Average readings	41.27	65.9	28.03	-
Minimum	BDL	44	23.8	3
Maximum	421	96.65	35.1	12.5

Water regime

The first Water Regime monitoring was conducted on the 1st of April. Pictures of the river will be taken by the contractors twice every week. This monitoring is being conducted, so that the project can record the change in waterways and water level, and examine and analyse the information to ensure that the project will not be impacted.
Below are images of the most drastic change in waterways for the month of April, May and June. Due to the heavy rainfall experienced in the past few weeks, the waterways have definitely changed but not drastically. The river has diverted its course and is closer to the river banks.

Water Level Monitoring

The first water level monitoring was conducted on 4th May 2019. This monitoring will be conducted twice every week (Mondays and Saturdays) between part 5 & 6, where construction activities are currently

ongoing. This monitoring is conducted to monitor the increase and decrease in the Amochhu water level. This monitoring is also another way to foresee any warning signs of flooding in the project area.
For the month of May, there was a rise of 0.09 m in the water level since the initial measurement which was taken on 4th May.
For the month of June, there was a rise of 0.458 m in the river level since the initial measurement which was taken on 1st June. On the 25th & 26th of June Phuentsholing received a cumulative rainfall of 542 mm but before the rainfall water level was monitored on the 24th and the reading was recorded at 200.85 m. Another monitoring was conducted on the 27th of June after the rainfall and the reading recorded was 202.18 m. Due to the continuous rainfall, there was a rise of 1.33 m of water level.
Due to the heavy rainfall, the river is also changing its course and instead of the water level increasing drastically, the river is becoming wider.

Ground contamination
To prevent ground contamination while using oil and grease, a tray container is used to prevent ground contamination in addition to the already cemented floor in the workshop. Although the contractors are taking measures to ensure no ground contamination occurs by using tray containers to store unsealed barrels of oil and grease, there were several spots around the project sites where there was leakage of oil and grease in the ground. This could be from vehicles, spillage during movement of barrels or from overflowing of the tray containers.
Several strategies for remediation are:

- The encapsulation process to ensure that contaminants do not spread any further.
- Thermal soil process is by baking the contaminated soil so contaminants evaporate and then disposing of the soil.
- Excavate soil and take it to a disposal site away from ready pathways for human or sensitive ecosystem contact.
- Containment of the soil contaminants such as capping or paving over in place

Ground Water Contamination

Groundwater testing is done every six months at two tube wells which are used for drinking and domestic use in the stockyard and the campsite to prevent any form of contamination due to oil and grease spillage. For the month of May, groundwater contamination was conducted at two points GW01 (Camp area) and GW02 (Office area). All test indicators were within the permissible limits.

Solid Waste Management

Colour-coded bins have been installed in the project and campsites. Blue for degradable and Green for biodegradable waste. The Phuentsholing Thromde Municipality makes a bi-weekly trip to collect waste from the project site. A monthly record is maintained by the contractors to understand the amount of waste generated.

Month	Degradable	Bio-Degradable
April	1.83 metric ton	1.79 metric ton
May	1.9 metric ton	1.8 metric ton
June	1.8 metric ton	1.6 metric ton

Ecological Study

The PTDP will also constantly monitor the aquatic and terrestrial ecology of the areas in and around the project site. An ecological study was carried out by Bhutan Ecolab consultants during the period 27th April to 1st May 2019. The assessment and findings from Aquatic and Terrestrial surveys are summarized below:

<u>Aquatic Survey</u>

The objective of the survey is to assess and determine the diversity of fish species in the Amochhu basin. The first Aquatic survey was conducted on 27th April – 1st May 2019.

- Electrofishing is the method used to conduct this survey

- Six sites were located to conduct the fish sampling
- During the study, 27 species of fishes were found
- The list of 27 species was then compared to the International Union for Conservation of Nature (IUCN) Out of the 27 species:
  - 16 species were of Least Concern: BadisBadis, BarilusBarna, GarraGotyla, GarraAnnandalei, SchisturaBeavani, CrossocheilusLatius, ChaguniusChagunio, BarilusBendelisis, MastacembelusArmatus, PethaTicto, BarilusVagra, LepidocephalichthysGuntea, SchizothoraxProgastus, Davarioaequipinnatus, PsilorhynchusBalitora, Danio Rerio
  - Two species were on the Endangered list: Tor Putitora and Amblycepsarunchalensis
  - Two species were on the Data deficit list: Glyptothrox Panda and Oreichthyssp
  - Two species were not evaluated by IUCN: ChannaMelanostigma and Aborichthyssp
  - Two species were have not been evaluated by IUCN: Pethiasp and Glyptothoraxsp
  - Three species were not found on the IUCN red list: Neolissochilushexagonolepis, Semiplotussemiplotus and Channagachu
- Zooplankton such as dragonfly larvae, prawns and shrimps were also found
- Phytoplankton such as algae was found while testing

