

Semi-Annual Environmental Monitoring Report

Project number: 44240-013

Period: November 2018 – April 2019
Submission Date: April 2020

BHU: Urban Infrastructure Project

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Reporting Period: November 2018 - April 2019

BHU: Urban Infrastructure Project

Project Number: ADB Loan No. 2816 - BHU

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1. INTRODUCTION

1.1 OVERALL PROJECT DESCRIPTION AND OBJECTIVES

1. The Royal Government of Bhutan (RGoB) had signed a loan agreement (Loan Agreement No. 2258–BHU) in the year 2007 with the Asian Development Bank (ADB) for implementation of Urban Infrastructure Development Project (UIDP). The implementation activities were completed and project closed in 2014 . This project aimed to cover Thimphu, Phuentsholing and Dagana.
2. Later on Government expressed their need for further infrastructure development in Bhutan and requested ADB for project preparation to ensure sustainable urban development in additional towns. ADB conducted a PPTA study under TA 7360 and identified work components in the following towns – Thimphu, Phuentsholing, Samdrup Jongkhar and Rinchenthang (Nganglam). Accordingly a proposed Urban Infrastructure Project (UIP) framed up by ADB in the year 2011. It was conceptualised and planned that UIP would follow the ongoing Urban Infrastructure Development Project (UIDP). The main basis for urban infrastructure investment is the Government's Structure Plans and Local Area Plans (LAP). These LAPs prioritise urban infrastructure requirements with tentative costs. The aim of improving, upgrading and expanding the urban infrastructure facilities and providing basic urban services materialised when RGoB concluded a loan agreement with ADB.
3. The name of the project is “Urban Infrastructure Project” under ADB Loan 2816-BHU. The loan was approved by ADB in November 2011 and declared effective in April 2012. The project schedule is to start on May 2013 with a completion target date of 14 February 2018. The total project cost is estimated at \$23.3 million, of which ADB is financing \$19.8 million and the RGoB is financing \$3.5 million.
4. The Executing Agency (EA) is the Department of Engineering Services (DES) under MoWHS. The EA will be supported by its Project Management Unit (PMU) headed by a Project Manager (PM) and the Project Implementation Units (PIUs), headed by PM of the PIUs from the Project areas of Thimphu, Phuentsholing and Samdrup Jongkhar. Further the PMU and the PIUs will be supported and guided by Project Management Consultancy (PMC) Unit from SMEC, India and the Design, Monitoring, Supervision Consultant (DMSC) from STUP Consultancy, Kolkata respectively.
5. The project will support the Government's efforts toward sustainable urban development in Thimphu, Phuentsholing and Samdrup Jongkhar Municipality (SJM).

Table 1: Project components under various Thromdes

Sl. No.	Component	Thromde (Municipality)	Detail
1	Waste water	Thimphu	Construction of Wastewater Treatment Plant
2	Road and Bridge	Phuentsholing	Planning, Survey, Investigation and Design of Second Bridge and Approach Roads
3	Water Supply (Rehabilitation)	Samdrup Jongkhar	Water Resource Study Design of Water Supply facilities and rehabilitation Design of Wastewater facilities

1.2 Environmental category as per ADB Safeguard Policy Statement, 2009

The implementation of the Project will be governed by Asian Development Bank Safeguard Policy Statement (SPS, 2009) and the environmental laws, policies and regulations of the government.

The ADB SPS stipulates addressing environmental concerns, if any, of a proposed activity in the initial stages of project preparation. For this, the ADB SPS categorizes the proposed components into categories (A, B or C) to determine the level of environmental assessment required to address the potential impacts. The Project has been categorized as B. Accordingly this IEE is prepared to address the potential impacts in line with the SPS. Stakeholder consultation was an integral part of the IEE which was carried out and an EMP specifying mitigation measures to be adhered to during implementation of the Project has been prepared.

1.3 Environmental category of each subproject as per national laws and regulations

The Royal Government of Bhutan mandates all projects be subjected to environmental assessments prior to implementation. The implementation of the Project will be governed by laws, regulations, and standards for environmental assessment and management of the government. **Table 1** summarizes the main requirements of the government for environmental management that will apply to the Project.

Table 2: Government Environmental Policies, Laws, Regulations, and Standards

Statute	Outline	Relevance
Environmental Assessment Act, 2000	This Act establishes procedures for the assessment of potential effects of projects on the environment, and aims to determine measures to reduce potential adverse effects and to promote environmental benefits.	<ul style="list-style-type: none"> To ensure that all foreseeable impacts on the environment, including cumulative effects are fully considered prior to any irrevocable commitments of resources or funds. To ensure that all feasible alternatives are fully considered.
Regulation for The Environmental Clearance of Projects (RECOP), 2002	Regulation for Environmental Clearance of Projects (RECOP) defines responsibilities and procedures for the implementation of the Environmental Assessment Act, 2000 for issuance and enforcement of environmental clearances.	<ul style="list-style-type: none"> To ensure that all projects are implemented in line with the sustainable development policy of the Royal Government of Bhutan To ensure that all feasible means to avoid or mitigate damage to the environment are implemented; and To ensure that concerned people benefit from projects in terms of social facilities.
National Environment Protection Act, 2007	The aim of this Act is to enable an effective system of conserving and protecting Bhutan's environment. This system is constituted of the National Environment Commission or other designated Competent Authorities and advisory committees responsible for independently regulating and promoting sustainable development in an equitable manner.	<ul style="list-style-type: none"> The Act provides a framework for developing measures and standards to protect Bhutan's environmental quality. Guidance relevant to this project includes: Handling of hazardous substances: No person shall handle or cause to be handled any hazardous substance except in accordance with such procedure and after complying with such safeguards as may be prescribed under national and international instruments. Discharge of environmental pollutants: No person shall discharge or emit or be permitted to discharge or emit any pollutants in excess of such standards as may be prescribed.

Statute	Outline	Relevance
Waste Prevention and Management Act of Bhutan, 2009	<p>The Waste Prevention and Management Regulation 2012 is adopted under section 53 of the Waste Prevention and Management Act, 2009. This Act defines the institutional framework for preventing and managing waste in Bhutan, including the establishment of sound waste management system, including monitoring procedures at every organizational level, through efficient collection, segregation, treatment, storage, transportation, reduction, reuse, recycling and safe disposal of solid, liquid and gaseous wastes. It sets out the principles, measures, mechanisms and responsibilities for reduction, segregation, and appropriate disposal of waste to protect the country's environment.</p> <p>The act also provided the requirements for the management of hazardous wastes to include: labeling, pre-treatment process, storage, record keeping, transportation, and disposal of hazardous waste by the generator. Sanctions and penalties are provided for non-compliance.</p>	<ul style="list-style-type: none"> • Waste management requirements of relevance to the proposed development include: • Non-hazardous waste: Implementing agencies shall ensure that the reduction, reuse, recycling and disposal of non-hazardous waste are addressed in an environmentally sound manner to ensure compliance with the Act • Hazardous waste: Implementing agencies shall prevent manufacturing of products with potential to generate hazardous waste. The agencies shall also ensure that the reduction, storage, treatment, and disposal of hazardous waste are addressed in an environmentally sound manner to ensure compliance with the Act
General Rules and Regulations on Occupational Health and Safety (OHS) In Construction, Manufacturing, Mining and Service Industries, 2006	OHS Rules and Regulations aims 'to assure safe and healthful working conditions for working men and women as well as other persons present at workplaces from work related risks to their health, safety, and well being	During Construction and operation stage of the project.
The Labour and Employment Act of Bhutan, 2007	The labour and employment act of Bhutan 2007 provide policies and programs in the areas of employment promotion, labour protection and relations, vocational education and training, and occupational standards setting and certification.	The proposed development will adhere to the policies provided under different sections of the Act.
The Forest Act (1969).	The first environmental legislation in Bhutan. It brought all forest resources under government custody to regulate utilization.	This was repealed with the enactment of the FNCA in 1995

Statute	Outline	Relevance
Forest and Nature Conservation Act (FNCA) 1995	Allows community stewardship of forests and aims to provide protection and sustainable use of forests, wildlife, and related natural resources.	Schedule I of the Act, lists those wild animals and plants that are given full protection under the Act. The FNCA establishes that all forests in Bhutan are Government Reserved Forests (GRF), and prohibits any development activity in these areas except with a permit.
Forest and Nature Conservation Rules (FNCR) 2000	Under powers established by the FNCA, the Ministry of Agriculture promulgated the FNCR in 2000, which was revised in 2006.	Amongst other things the FNCR allows for: 1. Allotment of land and land rights in GRF; 2. Prohibitions, restrictions and concessions in GRF; 3. Transport and trade of forest produce; 4. Declaration and administration of protected areas; 5. Protection of wildlife and use of certain wild species; 6. Prevention of forest fires, land clearance, and activities potentially impacting soil, water and wildlife resources; and 7. Enforcing penalties for offences related to these and other aspects of the FNCR.
Land Act 1979 (Revised 2007)	The Land Act 1979 provides the basis for land tenure in Bhutan was revised in 2007 to streamline many provisions in the Land Act. One major Change was the establishment of an autonomous National Land Commission Secretariat which has been given full responsibility for all matters pertaining to land registration. Land categories have been reduced to seven including i) Chhuzhing (wetland), ii) Kamzhing (dry land) including orchard, iii) Khimsa (Residential land), iv) Industrial land, v) Commercial land, vi) Recreational and vii) Institutional land.	Under this Act, there are provisions for acquisition of land by the Government, if it is required for the benefit of the country. In such cases, the affected person will be compensated with substitute land from the same Dzongkhag or given cash compensation depending on the land classification as per the prevailing land compensation rate determined by the Act. If a house is acquired, compensation is paid on the basis of an evaluation carried out by a qualified engineer appointed by the competent authority.

FNCA = Forest and Nature Conservation Act, FNCR= Forest and Nature Conservation Rules, GRF= Government Reserved Forests, OHS = Occupational Health and Safety.

The policy, legal, and administrative frameworks relevant to the environmental assessment of infrastructure projects in Bhutan have been established by the following laws and regulations: (i) the National Environmental Protection Act of 2007, (ii) the Environmental Assessment Act of 2000, and (iii) Regulation for Environmental Clearance of 2002. At the national policy level, environmental protection and conservation is a constitutional mandate to:

- (i) Protect, conserve, and improve the pristine environment;
- (ii) Safeguard biodiversity; and
- (iii) Prevent pollution and ecological degradation.

Environmental Clearance Requirements: Article 33.1 of the Environmental Assessment Act 2000, grants the competent authority (CA) a power to screen, issue or deny the environmental clearance of the activities or project listed under Annex 2 of RECOP 2002. However, the Executing Agency (MoWHS) cannot issue an environmental clearance to itself or the Departments directly under it; even for the listed activities of the RECOP. However, it can issue the clearance to organizations like Thromdes which are autonomous organizations.

However, the Thromdes are obliged to fill up the standard IEE forms and submit it to the MoWHS along with the no objection certificates (NOC) from the affected persons or public and other stakeholders.

Table3: Environmental Regulatory Compliance

Component Description	Royal Government of Bhutan		ADB	
	Competent Authority in accordance with ECR	Environmental Assessment	Category in accordance with SPS	Environmental Assessment
Component 1: Thimphu Thromde Construction of Waste Water Treatment Plant.	MoWHS or NEC	Environmental Information	Category B **	IEE and EMP
Component 2: Phuentsholing Thromde Construction of 46.8 m PSC Box Girder Bridge	MoWHS or NEC	Environmental Information	Category B **	IEE and EMP
Component 3: Samdrup Jongkhar Thromde <u>Water supply:</u> i) Intake ii) Transmission Mains iii) WTP iv) Clean Water Reservoir (CWR) v) Site office vi) Approach Road and Intake Improvement works	MoWHS or NEC	Environmental Information	Category B **	IEE and EMP

ADB = Asian Development Bank, ECR* = Environmental Clearance Regulations, EMP = Environmental Management Plan, IEE = Initial Environmental Examination, NACSQC- = National Authority for Construction Standards and Quality Control, NEC = National Environment Commission, SPS = Safeguard Policy Statement, TRIP = Thimphu Road Improvement Project.

**Nothing is envisaged at this stage that could cause reclassification to Category A.

1.4 Project Safeguards Team

Table 4: Project Safeguard Team

Name	Designation/Office	Email Address	Contact Number	Roles
1. PMU				
Jigme Dorji	Project Manager	jdorji@mowhs.gov.bt	17643516	
2. PIUs				
a) Thimphu Thromde				
Kinley Penjore	Project Manager	kpenjore@thimphucity.gov.bt	17379020	
Thukten Tshereing	Project Engineer		17111649	
Tashi Dorjji	Project Engineer		17172677	
b) Phuentsholing Thromde				
Anu Pradhan	Project Manager	piuadbpt2012@gmail.com	17118279	
Bikash Sharma	Project Engineer	bsharma@pcc.bt	17372162	
c) S. Jongkhar Thromde				
Pema Chokey	Project Manager	pchokey@sjthromde.gov.bt	17883968	
Mani Kumar Rizal	Project Engineer	mkrizal@sjthromde.gov.bt	17661316	
3. Consultants				
K.D. Chamling	Environment Specialist	chamlingkd@gmail.com	17111541	
Rajesh Pradhan	Social Safeguard Specialist	rajpradhan2008@gmail.com	17603661	

1.5 Overall project and sub-project progress and status

Till 30th April 2019, all the three components have been awarded and works are in progress. **Table 5** below shows the project packages, starting date of implementation, schedule date of completion etc. along with physical progress.

Table 5: Sub-project status

Sl. No	Component	Location/ Area of Activities	Start date of Implementation	Actual months of completion	Actual date of completion	Physical progress (%) as on 30 th April 2019
1	Component 1: Thimphu Thromde					
	Construction of Waste Water Treatment Plant.	Babesa LAP	10/Nov/2016	30	9 th May 2019	70.5%
	- Completion of designs				End of Feb '19	98%
	- Construction of Office building				End of Dec 2018	100%
	- Construction of staff quarter				End of Dec 2018	100%
	- Electrical control building				End of Dec 2018	100%
	- Sequencing Batch Reactor (SBR)				End of April 2019	80%
	- Pump House				End of Feb 2019	89%
	- Blower and Chlorination building				End of March 2019	90%
	- Centrifuge and Sludge holding Sump				End of Feb 2019	74%
	- Thickened Sludge and Supernatant Sump				End of March 2019	76%
	- Head Works				May 2019	60%
	- Transformer and DG Room				End of Dec 2018	65%
	- Pedestal and Pipe line				Jan 2019	67%
	- Procurement and Supply				May 2019	70%
2	Component 2: Phuentsholing Thromde					
	Construction of 46.8 m PSC Box Girder Bridge	Over Om Chhu, near Youth Center	1/August/2017	18	20 Feb 2019	Complete and site handed over to Thromde on 22 March 2019.
3	Component 3: Samdrup Jongkhar Thromde					
	Water supply: Intake, Transmission Main & WTP, Office building,	Rikkechhu and Pinchinang (Char kilo)	1/5/2016	18	15 Nov 2018* (revised date)	92%

* New completion date was extended till 15th November 2018. Currently working under Liquidity Damage period.

