

# Environmental Monitoring Report

---

## **PUBLIC**

Project Number: 54355-001  
Semi Annual Report (March - August 2023)  
September 2023

## Bhutan: Green and Resilient Affordable Housing Sector Project

Prepared by the National Housing Development Corporation Limited, Royal Government of Bhutan for the Asian Development Bank (ADB).

## CURRENCY EQUIVALENTS

(As of 28 September 2023)

Currency unit	-	Equivalent
Nu 1.00	=	\$ 0.012
\$1.00	=	Nu:83.33

## ABBREVIATIONS

ADB	-	Asian Development Bank
AIDS	-	Acquired Immunodeficiency Syndrome
BBR	-	Bhutan Building Regulation
BHU	-	Basic Health Unit
BOQ	-	Bill of quantities
BPC	-	Bhutan Power Corporation
CA	-	Competent Authority
CEMP	-	Construction Environmental Management Plan
COVID-19	-	Corona Virus
DoFPS	-	Department of Forests and Park Services
EA	-	Executing Agency
EC	-	Environmental Clearance
EIA	-	Environmental Impact Assessment
EMP	-	Environmental Management Plan
GRAHSP	-	Green and Resilient Affordable Housing Project
GRC	-	Grievance Redress Committee
GRM	-	Grievance Redress Mechanism
HIV	-	Human Immunodeficiency Virus
IEE	-	Initial Environmental Examination
MoAF	-	Ministry of Agriculture and Forest
MoF	-	Ministry of Finance
MoIT	-	Ministry of Information and Transport
MoLHR	-	Ministry of Labour and Human Resources
NEC	-	National Environment Commission
NGO	-	Non-government Organisation
NHDCL	-	National Housing Development Corporation Limited
NLCS	-	National Land Commission Secretariat
NCWC	-	National Commission for Women and Children
OHS	-	Occupational health and safety
O&M	-	Operation and Maintenance
PIAC	-	Project Implementation Assistance Consultant
PIU	-	Project Implementing Unit
PMU	-	Project Management Unit
PPE	-	Personal Protective Equipment
PSC	-	Project Steering Committee
REA	-	Rapid Environmental Assessment
RGoB	-	Royal Government of Bhutan
SDG	-	Sustainable Development Goal
SEMP	-	Site-specific environmental management Plan
SOP	-	Standard Operating Protocol
SPS	-	Safeguard Policy Statement 2009
WHO	-	World Health Organization

## WEIGHTS AND MEASURES

°C	degree centigrade
dB	Decibels
kg	kilogram
km	kilometre
ha	hectares
m	meter
m <sup>3</sup>	Cubic meter
km <sup>2</sup>	square kilometer

### NOTE{S}

- (i) In this report, "\$" refers to United States dollars.
- (ii) "Nu" refers to Ngultrum (Bhutanese currency pegged at par with Indian Currency Rupee.)

This environmental monitoring report is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or Staff, and may be preliminary in nature. Your attention is directed to the "terms of use" section of ADB's website.

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, ADB does not intend to make any judgments as to the legal or other status of any territory or area.

## CONTENTS

I.	INTRODUCTION	1
	A. Overall project description and objectives	1
	B. Environmental Category as per ADB Safeguard Policy Statement, 2009	1
	C. Environmental Category of each subproject as per national laws and regulations	2
	D. Project Safeguards Team	2
	E. Overall project and subproject progress status	3
	F. Description of subprojects (package-wise) and status of implementation	5
II.	COMPLIANCE STATUS WITH NATIONAL/STATE/LOCAL STATUTORY ENVIRONMENTAL REQUIREMENTS	6
III.	COMPLIANCE STATUS WITH ENVIRONMENTAL LOAN COVENANTS	9
IV.	COMPLIANCE STATUS WITH THE ENVIRONMENTAL MANAGEMENT PLAN	13
	A. Package-wise IEE documentation status	13
	B. Details of contractor/s' nodal person/s for environmental safeguards	16
	C. Environmental Monitoring Activities	16
	D. Compliance with EMP/CEMP	17
	E. Environmental, Health and Safety Incidents	30
V.	APPROACH AND METHODOLOGY FOR ENVIRONMENTAL MONITORING OF THE PROJECT	31
	A. Methodology used for environmental monitoring of each subproject	31
VI.	MONITORING OF ENVIRONMENTAL IMPACTS ON PROJECT SURROUNDINGS (AMBIENT AIR, WATER QUALITY AND NOISE LEVELS)	31
	A. General condition of surroundings at the project site	36
VII.	GRIEVANCE REDRESS MECHANISM	38
	A. Grievance Redress Mechanism	38
VIII.	COMPLAINTS RECEIVED DURING REPORTING PERIOD	40
	A. GRC Meetings	40
IX.	PUBLIC CONSULTATION	41
XI.	SUMMARY OF KEY ISSUES AND REMEDIAL ACTIONS	42
	A. Findings	42
	B. EMP Implementation Improvements and Other Required Actions	43
<b>APPENDICES</b>		
	Appendix 1: Photographs	46
	Appendix 2: Summary of consultations	60
	Appendix 3: Copies of Environmental Clearances and permits	61
	Appendix 4: Samples of environmental site inspection report	82
	Appendix 5: Office Order (Letter) on Grievance Redress Committee (GRC) formation to address Social, Environmental and other Grievances in GRAHSP CW01, NHDCL.	87
	Appendix 6: Municipality Water Quality Result	88

Appendix 7: Forest Clearance Application	89
Appendix 8: Approval for Construction of Labor Camp	90
Appendix 9: Approval for Dumping of Excavated Waste	91
Appendix 10: Clearance from Bhutan Telecom Limited	92
Appendix 11: Environmental Baseline Monitoring Result	93
Appendix 12: Grievance Records	95

## List of Tables

Table 1: Project Safeguards Team	3
Table 2: Subprojects Progress and Status	4
Table 3: Implementation status of Subprojects (package wise)	5
Table 4: Detailed status of each clearance/permission.	6
Table 5: Compliance Status with Environmental Loan Covenant	9
Table 6: Package-wise IEE Documentation status	13
Table 7: Details of contractor/s' nodal person/s for environmental safeguards	16
Table 8: Summary of Environmental Monitoring Activities (June-August 2023) for CW-01	16
Table 9: Pre-construction and Construction Stage Mitigation Measures: Compliance Status for CW-01	18
Table 10: Overall Compliance with CEMP/ EMP	30
Table 11: Environmental, Health and Safety Incidents Recorded	30
Table 12: Compliance to Environmental Monitoring Plan (CW-01)	32
Table 13: Air Quality Results	37
Table 14: Noise Quality Results	37
Table 15: Water Quality Results *	37
Table 16: Details of Complaints Resolved	40
Table 17: GRC Meetings	40
Table 18: Training / Capacity Building Activities Conducted	41
Table 19: Findings and Key Issues	42
Table 20: EMP Implementation Improvements for CW-01 and other Required Actions	43

## List of Figures

Figure 1: Map showing locations/sites of Project Towns	1
Figure 2: Implementation arrangement for safeguards	2
Figure 3: Project GRM	39