Terrestrial Study

This objective of this study is to evaluate the diversity of terrestrial ecological components in the project area and the impacts. The Terrestrial Survey was conducted on 22nd June 2019 by Ecolab accompanied by a forester from the Ministry of Agriculture and Forestry Department.
All plant species found in the study area are not endangered and are not listed under the IUCN red list. A total of 3 plant species were found in zone A, B and C namely:

- Kari Pata (Latana Camera)
- Khari (Acacia Catechu)
- Bass (Bambusabalcooa)

During the survey, no wild animals were sighted.

This study is being conducted by Ecolab for all four seasons. This study is being conducted to comprehend the diversity of species and plants in the PTDP project area.

Appendix 10: Health and safety monitoring for 3rd Quarter (April – June 2019)

Sl. No.	Monitoring activities	Refer Legend for appropriate marking	
A. OVERALL CONSTRUCTION SITES			
1	Equipment/ Machines in Proper condition and safe	0	Yes
2	First Aid and Medical facilities	0	Yes
3	Any Community / Social Concerns	0	No
4	No encroachment into the farm land/ Settlement	0	No
B. WORK STANDARDS			
1	General work area clean and tidy	0	Yes
2	Radio communications (emergency & general), call-up procedures adequate	0	Yes
3	Signage (PPE, safety & restricted access) visible, legible, good condition	0	Yes
4	Adequate signage at workshop yard entrance (e.g. Danger – Deep Excavation, Hazardous & Flammable materials, pressurized gasses, etc)	0	Yes
C. WORK ENVIRONMENT			
1	Stockpiles & materials stacked and maintained in a safe condition	0	Yes
2	Adequate lighting on-site, covered storage areas, vehicle maintenance pit	0	Yes
3	Segregated work areas and signage adequate (direction, warnings)	0	Yes
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	Sealed tanks are well stored, and unsealed tanks have trays or tarpaulin below
2	Workers exposed to hazardous substances trained, adequate instruction provided	0	Yes
3	Health/ Safety surveillance is undertaken where appropriate	0	Yes
4	Material safety data sheet available for hazardous substances		Yes
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	Yes. Tanks and soak pits at the workers camp and project office is being cleaned every month. Tanks at the project sites are being cleaned every week.
3	Properly labelled garbage bins installed around the kitchen & other areas and emptied regularly	0	Yes
4	Is the garbage in good management and disposed to the Thromde collection system?	0	Approx 1.79 Metric tons of dry waste was generated. 6 trips of solid waste trucks was completed by the Phuentsholing Thromde
5	Soak pits are proper, covered, with no overflow?	0	No overflow
6	Kitchen sewage/waste disposed of in infiltration pits, with ACF, closed system?	0	Approx1.83 Metric tons of degradable waste was generated. 6 trips of the solid waste truck and 3 trips of sewage sludge was made by Phuentsholing Thromde
7	Adequate water supply for washbasin & flush toilets?	0	Yes. Water tankers at