1.6 Description of subprojects (package-wise) and status of implementation (preliminary, detailed design, on-going construction, completed, and/or O&M stage)

Table 6: Sub-projects Implementation status

Package Number	Components/List of Works	Contract Status (specify if under bidding or contract awarded)	Status of Implementation (Preliminary Design/Detailed Design/On-going Construction/Completed/O&M) ¹	If On-going Construction	
				%Physical Progress	Expected Completion Date
1. Thimphu Thromde	Construction of Wastewater Treatment Plant.	Contract awarded.	On-going construction.	70%	End of March 2020
	- completion of drawings/designs		On-going construction	98%	End of Jan 2020
	- construction of administrative building		On-going construction	100%	
	- construction of staff quarters		On-going construction	100%	
	- Electrical control building		On-going construction	100%	
	- Sequencing Batch Reactor (SBR)		On-going construction	80%	End of Feb 2020
	- Pump House		On-going construction	89%	End of Jan 2020
	- Blower and Chlorination building		On-going construction	90%	End of Jan 2020
	- Centrifuge and Sludge holding Sump		On-going construction	74%	End of Jan 2020
	- Thickened Sludge and Supernatant Sump		On-going construction	76%	End of Jan 2020
	- Head Works		On-going construction	60%	End of Dec 2019
	- Transformer and DG Room		On-going construction	65%	End of Dec 2019
	- Pedestal and Pipe line		On-going construction	67%	End of Dec 2019
	- Procurement and Supply		On-going construction	70%	End of Jan 2020
2. P/ling Thromde	Construction of 46.8 m PSC Box Girder Bridge	Contract awarded.	Completed and site handed over to Thromde on 22 nd March 2019.	100%	Complete
3. S. J/khar Thromde	Water supply:	Contract awarded.		92%	15 Nov 2018*
	• Intake – raw water equipment	Procurement awarded.	.		All done.
	- Design WTP	Submitted.	completed		All done.
	• laying of pipelines till WTP		completed		completed
	- Construction of Office, chlorine, and centrifuge buildings.		completed		completed
	- raw water pumping and transmission	Pumps procured and installed.	completed		completed
	- Completion of drawings	28 components designs submitted	completed		completed
	Treatment Plant programme installation	SCARDA and Programme Logging Control	Work ongoing.		December 2019
	Approach Road and Intake Improvement works	Contract awarded.	Ongoing	5%	October 2019

¹ If on-going construction, include %physical progress and expected date of completion

* New completion date was extended till 15th November 2018 and now working under Liquidity Damage (LD) period.

2. COMPLIANCE STATUS WITH NATIONAL/STATE/LOCAL STATUTORY ENVIRONMENTAL REQUIREMENTS²

Table 7: Compliance Status with National Environmental Requirements

Package No.	Subproject Name	Statutory Environmental Requirements ³	Status of Compliance ⁴	Validity if obtained	Action Required	Specific Conditions that will require environmental monitoring as per Environment Clearance, Consent/Permit to Establish ⁵
1. Thimphu Thromde	Construction of WWTP	Environment Clearance (EC) required.	EC obtained vide letter No. NECS/FACD/Thimphu-Thromde/2568/2019/1725 dated August 15, 2019.	Valid till August 14, 2024.	NA	There are 27 clauses in the EC to be complied with. Among others Clause 1.11 specifically requires that trees be planted within the WWTP to maintain greenery and improve aesthetic/visual impact of the area.
2. P/ling Thromde	Construction of 46.8 m PSC Box Girder Bridge	EC required.	EC obtained vide letter No. MoWHS/PPD/Env/01/2017/08 dated September 29, 2017.	Valid till 28 September 2020.	NA	Bridge construction complete and the site handed over to Thromde in March 2019.

² All statutory clearance/s, no-objection certificates, permit/s, etc. should be obtained prior to award of contract/s. Attach as appendix all clearance obtained during the reporting period. If already reported, specify in the “remarks” column.

³ Specify (environmental clearance? Permit/consent to establish? Forest clearance? Etc.)

⁴ Specify if obtained, submitted and awaiting approval, application not yet submitted

⁵Example: *Environmental Clearance requires ambient air quality monitoring, Forest Clearance/Tree-cutting Permit requires 2 trees for every tree, etc.*

3. Samdrup Jongkhar Thromde	Water Supply	EC required.	<ul style="list-style-type: none"> • EC obtained vide NECS/ESD/Dzo-S/Jongkhar/3208/2015/2544 dated 15 May 2015. • EC renewed vide NECS/EACD/DZO-s-Jongkhar/3208/2018/579 dated May 24, 2018. 	<ul style="list-style-type: none"> • Valid till May 23, 2020. 	NA.	<ul style="list-style-type: none"> • There are nine (9) clauses with sub clauses. Under clause V. Waste Prevention and Management: The holder shall, manage wastes generated from the activities with the application of 4R (Reduce, Reuse, Recycle, Responsibility) principle and other environmentally friendly methods of waste management. • Ensure that effective day to day monitoring of EC clauses are carried out by environmental unit or designated environment focal person. • Clause VII warrants that a detailed implementation plan to be submitted to NECS within three (3) months from the date of issue of this EC as per the format attached with EC. • Submit annually the Compliance Report as per the format attached with the EC.
	Approach Road and Intake Improvement works	EC required	<i>(PIU, SJT assumed since it is part of the Water supply project, addition EC is not required.)</i>	EC for Water Supply renewed and valid till May 23, 2020.	NA	<ul style="list-style-type: none"> • Same as above and EMP conditions to be applied.

3. COMPLIANCE STATUS WITH ENVIRONMENTAL LOAN COVENANTS

Table 8: Compliance Status with Environmental Loan covenants

No. (List schedule and paragraph number of Loan Agreement)	Covenant	Status of Compliance	Action Required
Schedule 5; Sl.no. 4 Environment	The Borrower shall ensure or cause DES and each of the IAs to ensure that the preparation, design, construction, implementation, operation and decommissioning of the Project, and all Project facilities comply with (a) all the applicable laws and regulations of the Borrower relating to environment, health and safety; (b) the Environmental /safeguards; the EARF; and (d) all measures and requirement set forth in the respective IEEs and EMPs. And any corrective preventive actions set forth in a Safeguard Monitoring Report.	Followed EMPs, but the level of knowledge and capacity to understand and prepare EMPs vary with PIUs and contractors. The quality of EMPs submitted needs to be improved and be more or less consistent with different projects.	1-2 days' of environmental awareness workshop needs to be conducted in the project, as the PIUs and contractors' staff needs to understand the entire concept and principles behind EMP. A half-day EMP preparation exercise by the participants would enable to impart a basic working knowledge to the PIUs and contractors.

4. COMPLIANCE STATUS WITH THE ENVIRONMENTAL MANAGEMENT PLAN (Refer to EMP Tables in approved IEE/s)

4.1 Confirm if IEE/s require contractors to submit site-specific EMP/construction EMPs. If not, describe the methodology of monitoring each package under implementation.

As per IEE, the contractors are required to submit a Contractor's EMP (CEMP) and site management plan. The CEMP shall be prepared by all contractors before the start of the construction works and shall be approved by PIU. This requirement shall be included in the construction contracts. It shall provide details on specific items related to the environmental aspects during construction. It shall include specifications on requirements for dust control, erosion and sediment control, avoidance of casual standing water, management of solid wastes, workers' camp sanitation, and pollution from oil, grease, fuel spills, and other materials due to the operation of construction machineries, safety and traffic management, avoidance of inconveniences to the public, air and noise pollution control. It shall also include guidance on the proper design of the construction zone, careful management of stockpiles, vegetation, topsoil, vehicles, and machinery. With the CEMP, PIU can easily verify the associated environmental requirements each time the contractor will request approval for work schedules.

Package-wise IEE Documentation Status

Table 9: Package-wise IEE Documentation Status

Package Number	Final IEE based on Detailed Design				Site-specific EMP (or Construction EMP) approved by Project Director? (Yes/No)	Remarks
	Not yet due (detailed design not yet completed)	Submitted to ADB (Provide Date of Submission)	Disclosed on project website (Provide Link)	Final IEE provided to Contractor/s (Yes/No)		
1. Thimphu Thromde: Construction of WWTP.	Completed			No	Monthly EMP submitted by the contractor is approved by the PM, PIU.	The PIU has not shared the final IEE with the contractor.
2. Phuentsholing Thromde: Bridge construction.	Bridge construction completed in March 2019 and the site handed over to Thromde.					
3. S. Jongkhar Thromde: Water Supply	Completed			No	Monthly EMP submitted by the contractor is approved by the PM, PIU.	The PIU has not shared the final IEE with the contractor.
4. Approach Road & Intake	Completed			No	Monthly EMP submitted by the contractor is	The PIU has not shared the

Improvement works					approved by the PM, PIU.	final IEE with the contractor.
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4.2 For each package, provide name/s and contact details of contractor/s' nodal person/s for environmental safeguards.

Package-wise Contractor/s' Nodal Persons for Environmental Safeguards

Table 10: Package-wise Contractor/s' Nodal Persons for Environmental Safeguards

Package Name	Contractor	Nodal Person	Email Address	Contact Number
1. Thimphu Thromde: Construction of WWTP.	Technofab Engineering Ltd.	Atul Gaur	atul.gaur@technofabengineering.com	77200985
2. P/ling Thromde: Bridge construction.	Work completed in March 2019 and the site handed over to the Thromde.			
3. S. J/khar Thromde: Water Supply	Tundi-Tacho JV	Karma Kinley	kinseldor@gmail.com	77671584
4. Approach Road and Intake Improvement works	Gangri Construction	Tshering	gangriconstruction@yahoo.com	17117187

4.3 With reference to approved EMP/site-specific EMP/construction EMP, complete the table below

Summary of Environmental Monitoring Activities (for the Reporting Period)⁶

Table 11 (a): Summary of Environmental Monitoring Activities
Component 1: Thimphu Thromde - WWTP

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
Design Phase & Pre-Construction Phase						
1. Incorporate design measures to minimize environmental impacts	<ul style="list-style-type: none"> Detail design for project conforming to the government's environmental and technical design standards Identify potential disposal sites. 	Included in the designs.	Included in the Contract document.	Bid document.		PM, PIU
Construction Phase						
I) Orientation for Contractors, Workers on environmental management.	<ul style="list-style-type: none"> PIU to conduct awareness training/orientation on implementation of mitigation measures in the EMP. Provide HIV-AIDS education and disease prevention awareness talks to the contractor and their site agents 	Training ---"---	Number of trainings conducted. ---do---	PIU/ Construction site office. --do---	Not done. 27 – 11- '18	None K.D. Chamling
II) Drainage and Hydrological Impacts including storm water management. - Wangchu River falls within the project area. Construction activities can affect/impact the river water quality due to erosion runoff.	Contractor will implement following measures to minimize the impacts. <ul style="list-style-type: none"> During construction, the contractor will ensure the proper disposal of spoil and other wastes. All construction materials, sand and stones to be procured from nearby government approved, existing and operational quarries. 	Disposed spoils.	Amount of spoils disposed.	Disposal site.	27 – 11- '18	K.D. Chamling

⁶ Attach Laboratory Results and Sampling Map/Locations

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
III) Materials exploitation & management. <ul style="list-style-type: none"> To minimize adverse environmental impacts of borrowing and quarrying 	<ul style="list-style-type: none"> All construction materials, sand and stones to be procured from nearby government approved, existing and operational quarries. Covering of materials during transportation and spraying of water along haulage route. 	Materials brought on sight.	Transportation & material purchased challans.	Material stock yard	Daily basis..	PIU
IV) Waste <ul style="list-style-type: none"> Reduce spoils generation. Reduce, reuse and recycle waste to reduce contamination due to poor waste disposal practices 	<p>In principle, the waste generation will be minimized at source.</p> <ul style="list-style-type: none"> Waste products will be segregated into biodegradable and non-biodegradable and disposed in Thimphu Thromde's waste collection system. Recycling to be undertaken as far as possible. Examples would include recycling road resurfacing waste as aggregate (e.g. Reclaimed asphalt pavement or reclaimed concrete material) or as a base Any recyclable waste which cannot be reused during construction will be sold to licensed scrap dealers. Residual non-hazardous waste will be disposed-off in the municipal land fill. Construction/workers camps will be provided with sufficient refuse bins. Organic waste such as plant materials will be composted. Animal carcasses will be collected in a timely manner and buried; Disposal of solid wastes into flood ways, wetland, rivers, other watercourses, farmland, forest and associated places of worship or other culturally sensitive areas or areas where a livelihood is derived canals, agricultural fields and public areas will be prohibited. Solid 	<p>No dusts emissions during transportation.</p> <p>Amount of waste generated.</p>	<p>Visual assessment.</p> <p>Record of wastes generated.</p>	<p>During transportation.</p> <p>Construction sites and camps.</p>	<p>Daily basis</p> <p>Daily basis</p>	<p>PIU</p> <p>PIU</p>

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
V) Hazardous substances • Uses and waste disposal	<p>waste will only be disposed in Thimphu Thromde's designated areas such as landfills.</p> <ul style="list-style-type: none"> Sludge removed from storm water drains will be classified as hazardous or non-hazardous waste and disposed in designated landfill sites in accordance with national regulations Oil and lubricants will be safely stored. Secondary containment around fuel storage area will be ensured. Controls and standard operating procedures will be developed for the use of fuels and other hazardous substances to prevent spills, accidents and pilferage. Equipment/vehicle maintenance and refueling areas will be confined to areas in construction sites designed to contain spilled lubricants and fuels. Such areas will be provided with drainage leading to an oil-water separator that will be regularly skimmed of oil and maintained to ensure efficiency. Fuel and other hazardous substances will be stored in safe and isolated areas provided with roof, impervious flooring and bund/containment wall to protect these from the spillage. Hazardous wastes (oil, used batteries, fuel drums) will be segregated, labeled and safely stored. The spent oil and batteries will be sold to recycling dealers. Hazardous materials will be stored away from water bodies and above flood level. Clean-up operation using readily available absorbent such as sawdust will be carried 	Methods of storage	No spillage.	Store/depot.	27 Nov 2018	KD. Chamling

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
VI) Air quality <ul style="list-style-type: none"> To minimize and reduce fugitive dust emissions and fumes from the construction vehicles. 	<p>out immediately during accidental spillage of hazardous waste.</p> <ul style="list-style-type: none"> All areas intended for storage of hazardous materials will be quarantined and provided with adequate facilities to combat emergency situations complying with all applicable statutory stipulation. Water sprinkling / spraying using tanker will be done twice a day or as often as required based on visual observation in order to reduce dust generation. Fuel efficient and well-maintained haulage trucks will be employed to minimize exhaust emissions. Regular maintenance will be carried out. All vehicles and machinery used for construction should have valid pollution control certificates (emission tests certificates) Vehicles transporting soil, sand and other loose and fine construction materials shall not be overloaded and will be covered with tarpaulin sheets to reduce the release of dust and avoid impacts from dust. Speed limits of such vehicles within the works site and on unpaved edge areas of the Project road will be established and agreed with the PMU. 	Dust emission.	Visual	Construction sites	27 Nov 2018	KD Chamling
VII) Noise <ul style="list-style-type: none"> Minimize nuisance to community due to increased noise levels 	<ul style="list-style-type: none"> If noise level exceed the stipulated limits then design and implement noise control measures such as the installation of temporary stationary noise barriers along the 	Noise at site.	Harshness of sound and no complaints from public.	Construction sites.	27 Nov 2018	KD Chamling