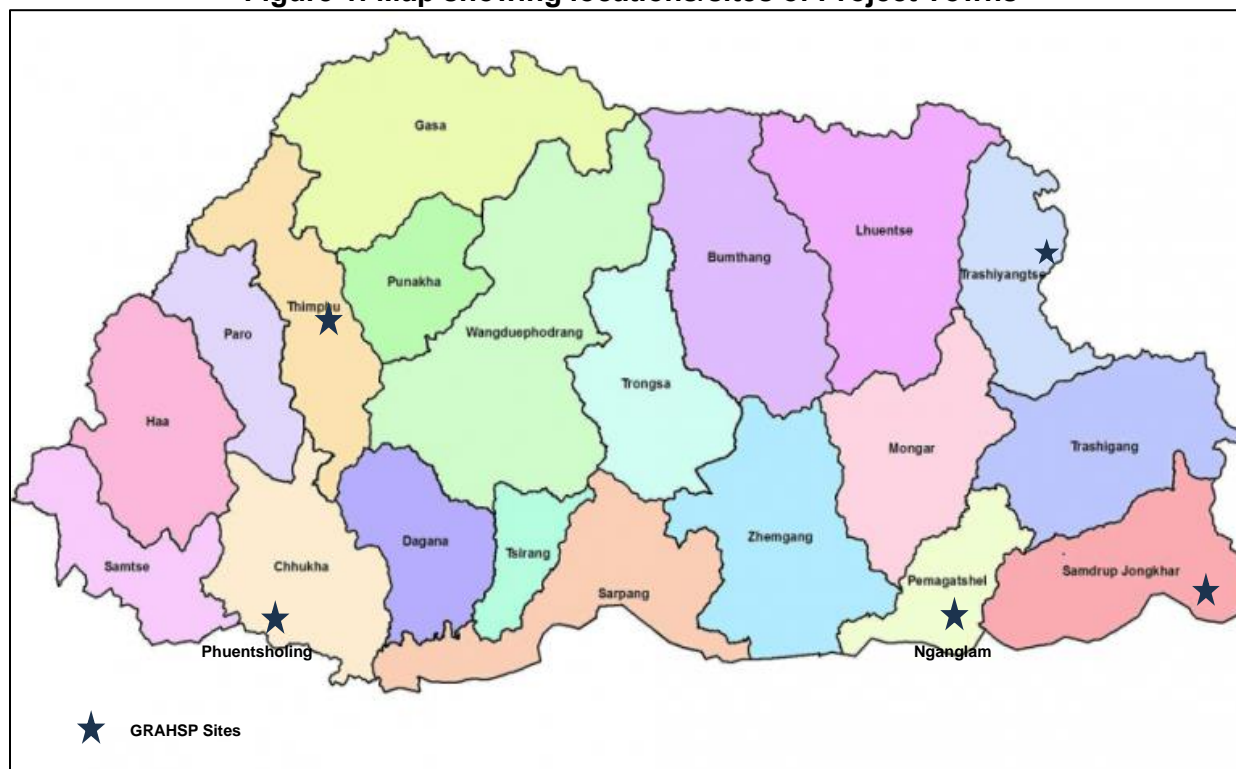
## I. INTRODUCTION

### A. Overall project description and objectives

1. The project will support the government's national priority to improve livability, safety, and sustainability of human settlements through better access to adequate and affordable housing<sup>1</sup>. The project will increase the supply of green and resilient affordable housing in Nganglam, Phuentsholing, Thimphu, Trashiyangtse and Samdrup Jongkhar. It will benefit over 1,000 lower-to middle-income civil servants and non-civil servants including marginalized municipal waste workers. The project will also implement associated infrastructure and facilities, enhance institutional capacity, and strengthen the housing sector strategy and regulatory framework in Bhutan. The project is designed to achieve green building certification, a first of its kind in Bhutan, and a model that has potential for replication by the public and private sector and linked to a broader urban development program. The success of the project will provide lessons for future affordable housing interventions across the Himalayan region.

2. The project is aligned with the following impact: livability, safety, and sustainability of human settlements ensured (footnote 1). The project will have the following outcome: access to green and resilient affordable housing for low-income households improved.

**Figure 1: Map showing locations/sites of Project Towns**



### B. Environmental Category as per ADB Safeguard Policy Statement, 2009

<sup>1</sup> Government of Bhutan, Gross National Happiness Commission. 2019. *Twelfth Five Year Plan, 2018–2023: Just, Harmonious and Sustainable Society through Enhanced Decentralisation*. Thimphu. Affordable housing is defined as the ability for households to meet housing costs within 30% of their gross monthly income.

3. The Green and Resilient Affordable Housing Project (GRAHSP) is classified as Category B according to ADB Safeguard Policy Statement (SPS), 2009<sup>2</sup>. All subprojects in GRAHSP NHDCL are classified as Category B, and the impacts of all subprojects are assessed through Initial Environmental Examination (IEE) as per ADB SPS, 2009.

### C. Environmental Category of each subproject as per national laws and regulations

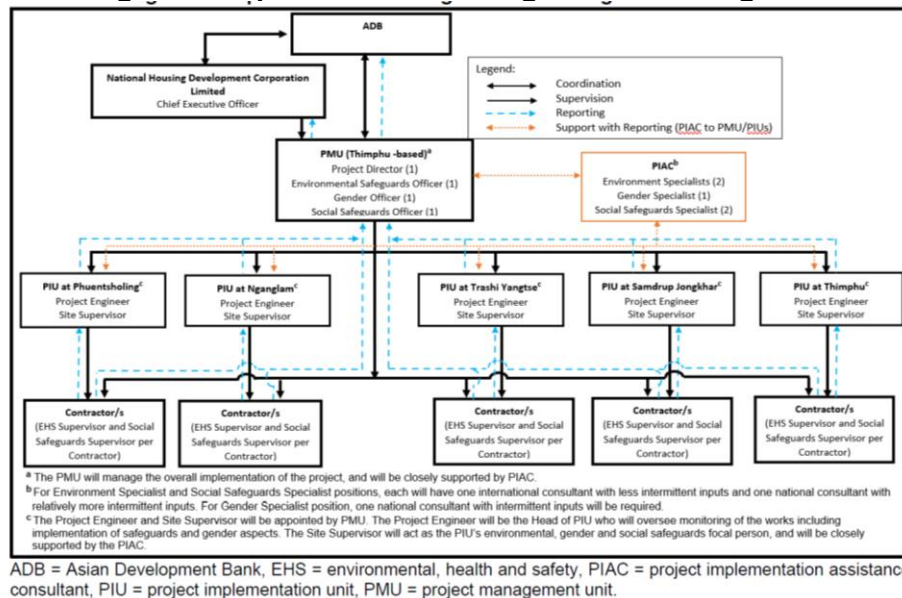
4. The GRAHSP is classified under Regulation for Environmental Clearance of Projects, 2016 (RECOP) as a Blue Category undertaking, requiring the preparation of IEE by the proponent and subsequent approval by relevant competent authority prior to issuance of an environmental clearance (EC).

5. The development of housing estates and requires an IEE to be submitted to the Competent Authority, in this case the Ministry of Infrastructure and Transport (MoIT). However, as the MoIT does not have an environmental officer to review the IEE, the IEE was reviewed by the NEC.

### D. Project Safeguards Team

6. The implementation arrangement for safeguards is presented in the diagram below.

**Figure 2: Implementation arrangement for safeguards**



7. The details of the personnels are provided in the table below.

<sup>2</sup> Project components judged to have some adverse environmental impacts, but of lesser degree and/or significance than those for Category A.

**Table 1: Project Safeguards Team**

Name	Designation/Office	Email Address	Contact Number
<b>1. PMU</b>			
Dorji Wangmo	Environmental Safeguard Officer, PMU	<i>dorjiwangmo@nhdcl.bt</i>	+975 17962509
Dorji Dema:	Social Safeguard Officer, PMU	<i>d.dema@nhdcl.bt</i>	+975 17719557
<b>2. PIUs</b>			
<b>Trashiyangtse Subproject CW-01</b>			
Tashi Tobgay	Project Engineer	<i>tashi.tobgay@nhdcl.bt</i>	+975 17444451
Pema Norbu	Site Supervisor	<i>pema.norbu@nhdcl.bt</i>	+975 77675202
<b>Dradulthang CW-02 and Toed CW-03</b>			
Tshewang Phuntsho	Project Engineer	<i>tshewang.phuntsho@nhdcl.bt</i>	+975 17465090
Pema Wangmo	Site Supervisor	<i>pema.wangmo@nhdcl.bt</i>	+975 77228920
Tshering Yangzom	Site Supervisor	<i>tshering.yangzom@nhdcl.bt</i>	+975 17611990
<b>Nganglam CW-04</b>			
Tshering Dawa	Project Engineer	<i>Tshering.dawa@nhdcl.bt</i>	+975 17959959
Karma Thinley	Site Supervisor	<i>Karma.thinley@nhdcl.bt</i>	+975 17992728
<b>Phuentsholing Core Subproject (erstwhile Drungpa residence area) *</b>			
<b>Amochu Subproject*</b>			
<b>Sonamgang Subproject*</b>			
<b>Thimphu subproject* (7 Sites)</b>			
<b>3. Consultants</b>			
K D Chamling	Environmental Safeguard Specialist, PIAC	<i>kdchamling.piac@nhdcl.bt</i>	+975 17111541
Rajesh Pradhan	Social, Gender and Community Engagement Specialist, PIAC	<i>rajesh.piac@nhdcl.bt</i>	+975 17603661

\*Project engineers and site supervisors have been tentatively identified as of now.

## E. Overall project and subproject progress status

8. During this reporting period only Trashiyangtse subproject (CW-01) is awarded, and the construction is ongoing. As of 31 August 2023, the overall progress of CW-01 stands at 8.87%. The other subprojects are at various stages of work award, design and bid preparations. Sonamgang subproject has been identified against Rinchening and seven alternative sites for Thimphu have also been identified. Subproject reports for Phuentsholing and Thimphu sites are yet to be carried out. Details of all subprojects and the current status of implementation of packages are presented in the **Table 2**.