Sl. No.	Monitoring activities	Refer Legend for appropriate marking	
			project sites are refilled every morning and as and when needed.
F. DUST & SMOKE			
1	No visible dust clouds from excavation/levelling activity.	0	No
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)	0	Yes
2	Site supervisors/ safety officer gives weekly toolbox talks to reinforce training to all the labourers?	0	Total of 26 toolbox talks conducted this month
3	Equipment (backhoe etc.), machines, and vehicles are in proper condition with details of registration- emission certificate/ fitness certificates.	0	Yes
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	Yes
6	Warning signs in place to shield workers from passing vehicle and segregation such as traffic cone and barrels	0	Yes
7	Fencing/ Markers installed on all areas such as excavation, concreting, and side of temporary work/pits greater than 1m deep	0	Yes
8	Information for workers and adequate awareness working near construction vehicles & equipment the operator/ driver knows where the persons are located?	0	Yes
9	Communicate with the driver using a radio, hand signals, etc.	0	Yes
10	Reversing siren, whistle, air-horn on vehicles or another device to warn fellow workers when they are in danger.	0	The alarm has been installed and a mock drill was conducted at the site on 27th June.
11	Flagmen in place with flags and radio fully equipped and completed training?	0	Yes
12	Proper Traffic Management Plan is available and adhered to	0	Yes. Traffic survey is being conducted.
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	Yes
15	Employee register with gender, nationality, skills maintained at the site	0	Yes
16	Visitor Card, Register, Briefing, and Management System adopted	0	Yes
H. ACCOMMODATION REQUIREMENTS			
1	Domestic animals controlled to avoid nuisance?	0	Yes. All construction materials are barricaded and well covered
2	Information board to employees/method notification in the campsite?	0	Yes

Legend: 0– No significant concern; √ Environmental or Safety concern, action to be taken. Non-Conformance or Photo was 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 a 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	Being complied with

	such other information concerning these documents and the audit thereof as ADB shall from time to time reasonably request. (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. (c) In addition to annual audited financial statements referred to in section (a) hereinabove, 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. (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.	
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	Being complied with

	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.	
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 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.	Being complied with
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 the CW-01 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 the 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.	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) Being complied

13	(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 written notice of any unanticipated environmental risks or impacts that arise during construction, implementation or operation of the Project that was 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.	with b) Being complied with c) Being complied with d) Being complied with e) to comply 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 was 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 comply 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 anti-corruption 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 comply 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: Visitors at site