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
VIII) Camps construction and canteen facilities	<p>right of ways, use of equipment with good quality mufflers in working order,</p> <ul style="list-style-type: none"> • Refraining from undertaking construction near schools during school hours or during examination periods, • Inform the residents and institutions of the construction schedule in their vicinity and the likelihood of excess noise during these periods, specifying the anticipated periods during which these impacts will affect them. • In the event, if blasting is required due to unavoidable circumstances, use only non-explosive chemical based blasting material (silent blasting technique) for rock breaking, which will not generate any noise or vibration. <ul style="list-style-type: none"> • Avoid camp construction too close to the local communities to avoid unwanted interference to the way of living of the local communities. Camps location to be consulted with PIU. • Adequate drinking water supply, basic food items, and cooking fuel (such as kerosene) will be provided to ward off competition on local resources. • For maintenance of proper health and hygiene adequate number of pit latrines and garbage cans will provided. • Fishing, hunting and illegal tree felling will be totally prohibited. • After completion of construction, the abandoned campsite will be cleaned and restored to the original state. If a campsite is a government barren land then contractor will 	Drinking water and electricity provided in camps.	Observation of camps	Camp sites.	27 Nov 2018	KD Chamling

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
IX) Occupational Health and Safety <ul style="list-style-type: none"> Physical hazards 	<p>carry out compensatory plantation with suitable local or native plant species.</p> <ul style="list-style-type: none"> Routing of traffic to alternative roads where possible Where workers' exposure to traffic cannot be completely eliminated, use of protective barriers to shield workers from traffic vehicles, or installation of channeling devices (e.g. traffic cones and barrels) to delineate work zone Workers shall be provided with appropriate personnel safety equipment such as safety boots, helmets, gloves, reflective jackets, protective clothes, dust mask, goggles, and ear protection at no cost to the workers. Conducting training (assisted by PIU) for all workers on safety and environmental hygiene at no cost to the employees. The contractor will instruct workers in health and safety matters as required by law and by good engineering practice and provide first aid facilities. This will include construction camp rules and site agents/foremen will follow up with toolbox talks on a regular basis. Workers should use safety strap/belts whenever and wherever required.. Fencing on all areas of excavation greater than 1m deep shall be done. Contractor will at all-time keep the first aid kit at the construction sites. Contractor will be responsible for evacuation of injured person to the nearest medical center and bear all the medical expenses 	Safety equipment.	Safety gears issued and used.	Sites	27 Nov 2018	KD Chamling

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
<ul style="list-style-type: none"> Chemical hazards 	<ul style="list-style-type: none"> Reflecting signals shall be installed on all construction vehicles and plant. Reduction of engine idling time at construction sites to prevent high accumulation of toxic fumes. Use of extenders or other means to direct exhaust away from the operator. Use of protective clothing when working with cutbacks (a mixture of asphalt and solvents for the repair of pavement), diesel fuel or other solvents Avoiding the use of lead containing paint and using appropriate respiratory protection when removing paints (including those containing lead in older installations) or when cutting galvanized steel. 	Protective clothing	No burns to workers.	Work site.	27 Nov 2018	KD Chamling
<ul style="list-style-type: none"> Public Health and safety 	<ul style="list-style-type: none"> Provided safety barriers and proper signage at construction sites. Barriers must be installed to deter pedestrians' access to construction sites, except at designated crossing points. Traffic must be adequately regulated (eg through signs, signals, markings) near critical pedestrian zones or bikeways. Excavated trenches/ditches and freshly cut steep side slopes will be clearly marked and fenced for the safety of passersby and workers alike. Project or construction vehicles will be briefed on speed limit within sensitive areas such as schools, commercial and residential areas. 	Signs barriers. and	No accidents.	Construction sites.	27 Nov 2018	KD Chamling

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
<ul style="list-style-type: none"> Traffic safety and management 	<ul style="list-style-type: none"> In event of accidents, the contractor will be responsible for immediate evacuation of injured person to the nearest medical center. The contractor shall bear medical and other expenses of the injured person. Local communities to be informed about the traffic management measures that will be in place during the period of the construction. 	-	-	-	-	-
Operational Phase						
1. Noise - prevent excess noise	<ul style="list-style-type: none"> Noise barrier will be installed if needed in future 	NA	NA	NA	NA	NA
2. Gaseous Emission - prevent air pollution	<ul style="list-style-type: none"> Ensuring that vehicles undertake mandatory pollution checking and maintenance procedures. Undertake air quality monitoring 	NA	NA	NA	NA	NA
3. Particulate emissions - Control level of particulates	<ul style="list-style-type: none"> The road surface will be maintained for smooth traffic flow and reduction of vehicular emission Undertake air quality monitoring 	NA	NA	NA	NA	NA
4. Soil erosion and water pollution	<ul style="list-style-type: none"> Storm water drainage to be maintained and surrounding vegetation to be maintained in good working condition. Routine cleaning of the existing drains and water bodies. 	NA	NA	NA	NA	NA
5. Driving conditions and community safety	<ul style="list-style-type: none"> Zebra crossings to be maintained (clear & visible). Pedestrian footpath to be properly maintained. 	NA	NA	NA	NA	NA

Table 11 (b): Summary of Environmental Monitoring Activities
Component 2: Phuentsholing Thromde – Bridge Construction

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
Design Phase & Pre-Construction Phase						
1. Incorporate design measures to minimize environmental impacts	<ul style="list-style-type: none"> Detail design for project conforming to the government's environmental and technical design standards Identify potential disposal sites. 	Included in the designs.	Included in the Contract document.	Bid document.	-	PM, PIU
Construction Phase: Bridge construction completed and the site handed over to Thromde.						
Operational Phase						
1. Noise - prevent excess noise	<ul style="list-style-type: none"> Noise barrier will be installed if needed in future 	NA	NA	NA	NA	NA
2. Gaseous Emission - prevent air pollution	<ul style="list-style-type: none"> Ensuring that vehicles undertake mandatory pollution checking and maintenance procedures. Undertake air quality monitoring 	NA	NA	NA	NA	NA
3. Particulate emissions - Control level of particulates	<ul style="list-style-type: none"> The road surface will be maintained for smooth traffic flow and reduction of vehicular emission Undertake air quality monitoring 	NA	NA	NA	NA	NA
4. Soil erosion and water pollution	<ul style="list-style-type: none"> Storm water drainage to be maintained and surrounding vegetation to be maintained in good working condition. Routine cleaning of the existing drains and water bodies. 	NA	NA	NA	NA	NA
6. Driving conditions and community safety	<ul style="list-style-type: none"> Zebra crossings to be maintained (clear & visible). Pedestrian footpath to be properly maintained. 	NA	NA	NA	NA	NA

Table 11 (c): Summary of Environmental Monitoring Activities
Component 3: Samdrup Jongkhar Thromde – Water Supply

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
Design Phase & Pre-Construction Phase						
1. Incorporate design measures to minimize environmental impacts	<ul style="list-style-type: none"> Detail design for project conforming to the government's environmental and technical design standards Identify potential disposal sites. 	Included in the designs.	Included in the Contract document.	Bid document.		PM, PIU
Construction Phase						
I. Orientation for Contractors, Workers on environmental management.	<ul style="list-style-type: none"> PIU to conduct awareness training/ orientation on implementation of mitigation measures in the EMP. Provide HIV-AIDS education and disease prevention awareness talks to the contractor and their site agents 	Training	Number of trainings conducted.	PIU/ Construction site office.	Not done.	None
		---“---	---do—	--do—	20 Nov '18	K.D. Chamling
II. Drainage and Hydrological Impacts including storm water management. - Rivers Dungsum Chhu and Rikke chu falls within the project area. Construction activities can affect/impact the river water quality due to erosion runoff.	Contractor will implement following measures to minimize the impacts. <ul style="list-style-type: none"> During construction, the contractor will ensure the proper disposal of spoil and other wastes. All construction materials, sand and stones to be procured from nearby government approved, existing and operational quarries. 	Disposed spoils.	Amount of spoils disposed.	Disposal site.	Daily	PIU
III) Materials exploitation & management.	<ul style="list-style-type: none"> All construction materials, sand and stones to be procured from nearby government approved, existing and operational quarries. 	Materials brought on sight.	Transportation & material purchased challans.	Material stock yard	Daily	PIU

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
<ul style="list-style-type: none"> To minimize adverse environmental impacts of borrowing and quarrying 	<ul style="list-style-type: none"> Covering of materials during transportation and spraying of water along haulage route. 	No dusts emissions during transportation.	Visual assessment.	During transportation.	Daily	PIU
IV) Waste <ul style="list-style-type: none"> Reduce spoils generation. Reduce, reuse and recycle waste to reduce contamination due to poor waste disposal practices 	<p>In principle, the waste generation will be minimized at source.</p> <ul style="list-style-type: none"> Waste products will be segregated into bio-degradable and non-biodegradable and disposed in SJ Thromde's waste collection system. Recycling to be undertaken as far as possible. Examples would include recycling road resurfacing waste as aggregate (e.g. Reclaimed asphalt pavement or reclaimed concrete material) or as a base Any recyclable waste which cannot be reused during construction will be sold to licensed scrap dealers. Residual non-hazardous waste will be disposed-off in the municipal land fill. Construction/workers camps will be provided with sufficient refuse bins. Organic waste such as plant materials will be composted. Animal carcasses will be collected in a timely manner and buried; Disposal of solid wastes into rivers, forests, culturally sensitive areas, agricultural fields and public areas will be prohibited. Solid waste will only be disposed in Thromde's designated areas such as landfills. 	Amount of waste generated.	Record of wastes generated.	Construction sites and camps.	Daily.	PIU
V) Hazardous substances <ul style="list-style-type: none"> Uses and waste disposal 		Methods of storage	No spillage.	Store/depot.	20 Nov 2018	KD. Chamling

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
VI) Air quality <ul style="list-style-type: none"> To minimize and reduce fugitive dust emissions and fumes from the construction vehicles. 	<ul style="list-style-type: none"> Oil and lubricants will be safely stored. Secondary containment around fuel storage area will be ensured. Equipment/vehicle maintenance and refueling areas will be confined to areas in construction sites designed to contain spilled lubricants and fuels. Such areas will be provided with drainage leading to an oil-water separator that will be regularly skimmed of oil and maintained to ensure efficiency. Fuel and other hazardous substances will be stored in safe and isolated areas provided with roof, impervious flooring and bund/containment wall to protect these from the spillage. Hazardous wastes (oil, used batteries, fuel drums) will be segregated, labeled and safely stored. The spent oil and batteries will be sold to recycling dealers. Hazardous materials will be stored away from water bodies and above flood level. Clean-up operation using readily available absorbent such as sawdust will be carried out immediately during accidental spillage of hazardous waste. All areas intended for storage of hazardous materials will be quarantined and provided with adequate facilities to combat emergency situations complying with all applicable statutory stipulation. Water sprinkling / spraying using tanker will be done twice a day or as often as required based on visual observation in order to reduce dust generation. 	Dust emission.	Visual	Construction sites	20 Nov 2018	KD Chamling

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
VII) Noise <ul style="list-style-type: none"> Minimize nuisance to community due to increased noise levels 	<ul style="list-style-type: none"> Fuel efficient and well-maintained haulage trucks will be employed to minimize exhaust emissions. Regular maintenance will be carried out. All vehicles and machinery used for construction should have valid pollution control certificates (emission tests certificates) Vehicles transporting soil, sand and other loose and fine construction materials shall not be overloaded and will be covered with tarpaulin sheets to reduce the release of dust and avoid impacts from dust. Speed limits of such vehicles within the works site will be established and agreed with the PMU. If noise level exceed the stipulated limits then design and implement noise control measures such as the installation of temporary stationary noise barriers along the right of ways, use of equipment with good quality mufflers in working order, Refraining from undertaking construction near schools during school hours or during examination periods, Inform the residents and institutions of the construction schedule in their vicinity and the likelihood of excess noise during these periods, specifying the anticipated periods during which these impacts will affect them. Avoid camp construction too close to the local communities to avoid unwanted interference to the way of living of the local 	Noise at site.	Harshness of sound and no complaints from public.	Construction sites.	20 Nov 2018	KD Chamling
VIII) Camps construction and canteen facilities	<ul style="list-style-type: none"> Drinking water supplies and electricity provided in camps. 	Drinking water supplies and electricity provided in camps.	Observation of camps	Camp sites.	20 Nov 2018	KD Chamling

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
IX) Occupational Health and Safety <ul style="list-style-type: none"> Physical hazards 	<p>communities. Camps location to be consulted with PIU.</p> <ul style="list-style-type: none"> Adequate drinking water supply, basic food items, and cooking fuel (such as kerosene) will be provided to ward off competition on local resources. For maintenance of proper health and hygiene adequate number of pit latrines and garbage cans will be provided. Fishing, hunting and illegal tree felling will be totally prohibited. After completion of construction, the abandoned campsite will be cleaned and restored to the original state with appropriate bioengineering works using local plant species. Routing of traffic to alternative roads where possible Where workers' exposure to traffic cannot be completely eliminated, use of protective barriers to shield workers from traffic vehicles, or installation of channeling devices (e.g. traffic cones and barrels) to delineate work zone Workers shall be provided with appropriate personnel safety equipment such as safety boots, helmets, gloves, reflective jackets, protective clothes, dust mask, goggles, and ear protection at no cost to the workers. Conducting training (assisted by PIU) for all workers on safety and environmental hygiene at no cost to the employees. The contractor will instruct workers in health and safety matters as required by law and by good engineering practice and provide first 	Safety equipment.	Safety gears issued and used.	Sites	20 Nov 2018	KD Chamling

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
<ul style="list-style-type: none"> Chemical hazards 	<p>aid facilities. This will include construction camp rules and site agents/foremen will follow up with toolbox talks on a regular basis.</p> <ul style="list-style-type: none"> Workers should use safety strap/belts whenever and wherever required.. Fencing on all areas of excavation greater than 1m deep shall be done. Contractor will at all-time keep the first aid kit at the construction sites. Contractor will be responsible for evacuation of injured person to the nearest medical center and bear all the medical expenses Reflecting signals shall be installed on all construction vehicles and plant. Reduction of engine idling time at construction sites to prevent high accumulation of toxic fumes. Use of extenders or other means to direct exhaust away from the operator. Use of protective clothing when working with cutbacks (a mixture of asphalt and solvents for the repair of pavement), diesel fuel or other solvents Avoiding the use of lead containing paint and using appropriate respiratory protection when removing paints (including those containing lead in older installations) or when cutting galvanized steel. <ul style="list-style-type: none"> Provided safety barriers and proper signage at construction sites. Barriers must be installed to deter pedestrians' access to construction sites, except at designated crossing points. 	Protective clothing	No burns to workers.	Work site.	20 Nov 2018	KD Chamling

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
<ul style="list-style-type: none"> Public Health and safety Traffic safety and management 	<ul style="list-style-type: none"> Traffic must be adequately regulated (eg through signs, signals, markings) near critical pedestrian zones or bikeways. Excavated trenches/ditches and freshly cut steep side slopes will be clearly marked and fenced for the safety of passersby and workers alike. Project or construction vehicles will be briefed on speed limit within sensitive areas such as schools, commercial and residential areas. In event of accidents, the contractor will be responsible for immediate evacuation of injured person to the nearest medical center. The contractor shall bear medical and other expenses of the injured person. <p>Local communities to be informed about the traffic management measures that will be in place during the period of the construction.</p> <ul style="list-style-type: none"> Traffic management plan for construction period to be developed Local communities to be informed about the traffic management measures that will be in place during the period of the construction. 	<p>Signs and barriers.</p> <p>Signs and barriers.</p>	<p>No accidents.</p> <p>No accidents -</p>	<p>Construction sites.</p> <p>Construction sites.</p>	<p>20 Nov 2018</p> <p>Periodically</p>	<p>KD Chamling</p> <p>PIU / Contractor</p>
Operational Phase						

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
1. Noise - prevent excess noise	<ul style="list-style-type: none"> Noise barrier will be installed if needed in future 	NA	NA	NA	NA	NA
2. Gaseous Emission - prevent air pollution	<ul style="list-style-type: none"> Ensuring that vehicles undertake mandatory pollution checking and maintenance procedures. Undertake air quality monitoring 	NA	NA	NA	NA	NA
3. Particulate emissions - Control level of particulates	<ul style="list-style-type: none"> The road surface will be maintained for smooth traffic flow and reduction of vehicular emission Undertake air quality monitoring 	NA	NA	NA	NA	NA
4. Soil erosion and water pollution	<ul style="list-style-type: none"> Storm water drainage to be maintained and surrounding vegetation to be maintained in good working condition. Routine cleaning of the existing drains and water bodies. 	NA	NA	NA	NA	NA
7. Driving conditions and community safety	<ul style="list-style-type: none"> Zebra crossings to be maintained (clear & visible). Pedestrian footpath to be properly maintained. 	NA	NA	NA	NA	NA

Overall Compliance with CEMP/ EMP

Table 12: Compliance with CEMP/ EMP

No.	Sub-Project Name	EMP/ CEMP Part of Contract Documents (Y/N)	CEMP/ EMP Being Implemented (Y/N)	Status of Implementation (Excellent/ Satisfactory/ Partially Satisfactory/ Below Satisfactory)	Action Proposed and Additional Measures Required
1	WWTP	Yes	Yes	Satisfactory	None
2	Bridge	Yes	Yes	Satisfactory	None as construction of bridge is completed.
3	Water Supply	Yes	Yes	Partially Satisfactory	<ul style="list-style-type: none"> • OHS measures inadequate (helmets and hand gloves) at site. • Debris strewn at work site. • PIU need to enforce strict compliance at work sites.
	Approach Road and Intake Improvement works	Yes	Yes	Satisfactory	<ul style="list-style-type: none"> • None as contract just awarded.