**Table 2: Subprojects Progress and Status**

Package/ Subproject	Subproject / Package components	Current Status	Bid / contract type
<b>Trashiyangtse</b> (CW-01)	(i) Construction of G+1 storied RCC Residential Building 8 numbers and associated site development works.	Contract awarded. Construction started from 23 May 2023.	Works
<b>Samdrup Jongkhar</b> (i) CW-02  (ii) CW-03	(i) Dradulthang: G+3 storied RCC Residential Building 4 numbers  (ii) S/J Toed: G+3 storied RCC Residential Building 11 numbers	(i) Received ADB NOL on work award on 4 August 2023 and notice of intention issued on 10 August 2023.  (ii) Advertised for Invitation for Bid on 31 July 2023. Pre-bid meeting conducted on 28 August 2023.	works
<b>Nganglam</b> (CW-04)	(i) Nganglam: G+1 RCC Residential Building 8 numbers	Received ADB NOL on work award on 29 August 2023 and notice of intention to be issued in September 2023.	works
<b>Phuentsholing</b>	(i) Phuentsholing Core: G+5 RCC Residential Building 4 numbers  (ii) Amochu (Bangay): G+5 RCC Res. Building 5 Nos  (iii) Sonamgang: G+4	(i) Preparation of Bid Document. The bid cancelled due to change in design to high-rise building, which is now cancelled. New planning and design under progress. (ii) Preparation of Bid Document. The bid invited and not received any bidders(initial). (iii)The design changed to high-rise building, which is now cancelled. New planning and design under progress (Current). Planning, design, drawings and cost estimates are in progress.	works
<b>Thimphu</b>	(i) 7 Sites identified	Sites have been identified and LUC obtained. Preparation of SPR not yet started.	works

## F. Description of subprojects (package-wise) and status of implementation

9. The implementation status of various subprojects (package wise) is presented in details under **Table 3** below.

**Table 3: Implementation status of Subprojects (package wise)**

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)	If On-going Construction	
				% Physical Progress	Expected Completion Date
CW01 (Trashiyangtse)	Construction of 8 nos. of two-storey RCC residential buildings and associated site development works such as internal access road, parking, footpath, drainage, retaining wall, steps, boundary wall, fencing, zinc-alume storage, filtration tank water pump, pump shed and creation of a green space.	Contract awarded.	On-going Construction	8.87%	22 May 2025
CW-02 (Dradulthang)	Dradulthang: G+3 storied RCC Residential Building 4 nos.	Bidding. Received ADB NOL on work award on 4 August 2023 and notice of intention issued.	Detailed design	-	-
CW-03 (Toed)	S/J Toed: G+3 storied RCC Residential Building 11 nos.	Bidding. Advertised for Invitation for Bid on 31 July 2023.	Detailed design	-	-
CW-04 (Nganglam)	Nganglam: G+1 RCC Residential Building 8 nos.	Bidding. Received ADB NOL on work award on 29 August 2023 and notice of intention issued.	Detailed design	-	-
P/ling	i) Phuentsholing Core: G+5 RCC Residential Building 4 nos.	(i) Preparation of Bid Document. The bid cancelled due to change in design to high-rise building, which is now	Detailed design	-	-

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)	If On-going Construction	
				% Physical Progress	Expected Completion Date
	ii) Amochu (Bangay): G+5 RCC Res. Building 5 Nos iii) Sonamgang: G+4	cancelled. New planning and design under progress. ii) Preparation of Bid Document. The bid invited but no bidders (initially). iii) The design changed to high-rise building, which is now cancelled. New planning and design under progress. Design, drawings and cost estimates are in progress.	Detailed design  Preliminary design		
Thimphu	7 Sites identified	Sites have been identified and LUC obtained. Preparation of SPR not yet started.	Preliminary designs yet to start.	-	-

## II. COMPLIANCE STATUS WITH NATIONAL/STATE/LOCAL STATUTORY ENVIRONMENTAL REQUIREMENTS

10. Environmental Clearance (EC) has been obtained for all sites except for Sonamgang and Thimphu. Prior to the construction of the residential units in Trashiyangtse subproject (CW-01) various statutory clearances, no objection certificates, permits such as the environmental clearance (EC), forest clearance, and approvals from the Dzongkhag Administration and Bhutan Telecom Limited, have been obtained and detailed status of each clearance/permission is provided in **Table 4**. Copies of clearances attached in **Appendix 3**.

**Table 4: Detailed status of each clearance/permission.**

Package No.	Subproject Name	Statutory Environmental Requirements	Status of Compliance	Validity if obtained	Action Required	Specific Conditions that will require environmental monitoring as per Environment Clearance, Consent/Permit to Establish
CW-01	Trashiyangtse	1. Environment Clearance (EC)	Obtained	2 March 2022 - 1 March 2027	None	<ul style="list-style-type: none"> <li>The EC has 11 chapters (I-XI) with specific</li> </ul>

Package No.	Subproject Name	Statutory Environmental Requirements	Status of Compliance	Validity if obtained	Action Required	Specific Conditions that will require environmental monitoring as per Environment Clearance, Consent/Permit to Establish
						clauses/terms and conditions. <ul style="list-style-type: none"> <li>• NEC's Reservation:               <ol style="list-style-type: none"> <li>1. May stop activity or impose additional terms and conditions as deemed necessary.</li> <li>2. EC shall be subject to periodic review and modification.</li> <li>3. NEC not responsible in the event of inadequate resources.</li> <li>4. Failure to comply with any of the above terms and conditions shall constitute an offence and liable in accordance with EA Act 2000 and /or existing environmental laws.</li> </ol> </li> </ul>
		2. Forest Clearance	Obtained	30 June 2023		
		3. Permit to construct labor camp	Obtained	29 June 2023		The permit issued by the Dzongkhag Administration has following terms and conditions; <ol style="list-style-type: none"> <li>1. Labor camp to be constructed</li> </ol>

Package No.	Subproject Name	Statutory Environmental Requirements	Status of Compliance	Validity if obtained	Action Required	Specific Conditions that will require environmental monitoring as per Environment Clearance, Consent/Permit to Establish
						<p>at the identified area</p> <ol style="list-style-type: none"> <li>2. Septic tank and proper drainage to be constructed within the camp</li> <li>3. Waste produced from the camp to be dumped at the identified site</li> </ol>
		4. Permit to dump excavated material	Obtained	29 June 2023 - 28 June 2024		<p>The permit issued by the Dzongkhag Administration has following terms and conditions;</p> <ol style="list-style-type: none"> <li>1. The excess excavated materials generated during the excavation should be disposed at pre-identified dumpsite.</li> <li>2. During the course of excavation if the town infrastructures such as road, drainage, water pipelines and electricity lines etc. are damaged, you have to repair it at your own cost.</li> <li>3. The approval is valid for a year from the date of issue.</li> </ol>

Package No.	Subproject Name	Statutory Environmental Requirements	Status of Compliance	Validity if obtained	Action Required	Specific Conditions that will require environmental monitoring as per Environment Clearance, Consent/Permit to Establish
		5. Clearance from BTL	Obtained	4 July 2023		
CW-02	Dradulthang	Environment Clearance (EC)	Obtained	29 Aug 2022 – 28 Aug 2027	None.	Contract yet to be awarded.
CW-03	Toed	Environment Clearance (EC)	Obtained	29 Aug 2022 – 28 Aug 2027	None.	Contract yet to be awarded.
CW-04	Nganglam	Environment Clearance (EC)	Obtained	29 Aug 2022 – 28 Aug 2027	None.	Contract yet to be awarded.
Phuentsholing	Phuentsholing Core	Environment Clearance (EC)	Obtained	2 Mar 2022 – 1 Mar 2027	None.	Contract yet to be awarded.
	Amochu (Bangay)	Environment Clearance (EC)	Obtained	2 Mar 2022 – 1 Mar 2027	None.	Contract yet to be awarded.
	Sonamgang	Environment Clearance (EC)	IEE yet to be prepared.	–	EC to be obtained.	–
Thimphu	7 sites	Environment Clearance (EC)	IEEs yet to be prepared.	–	EC to be obtained.	–

### III. COMPLIANCE STATUS WITH ENVIRONMENTAL LOAN COVENANTS

11. The status of compliance with the environmental safeguard related loan covenants is given in the **Table 5 below**. Project will be implemented in compliance with all the covenants.