Officials from His Majesty's sacretariate


MoWHS secretary visit


ADB BHRM visit

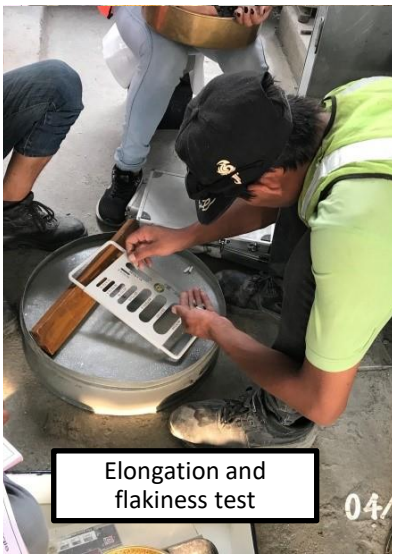

ADB's Mission site visit

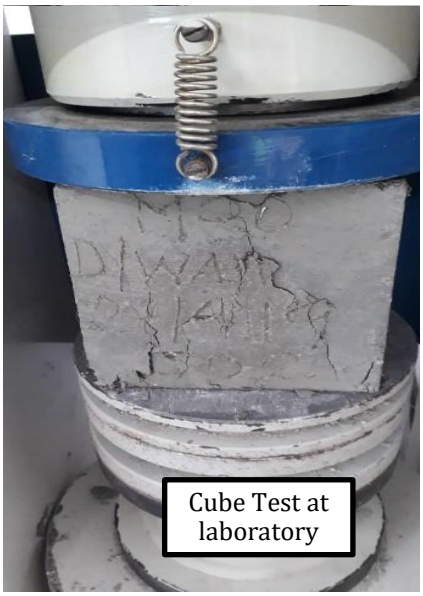

DHI CEO site visit

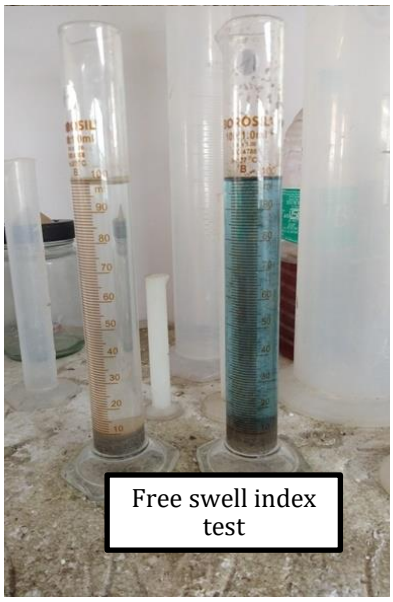

HCP Design consultancy site visit and meeting

Appendix 12.2: Work progress

Site laboratory Test







Guide Wall

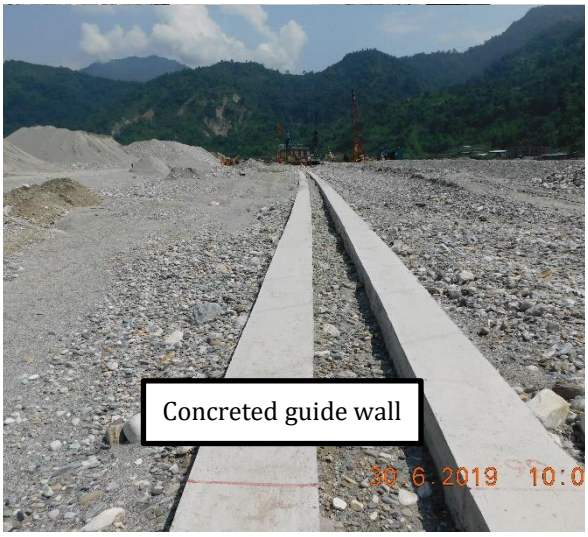

Top flange form work preparation
29-04-20


Vertical Guide wall
31 05 2019 16

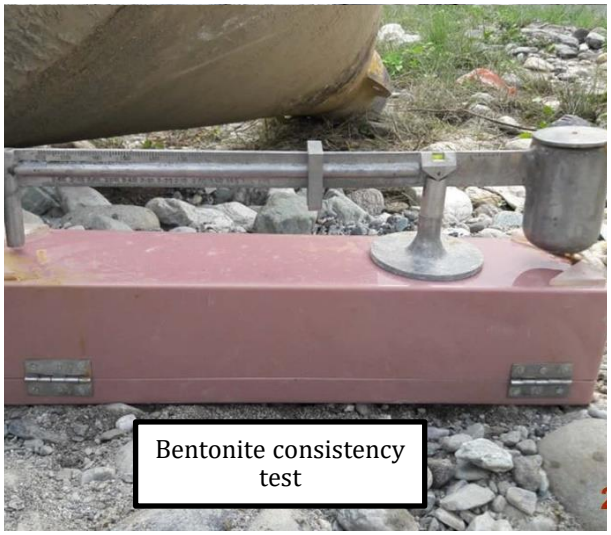

Top flange Concreting
29-04-201

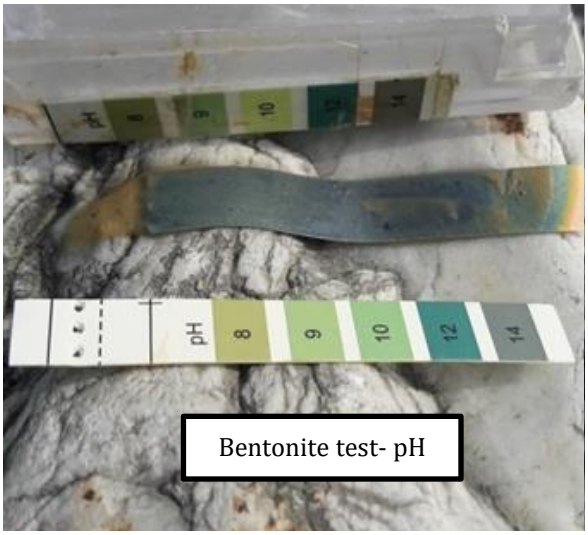

Vertical wall concreting


Top flange concreting