5. APPROACH AND METHODOLOGY FOR ENVIRONMENTAL MONITORING OF THE PROJECT

5.1 Briefly describe the approach and methodology used for environmental monitoring of each sub-project.

The approach used for environmental monitoring is a continuous one. An EMP is attached, as part of the project document, which the contractor is mandated to comply with. Therefore, the contractor is responsible for the daily monitoring of the ongoing activities. The PIU and the Environmental Officer of the Thromde are required to monitor the project activities on a regular basis, as and when required. Further, environmental monitoring is also carried out by the Environment Officers from National Environment Commission Secretariat once or twice during the project period. They make 'surprise' visits to the project sites. As part of the project requirement Semi-annual Environment Monitoring Report (SEMR) is prepared and submitted to ADB. This report is prepared by Design Monitoring Supervision Consultants (DMSC), of Progressive Research & Consultancy Services (PRCS) for the client.

6. MONITORING OF ENVIRONMENTAL IMPACTS ON PROJECT SURROUNDINGS (AMBIENT AIR, WATER QUALITY AND NOISE LEVELS)

6.1 Discuss the general condition of surroundings at the project site, with consideration of the following, whichever are applicable:

- Confirm if any dust was noted to escape the site boundaries and identify dust suppression techniques followed for site/s.
 - No dust was seen escaping the site as water was sprayed wherever it was required.
- Identify if muddy water is escaping site boundaries or if muddy tracks are seen on adjacent roads.
 - No muddy water was seen escaping the site boundaries or on adjacent roads.
- Identify type of erosion and sediment control measures installed on site/s, condition of erosion and sediment control measures including if these are intact following heavy rain;
 - No erosion and sedimentations observed at site as the works are carried out during dry period and hence the erosion and sediment control measures are not needed and thus not installed.
- Identify designated areas for concrete works, chemical storage, construction materials, and refueling. Attach photographs of each area in the Appendix.
 - Construction of footpaths and drains are only the ongoing works.
- Confirm spill kits on site and site procedure for handling emergencies.
 - Contractors have first-aid kits at site and for emergency medical evacuation, they have vehicles and on the worst case scenario there are taxis available to reach the patients to hospitals, as the work sites are within 5-km radius.
- Identify any chemical stored on site and provide information on storage condition. Attach photograph.
 - No chemical stored at site.
- Describe management of stockpiles (construction materials, excavated soils, spoils, etc.). Provide photographs.
 - During the site visits the contractors have stock piled construction materials, such as sand, cement and rods. The excavated spoils/soils have been disposed off to pre-identified sites.. Hence their disposals are not a major concern.
- Describe management of solid and liquid wastes on-site (quantity generated, transport, storage and disposal). Provide photographs.
 - The solid waste quantity generated is negligible whereas there is hardly anything of liquid waste generation in the project activity.
- Provide information on barricades, signage, and on-site boards. Provide photographs in the Appendix.
 - Barricades and signage, have been erected at site.
- Indicate if there are any activities being under taken out of working hours and how that is being managed.

- No activities being undertaken out of working hours.

- Briefly discuss the basis for environmental parameters monitoring.
- Indicate type of environmental parameters to be monitored and identify the location.
- Indicate the method of monitoring and equipment used.
- Provide monitoring results and an analysis of results in relation to baseline data and statutory requirements.

As a minimum the results should be presented as per the tables below.

Air Quality Results⁷

Site No.	Date of Testing	Site Location	Parameters (Government Standards)		
			PM10 µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³
-	-	-	-	-	-
-	-	-	-	-	-

Water Quality Results

Table 13: Effluent water (Project site Inlet) WWTP, Thimphu Thromde

Site No.	Date of Sampling	Site Location	Parameters (Government Standards)					
			pH	Conductivity µS/cm	BOD mg/L	TSS mg/L	TN mg/L	TP mg/L
1	28.01.2017 (9.00 a.m.)	Project site Inlet	6.79	Not analysed.	201.77	201.84	21.67	15.33
2	28.01.2017 (2.00 p.m.)	Project site Inlet						
3	28.01.2017 (4.00 p.m.)	Project site Inlet						

Note: Only in WWTP Effluent water (raw sewage water from Project site Inlet) has been collected and analysed. Three samples, in a single day, have been taken and analysed and averaged in the table above. The entire report has been annexed as **Annex 3**.

Noise Quality Results⁸

Site No.	Date of Testing	Site Location	LA _{eq} (dBA) (Government Standard)	
			Day Time	Night Time

Note: These tests have not been carried out. However there are National Standards which have been annexed as **Appendix C: Environmental Criteria and Standards**.

7. GRIEVANCE REDRESS MECHANISM

- 7.1 Provide information on establishment of grievance redress mechanism and capacity of grievance redress committee to address project-related issues/complaints. Include as appendix Notification of the GRM (town-wise if applicable).

To address any grievance received Thimphu Thromde has constituted the following mechanism.

⁷No monitoring and analysis of Air Quality results have been carried out.

⁸No monitoring and analysis of Noise Quality Results have been carried out.

First tier of GRM: A designated locally elected thromde representative shall be the channel through which complaints shall be lodged. Thereafter the PIU is the first tier of GRM which offers the fastest and most accessible mechanism for resolution of grievances. The Project Managers (PM/PIU) will be designated as the key officer for grievance redress. Resolution of complaints will be done within seven working (7) days. Investigation of grievances will involve site visits and consultations with relevant parties (e.g., affected persons, contractors, police, etc.) Grievances will be documented and personal details (name, address, date of complaint, etc.) will be included unless the person complaining requests for anonymity.

A tracking number shall be assigned for each grievance, including the following elements; (i) initial grievance sheet (including the description of the grievance), with an acknowledgement of receipt handed back to the complainant when the complaint is registered; (ii) grievance monitoring sheet, mentioning actions taken (investigation, corrective measures); (iii) closure sheet, one copy of which will be handed to the complainant after he/she has agreed to the resolution and signed-off. The updated register of grievances and complaints will be available to the public at the Thromde office. Should the grievance remain unresolved it will be escalated to the second tier.

Second Tier of GRM: The PM of respective sub-projects will activate the second tier of GRM by referring the unresolved issue (with written documentation) to Thromde Office who will pass unresolved complaints upward to the Grievance Redress Committee (GRC). The GRC shall be established by Thimphu Thromde before commencement of site works. The GRC will consist of the following persons: (i) Executive Secretary; (ii) Division Heads of Thimphu Thromde; (iii) Environmental Officer (iv) Project Coordinator; (v) Elected representative of the affected person(s); and (vi) representative of the Thromde Land Record Officer. A hearing will be called with the GRC, if necessary, where the affected person can present his/her concern/issues. The process will facilitate resolution through mediation. The local GRC will meet as necessary when there are grievances to be addressed. The local GRC will suggest corrective measures at the field level and assign clear responsibilities for implementing its decision within fifteen (15) working days. The contractor will have observer status on the committee. If unsatisfied with the decision, the existence of the GRC shall not impede the complainant's access to the Government's judicial or administrative remedies.

The functions of the local GRC with regards to environmental concerns are as follows: (i) resolve problems and provide support to affected persons arising from various environmental issues including issues; hampering conduct of business, utilities, power and water supply, waste disposal, traffic interference and public safety; (ii) reconfirm grievances of affected persons, categorize and prioritize them and aim to provide solutions within a month; and (iii) report to the aggrieved parties about developments regarding their grievances and decisions of the GRC.

The environment officer or the land record officer in Thimphu Thromde will be responsible for processing and placing all papers before the GRC, maintaining database of complaints, recording decisions, issuing minutes of the meetings and monitoring to see that formal orders are issued and the decisions carried out.

Third tier of GRM: In the event that a grievance cannot be resolved directly by the GRC the affected person can seek alternative redress through an appropriate court. The GRC will be kept informed by the Thromde authority. The monitoring reports shall include the following aspects pertaining to progress on grievances: (i) Number of cases registered with the GRC, level of jurisdiction, number of hearings held, decisions made, and the status of pending cases; and (ii) lists of cases in process and already decided

upon may be prepared with details such as Name, ID with unique serial number, date of notice, date of application, date of hearing, decisions, remarks, actions taken to resolve issues and status of grievance.

8. COMPLAINTS RECEIVED DURING THE REPORTING PERIOD

- 8.1 Provide information on number, nature, and resolution of complaints received during reporting period. Attach records as per GRM in the approved IEE. Identify safeguards team member/s involved in the GRM process. Attach minutes of meetings (ensure English translation is provided).

The project has not received any grievance so far.

9. SUMMARY OF KEY ISSUES AND REMEDIAL ACTIONS

- 9.1 Summary of follow up time-bound actions to be taken within a set timeframe.

Till 30th April 2019, all the packages have been awarded and works are in progress and one package (Bridge construction) is complete. Other packages are nearing completion. The work progress of some activities under each component are varied and tabulated below. **Table 14** (below) shows the project packages, starting date of implementation, schedule date of completion etc. along with physical progress.

Table 14:Sub-project status

Sl. No	Lot No. (Package 1)	Location/ Area of Activities	Starting date of Implementation	Actual months of completion	Actual date of completion	Physical progress (%) as on 30 th Nov 2019
1	Component 1: -WWTP	Babesa LAP, Thimphu	10/Nov/2016	30	9/May/2019	81.5%
2	Component 2: - Bridge	Over Om Chhu, near Youth Center, Phuentsholing.	17/August/2017	18	17/Feb/2019	Completed in March 2019.
3	Component 3: - Water supply	Rikkechhu at Pinchinang (Char kilo), S. Jongkhar	1/5/2016	18	Extended till 15-Nov-2018*	92%
4	Approach Road & Intake Improvement works	Rikkechhu at Pinchinang (Char kilo), S. Jongkhar	28/3/2019	3	Nov end	5%



**six months' time extension given and the new date of completion corresponds to 15th November 2018. Currently the contractor is on Liquidity Damage period.*

10. APPENDICES

- a) Appendices
 - i. Environmental Clearance
 - ii. Compliance Report Format
 - iii. Detailed Implementation Plan Format
- b) Photographs
- c) Environmental Criteria and Standards

a) Appendices

Annex 1: Environmental Clearance – WWTP at Babesa, Thimphu Thromde

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འཕེལ་ལྗན་འབྲུག་གཞུང་།
National Environment Commission
Royal Government of Bhutan

NECS/EACD/Thimphu-Thromde/2568/2019/ 1725

August 15, 2019


Environmental Clearance

In accordance with Section 34.1 of the Environmental Assessment Act 2000 and Section 34 of the Water Act of Bhutan 2011, this Environmental Clearance (EC) is hereby renewed to Thimphu Thromde Administration for installation and operation of wastewater treatment plant (WWTP) at Babesa under Thimphu Thromde with the following terms and conditions:

I. General
The holder shall:

1. Comply with provisions of the National Environment Protection Act 2007, Environmental Assessment Act 2000 and Regulation for Environmental Clearance of Projects 2016 (RECOP 2016), Waste Prevention & Management Act of Bhutan 2009 and its Regulation 2012 (Amendment 2016), The Water Act of Bhutan 2011 and its Regulation 2014 and Revised Regulation on the Control of Ozone Depleting Substances (ODS) 2008;
2. Ensure that installation and operation of waste water treatment plant is in line with the Initial Environmental Examination report submitted for EC;
3. Ensure that local communities, properties and any religious, cultural, historic and ecologically important sites are not adversely affected by the installation and operation of the waste water treatment plant;
4. Restore the damage of any public or private properties caused by the installation and operation of the waste water treatment plant;
5. Inform NECS and any other relevant authorities of any unanticipated or unforeseen chance-find of any precious metals or minerals or articles, that have economic, cultural, religious, archeological, and/or ecological importance;
6. erect a signboard at the take-off point of the main entry of the WWTP stating the its name and contact address;
7. ensure that the existing WWTP is fully decommissioned and converted into recreational area once the new WWTP is commissioned as stated in the application;
8. ensure that the technology adopted for the WWTP is of Intermittent Decanted Aerated Lagoon, which is equivalent to Sequential Batch Reactor as stated in the application;
9. Ensure that no foul odour is emitted from the WWTP;
10. Ensure general housekeeping, cleanliness, and hygiene are maintained at all times in the WWTP; and
11. Ensure that trees are planted within the WWTP premises upon consultation with Department of Forest and Park Services to maintain greenery and improve aesthetic/visual impact on the area.

NEC, PO Box 466, Thimphu, Bhutan
Tel: (975-2) 323384/325856/324323/326993 Fax: (975-2) 323385



II. Environmental standards

The holder shall comply with the existing Environmental Standards 2010.

III. Import and use of secondhand equipment and ODS

The holder shall:

1. not import and use secondhand equipment and machineries; and
2. not use ODS as per the Revised Regulation on the Control of ODS 2008.

IV. Water use and management

The holder shall:

1. ensure that proposed activity does not disrupt the water flow and pollute the water bodies; and
2. ensure that 30 meter or 100 feet buffer is maintained from the water resources at all times.

V. Waste prevention and management

The holder shall:

1. manage wastes generated from the installation and operation of waste water treatment plant (labour camps, offices, etc.) with the application of 4R (Reduce, Reuse, Recycle, Responsibility) principle and other environmentally friendly methods of waste management; and
2. ensure that import and use of hazardous wastes are strictly prohibited.

VI. Management of excavated materials and run-off

The holder shall:

1. ensure that all excavated materials generated are re-used or disposed within the premises as stated in the application; and
2. put appropriate measures to avoid erosion and landslides.

VII. Implementation plan

The holder shall prepare a detailed implementation plan focusing on the implementation of terms and conditions of this EC and submit to NECS within three (03) months from the date of issue of this EC as per the reporting format attached herewith.

VIII. Monitoring and reporting

The holder shall:

1. ensure that the effective day-to-day monitoring of the EC terms and conditions are carried out by the environmental unit or designated environmental focal person; and
2. maintain proper records of effluent discharges and submit quarterly reports to NECS.