**Table 5: Compliance Status with Environmental Loan Covenant**

No. (List schedule and paragraph number of Loan Agreement)	Covenant	Status of Compliance	Action Required
Schedule 4, No. 3	<p>The Borrower shall not award any Works contract which involves environmental impacts until NHDCL has:</p> <p>(a) obtained the final approval of the IEE for such Works contract from the Borrower's National Environmental Commission; and</p> <p>(b) incorporated the relevant provisions from the EMP into such Works contract.</p>	<p>(a) IEE approved and EC given by the NEC.</p> <p>(b) All relevant provisions from the EMP are incorporated in the Bid/Contract document.</p>	<p>Relevant provisions from the EMP shall be incorporated in all the Bid/contract documents for all the subprojects.</p>

No. (List schedule and paragraph number of Loan Agreement)	Covenant	Status of Compliance	Action Required
Schedule 4, No. 4	<p>Notwithstanding paragraph 3 above, the Borrower may award a Works contract involving environmental impacts with respective IEE based on preliminary design having been submitted to and cleared by ADB if the contract,</p> <p>(i) is of a "design and build" or "turnkey" type under which the design must be completed for the Works contract before the IEE is updated to reflect the final project design; and</p> <p>(ii) expressly provides that no works shall commence until an IEE for the Works contract reflecting the final project design has been submitted to, and cleared by ADB.</p>	<p>IEE and final designs have been submitted and cleared by ADB for subproject at Trashiyangtse.</p> <p>Updated draft IEEs for Dradulthang and Nganglam is being updated and under finalization during the reporting period,</p> <p>No major changes in the scope or design of the Trashiyangtse subproject CW-01, however there had been changes in the location of labor camp, realignment of access road to existing NHDCL colony, and emergence of unanticipated embedded rock (Building 3 &amp; 4).</p>	<p>These shall be done for all the upcoming subprojects prior to implementation.</p> <p>The updated IEEs will be submitted in September 2023.</p> <p>The updated IEE is under preparation and will be submitted in October 2023.</p>
Schedule 4, No. 8	<p>The Borrower shall ensure, or shall cause NHDCL to ensure, that the preparation, design, construction, implementation, operation and decommissioning of each Subproject and all Project facilities comply with (a) all applicable laws and regulations of the Borrower relating to environment, health, and safety; (b) the Environmental Safeguards; (c) the EARF; and (d) all measures and requirements set forth in the respective IEE and EMP, and any corrective or preventative actions set forth in a Safeguards Monitoring Report.</p>	<p>The approved IEEs have all these parameters (a), (b), (c) and (d) have been reflected and taken care of in the EMP for respective subproject IEE.</p>	<p>These concerns shall also be taken care for the remaining subprojects subsequently.</p> <p>Any corrective or preventative actions set forth in a Safeguards Monitoring Report shall be complied with during project implementation.</p>
Schedule 4, No. 12	<p>The Borrower shall make available, or shall cause NHDCL to make available, necessary budgetary and human resources to fully implement the respective EMPs and RPs.</p>	<p>Adequate budget has been allocated. PMU has been formed in the NHDCL vide letter no. NHDCL/CS/HR-</p>	<p>PIU for Trashiyangtse subproject has been established and functioning at site.</p>

No. (List schedule and paragraph number of Loan Agreement)	Covenant	Status of Compliance	Action Required
		30/2023/1231, dated 5 June 2023. PIUs for all the sites have been identified vide letter no. NHDCL/CS/HR-30/2023/1231, dated 5 June 2023. NHDCL has recruited an environmental officer to oversee the environmental safeguards issues of the project.	The PIUs for other subprojects will be deployed once the contract is awarded.
Schedule 4, No. 13	<p>The Borrower shall ensure, or shall cause NHDCL to ensure, that all bidding documents and contracts for Works contain provisions that require contractors to:</p> <p>(a) comply with the measures and requirements relevant to the contractor set forth in the respective IEEs, EMPs and RPs (to the extent they concern impacts on affected people during construction), and any corrective or preventative actions set out in a Safeguards Monitoring Report;</p> <p>(b) make available a budget. For all such environmental and social measures;</p> <p>(c) provide the Borrower with a written notice of any unanticipated environmental, resettlement or indigenous peoples risks or impacts that arise during construction, implementation or operation of the Project that were not considered in the respective IEEs, EMPs and RPs; and</p> <p>(d) adequately record the condition of roads, agricultural land and other infrastructure prior to starting to transport materials and construction, and fully reinstate pathways, other local infrastructure,</p>	All relevant measures/provisions are already incorporated in the Bid document of Trashiyangtse, SJ Dradulthang, Nganglam and SJ Toed subprojects.	<p>All these measures are implemented and monitored in Trashiyangtse Subproject.</p> <p>Once the subproject is awarded for SJ Dradulthang, Nganglam, and SJ Toed, all these measures shall be implemented and monitored during project implementation period.</p>



No. (List schedule and paragraph number of Loan Agreement)	Covenant	Status of Compliance	Action Required
	and agricultural land to at least their pre-project condition upon the completion of construction.		
Schedule 4, No. 14	<p>The Borrower shall, or shall cause NHDCL to, do the following:</p> <p>(a) submit semi-annual Safeguards Monitoring Reports to ADB and disclose relevant information from such reports to affected persons promptly upon submission;</p> <p>(b) if any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the respective IEEs, EMPs and RRs, promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan; and</p> <p>(c) report any actual or potential breach of compliance with the measures and requirements set forth in the respective EMPs and RPs promptly after becoming aware of the breach.</p>	<p>The project has submitted three SEMRs (February – August 2022, September 2022 – February 2023, and March – August 2023).</p> <p>In Trashiyangtse subproject, there had been unanticipated environmental and social risks and impacts due to the emergence of huge unanticipated embedded rock near the building no. 3 &amp; 4 and hence the corrective measures or action plans prepared will be submitted along with the updated IEE.</p>	<p>Any unanticipated environmental and/or social risks and impacts arising during construction, implementation or operation of the Project that were not considered in the respective IEEs, EMPs and RRs, shall be promptly informed to ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan.</p>
Schedule 4, No. 15	The Borrower shall ensure, or cause NHDCL to ensure, that no proceeds of the Loan are used to finance any activity included in the list of prohibited investment activities provided in Appendix 5 of the SPS.	Till date no proceeds of the Loan are used to finance any activity included in the list of prohibited investment activities provided in Appendix 5 of the SPS.	Continue to comply with this clause in the project. No action required.
Schedule 4, No. 16	The Borrower shall ensure, or shall cause NHDCL to ensure, that the core labor standards and the Borrower's applicable laws and regulations are complied with during Project implementation. The Borrower shall include specific provisions in the bidding	The bidding document for subprojects Trashiyangtse, SJ Dradulthang, Nganglam and SJ Toed has incorporated all the	All provisions in the bidding documents and contracts shall be implemented and monitored

No. (List schedule and paragraph number of Loan Agreement)	Covenant	Status of Compliance	Action Required
	documents and contracts financed by ADB under the Project requiring that the contractors, among other things: (a) comply with the Borrower's applicable labor law and regulations and incorporate applicable workplace occupational safety norms; (b) do not use child labor; (c) do not discriminate workers in respect of employment and occupation; (d) do not use forced labor; (e) allow freedom of association and effectively recognize the right to collective bargaining; and (f) disseminate, or engage appropriate service providers to disseminate, information on the risks sexually transmitted diseases, including HIV/AIDS, to the employees of contractors engaged under the Project and to members of the local communities surrounding the Project area, particularly women.	relevant and specific provision according to the existing national standards and regulations for implementation.	during the project implementation.
Schedule 4, No. 17	The Borrower shall, or shall cause NHDCCL to, strictly monitor compliance with the requirements set forth in paragraph 16 above and provide ADB with regular reports.	Compliance monitoring for Trashiyangtse subproject is planned to be carried out in September 2023 and the report will be updated in QPR3.	Compliance monitoring shall be carried out strictly and ADB provided with regular reports.

#### IV. COMPLIANCE STATUS WITH THE ENVIRONMENTAL MANAGEMENT PLAN

##### A. Package-wise IEE documentation status

12. As per the IEE, preparation and submission of Site-specific Environmental Management Plan (SEMP) and Health and Safety Plan (HSP) including Health & Safety COVID-19 Plan by contractor and approval of PMU is a requirement prior to commencement of works.