Concreted guide wall
30 6 2019 10:0

Diaphragm wall



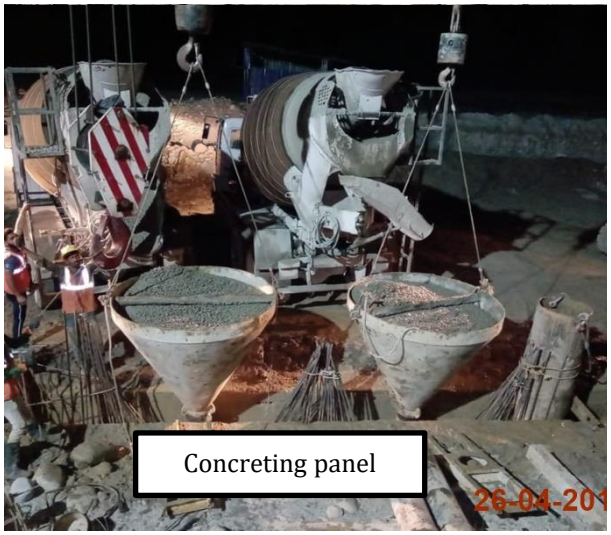



Stop end installation
20.04.2019


Stop end installed
14.06.2019

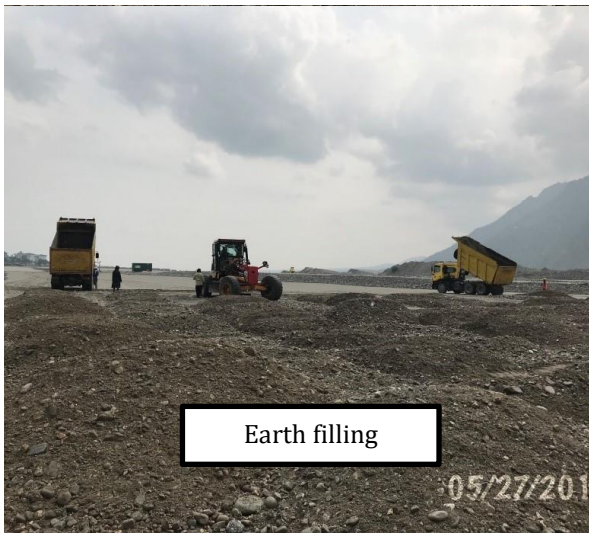

Concreting preparation
21.06.2019


Rebar cage installation

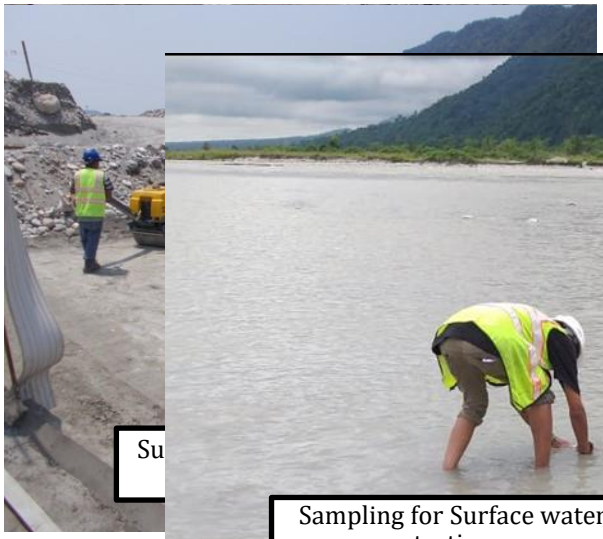

Concreting panel


Concreted Diaphragm wall

Earth filling works

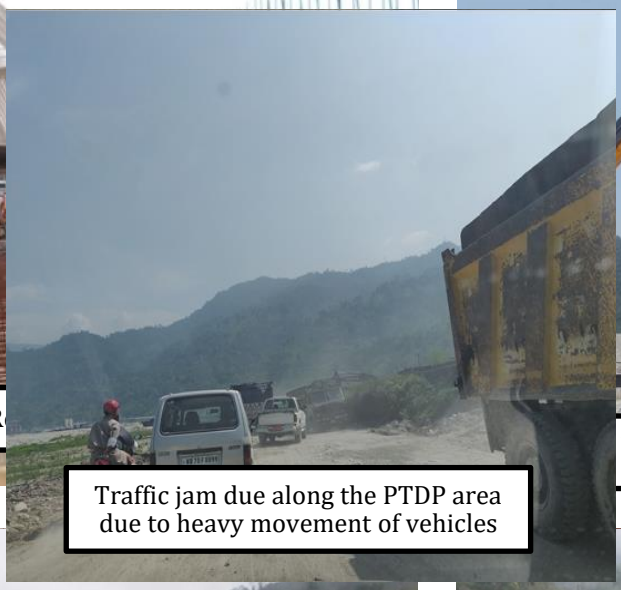


Outfall Works



Sampling for Surface water testing

Bentonite at site fully covered



Traffic jam due along the PTDP area due to heavy movement of vehicles

Preventive measures at workshop to avoid ground contamination

Rebar work

Concreting