IX. Renewal and modification

The holder shall:



1. ensure that renewal of this EC is processed at least three months prior to its expiry along with a copy of EC and a report on the implementation of its terms and conditions as per the format attached, failing which the applicant shall be liable for penalty as per the RECOP 2016; and
2. obtain prior approval from NECS for any modification to the existing proposal/application.

Reservation

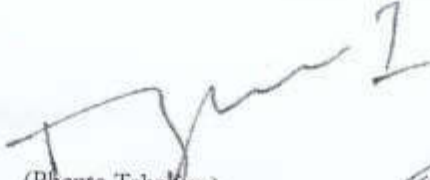
1. The NECS may stop the activity or impose additional terms and conditions, as may be deemed necessary; and
2. The EC shall be subject to periodic review and modifications as per Article 25 of the EA Act 2000, without any liability on the part of the Royal Government.

The holder may adopt best practices in executing these terms and conditions to avoid adverse environmental impacts.

Failure to comply with any of the above terms and conditions shall constitute an offence and the proponent shall be liable in accordance to the Environmental Assessment Act 2000 and/or existing environmental laws.

Validity:

This EC is renewed with validity from **August 15, 2019 until August 14, 2024** for installation and operation of wastewater treatment plant with an installed capacity of **12 Million Liters Per Day** only.


(Phento Tsheking)
DIRECTOR




To,
Mr. Kinlay Penjore
Project Manager, ADB
Thimphu Thromde

Copy to:

1. Dzongkhag Environment Officer, Dzongkhag Administration, Thimphu Dzongkhag for necessary compliance monitoring;
2. Guard File (2568) EACD, NECS for record.

Annex – 2: Environmental Clearance – Bridge Construction, Phuentsholing Thromde

 **འབྲུག་རྒྱལ་ཁབ་ཀྱི་རྒྱུ་རྩལ་ལྷན་ཁག་།**
ROYAL GOVERNMENT OF BHUTAN
MINISTRY OF WORKS & HUMAN SETTLEMENT
THIMPHU: BHUTAN
"Construction Industry: Solutions through innovation and improved technology"
MoWHS/ PPD/Env/01/2017/ འུ་ཅེ
September 29, 2017

Environmental Clearance

In accordance with Section 34.1 of the Environmental Assessment Act 2000 and Section 34 of the Water Act 2011, this Renewal of Environmental Clearance (EC) is hereby issued to Dasho Thrompon, Phuentsholing Thromde for the construction of Bridge over Omchu, Phuentsholing Thromde under Chukha Dzongkhag with the following terms and conditions:

I. General
The holder shall:

1. comply with provisions of the National Environment Protection Act 2007, Environmental Assessment Act 2000 and its Regulation 2016, Waste Prevention & Management Act of Bhutan 2009 and its Regulation 2016, and Water Act of Bhutan 2011 and its Regulation 2014;
2. ensure that construction activities are in line with Initial Environmental Examination report submitted for EC;
3. ensure that local communities, properties and any religious, cultural, historic and ecologically important sites are not adversely affected by the activities;
4. restore the damage of any public or private properties caused by the activities;
5. inform the Ministry of Works and Human Settlement (MoWHS) and any other relevant authorities of any unanticipated or unforeseen chance-find of any precious metals or minerals or articles, that have economic, cultural, religious, archeological, and/or ecological importance; and
6. erect a signboard at the main entry of the project site stating the name of the activities and contact address.

II. Environmental standards
The holder shall comply with the existing Environmental Standards.

III. Import and use of secondhand equipment
The holder shall ensure that import and use secondhand equipment and machineries are strictly prohibited.

IV. Water use and management
The holder shall:

1. ensure that activities does not disrupt the water flow and pollute the water bodies during and after construction; and

Tele: 00975-2-327998/328173/326793/322182/325171
Fax: 00975-2-323121
Po Box: 791

28.11 file
JP



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ROYAL GOVERNMENT OF BHUTAN
MINISTRY OF WORKS & HUMAN SETTLEMENT
THIMPHU: BHUTAN

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2. ensure that the downstream affects are monitored at all times to ensure that no damage is caused due to the project activity.

V. Waste prevention and management

The holder shall:

1. manage wastes generated from the activities (activity site, labour camps, offices etc.) with the application of 4R (Reduce, Reuse, Recycle, Responsibility) principle and other environmentally friendly methods of waste management; and
2. ensure that import and use of hazardous wastes are strictly prohibited.

VI. Management of excavated materials and run-off

The holder shall:

1. dispose off excess excavated materials at the pre-identified approved dumpsite only. Construction spoils must not be allowed to contaminate watercourses; and
2. put appropriate measures to avoid erosion and landslides.

VII. Implementation plan

The holder shall prepare a detailed implementation plan focusing on the implementation of terms and conditions of this EC and submit to PPD, MoWHS within three (03) months from the date of issue of this EC.

VIII. Monitoring and reporting

The holder shall ensure that the effective day-to-day monitoring of the EC terms and conditions are carried out by the environmental unit or designated environment focal person;

IX. Renewal and modification

The holder shall:

1. ensure that renewal of this EC is processed at least three (03) months prior to its expiry along with a copy EC and a report on the implementation of its terms and conditions; and
2. obtain prior approval from MoWHS for any modification to the existing proposal/application.

Reservation

1. The MoWHS may stop the activity or impose additional terms and conditions, as may be deemed necessary; and

Tele: 00975-2-327998/328173/326793/322182/325171

Fax: 00975-2-323121

Po Box: 791



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ROYAL GOVERNMENT OF BHUTAN
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THIMPHU: BHUTAN

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2. ensure that the downstream affects are monitored at all times to ensure that no damage is caused due to the project activity.

V. Waste prevention and management

The holder shall:

1. manage wastes generated from the activities (activity site, labour camps, offices etc.) with the application of 4R (Reduce, Reuse, Recycle, Responsibility) principle and other environmentally friendly methods of waste management; and
2. ensure that import and use of hazardous wastes are strictly prohibited.

VI. Management of excavated materials and run-off

The holder shall:

1. dispose off excess excavated materials at the pre-identified approved dumpsite only. Construction spoils must not be allowed to contaminate watercourses; and
2. put appropriate measures to avoid erosion and landslides.

VII. Implementation plan

The holder shall prepare a detailed implementation plan focusing on the implementation of terms and conditions of this EC and submit to PPD, MoWHS within three (03) months from the date of issue of this EC.

VIII. Monitoring and reporting

The holder shall ensure that the effective day-to-day monitoring of the EC terms and conditions are carried out by the environmental unit or designated environment focal person;

IX. Renewal and modification

The holder shall:

1. ensure that renewal of this EC is processed at least three (03) months prior to its expiry along with a copy EC and a report on the implementation of its terms and conditions; and
2. obtain prior approval from MoWHS for any modification to the existing proposal/application.

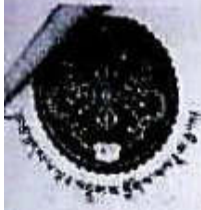
Reservation

1. The MoWHS may stop the activity or impose additional terms and conditions, as may be deemed necessary; and

Tele: 00975-2-327998/328173/326793/322182/325171

Fax: 00975-2-323121

Po Box: 791



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ROYAL GOVERNMENT OF BHUTAN
MINISTRY OF WORKS & HUMAN SETTLEMENT
THIMPHU: BHUTAN

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2. The EC shall be subject to periodic review and modifications as per Article 25 of the EA Act 2000, without any liability on the part of the Royal Government.

The holder may adopt best practices in executing these terms and conditions to avoid adverse environmental impacts.

Failure to comply with any of the above terms and conditions shall constitute an offence and the proponent shall be liable in accordance to the Environmental Assessment Act 2000 and/or existing environmental laws.

Validity:

This EC is issued with valid from September 29, 2017 until September 28, 2020 for the construction of Bridge over Omchu under Phuntsholing Thromde only.

(Dorji Wangmo)
Chief Planning Officer

To,
Dasho Thrompon
Phuntsholing Thromde
Chukha

Copy to:

1. Hon'ble Secretary, MoWHS for kind information
2. Executive Secretary, Phuntsholing Thromde for kind information
3. Chief Environment Officer, Environmental Services Division for information.
4. Environment Officer, Phuntsholing Thromde for necessary action.

Tel: 00975-2-327998/328173/326793/322182/325171

Fax: 00975-2-323121

Po Box: 791

Annex – 3: (a) Environmental Clearance – Water Supply, Samdrup Jongkhar Thromde



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 དཔལ་ལྷན་འབྲུག་གཞུང་།
National Environment Commission
 Royal Government of Bhutan



NECS/EACD/Dzo-S-Jongkhar/3208/2018/ 579

May 24, 2018

Environmental Clearance

In accordance with Section 34.1 of the Environmental Assessment Act 2000 and Section 34 of the Water Act 2011, this Environmental Clearance (EC) is hereby renewed to Executive Secretary, Samdrup Jongkhar Thromde for the rehabilitation of water supply within Samdrup Jongkhar Tromde with the following terms and conditions:

I. General

The holder shall:

1. comply with provisions of the National Environment Protection Act 2007, Environmental Assessment Act 2000 and its Regulation 2016, Waste Prevention & Management Act of Bhutan 2009 and its Regulation 2016, and The Water Act of Bhutan 2011 and its Regulation 2014;
2. ensure that the operation of plant is in line with Initial Environmental Examination report submitted for EC;
3. ensure that local communities, properties and any religious, cultural, historic and ecologically important sites are not adversely affected by the development and operation of plant;
4. restore the damage of any public or private properties caused by the development and operation of the plant;
5. inform NECS and any other relevant authorities of any unanticipated or unforeseen chance-find of any precious metals or minerals or articles, that have economic, cultural, religious, archeological, and/or ecological importance; and
6. erect a signboard at the take-off point of the main entry of the plant stating the name of the plant and contact address.

II. Environmental standards

The holder shall comply with the existing Environmental Standards.

III. Import and use of secondhand equipment and ODS

The holder shall:

1. ensure that import and use 'secondhand equipment and machineries are strictly prohibited; and
2. ensure that import and use ODS are in line with the Revised Regulation on the Control of ODS 2008.

IV. Water use and management

The holder shall:

Env. officer



DIARY NO. 1678
 RECEIPT 31.05/18
 MARKED TO EC

1. abide by the water use priorities under the Water Act of Bhutan 2011 and no claim or compensation against or government or any person(s) shall be made for consequences arising thereon; and
2. ensure that activity does not disrupt the water flow and pollute the water bodies.

V. Waste prevention and management

The holder shall:

1. manage wastes generated from the project (Industrial site, labour camps, offices etc.) with the application of 4R (Reduce, Reuse, Recycle, Responsibility) principle and other environmentally friendly methods of waste management; and
2. ensure that import and use of hazardous wastes are strictly prohibited.

VI. Management of excavated materials and run-off

The holder shall:

1. dispose off excess excavated materials at the pre-identified approved dumpsite; and
2. put appropriate measures to avoid erosion and landslides.

VII. Implementation plan

The holder shall prepare a detailed implementation plan focusing on the implementation of terms and conditions of this EC and submit to NECS within three (03) months from the date of issue of this EC.

VIII. Monitoring and reporting

The holder shall:

1. ensure that the effective day-to-day monitoring of the EC terms and conditions are carried out by the environmental unit or designated environment focal person;
2. maintain proper records on wastes generated and its management, stating types (industrial and general wastes), quantities and characteristic and submit to NECS annually; and
3. maintain records of water used in the plant (separately for industrial and domestic purposes) and amount discharged and submit it to NECS quarterly.

IX. Renewal and modification

The holder shall:

1. ensure that renewal of this EC is processed at least three months prior to its expiry along with a copy EC and a report on the implementation of its terms and conditions; and
2. obtain prior approval from NECS. for any modification to the existing proposal/application.

Reservation

1. The NECS may stop the activity or impose additional terms and conditions, as may be deemed necessary; and
2. The EC shall be subject to periodic review and modifications as per Article 25 of the EA Act 2000, without any liability on the part of the Royal Government.

1. abide by the water use priorities under the Water Act of Bhutan 2011 and no claim or compensation against or government or any person(s) shall be made for consequences arising thereon; and
2. ensure that activity does not disrupt the water flow and pollute the water bodies.

V. Waste prevention and management

The holder shall:

1. manage wastes generated from the project (Industrial site, labour camps, offices etc.) with the application of 4R (Reduce, Reuse, Recycle, Responsibility) principle and other environmentally friendly methods of waste management; and
2. ensure that import and use of hazardous wastes are strictly prohibited.

VI. Management of excavated materials and run-off

The holder shall:

1. dispose off excess excavated materials at the pre-identified approved dumpsite; and
2. put appropriate measures to avoid erosion and landslides.

VII. Implementation plan

The holder shall prepare a detailed implementation plan focusing on the implementation of terms and conditions of this EC and submit to NECS within three (03) months from the date of issue of this EC.

VIII. Monitoring and reporting

The holder shall:

1. ensure that the effective day-to-day monitoring of the EC terms and conditions are carried out by the environmental unit or designated environment focal person;
2. maintain proper records on wastes generated and its management, stating types (industrial and general wastes), quantities and characteristic and submit to NECS annually; and
3. maintain records of water used in the plant (separately for industrial and domestic purposes) and amount discharged and submit it to NECS quarterly.

IX. Renewal and modification

The holder shall:

1. ensure that renewal of this EC is processed at least three months prior to its expiry along with a copy EC and a report on the implementation of its terms and conditions; and
2. obtain prior approval from NECS, for any modification to the existing proposal/application.

Reservation

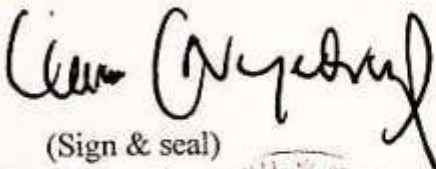
1. The NECS may stop the activity or impose additional terms and conditions, as may be deemed necessary; and
2. The EC shall be subject to periodic review and modifications as per Article 25 of the EA Act 2000, without any liability on the part of the Royal Government.

The holder may adopt best practices in executing these terms and conditions to avoid adverse environmental impacts.

Failure to comply with any of the above terms and conditions shall constitute an offence and the proponent shall be liable in accordance to the Environmental Assessment Act 2000 and/or existing environmental laws.

Validity:

This EC is issued with valid from **May 24, 2018** until **May 23, 2020** for the rehabilitation of water supply within Samdrup Jongkhar Tromde.


(Sign & seal)
Officiating Secretary



To,
Executive Secretary,
✓ **Samdrup Jongkhar Tromde**

Copy to:

1. The Environment Officer, Dzongkhag Administration, Samdrup Jongkhar for information and necessary action.
2. Guard-file, Dzo-S-Jongkhar, NECS for record.

(b) Compliance Report Format

Compliance Report

1. General Information

- 1.1. Name of the activity (including nature/type of the project)
.....
- 1.2. Location (including survey No./Plot No and project area, if applicable).....
.....
- 1.3. Environmental Focal Person & Contact details.....
.....
- 1.4. Number of employees (regular/casual, national and non-national):.....
.....
- 1.5. Year of Commencement.....
- 1.6. EC reference No. and its validity.....
.....
- 1.7. Date of reporting.....

2. Description of the compliance to EC terms and conditions

Sl No	Terms and Condition of the EC	Action/activities undertaken/implemented to achieve compliance including evidence, wherever applicable	Remarks

3. Any other initiatives undertaken other than stipulated in the EC

.....

.....

.....

.....