**Table 6: 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 Contract or/s (Yes/No)		
CW01 (Trashi- yangtse)	-	November 2021	<a href="https://www.adb.org/projects/documents/bhu-54355-001-iee-8">https://www.adb.org/projects/documents/bhu-54355-001-iee-8</a>	Yes	Yes	<p>Draft IEE has been approved by ADB and is disclosed in both ADB and project website. No major changes in the scope or design of the Trashiyangtse subproject CW-01, however there had been changes in the location of labor camp, realignment of access road to existing NHDCL colony, and emergence of unanticipated embedded rock (Building 3 &amp; 4). Final updated IEE is under preparation.</p> <p>The SEMP has been approved and signed on 13 June 2023.</p>
CW-02 (Dradul- thang)	-	November 2022	<a href="https://www.adb.org/projects/documents/bhu-54355-001-iee-11">https://www.adb.org/projects/documents/bhu-54355-001-iee-11</a>	No	No	<p>Draft IEE has been approved by ADB and is disclosed in both ADB and project website. Updated IEE is under preparation.</p> <p>The SEMP will be submitted by the contractor once the contract is awarded.</p>

CW-03 (Toed)	-	November 2022	<a href="https://www.adb.org/projects/documents/bhu-54355-001-iee-10">https://www.adb.org/projects/documents/bhu-54355-001-iee-10</a>	No	No	Draft IEE has been approved by ADB and is disclosed in both ADB and project website. Updated IEE is to be prepared.  The SEMP will be submitted by the contractor once the contract is awarded.
CW-04 (Nganglam)	-	November 2022	<a href="https://www.adb.org/projects/documents/bhu-54355-001-iee-9">https://www.adb.org/projects/documents/bhu-54355-001-iee-9</a>	No	No	Draft IEE has been approved by ADB and is disclosed in both ADB and project website. Updated IEE is under preparation.  The SEMP will be submitted by the contractor once the contract is awarded.
Phuentsholing i) Phuentsholing Core	-	November 2021	<a href="https://www.adb.org/projects/documents/bhu-54355-001-iee-5">https://www.adb.org/projects/documents/bhu-54355-001-iee-5</a>	NA	NA	Draft IEE has been approved by ADB and is disclosed in both ADB and project website. Updated IEE is to be prepared.
ii) Amochu (Bangay)	-	November 2021	<a href="https://www.adb.org/projects/documents/bhu-54355-001-iee-7">https://www.adb.org/projects/documents/bhu-54355-001-iee-7</a>	NA	NA	Draft IEE has been approved by ADB and is disclosed in both ADB and project website. Updated IEE is to be prepared.
iii) Sonamgang	Detailed design not yet completed			NA	NA	Draft IEE yet to be prepared and approved by ADB.
Thimphu (7 sites)	Detailed design not yet completed			NA	NA	Draft IEEs yet to be prepared and approved by ADB.

## B. Details of contractor/s' nodal person/s for environmental safeguards

13. The details of the nodal person for Environmental Safeguards in Trashiyangtse subproject is provided below in the **Table 7**.

**Table 7: Details of contractor/s' nodal person/s for environmental safeguards**

Package Name	Contractor	Nodal Person	Email Address	Contact Number
CW-01	M/s Penjor Construction Pvt. Ltd.	Kencho	<i>kenchoyoezer@gmail.com</i>	+975 17865152
CW-02	Contract yet to be awarded.	-	-	-
CW-03	Contract yet to be awarded.	-	-	-
CW-04	Contract yet to be awarded.	-	-	-
Phuentsholing Core	Contract yet to be awarded.	-	-	-
Amochu (Bangay)	Contract yet to be awarded.	-	-	-
Sonamgang	IEE yet to be prepared.	-	-	-
Thimphu (7 sites)	IEEs yet to be prepared.	-	-	-

## C. Environmental Monitoring Activities

14. The IEE mandates that EMP/SEMP/construction EMP prepared at site by the contractor needs prior approval from the Project Manger PIU at site before execution of works. A summary of the environmental monitoring activities for the reporting period is provided in **Table 8** below.

**Table 8: Summary of Environmental Monitoring Activities (June-August 2023) for CW-01**

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
<b>Pre-Construction Phase*</b>						
<b>Construction Phase</b>						
Air Pollution	<ul style="list-style-type: none"> <li>• Ambient air quality measurement.</li> <li>• Use of electrical appliances</li> <li>• Ocular observation of</li> </ul>	<ol style="list-style-type: none"> <li>1. TSPM</li> <li>2. PM<sub>10</sub></li> <li>3. PM<sub>2.5</sub></li> <li>4. NO<sub>2</sub></li> <li>5. SO<sub>2</sub></li> <li>6. CO</li> <li>7. Temperature</li> <li>8. Air Pressure</li> </ol>		<ol style="list-style-type: none"> <li>1. Near Project site office</li> <li>2. Near labor camp site/near homestay</li> </ol>	11/07/2023 to 12/07/2023	Bhutan Ecolab Services, Pekarzhing, Phuentsholing

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
	vehicles and site conditions <ul style="list-style-type: none"> <li>• Use if reconditioned machines and vehicles</li> <li>• Maintenance of machines</li> </ul>	9. RH				
Noise Pollution	<ul style="list-style-type: none"> <li>• Ambient noise level measurement</li> </ul>	Noise level (LA <sub>eq</sub> (dBA))	Measurement of noise level for both Day and Night	1. Near Project site office 2. Near labor camp site/near homestay	11/07/2023 to 12/07/2023	Bhutan Ecolab Services, Pekarzhing, Phuentsholing
<b>Operational Phase</b>						

*\*The contract work was awarded on 23 May 2023. The training to the contractor, PIU, and PMU was conducted on 12-13 June 2023, where the contractor was advised to carryout environmental baseline data collection immediately prior to the start of construction works. However, due to non-availability of third parties to conduct the baseline data studies, the contractor could complete the baseline data collection only by 11-12 July 2023.*

#### **D. Compliance with EMP/CEMP**

15. Contractor requires to designate an environment, health, and safety officer (EHS) or equivalent, to ensure implementation of EMP during civil works. Contractors are to carry out all environmental mitigation and monitoring measures outlined in their contract. The contractor will be required to submit to PMU, for review and approval, a CEMP including (i) proposed sites/locations for construction work camps, storage areas, hauling roads, lay down areas, disposal areas for solid and hazardous wastes; (ii) specific mitigation measures following the approved EMP; (iii) monitoring program per EMP; and (iv) budget for CEMP, EMP and SEMP implementation. No work can commence until SEMP is approved by PMU. Compliance with EMP and Overall Compliance with CEMP are provided under **Table 9** and **Table 10**.

**Table 9: Pre-construction and Construction Stage Mitigation Measures: Compliance Status for CW-01**

Subproject Activities/ Potential Environmental Impacts	Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures	
			1. <b>S / Satisfactory</b> - Mitigation measures implemented satisfactorily 2. <b>PS / Partially Satisfactory</b> - Mitigation measures implemented but requires improvement 3. <b>US / Unsatisfactory</b> - Mitigation measures not implemented / poorly implemented	
			Package CW-01 Trashiyangtse	
Pre-construction Phase			Rating	Remarks
<b>Subproject Location</b> Impact on protected area, critical habitats and endangered species	<p>None required, as the project site is located in the centre of Yangtse town at a distance of about 7km from the boundary of Bumdeling Wildlife Sanctuary and more than 10km from the Bumdeling Ramsar Wetland site.</p> <p>The designated land use of the subproject site is for residential housing. Currently it is being used for potato cultivation and backyard gardening by the NHDCL tenants.</p>	PIU	-	NA
Impact on Physical cultural Resources (PCR)	No mitigation required as the project site is not located at a distance that could impact a PCR. The nearest PCR is Trashiyangtse Dzong, which is at approximately 324m away.		-	NA
Risk of natural hazards such as earthquakes and climate change considerations	<ul style="list-style-type: none"> <li>Design of buildings in line with Bhutan Building Regulations 2018, Bhutan Building Code of Bhutan 2018, Bhutanese Architectural Guidelines, 2014 and the Bhutan Green Building Guidelines, 2013.</li> <li>Choice of construction materials must be based on climatic conditions and suitable for monsoon rains and winter snow conditions</li> </ul>	PIU	Satisfactory	

Subproject Activities/ Potential Environmental Impacts	Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures	
			1. <b>S / Satisfactory</b> - Mitigation measures implemented satisfactorily 2. <b>PS / Partially Satisfactory</b> - Mitigation measures implemented but requires improvement 3. <b>US / Unsatisfactory</b> - Mitigation measures not implemented / poorly implemented	
<b>Package CW-01 Trashiyangtse</b>				
<b>Consents, permits and clearances</b> Failure to comply with national regulation and procedures can delay project progress	<ul style="list-style-type: none"> <li>Seek approval for building design and construction approval from the District Regulatory Officer, Dzongkhag Administration</li> <li>Seek approval for environmental clearance from NEC</li> </ul>	PIU	Satisfactory	
<b>Removal of trees</b> 5 trees need to be cut	<ul style="list-style-type: none"> <li>Seek approval for removal of trees from the Yangtse Forest Range Office.</li> <li>Replant the area with at least double the number of trees cut during landscaping as compensatory measure.</li> </ul>	PIU & Contractor	Satisfactory	<ul style="list-style-type: none"> <li>Tree cutting approval obtained.</li> <li>Compensatory planting shall be coordinated with the Forest Department during the project implementation period.</li> </ul>
<b>Aesthetics</b> Change in aesthetics at the site due to new infrastructures that could obstruct views.	<ul style="list-style-type: none"> <li>Consider requisite development controls (such as building height, ground coverage and minimum setbacks from roads and adjacent plots), as per the allowable local area plan.</li> <li>Comply with the Bhutanese Architecture Guidelines as a reference to ensure that the buildings blend in with the surrounding while maintaining certain elements of traditional Bhutanese architectural designs.</li> <li>Undertake landscaping and revegetation will further improve site conditions once activities are completed</li> </ul>	PIU	Satisfactory	