4. Emission/discharge test, if applicable

Sl No	Parameters as in Environmental Standards, 2010					Emission test result carried out by the project proponent (Attach the test report)					Date and time of monitoring. Specify methodology of test	Remarks
	Industrial effluent discharge	Ambient air quality	Industrial emissions	Work place emission	Noise level	Industrial effluent discharge	Ambient air quality	Industrial emissions	Work place emission	Noise level		
1												
2												
3												
4												
5												

5. Details of attachment (Documents that needs to be attached while providing information as required under point number 2, 3 and 4).....

.....

.....

.....

Reported by:

(Signature)

Name:


Designation:

Company:

(c) Detailed Implementation Plan Format

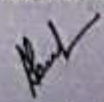
Detailed Implementation Plan				
Sl No	Specify terms and conditions of the EC	Activities/actions that will be undertaken to implement the terms and conditions	Time required frame	Responsibility

Annex – 4: Effluent Water Analysis, Raw Sewage water, WWTP- Thimphu Thromde
(i) Sample Collection time- 9.00 a.m.

 ENVIROCHECK		Environmental Laboratory 189 & 190, Rastraguru Avenue, Kolkata-700 028 Phone : 2579-2889/2891, 2549-7490 Fax : 2529-9141 E-mail : envcheck@cal2.vsnl.net.in
EFFLUENT WATER ANALYSIS REPORT		
1.	Name of the Industry	: Technofab Engineering Ltd.
2.	Address	: Plot No.05, Sector 27-C, Faridabad - 121003
3.	Report No.	: Env/554/W/M(i)/16-17
4.	Date of sampling	: 28.01.2017
5.	Reporting date	: 08.02.2017
6.	Type of sample	: Domestic Effluent Water
7.	Collection & preservation of sample	: APHA 22 nd Edition, 1060
8.	Location of sample	: Raw Sewage water from Project Site Inlet (09:00 a.m.) [Raw Water Sewage Collection from WWTP Site at Babesa Thimpu - Bhutan]

PARAMETERS	RESULTS
1. *Size Distribution of Particulate in Raw Sewage	**
2. Temperature (°C)	10.0
3. pH	6.72
4. Total Suspended Solids (mg./l)	256.0
5. Total Solids (mg./l)	410.0
6. VSS/TSS	0.71
7. Total Alkalinity (mg./l)	264.0
8. Chloride (mg./l)	40.20
9. Residual Free Chlorine (mg./l)	<0.04
10. Oil & Grease (mg./l)	3.50
11. Total Kjeldhal Nitrogen (mg./l)	25.0
12. Ammonical Nitrogen (mg./l)	6.50
13. Total Phosphate (mg./l)	18.50
14. Dissolved Oxygen (mg./l)	1.20
15. COD (mg./l)	496.92
16. BOD [5 Day's at 20 °C] (mg./l)	210.0
17. Total Chromium (mg./l)	<0.06
18. Total Coliform (CFU/100 ml.)	7.2 x 10 ⁴
19. Faecal Coliform (CFU/100 ml.)	5.84 x 10 ⁴
20. Specific Gravity of Grit	2.90
21. Quantity of Grit in Raw Sewage (mg./100 ml.)	1.5
22. Oxygen Absorption (KMnO ₄) (mg./l)	45.0


*Sand (%) = 40.0, Silt = 30%, Clay = 30%
 Sand = 0.05 mm - 2.0 mm, Silt = 0.05 mm - 0.002 mm and Clay = <0.002 mm

Authorised Signatory :

Dr. Ajoy Paul
(Scientist)


(ii) Sample Collection time- 2.00 p.m.

PARAMETERS		RESULTS
1.	Name of the Industry	: Technofab Engineering Ltd.
2.	Address	: Plot No.05, Sector 27-C, Faridabad - 121003
3.	Report No.	: Env/554/W/M(ii)/16-17
4.	Date of sampling	: 28.01.2017
5.	Reporting date	: 08.02.2017
6.	Type of sample	: Domestic Effluent Water
7.	Collection & preservation of sample	: APHA 22 nd Edition, 1060
8.	Location of sample	: Raw Sewage water from Project Site Inlet (02:00 p.m.) [Raw Water Sewage Collection from WWTP Site at Babesa Thimpu - Bhutan]
1.	*Size Distribution of Particulate in Raw Sewage	: **
2.	Temperature (°C)	: 12.0
3.	pH	: 6.80
4.	Total Suspended Solids (mg./l)	: 182.86
5.	Total Solids (mg./l)	: 380.0
6.	VSS/TSS	: 0.80
7.	Total Alkalinity (mg./l)	: 196.0
8.	Chloride (mg./l)	: 57.42
9.	Residual Free Chlorine (mg./l)	: <0.04
10.	Oil & Grease (mg./l)	: 2.0
11.	Total Kjeldhal Nitrogen (mg./l)	: 21.50
12.	Ammonical Nitrogen (mg./l)	: 5.0
13.	Total Phosphate (mg./l)	: 15.0
14.	Dissolved Oxygen (mg./l)	: 1.60
15.	COD (mg./l)	: 486.16
16.	BOD [5 Day's at 20 °C] (mg./l)	: 215.0
17.	Total Chromium (mg./l)	: <0.06
18.	Total Coliform (CFU/100 ml.)	: 9.0 x 10 ⁴
19.	Faecal Coliform (CFU/100 ml.)	: 8.4 x 10 ⁴
20.	Specific Gravity of Grit	: 2.80
21.	Quantity of Grit in Raw Sewage (mg./100 ml.)	: 1.2
22.	Oxygen Absorption (KMnO ₄) (mg./l)	: 35.0

*Sand - 45%, Silt - 35%, Clay - 20%
Sand = 0.05 mm - 2.0 mm, Silt = 0.05 mm - 0.002 mm and Clay = <0.002 mm

Authorised Signatory :

Dr. Ajoy Paul
(Scientist)

(iii) Sample Collection time- 4.00 p.m.



Environmental Laboratory
 189 & 190, Rastraguru Avenue, Kolkata-700 028
 Phone : 2579-2889/2891, 2549-7490
 Fax : 2529-9141
 E-mail : envirocheck@cal2.vsnl.net.in


EFFLUENT WATER ANALYSIS REPORT

1.	Name of the Industry	Technofab Engineering Ltd.
2.	Address	Plot No.05, Sector 27-C, Faridabad - 121003
3.	Report No.	Env/554/W/M(iii)/16-17
4.	Date of sampling	28.01.2017
5.	Reporting date	08.02.2017
6.	Type of sample	Domestic Effluent Water
7.	Collection & preservation of sample	APHA 22 nd Edition, 1060
8.	Location of sample	Raw Sewage water from Project Site Inlet (04:00 p.m.) [Raw Water Sewage Collection from WWTP Site at Babesa Thimpu - Bhutan]

PARAMETERS	RESULTS
1. *Size Distribution of Particulate in Raw Sewage	**
2. Temperature (°C)	13.0
3. pH	6.85
4. Total Suspended Solids (mg./l)	166.67
5. Total Solids (mg./l)	350.0
6. VSS/TSS	0.76
7. Total Alkalinity (mg./l)	176.0
8. Chloride (mg./l)	47.85
9. Residual Free Chlorine (mg./l)	<0.04
10. Oil & Grease (mg./l)	2.50
11. Total Kjeldhal Nitrogen (mg./l)	18.50
12. Ammonical Nitrogen (mg./l)	3.80
13. Total Phosphate (mg./l)	12.50
14. Dissolved Oxygen (mg./l)	1.80
15. COD (mg./l)	430.52
16. BOD [5 Day's at 20 °C] (mg./l)	180.0
17. Total Chromium (mg./l)	<0.06
18. Total Coliform (CFU/100 ml.)	1.248 x 10 ⁵
19. Faecal Coliform (CFU/100 ml.)	1.168 x 10 ⁵
20. Specific Gravity of Grit	2.70
21. Quantity of Grit in Raw Sewage (mg./100 ml.)	1.0
22. Oxygen Absorption (KMnO ₄) (mg./l)	35.0

*Sand - 42%, Silt - 28%, Clay - 30%
 Sand = 0.05 mm - 2.0 mm, Silt = 0.05 mm - 0.002 mm and Clay = <0.002 mm

Authorised Signatory :



Dr. Ajoy Paul
(Scientist)

Annex – 5: Environmental Management Plan, WWTP –Thimphu Thromde

a) Monthly Safety Report, WWTP-Thimphu Thromde.

REGISTERED OFFICE
507 Eros Apartments, 56 Nehru Place
New Delhi-110 019, India
Tel: +91-11-26411931, 26415961
Fax: +91-11-26221521
Email: info@technofabengineering.com
CIN L74210DL1971PLC005712

**TECHNOFAB
ENGINEERING LIMITED**

D: O: 3600/TE/2017-18/46

November 06, 2018

Mr. Kinley Penjore
Project Manager
Thimphu Thromde
Thimphu – 11001,
Bhutan

CONTRACT Ref.: Contract No. TCC/WTPP/GM/001 – Design, Build, Operate and Transfer 12 MLD at WWTP at Thimphu, Bhutan


Subject : Submission of Monthly safety report.

Dear Sir,

This has reference to the above subject; we are submitting the Monthly safety report for the month of October for information and record.

Thanking you and assuring you our best services at all times.

Yours faithfully,
For **TECHNOFAB ENGINEERING LIMITED**


Construction Manager

Royal Government of Bhutan Ministry of works and Human Settlement
Thimphu Thromde Urban Infrastructure Development project.
Contract package No.:TCC/WWTP/GM/001

MONTHLY HEALTH, SAFETY & ENVIRONMENT (HSE) REPO

Actual work start Date: 19 Number 2016

For the Month of: **October 2018**

Title of Job/Operation: 12 MLD WWTP, BABESA

Report No: 14

Name of the **Contractor: Technofab-Vishwa (JV)**

Date of Submission: 06-11-2018

Name of safety EHS/Engineer/Officer: Amit kumar Sharma

ITEM	THIS MONTH (AV)	CUMULATIVE
Total Strength (Staff + Workmen)	145	1,539
Number of HSE meetings organised at site (At Night work)	01	03
Number of HSE awareness programmes conducted at site	00	03
Number of Loss Time Accidents (Other than Fatal)	NIL	NIL
Other accidents (Non Loss Time)	NIL	NIL
Total No. of Accidents	NIL	NIL
Total man-hours worked	35,888	3,54,058
Man-hour loss due to fire and accidents	NIL	NIL
Compensation cases raised with Insurance	NIL	NIL
Compensation cases resolved and paid to workmen	NIL	NIL
Remarks	NIL	NIL

INSPECTION CHECK LIST FOR CUTTING MACHINE

Contract No. and title:
Design, Build and Operate & Transfer 12MLD
Wastewater Treatment Plant at Thimphu, Bhutan
TCC/WWTP/GM/001

Contractor- Location of Inspection-	TECHNOFAB ENGG. LIMITED S.B.R	Equipment Number- 873135 Date of Inspection- 25-10-2018
--	----------------------------------	--

Sr. No.	DESCRIPTION	Observation	Remarks
1	Is ON / OFF knob provided / Damaged? (Check for damage and insulation knob)	✓	
2	Any Damage in the insulation of power supply cable and Plug top is used?	✓	
3	Any Crack & Damage of the Cutting wheel?	✓	
4	Is Cutting Wheel guard provided?	✓	
5	Is Cutting Wheel guard locking properly?	✓	
6	Is Job Holding clamp in good condition?	✓	
7	Is Handle in good condition?	✓	
8	Is Cutting dust guard provided / working?	✓	
9	Are all necessary PPEs available & used? (Safety Goggles, etc.)	✓	
10	Is Machine clearly identified & numbered?	✓	
11	Any Other?	N.O	
Checked by		Name Amid Kumar Sharma	
		Signature 25-10-2018	

Name of Contractor's P&M Manager

Kumar

Amid Kumar Sharma
Name of Contractor's Safety Engineer

INSPECTION CHECK LIST FOR CUTTING MACHINE

Contract No. and title:
Design, Build and Operate & Transfer 12MLD
Wastewater Treatment Plant at Thimphu, Bhutan
TCC/WWTP/GM/001

Contractor- Location of Inspection-	TECHNOFAB ENGINEERING LIMITED (S.B.R.)	Equipment Number- 586973 Date of Inspection- 25-10-2018
--	---	--

Sr. No.	DESCRIPTION	Observation	Remarks
1	Is ON / OFF knob provided / Damaged? (Check for damage and insulation knob)	✓	
2	Any Damage in the insulation of power supply cable and Plug top is used?	✓	
3	Any Crack & Damage of the Cutting wheel?	✓	
4	Is Cutting Wheel guard provided?	✓	
5	Is Cutting Wheel guard locking properly?	✓	
6	Is Job Holding clamp in good condition?	✓	
7	Is Handle in good condition?	✓	
8	Is Cutting dust guard provided / working?	✓	
9	Are all necessary PPEs available & used? (Safety Goggles, etc.)	✓	
10	Is Machine clearly identified & numbered?	✓	
11	Any Other?	NO	
Checked by		Name And Kumar Sharma	
		Signature 25-10-2018	

Name of Contractor's P&M Manager

Name of Contractor's Safety Engineer

Contract No. And title: Design, Build and operate & Transfer 12 MLD wastewater Treatment plant at Thimphu, Bhutan (TCC/WWTP/GM/001)

Attendance Register for Safety Training

Project <i>W.W.T.P</i>	Project No <i>TCC/WWTP/GM/001 (3600)</i>
Contractor: <i>Techno Lab Engineering Pvt Ltd</i>	Topic <i>work at height</i>
Date <i>22-10-2018</i>	Location <i>S.B.R.</i>
Time <i>10:30 am</i>	Conducted by <i>Amil Kumar Sharma, Santosh Kumar</i>

Sl.No	Name	Designation	Organisation	Signature/ Thumb Impression
1	Dyalal Miya	Mason	T.E.L	Dyalal Miya
2	Imran Ali	"	T.E.L	Imran Ali
3	Mamunur Miya	"	T.E.L	Mamunur Miya
4	Mamunur Hossain	"	T.E.L	Mamunur Hossain
5	Jaydul Hossain	"	T.E.L	Jaydul Hossain
6	Sasanta Misra	"	T.E.L	Sasanta Misra
7	Rabiul Miya	"	T.E.L	Rabiul Miya
8	Masikul Hossain	"	T.E.L	Masikul Hossain
9	Sunimul Miya	"	T.E.L	Sunimul Miya
10	Biplap Misra	"	T.E.L	Biplap Misra
11				
12				
13				
14				
15				
16				
17				