Subproject Activities/ Potential Environmental Impacts	Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures	
			<ol style="list-style-type: none"> <li>1. <b>S / Satisfactory</b> - Mitigation measures implemented satisfactorily</li> <li>2. <b>PS / Partially Satisfactory</b> - Mitigation measures implemented but requires improvement</li> <li>3. <b>US / Unsatisfactory</b> - Mitigation measures not implemented / poorly implemented</li> </ol>	
			Package CW-01 Trashiyangtse	
<b>Compliance with ADB Loan Agreement and SPS</b> Lack of technical capacity on environmental safeguards	Conduct briefing/orientation for designated staff to be aware of ADB safeguard policies and RGOB regulations relevant for the project, including EMP, and compliance monitoring and reporting requirements	PIU/PMU	Satisfactory	PIU/PMU briefed and oriented on the ADB and RGoB safeguards requirements on 11-12 June 2023.
Lack of awareness by the Contractor on ADB environmental safeguard policies and EMP requirement and therefore mitigation measures not budgeted	<ul style="list-style-type: none"> <li>• Incorporate the cost of OHS and the EMP as well as any specific provisions into the bidding documents requiring contractors to comply with all other conditions required by ADB into the bidding and contract documents</li> <li>• Conduct pre-bid meeting to inform contractors of the need to strictly incorporate OHS and EMP into the contract cost</li> <li>• Once contract is selected, conduct awareness for contractors on their responsibilities in EMP implementation, compliance with ADB and RGOB requirements, self-monitoring and reporting procedures.</li> </ul>	PIU/PMU	Satisfactory	
<b>Project disclosure and Community awareness</b> Lack of awareness by the Public and Community on project activities or GRM	<ul style="list-style-type: none"> <li>• Disclose project information/brief on NHDCL website, along with GRM mechanism and contact numbers, and one available at the site office</li> <li>• Design and install project signboards as per design standards and specifications of the</li> </ul>	PIU/PMU	Satisfactory	A register to record any grievance is maintained at site.

Subproject Activities/ Potential Environmental Impacts	Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures	
			1. <b>S / Satisfactory</b> - Mitigation measures implemented satisfactorily 2. <b>PS / Partially Satisfactory</b> - Mitigation measures implemented but requires improvement 3. <b>US / Unsatisfactory</b> - Mitigation measures not implemented / poorly implemented	
Package CW-01 Trashiyangtse				
	District and include relevant contact numbers for GRM			
<b>Construction Phase</b>				
<b>Award of Construction work</b> Positive multiplier effect for goods and services	<ul style="list-style-type: none"> <li>The project will generate employment and business opportunities for local suppliers of construction materials as well as material transporters and machine operators.</li> </ul>	PIU/PMU	Satisfactory	
<b>Site preparation and Construction of site office, worker camps and material storage sheds</b>  Encroachment on government or private land due to lack of space for accommodating worker camps and storage	<ul style="list-style-type: none"> <li>If required, land will be leased from government or private landowners to set up worker camps, material storage and to park machinery.</li> <li>Set aside a secure enclosure/shed for the storage of cement, lubricants, solvents, paint, electrical and other breakable material. Fuel and other petroleum products must be stored at storage areas away from water drainage and protected by impermeable lining and bunded 110%.</li> </ul>	Contractor	Satisfactory	<p>Land for labour camp allotted in the government land by the Dzongkhag Administration.</p> <p>Storage of fuel and petroleum products not required as the fuel station is located within 2 kms from the project site.</p>
<b>Recruitment and management of workers</b>  Non-compliance with National recruitment regulations and risk of employing underage children.	<ul style="list-style-type: none"> <li>Strictly follow the "Handbook on Recruitment and Employment of Foreign Workers in Bhutan" with respect to screening recruitment, worker permits, road passes, management, and repatriation</li> <li>Process for worker permits and entry as per prevailing health restrictions and screening</li> </ul>	Contractor	Satisfactory	Workforce recruited and employed as per the Labor Act of Bhutan.

Subproject Activities/ Potential Environmental Impacts	Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures	
			1. <b>S / Satisfactory</b> - Mitigation measures implemented satisfactorily 2. <b>PS / Partially Satisfactory</b> - Mitigation measures implemented but requires improvement 3. <b>US / Unsatisfactory</b> - Mitigation measures not implemented / poorly implemented	
<b>Package CW-01 Trashiyangtse</b>				
	requirements. <ul style="list-style-type: none"> <li>Follow restriction on employment of children below 18 years.</li> <li>Employ trained and skilled national workers wherever possible.</li> <li>If Contractor has more than 12 workers, it must submit a Notification of Construction Work (in writing and as per the information required) within 7 days after the commencement of the work, to the Chief Labor Administrator, and also repeat the same within 7 days of completion of the work.</li> </ul>			Labors are educated and instructed on the overall OHS during Toolbox talk every Monday.
Risk of conflict and disturbance with neighbouring community	<ul style="list-style-type: none"> <li>Brief all workers on required social behavior and impose sanctions for inappropriate conduct.</li> <li>Record number of complaints received from neighboring residents</li> </ul>	Contractor	Satisfactory	Labors are educated and instructed on the required social behaviour and disturbances with the neighbouring community during Toolbox talk every Monday.
Requirement for housing and resources (drinking water and electricity and sanitation facilities)	<ul style="list-style-type: none"> <li>Provide workers with temporary accommodation, drinking water and sanitation facilities, with separate toilets for males and females.</li> <li>Maintain cleanliness of the residential areas.</li> </ul>	Contractor		

Subproject Activities/ Potential Environmental Impacts	Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures	
			Package CW-01 Trashiyangtse	
	<ul style="list-style-type: none"> <li>Ensure adequate water is available for sanitation and require workers to maintain toilets.</li> <li>Follow the standards for workers accommodation per guidance note by the International Finance Corporation and European Bank for Reconstruction and Development entitled "Workers' accommodation: processes and standards: A guidance note by IFC and the EBRD"</li> </ul>		Satisfactory	Provided
<b>Occupational health and safety</b> Health and safety risks for construction workers	<ul style="list-style-type: none"> <li>Prepare site-specific health and safety management plan including COVID 19 H&amp;S measures.</li> <li>Nominate a Health and Safety Officer with specific responsibilities to ensure the OHS of all workers, report on accidents and to follow national health protocols.</li> <li>Abide by the international best practices on occupational health and safety such as those in Section 4.2 of World Bank EHS Guidelines on Construction and Decommissioning Activities;</li> <li>Screen workers at their point of origin for both virulent and contagious diseases, including COVID-19.</li> <li>Follow COVID 19 protocols as per the</li> </ul>	Contractor		A general site-specific health and safety management plan is prepared and submitted by the contractor. Since COVID 19 is under control, no specific plan is required. However, should there be another pandemic, the existing government protocol on COVID 19 or any other directives shall be strictly complied.