Faculty's Signature

Date

Kumar

TECHNOFAB ENGINEERING

Safety Induction Attendance Register

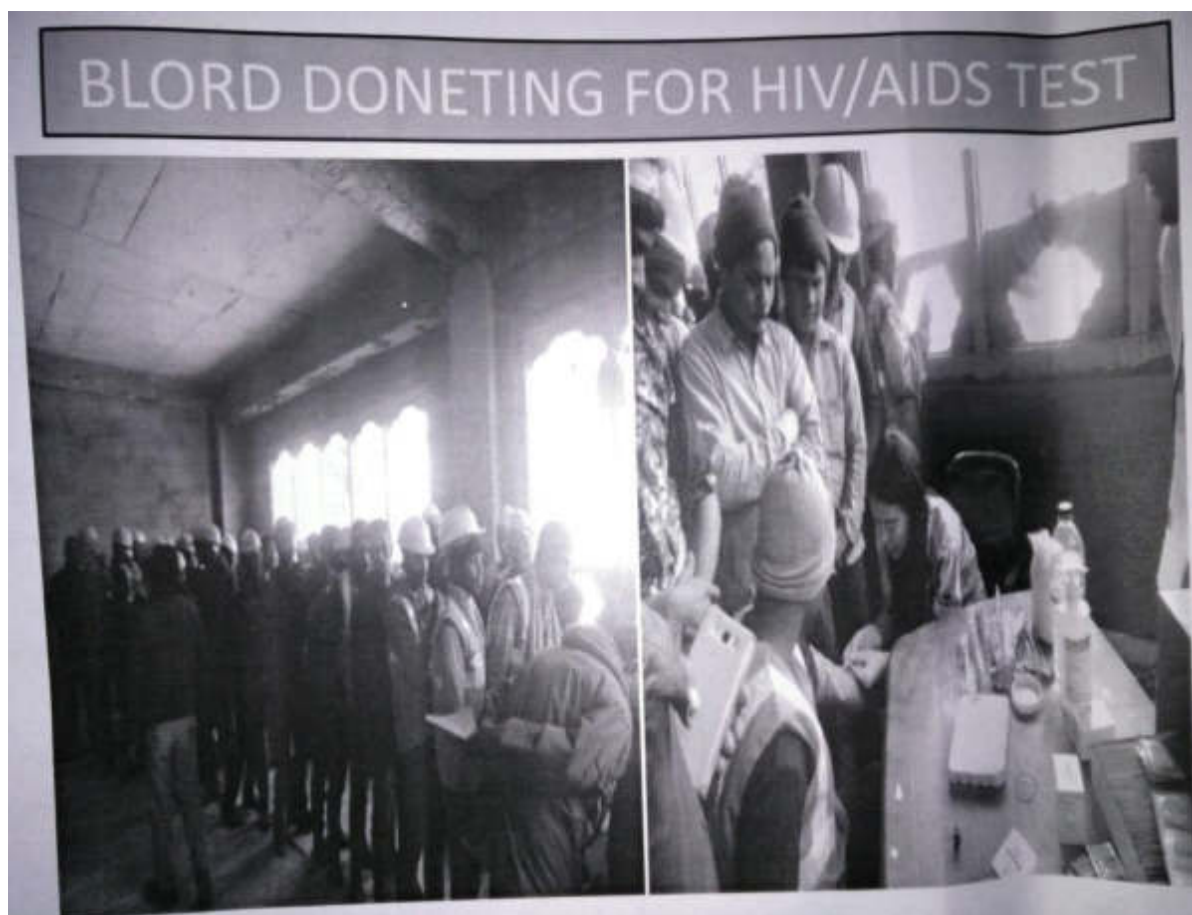
Project: _____

Date of Induction: _____ Total Number of Attendees: _____ Induction Number: _____

Sl.No	Full Name	Gate Pass Number	Designation	Age	Blood Group	Experience in Role	Contractor	Permanent Address	Emergency Contact Number	Signature/Thumb impression
6/	FIRAZ SHUK			22		1 YEARS	T.E.L	VILL- BUEPAT P.O. - BUEPAT T.O. - KOLKATA STATE - W.B.		FIRAZ SH
7/	SAMRATIN			23		3 YEARS	T.E.L			[Signature]
8/	PRAM KISHOR SHUK			21		1 YRS	T.E.L			AS
9/	DAKSHIN			35		5 YEARS	T.E.L			DAKSHIN
10/	MUSKAR MANDAL			45			T.E.L	VILL- BAKAMPUR (MAMRA) P.O. - TUKA WAD T.O. - KOLKATA STATE - W.B.	700257762	[Thumb impression]

Annex - 6: HIV/AIDS campaign program, WWTP-Thimphu Thromde.

















b) Photographs





Annex 7: Photographs from Field Visits for Components 1, 2, & 3.


Sl. No	Name of work/activities	Present status	Picture reference	Remarks
Component 1: Thimphu Thromde_ Construction of Waste Water Treatment Plant.				
1	Erection of signage.	Completed.		Sign board about the project put up at project site.

2	Use of OHS gadgets	Project staff using helmet at work site.		Complied.
3	Notification on the use of OHS gadgets at project site.	Safety rules notification put at site to remind everyone.		Complied
4	Notification on the use of OHS gadgets at project site.	Safety rules notification put at site to remind everyone.		Complied.
5	OHS: Awareness campaign	Celebrated one week's National Safety week by the contractor in Project.		4-10 March 2018




6	Use of OHS gadgets	Labourers using helmets and reflective jackets at work.		Complied.
7	Materials stocking. (Autoclave Aerated Concrete blocks)	Neatly stacked.		Complied.
8	Signboard at site.	Signboard "Men at Work Drive Slow" erected.		Complied.
9	Construction of Office / administrative building.	100%.		Construction complete






10	Fire Fighting equipment.	A few equipment in palce		Complied.
11	First Aid Kit	Purchased and available in site office.		Complied.
12	First Aid Kit	Purchased and available in site office.		Basic medical equipment and medicine available in the First Aid Box.
13	First Aid Kit	Purchased and available in site office.		Resuscitation Face shield also available in the kit.






14	Emergency evacuation incase of natural disaster.	Everyone has been briefed and the assembly site identified in case of any emergency evacuation.		Assembly point identified and sign put up.
15	Water tanker.	Purchased for sprinkling water to suppress dust at construction site.		Operational.
16	Concrete mixture plant.	Constructed and in operation.		Operational
17	Construction of Staff quarters	100%		Construction completed.

18	WWTP project site overview.	81.5%		WWTP site as of 30 th April 2019
----	-----------------------------	-------	--	---

Component 2: Phuentsholing Thromde – Construction of 46.8m Bridge over Omchu river.

19	Erection of sign boards.	Completed.		Sign board providing the Project information.
20	Bridge	Completed		View of the bridge from left bank (upper side).
21	Bridge	Completed		View of the bridge from left bank (lower side).

Component 3: Samdrup Jongkhar Thromde_ Water Supply from Rikke chu				
22	Erection of sign boards.	Completed.		Overall project information.
23	Camps	Completed		With office and stores.
24	Toilet	Completed		Staff's & Labourers'.
25	Intake (Weir)	Completed		Fish-ladder included.
26	Office cum WTP complex	Construction ongoing.		Chemical building upcoming.

27	Water supply: Laying of pipes.	Completed by August '17		Pipes laid till WTP only.
28	Office building.	Completed.		
29	Construction of Sludge thickener and plate settler frames.	Completed.		
30	Installation of clarified tanks.	Completed.		
31	Improvement works at weir site.(Intake)	Work yet to begin.		Contract just awarded.

32	Proposed approach road to weir (Intake).	Work yet to begin.		Contract just awarded.
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b) **Appendix C_ Environmental Criteria and Standards**

I. **Ambient Air Quality Standards (Maximum Permissible Limits in $\mu\text{g}/\text{m}^3$)**

Environmental Standards, National Environmental Commission, Royal Government of Bhutan, Nov 2010

Parameter	Industrial Area	Mixed Area*	Sensitive Area**
Total Suspended Particulate matter			
24 Hour Average	500	200	100
Yearly Average	360	140	70
Respirable Particulate matter (PM₁₀)			
24 Hour Average	200	100	75
Yearly Average	120	60	50
Sulfur Dioxide			
24 Hour Average	120	80	30
Yearly Average	80	60	15
Nitrogen Oxides			
24 Hour Average	120	80	30
Yearly Average	80	60	15
Carbon Monoxide			
8 Hour Average	5,000	2,000	1,000
1 Hour Average	10,000	4,000	2,000

* **Mixed Area** means where residential, commercial or both activities take place

****Sensitive Area** means where sensitive targets are in place like hospitals, Schools, sensitive ecosystems.

Source: Environmental Standards, National Environmental Commission, Royal Government of Bhutan, Nov 2010

II. **Noise Level Limits:**

Industrial Area		Mixed Area		Sensitive Area	
Day *	Night **	Day	Night	Day	Night
75 dB (A)	65 dB (A)	65 dB (A)	55 dB (A)	55 dB (A)	45 dB (A)

Note: All the values are maximum values

*Day time is from 0600 hours to 2200 hours (human activities) **Night time is from 2200 hours to 0600 hours (no human activities)

Source: Environmental Standards, National Environmental Commission, Royal Government of Bhutan, Nov 2010

III. **Vehicle Emission Standards:**

Fuel Type	Vehicle registered prior to 01 st Jan 2005	Vehicle registered after 01 st Jan 2005	Type Approval
-----------	---	--	---------------

Petrol (% CO)	4.5	4	Euro II
Diesel (% HSU)	75	70	

Source: Environmental Standards, National Environment Commission, Royal Government of Bhutan, Nov. 2010

IV. Ambient Water Quality Criteria for various uses (September, 2010)

Sl. No.	Parameters	A	B	C
1	pH	6.5-8.5	6 to 9	6 to 9
2	Colour, Hz Units	5	50	-
3	TSS mg/l	25	100	-
4	Conductivity, μ S/cm	800	1000	2000
5	Odour	Unobjectionable	Unobjectionable	-
6	Mineral Oil	No film	No film	-
7	Nitrate, mg/l	10	50	-
8	Flouride, mg/l	1	2	-
9	Sulphates, mg/l	25	100	-
10	Chloride, mg/l	50	200	-
11	Surfactants, mg/l	0.1	0.2	-
12	Phosphates, mg/l	0.5	<1.0	-
13	DO, mg/l	6	4	-
14	BOD, mg/l	2	5	50
15	TKN, mg/l	0.5	2	
16	Ammonia, mg/l	0.05	0.5	
17	T. Coliform, MPN/100 ml*	50	5000	10000
18	F. Coliform, MPN/100 ml*	20	2000	5000
19	F.streptococci, MPN/100 ml*	20	1000	1000
20	Dissolved Iron, mg/l	0.2	0.5	-
21	Copper, mg/l	0.05	0.1	-
22	Zinc, mg/l	0.2	0.5	
23	Arsenic, mg/l	0.01	0.05	-
24	Cadmium, mg/l	0.003	0.003	-
25	Total-Chromium, mg/l	0.05	0.05	-
26	Lead, mg/l	0.02	0.02	-
27	Selenium, mg/l	0.01	0.01	-
28	Mercury, mg/l	0.0005	0.0005	-
29	Phenol, mg/l	0.001	0.002	-
30	Cyanides	0.05	0.05	-
31	PAH, mg/l	0.0002	0.0002	0.001
32	Total Pesticides, mg/l	0.0005	0.0005	0.001
33	PCB mg/l	0.0002	0.0002	-
34	SAR	-	-	-
35	Boron	-	-	1
36	Floating Materials such as wood, plastic, rubber, excreta, garbage etc.	Absent	Absent	Absent

Source: *Environmental Standards, National Environmental Commission, Royal Government of Bhutan,*

Note:

1. (Very good) Drinking water source without conventional treatment, but after disinfection whenever necessary.
2. (Good) Drinking water source without conventional treatment.
3. (Moderate) Use for irrigation, industrial cooling etc.
4. *To achieve the drinking quality standards, disinfection/ boiling of the water is recommended. The total coli form may be high due to their contribution from natural sources like soil, litter, etc., which does not relate to pathogen. If MPN of total coli form is noticed to be more than the limit suggested, than regular test should be carried out. The criteria would be satisfied if during a period not more than 5 % sample shows greater than prescribed limit.*

V.List

- a)** *Noise, b) Air Pollution, c) Dust Control, e) Construction Waste, f) Pedestrian Safety, g) Traffic Safety, h) Contamination of Water Sources, i) Services Disruption, j) Mobility Access, k) Excess Material Disposal, l) Traffic Management Plan. M) GRM---Important, n) Integration of Transport, o) Slope Stabilization, p) IBET, q) EMP, r) Traffic Management.*

SOUTH ASIA REGIONAL DEPARTMENT
SAUW Environmental Monitoring Report Log Sheet

Project title:	BHU: Urban Infrastructure Project			
Loan Number:	2816	Project Number: 42240-013		
Overall Project Description and Objectives	The project supports the Government of Bhutan's efforts toward sustainable urban development in its two largest municipalities (Phuentsholing and Thimphu) and two emerging urban centers (Samdrup Jongkhar Municipality [SJM] and Nganglam Town). It has four outputs: (i) water supply and sanitation (WSS) infrastructure rehabilitation and expansion; (ii) mobility improvement; (iii) urban management strengthening; and (iv) project management and capacity development.			
Approved Categorization		Category A		Category C
	X	Category B		FI
Loan Effectivity Date:	27 April 2012		Frequency of Reporting	Semi-Annual
Project Officer	Shinjini Mehta		Project Analyst	Krizelda Marie Songco
Reporting Year	2019	Coverage Period	November 2018 – October 2019	

Item	Findings in the SEMR	Comments	Action/s Required	Response by PMU ¹
A. Project Safeguards Team (check loan agreement and PAM requirements)				
PMU ²	PMU Project Manager and Consultant Environment Specialist included in the SEMR. Contact details are included.	Complied.	1. Confirm that the Project Manager is the one appointed to oversee EMP implementation as required in the PAM. 2. Confirm that the consultant environment specialist is engaged throughout the duration of the project.	1. Confirmed. 2. Intermittent input mostly during SEMR reporting.
PIU ³	PIU Safeguards Team included in the SEMR. There is a project manager for each PIU and project engineers. Contact details are included.	Complied.	1. Confirm if who between the Project Manager or Project Engineer is appointed to oversee EMP implementation as required in the PAM. 2. Confirm that the consultant environment specialist is engaged throughout the duration of the project.	1. Project manager. 2. Intermittent input mostly during SEMR reporting. No only as intermittent input as an when required.

¹ PMU to provide detailed response. This log sheet will be attached to the SEMR and disclosed on ADB website.

² PMU – project management unit

³ PIU – project implementation unit

Item	Findings in the SEMR	Comments	Action/s Required	Response by PMU ¹
Consultants	Consultant environment specialist is included in the SEMR. The contact details are enumerated.	Complied.	Confirm that the consultant environment specialist is engaged throughout the duration of the project.	
B. Overall Project and Subproject Description <i>(summarize number and type of packages)⁴</i>				
Number of Components with civil works <i>(check if consistent with latest procurement plan)</i>	3	Complied. The component-wise description in the report is well presented.	None.	
Number of DB/DBO packages and status	None.	N/A	None.	
Number of civil works packages and status	Construction of wastewater treatment plant – 81.5% Construction of Girder Bridge in Phuentsholing Thromde – 100% Water Supply System for SJ Thromde – 92%	Complied. The package-wise description in the report is well presented.	None.	
IEEs cleared for awarded packages?		Complied. The draft IEE reports corresponding to the awarded packages are disclosed on ADB website.	None.	
Safeguard documents disclosed on project website?	Not mentioned in the SEMR.	Compliance is unknown.	For immediate action. 1. Confirm the safeguard documents are disclosed on project website. Provide link.	Project related notices Contract IFB, contract award and SSMR is uploaded in MoWHS website (@mowhs.gov.bt.
SEMR information on implementation phase (bidding, on-going, construction, completed, under operation, others)	Progress of implementation per component/package is clear in the SEMR.	Complied. The SEMR is clear on the physical progress of subprojects that are under construction phase/implementation.	1. In the next SEMR, continue to report on the progress of implementation.	Shall comply.
SEMR information on construction activities progress	Progress of implementation per component/package is clear in the SEMR. Construction of wastewater treatment plant – 81.5%	Complied. The SEMR is clear on the physical progress of subprojects that are under construction phase/implementation.	1. In the next SEMR, continue to report on the progress of implementation.	Shall comply.

⁴ DB/DBO – design-build or design, build, and operate or where contractor will finalize the detailed engineering design; civil works contract – sufficient details of the package is known and used as basis for bid/contract's Technical Specification

Item	Findings in the SEMR	Comments	Action/s Required	Response by PMU ¹
	Construction of Girder Bridge in Phuentsholing Thromde – 100% Water Supply System for SJ Thromde – 92%			
C. Status of compliance with statutory clearances (check IEE for the complete list, summarize the findings for each package – obtained/under application and if obtained, specify validity period)				
Environmental Clearance (EC)	The respective environmental clearances of the three packages with ongoing civil works have been obtained and are valid.	Complied. Copies of the valid clearances are attached as appendixes.	None.	
Forest Clearance	No information.	Compliance is unknown.	1. Confirm that these permits/ statutory clearances are not required in the packages that are currently under construction.	Confirmed these are not required.
No Objection Certificate/Letter	No information.			
Site location clearance	No information.			
Permit/Consent to Construct (or equivalent)	No information.			
Permit/Consent to Operate (or equivalent)	No information.			
Road-cutting permit	No information.			
Utilities shifting permit	No information.			
Tree-cutting permit	No information.			
Others (specify)				
D. Status of Compliance with loan covenants (verify items in SEMR with project loan agreement)				
EA and IAs to ensure the preparation, design, construction, implementation, operation and decommissioning of the project, and all subproject facilities comply with; (i) all applicable laws and regulations of the government relating to environment, health, safety; (ii) the Environmental Safeguards;(iii) EARF; and (iv) all measures and requirements set forth in the respective IEEs and EMPs, and any corrective or preventative actions set forth in a Safeguards Monitoring Report.	Being complied with.	The EA needs to comply with this for all packages, whether partially or fully completed. Monitoring of compliance should continue until ADB issues a PCR. ⁵	1. Continue to report on compliance with related loan covenants in the next SEMRs.	Shall comply.
EA to ensure all bidding documents and contracts for Works contain provisions that require contractors to:- Comply with the measures and requirements relevant to the contractor set forth in the IEE and EMP; and any corrective or preventive	No information	Compliance is unknown.	For immediate action. 1. Include this particular loan covenant and confirm if this has been complied.	Complied.

⁵ PCR – Project Completion Report.

Item	Findings in the SEMR	Comments	Action/s Required	Response by PMU ¹
actions set out in a Safeguards Monitoring Report.				
EA to ensure all bidding documents and contracts for Works contain provisions that require contractors to:- make available a budget for all such environmental measures.	No information	Compliance is unknown.	For immediate action. 1. Include this particular loan covenant and confirm if this has been complied.	General provision for environmental measures kept only in Bid document and the contractor quotes his price inclusive for the contract works.
EA to ensure all bidding documents and contracts for Works contain provisions that require contractors to:- provide the EA with a written notice of any unanticipated environmental impacts that arise during construction, implementation or operation of the project that were not considered in the IEE and in the EMP.	No information	Compliance is unknown.	For immediate action. 1. Include this particular loan covenant and confirm if this has been complied.	No such impacts have arisen so far.
EA to ensure all bidding documents and contracts for Works contain provisions that require contractors to:- adequately record the condition of roads, agricultural land and other infrastructure prior to starting to transport materials and construction	No information	Compliance is unknown.	For immediate action. 1. Include this particular loan covenant and confirm if this has been complied.	Not relevant and not included in the bid documents.. Henceforth with new ADB projects, these shall be included in the Bidding Documents
EA to ensure all bidding documents and contracts for Works contain provisions that require contractors to:- fully reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition upon the completion of construction.	No information	Compliance is unknown.	For immediate action. 1. Include this particular loan covenant and confirm if this has been complied.	Restoration/reinstating of existing footpaths and other infrastructures are implemented through EMP. There is no agriculture land within the 2816 project
EA to submit semi-annual Safeguards Monitoring Reports to ADB and disclose relevant information from such reports to affected persons promptly upon submission.	The submission of this SEMR under review is part of compliance with this loan covenant.	Complied. The submission of this SEMR under review is part of compliance with this loan covenant.	For immediate action. 1. Include this particular loan covenant and confirm if this has been complied.	Complied.
EA to ensure that if any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the IEE, the	No information		For immediate action. 1. Include this particular loan covenant and confirm if this has been complied.	None so far – will ensure it is addressed if such things occur during construction.

Item	Findings in the SEMR	Comments	Action/s Required	Response by PMU ¹
EMP, the RP or the IPP as applicable, promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan				
EA to report any breach of compliance with the measures and requirements set forth in the EMP, the RP or the IPP promptly after becoming aware of the breach.	No information	Compliance is unknown.	For immediate action. 1. Include this particular loan covenant and confirm if this has been complied.	No breach of compliance.
EA to ensure that the contractors comply with all applicable labor, health, and safety laws and regulations of Bhutan and, in particular, do not employ child labor for construction and maintenance activities	No information	Compliance is unknown.	For immediate action. 1. Include this particular loan covenant and confirm if this has been complied.	Complied through EMP implementation.
EA to ensure that the contractors comply with all applicable labor, health, and safety laws and regulations of Bhutan and, in particular, provide appropriate facilities (latrines, etc.) for workers at construction sites.	No information	Compliance is unknown.	For immediate action. 1. Include this particular loan covenant and confirm if this has been complied.	Complied through EMP implementation.
E. Contractors Compliance with Environmental Safeguards Requirements				
Appointment of Environment, Health and Safety (HSE) and/or nodal person	Information is included in the SEMR.	The loan agreement and PAM states that contractors have the responsibility to implement the IEEs and EMPs. And that the IEEs explicitly states the responsibility of a contractor to appoint its own full time environment and safety staff.	1. Continue to provide information on the appointment of full time environment and safety staff (or equivalent) of contractors.	Shall comply
Submission of Contractor's EMPs (CEMPs)	No specific information if CEMPs were prepared.	Not complied. The IEEs require that CEMPs should be prepared by contractors and submitted to PMU for approval.	For immediate action. 1. Include information on whether CEMPs were prepared. Or if CEMPs were not prepared, include confirmation that the EMPs in the IEEs were considered and justified to serve as CEMPs.	CEMP not prepared by the contractor. However, EMP provided in the IEE was sufficient and implemented in the project.
Submission of CEMP implementation report (<i>specify in comments frequency – daily, weekly, monthly or quarterly basis</i>)	No information if CEMPs were prepared.	Not complied. The IEEs require that CEMPs should be prepared by	For immediate action. 1. Include information on whether CEMPs were prepared. Or if CEMPs	Updated EMPs were submitted monthly along with the progress report by the

Item	Findings in the SEMR	Comments	Action/s Required	Response by PMU ¹
		contractors and submitted to PMU for approval.	were not prepared, include confirmation that the EMPs in the IEEs were considered and justified to serve as CEMPs.	contractor to the respective PIUs.
Site verification by PMU, PIU, or consultants (verification report should be attached to the SEMR)	Site inspection report including photos is attached to the SEMR	Not Complied. Monitoring reports attached correspond to inspections done in October 2018. It appears that there were no monitoring activities done during the 1-year period being reported.	For immediate action. 1. Split the report into two SEMRs for the periods November 2018 – April 2019 and May 2019 – October 2019. 2. Include reports of monitoring activities that were conducted within the respective reporting periods only. If no monitoring was undertaken in a particular period, provide justification and corrective action plan.	1. <i>SEMRs split and submitted for the periods November 2018 – April 2019 and May 2019 – October 2019.</i> 2. <i>PIUs are supposed to monitor all construction activities based on the monthly EMPs. I am sure copies must be in the PIUs. The lapse shall be rectified and complied in future.</i>
SEMR compliance matrix on mitigation measures implementation (matrixes are based on approved CEMPs)	EMP compliance matrix is included.	Not complied. Date of monitoring in the EMP matrix is in November 2018, which has already been reported in the previous SEMR (April 2018 – October 2018).	For immediate action. 1. Split the report into two SEMRs for the periods November 2018 – April 2019 and May 2019 – October 2019. 2. Include reports of monitoring activities that were conducted within the respective reporting periods only. If no monitoring was undertaken in a particular period, provide justification and corrective action plan.	1. <i>Complied and SEMRs split and submitted for the periods November 2018 – April 2019 and May 2019 – October 2019.</i> 2. <i>PIUs are supposed to monitor all construction activities based on the monthly EMPs. I am sure copies must be in the PIUs. The lapse shall be rectified and complied in future.</i>
Other information				
F. Environmental Monitoring				

Item	Findings in the SEMR	Comments	Action/s Required	Response by PMU ¹
Rationale				
Parameters to be monitored are commensurate to the impacts, mitigation measures, and project/subproject/package	Similar to previous reporting period, environmental monitoring has not been conducted during the period.	Not complied. No justification has been provided why no environmental sampling has been conducted to date. This finding has already been raised in the review of the previous SEMR.	For immediate action. 1. Provide justification why up to this date, no environmental sampling has been done. Provide corrective action plan.	<u>PIUs monitor the sites during construction.</u>
Sampling locations identified and appropriate				
Sampling frequency identified and appropriate				
Sampling collection and analysis are in accordance with internationally-accepted practices				
Standards and performance indicators are compliant with ADB SPS requirements ⁶ (provide justification if less stringent standards are used)				
G. Environmental monitoring results (narrative based on presented results)				
Air quality results	No sampling conducted in subproject sites.	Not complied. This finding has already been raised in the review of the previous SEMR. No explanation and justification provided.	For immediate action. 1. Provide justification why up to this date, no environmental sampling has been done. Provide corrective action plan.	No equipment has been purchased to conduct the test. However, sprinkling of water is done on site during construction time.
Water quality results				
Noise quality results				
Others	n/a			
H. Consultations and/or FGDs during the reporting period				
Number	No consultation activity has been conducted.	Not complied. Meaningful consultation should be conducted in all phases of project implementation, which includes the construction and post-construction phases. There is a need for PMU to conduct consultation activities to comply with the requirement of ADB SPS.	For immediate action. 1. Provide justification why no consultation activity has been done. Provide corrective action plan.	The consultation workshop on hygiene and safeguard was carried out in each of the PIUs and reported in the QPR/ and reported in DDR (Social report)
Reason/s for consultations/FGDs				
Number of participants				
Number of female participants				
I. Trainings, Workshops, Seminars during the reporting period				
Number	No training conducted during the period. No new packages has been	In the SEMR covering October 2017 – April 2018 , training was reported to have been	For immediate action. 1. Provide justification why no training activity	No new packages and the contractors being same it would be
Topics				
Number of participants				
Number of female participants				

⁶ ADB SPS (Appendix 1 para 33) requires projects to apply pollution prevention and control technologies and practices consistent with international good practices as reflected in internationally recognized standards such as the World Bank Group's Environmental, Health and Safety Guidelines (<https://www.ifc.org/ehsguidelines>). These standards contain performance levels and measures that are normally acceptable and applicable to projects. When host country regulations differ from these levels and measures, the borrower/client will achieve whichever is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, the borrower/client will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented ADB SPS.

Item	Findings in the SEMR	Comments	Action/s Required	Response by PMU ¹
	awarded during the reporting period.	conducted for the contractors of the awarded packages.	has been done. Provide corrective action plan.	repetitive and hence not conducted.
J. Grievance Redress Mechanism				
GRM per PAM or IEE/EARF established	A summary of the GRM is included in the SEMR.	Compliance is unknown. The SEMR should indicate if this GRM and the GRC is notified.	For immediate action. Confirm if the GRM/GRC is notified. Attach as appendix in any of the SEMRs copy of notification.	No grievances were reported and hence no issues were there so far.
GRM notified via publication or notice boards				
GRM members identified				
GRM members have capacity to address project-related complaints (<i>detailed information on capacity development of GRM members such as trainings, workshops, briefings, etc should be attached in the SEMR</i>)				
Number of meetings conducted (<i>attach minutes of the meeting</i>)				
K. Complaints Received (<i>detailed information on nature of complaints, summary and status of resolution</i>)				
Number of complaints	No complaints received during the period.	N/A	None.	None
Nature (<i>provide summary of issues/concerns</i>)				
Status of resolution				
L. Summary of Issues and Corrective Actions				
Major issues/concerns (specify)	No corrective action plan included in the report.	Revisit of previous SEMRs shows that recommended actions needed to be undertaken by PMU have not been done. These include the conduct of environmental sampling, continuing conduct of consultations, and notification of GRM/GRC (which has long been overdue).	For immediate action. 1. Provide information on the following: - explanation/justification on why no environmental sampling were conducted during the 1-year period covered by the report. - explanation/justification on why no consultation has been conducted. - notification of GRM/GRC for the project. Please attach as appendix.	While there had been delays in submission of the SEMR reports, but for those reports submitted, no comments were usually received from ADB on environmental except on Social Safeguards. However, the issue raised is noted and will try and improve in future projects.
M. Status of Corrective Action Plan from Previous Reporting Period (list all and provide status)				
	No corrective action plan included in the report.	Revisit of previous SEMRs shows that recommended actions needed to be undertaken by PMU have not been done. These include the conduct of environmental sampling, continuing conduct of	For immediate action. 1. Provide information on the following: - explanation/justification on why no environmental sampling were conducted	While there had been delays in submission of the SEMR reports, but for those reports submitted, no

Item	Findings in the SEMR	Comments	Action/s Required	Response by PMU ¹
		consultations, and notification of GRM/GRC (which has long been overdue).	during the 1-year period covered by the report. - explanation/justification on why no consultation has been conducted. - notification of GRM/GRC for the project. Please attach as appendix.	comments were usually received from ADB on environmental except on Social Safeguards. However, the issue raised is noted and will try and improve in future projects.
N. Appendixes				
Photos	Included in the appendix.	Most photos shown are the same photos submitted in previous SEMRs.	For immediate action. 1. Split the report into two SEMRs for the periods November 2018 – April 2019 and May 2019 – October 2019. 2. Only include photos that were taken during the reporting period only. If no monitoring was undertaken in a particular period, provide justification and corrective action plan.	Complied and report submitted into two SEMS. Ok. Shall comply but some photos are relevant, such as signage, camp locations, completed works etc.
Summary of consultations	No consultations done during the reporting period.		For immediate action. 1. Provide justification why no consultation activity has been done. Provide corrective action plan.	The EMP is site specific which are managed by the respective PIUs, and therefore no consultation was carried out.
Copies of environmental clearances and permits	Included in the appendix	Complied.	None.	
Contractor's EMPs	No CEMPs provided.		For immediate action. 1. Include information on whether CEMPs were prepared. Or if CEMPs were not prepared, include confirmation that the EMPs in the IEEs were considered and	CEMP not prepared by the contractor. However, EMP provided in the IEE was sufficient and implemented. In the project.

Item	Findings in the SEMR	Comments	Action/s Required	Response by PMU ¹
			justified to serve as CEMPs.	
Checklists	Accomplished monitoring checklists are attached. However, these are the same checklists used in the previous SEMR.		For immediate action. 1. Include checklists accomplished during the reporting period only, if any. If no monitoring was undertaken in a particular period, provide justification and corrective action plan.	This lapse shall be complied in future reports.
O. Other Issues	The report covers one year period from October 2018 – November 2019.	Reporting should be done semi-annually. There is a need to split the report and revise accordingly to include information relative to the cover period only. Avoid using monitoring information from previous SEMRs.	For immediate action. 1. Split the report into two SEMRs for the periods November 2018 – April 2019 and May 2019 – October 2019. 2. Include monitoring activities and information relative to the corresponding reporting period only. If no monitoring was undertaken in a particular period, provide justification and corrective action plan.	1. <i>Complied and SEMRs split and submitted for the periods November 2018 – April 2019 and May 2019 – October 2019.</i> 2. Shall comply in future reports.