Subproject Activities/ Potential Environmental Impacts	Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures	
			1. <b>S / Satisfactory</b> - Mitigation measures implemented satisfactorily 2. <b>PS / Partially Satisfactory</b> - Mitigation measures implemented but requires improvement 3. <b>US / Unsatisfactory</b> - Mitigation measures not implemented / poorly implemented	
			<b>Package CW-01 Trashiyangtse</b>	
	<p>prevailing requirements of the Ministry of Health and the COVID Taskforce.</p> <ul style="list-style-type: none"> <li>• Identification of workplace and process hazards (with machines, vehicles, excavation, and construction activities including electrical work) and outline procedures and responsibilities for preventing, eliminating, and minimizing the effects of identified work hazards and risk.</li> <li>• Install adequate support structures for temporary structures.</li> <li>• Prepare emergency management procedures.</li> <li>• Determine types of trainings/ orientations/ briefings required for each group of workers and who will give the required briefings.</li> <li>• Institute protocols to deal with accidents and emergencies including compensation for treatment and recovery, loss of ability to work, and loss of life</li> <li>• Provide medical assistance for cases of workplace related injury.</li> <li>• Provide adequate payment and facilities (lighting) for overtime work.</li> <li>• Post/Display emergency contact numbers of the staff as well as Police/Hospital/Fire at a visible location.</li> </ul>		Partially Satisfactory	<p>Enough fire extinguishers not provided. The contractor has been advised to install adequate firefighting equipment.</p> <p>Emergency management procedures (Evacuation plan) needs to be prepared.</p>

Subproject Activities/ Potential Environmental Impacts	Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures	
			1. <b>S / Satisfactory</b> - <i>Mitigation measures implemented satisfactorily</i>	2. <b>PS / Partially Satisfactory</b> - <i>Mitigation measures implemented but requires improvement</i>
			3. <b>US / Unsatisfactory</b> - <i>Mitigation measures not implemented / poorly implemented</i>	
			<b>Package CW-01 Trashiyangtse</b>	
	<ul style="list-style-type: none"> <li>• Provide workers with Personal Protective Equipment (PPE) such as safety helmets, gloves, glasses, and boots (as required) and enforce their use at the workplace.</li> <li>• Brief workers on work risks during toolbox talks.</li> <li>• Restrict drinking or consumption of intoxicants at the work site.</li> <li>• Post warning signs at risky/hazardous areas in the Dzongkha and English languages.</li> <li>• Maintain accident register with incidents and actions taken.</li> <li>• Maintain First aid box at site for minor injuries.</li> <li>• Install fire extinguishers, with instruction and training of staff on how to use these. If fire extinguishers are not available, ensure alternative means of firefighting are available (adequate water, sand buckets, hose and pipes)</li> <li>• Provide a safe means of access and egress to and from every workplace</li> <li>• If gas cylinders are used, then store these in an upright position, protected against heat and cover the control valves with protective caps screwed to proper positions.</li> </ul>			

Subproject Activities/ Potential Environmental Impacts	Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures	
			1. <b>S / Satisfactory</b> - Mitigation measures implemented satisfactorily 2. <b>PS / Partially Satisfactory</b> - Mitigation measures implemented but requires improvement 3. <b>US / Unsatisfactory</b> - Mitigation measures not implemented / poorly implemented	
Package CW-01 Trashiyangtse				
<b>Excavation work</b> Mismanaged spoils from loose excavated soils.	<ul style="list-style-type: none"> <li>Reuse excavated soil for filling in the building foundations and for levelling the parking and recreational areas</li> <li>Remove excess excavated soil within 2 weeks of excavation and dispose at designated site.</li> <li>Seek approval/permit for disposal of soil/spoil from District Regulatory Officer/Municipal, and remove unwanted soil from the site within 2 weeks of excavation at pre-approved site. (At least 50% of the soil will be reused for building foundation, road works or levelling works)</li> </ul>	Contractor	Satisfactory	Spoils are deposited in preidentified site.
Dust generation on windy days	<ul style="list-style-type: none"> <li>Enclose excavated areas to contain dust.</li> <li>Spray water over loose soil piles especially on windy days.</li> </ul>	Contractor	Satisfactory	Being executed
<b>Raw materials sourcing and storage</b> Haphazard and inefficient material purchase and sourcing  Lack of storage space and Loss of materials	<ul style="list-style-type: none"> <li>Prepare and plan material requirement and delivery as required during each phase of construction depending on what is available locally</li> <li>Outsource manufacture of doors and windows</li> <li>Schedule material procurement to prevent both shortage and storage issues.</li> <li>Construct material storage shed, maintain inventory, and keep valuable items locked.</li> </ul>	Contractor	Satisfactory	Being executed

Subproject Activities/ Potential Environmental Impacts	Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures	
			1. <b>S / Satisfactory</b> - Mitigation measures implemented satisfactorily 2. <b>PS / Partially Satisfactory</b> - Mitigation measures implemented but requires improvement 3. <b>US / Unsatisfactory</b> - Mitigation measures not implemented / poorly implemented	
<b>Package CW-01 Trashiyangtse</b>				
	<ul style="list-style-type: none"> <li>Appoint security guard if necessary</li> <li>Stacked material in a safe and orderly manner</li> </ul>			
<b>Water Requirements</b> Water supply shortage due to additional demand for drinking, cooking, washing as well as construction and its associated activities (sprinkling/spraying and cleaning).	<ul style="list-style-type: none"> <li>Ensure adequate water for domestic (drinking, cooking, washing and sanitation) and construction purpose.</li> <li>Install adequate water tanks or mobilize water tankers during periods of shortage.</li> <li>To conserve water, all water supply pipes will be checked, repaired and maintained regularly to prevent leakages or blockages</li> </ul>	Contractor	Satisfactory	Provided.
<b>Electrical requirements</b>  Delay in project implementation at the site due to lack of electrical power supply.	<ul style="list-style-type: none"> <li>Request from Bhutan Power Corporation for service on the handling of electricity connection before, during and after the construction works.</li> </ul>	Contractor	Satisfactory	
<b>Sewerage requirement</b> Without any adequate sewerage system at the site, discharge of greywater and blackwater from the site and workers' camp could pollute the receiving bodies of water in the area.	The workers' camp will be connected to septic tanks which will be used until the end of the construction period, after which these will be decommissioned, cleared out and filled in with soil.	Contractor	Satisfactory	Provided
<b>Mobilization and operation of construction equipment</b>	<ul style="list-style-type: none"> <li>Train machine operators</li> <li>Ensure machine operators to use the horn when backing, be assigned a signal person to guide him when reversing</li> </ul>	Contractor		



Subproject Activities/ Potential Environmental Impacts	Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures	
			1. <b>S / Satisfactory</b> - Mitigation measures implemented satisfactorily 2. <b>PS / Partially Satisfactory</b> - Mitigation measures implemented but requires improvement 3. <b>US / Unsatisfactory</b> - Mitigation measures not implemented / poorly implemented	
Package CW-01 Trashiyangtse				
Risk of accidents and injuries to workers	<ul style="list-style-type: none"> <li>Workers must be restricted from working in close proximity of equipment in operation, unless it is essential for assisting the use of the machine or for the intended work. In such cases, a supervisor should alert the worker of potential risks.</li> </ul>		Satisfactory	
<b>Erosion and sedimentation</b>  Siltation of receiving body of water and canals in the area, resulting to clogging of these canals.	<ul style="list-style-type: none"> <li>Complete all excavation works before the onset of the monsoon season to reduce the runoff.</li> <li>Construct drains to divert clean stormwater away from areas where soil is exposed by constructing drains with silt traps that is connected to this main stormwater drain.</li> </ul>	Contractor	Satisfactory	
<b>Ambient Air Quality</b> The use of fuelwood for heating in winter will result in air pollution from fires.  Exhaust emission from operation of machinery and vehicles will contribute to the air pollutant load (primarily particulate matter (PM), NOx, SOx, CO etc.) in the ambient air  Dust from excavation, and other construction activities.	<ul style="list-style-type: none"> <li>Provide alternative fuel (electricity or LPG) at workers' camp and restrict use of firewood for cooking (but may be allowed for heating as this is permitted in the city).</li> <li>Restrict open burning of wastes.</li> <li>Ensure that construction equipment and vehicles are maintained in good condition and have passed the RSTA emission test.</li> <li>Provide tarpaulin covers to vehicles transporting soil, sand and other construction materials and waste.</li> <li>Provide cover to stockpiles of soil, sand and other construction materials, especially during windy days.</li> </ul>	Contractor	Satisfactory	Environmental baseline data obtained and these shall be monitored during the project period.



Subproject Activities/ Potential Environmental Impacts	Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures	
			1. <b>S / Satisfactory</b> - Mitigation measures implemented satisfactorily 2. <b>PS / Partially Satisfactory</b> - Mitigation measures implemented but requires improvement 3. <b>US / Unsatisfactory</b> - Mitigation measures not implemented / poorly implemented	
Package CW-01 Trashiyangtse				
	such as rock breaking before or restrict such work from End October/ Beginning November –Mid March, to avoid disturbing the Black -necked cranes.		Will be ensured	
<b>Solid waste generation and management</b>  Improper disposal of solid wastes could lead to contamination of lands, proliferation of vectors of diseases, foul odor and other nuisance to nearby communities.	<ul style="list-style-type: none"> <li>• Provide appropriate bins for waste storage and safe collection, segregate hazardous wastes within the site.</li> <li>• Maintain cleanliness of the site premises or surroundings.</li> <li>• Ensure that workers are briefed on proper waste management and good housekeeping at worker camps.</li> <li>• Allocate waste storage areas where wastes can be stored and then collected by the municipal trucks.</li> <li>• Ensure to remove solid wastes and bring to designated disposal sites.</li> </ul>	Contractor	Partially Satisfactory	Enough bins not provided.
<b>Community health and safety</b>  Safety risk to public safety during transport of materials.  Safety risk to pedestrians.	<ul style="list-style-type: none"> <li>• Provide cordon or barricades around the construction site to restrict public from the site and controlling access to the site.</li> <li>• Install signboards to notify passers-by of ongoing work, install warning signs near access road and entry points.</li> <li>• Restrict unloading or storing of construction material along access road, on top of drains and footpaths.</li> </ul>	Contractor	Satisfactory	.

Subproject Activities/ Potential Environmental Impacts	Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures	
			1. <b>S / Satisfactory</b> - <i>Mitigation measures implemented satisfactorily</i> 2. <b>PS / Partially Satisfactory</b> - <i>Mitigation measures implemented but requires improvement</i> 3. <b>US / Unsatisfactory</b> - <i>Mitigation measures not implemented / poorly implemented</i>	
<b>Package CW-01 Trashiyangtse</b>				
	<ul style="list-style-type: none"> <li>Designate personnel to warn passers-by and guide trucks during material delivery.</li> <li>Schedule materials delivery times to avoid peak traffic hours.</li> <li>Impose speed limits for trucks near the construction site.</li> </ul>			
Air pollution due to emissions and dust	<ul style="list-style-type: none"> <li>Provide alternative fuel (electricity or LPG) at workers' camp and restrict use of firewood for cooking (but may be allowed for heating as this is permitted in the city).</li> <li>Restrict open burning of wastes.</li> <li>Ensure that construction equipment and vehicles are maintained in good condition and have passed the RSTA emission test.</li> <li>Provide tarpaulin covers to vehicles transporting soil, sand and other construction materials and waste.</li> <li>Provide cover to stockpiles of soil, sand and other construction materials, especially during windy days.</li> <li>Spray water over bare or newly excavated areas especially on windy days and wherever possible excavated soil will be reused for leveling the site and for green belt development.</li> <li>Remove excess excavated soil from the site within 2 weeks of excavation and dispose at the designated disposal site.</li> </ul>	Contractor	Satisfactory	

Subproject Activities/ Potential Environmental Impacts	Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures	
			1. <b>S / Satisfactory</b> - Mitigation measures implemented satisfactorily 2. <b>PS / Partially Satisfactory</b> - Mitigation measures implemented but requires improvement 3. <b>US / Unsatisfactory</b> - Mitigation measures not implemented / poorly implemented	
Package CW-01 Trashiyangtse				
Congestion and blockages/obstructions	<ul style="list-style-type: none"> <li>Restrict material drop off by trucks during peak traffic hours (8-9.30 a.m and 4-6 p.m)</li> <li>Brief drivers on restriction of spillage or storing of construction material along access road, on top of drains and footpaths blocking access.</li> </ul>	Contractor	Satisfactory	
<b>Chance finds</b>  Potential chance finds	Follow chance finds procedure: <ul style="list-style-type: none"> <li>In case of suspected chance finds, the Contractor shall immediately stop all works</li> <li>Contractor to report immediately within the same day to the PMU or PIU regarding the suspected chance finds.</li> <li>PMU or PIU to advise Contractor to strictly follow the full stoppage of works.</li> <li>PMU to report the potential chance finds to the Department of Culture, Ministry of Home and Cultural Affairs, and the latter to investigate.</li> <li>No works shall resume until clearance is provided by the Department of Culture, Ministry of Home and Cultural Affairs.</li> </ul>	Contractor	Satisfactory	No incident of any chance finds so far.
<b>Emergencies such as earthquakes, Fire hazards</b>  Risk of injury and losing lives due to natural hazards and fire	<ul style="list-style-type: none"> <li>Develop an emergency action plan to handle emergencies such as earthquakes, fires, breakdown in machinery, collapse of structures, electrical mishaps. These are as follow:</li> <li>Identify procedures to follow during</li> </ul>	Contractor		

Subproject Activities/ Potential Environmental Impacts	Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures	
			1. <b>S / Satisfactory</b> - <i>Mitigation measures implemented satisfactorily</i> 2. <b>PS / Partially Satisfactory</b> - <i>Mitigation measures implemented but requires improvement</i> 3. <b>US / Unsatisfactory</b> - <i>Mitigation measures not implemented / poorly implemented</i>	
<b>Package CW-01 Trashiyangtse</b>				
	<p>emergencies.</p> <ul style="list-style-type: none"> <li>• Display and maintain suitable warning signs at conspicuous places in Dzongkha and English.</li> <li>• Identify a meeting point for all workers in case of earthquakes.</li> <li>• Brief workers on protocols to follow during earthquakes.</li> <li>• Provide transportation to the nearest hospital in case of accidents and emergencies.</li> <li>• Install fire extinguishers or ensure adequate storage of water supply, water hoses and pipes</li> <li>• Train staff to operate the fire extinguishing equipment.</li> <li>• Conduct quarterly checks on fire extinguishers.</li> </ul> <p><b>Collapse of structures.</b></p> <ul style="list-style-type: none"> <li>• Stabilize all temporary structures to prevent them from collapse.</li> <li>• Electrical mishaps.</li> <li>• Hire only certified electricians.</li> <li>• Provide all temporary electrical installations with earth- leakage circuit breakers.</li> <li>• Require workers to check safety of electrical wiring before commencement of work</li> </ul>		Partially Satisfactory	<p>Not enough fire extinguishers installed. Not trained to operate fire extinguishing equipment.</p> <p>Emergency management procedures (Evacuation plan) needs to be prepared.</p>

Subproject Activities/ Potential Environmental Impacts	Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures	
			1. <b>S / Satisfactory</b> - Mitigation measures implemented satisfactorily 2. <b>PS / Partially Satisfactory</b> - Mitigation measures implemented but requires improvement 3. <b>US / Unsatisfactory</b> - Mitigation measures not implemented / poorly implemented	
<b>Package CW-01 Trashiyangtse</b>				
	<ul style="list-style-type: none"> <li>• Operation of machines</li> <li>• Restrict operation of machines to trained and competent operators, or under the supervision of one</li> </ul>			
<b>Post construction –camp closure</b>  Positive impact resulting to restoration of pleasant aesthetics at site.	Implement camp and site closure plan that includes the following <ul style="list-style-type: none"> <li>• Dismantle all worker camps, fill in sanitation areas/temporary toilets with soil</li> <li>• Remove all machines, equipment and debris from construction site and worker camps</li> <li>• Restore any damage to government or private properties</li> <li>• Hand over site back to PMU</li> <li>• Carry out repair and maintenance during liability period as per contract</li> <li>• Ensure that foreign workers exit the country (expatriation) on completion of work</li> <li>• Plan and undertake revegetation and landscape development</li> </ul>	Contractor	-	NA
<b>Post- construction - greening and landscaping</b>  Positive impact resulting to enhancement of surrounding environment.	<ul style="list-style-type: none"> <li>• Improve aesthetic view by landscaping</li> <li>• Development of green belt around the housing complex.</li> </ul>	Contractor	-	NA





**Table 10: Overall Compliance with CEMP/ EMP**

Sl. No	Subproject 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	Trashiyangtse CW-01	Yes	Yes	Satisfactory	Need to address the following issues; 1. Provide additional bins. 2. Install additional fire extinguishers and train on the use of fire extinguisher. 3. Prepare Emergency management procedures (Evacuation plan)
2	Other subprojects not yet awarded	NA	NA	NA	

**E. Environmental, Health and Safety Incidents**

16. The following table reflects any environmental, health and safety incidents occurred during the project implementation period.

**Table 11: Environmental, Health and Safety Incidents Recorded**

Sl. No	Subproject	Nature of Incident	Date	Action Taken	Remarks
1	Trashiyangtse CW-01	None	-	-	No accidents occurred at site during the reporting period
2	Other subprojects	-	-	-	Contracts not yet awarded

## **V. APPROACH AND METHODOLOGY FOR ENVIRONMENTAL MONITORING OF THE PROJECT**

### **A. Methodology used for environmental monitoring of each subproject**

17. Environmental monitoring is an obligatory aspect of project implementation. The ADB SPS requires that the borrower/client monitor and measure the progress of implementation of the EMP. The extent of monitoring activities will be commensurate with the project's risks and impacts. In addition to recording information to track performance, the borrower/client will undertake inspections to verify compliance with the EMP and progress toward the expected outcomes.

18. The PMU with support from PIU, will monitor the progress of EMP implementation and compliance with ADB SPS requirements and national rules and regulations/guidelines. The PMU will coordinate and monitor project activities with PIU and Contractor to ensure timely implementation of project activities.

19. The Contractor will submit monthly reports to the PIU with jurisdiction over the subproject. The monthly reports will include compilation of copies of monitoring sheets accomplished and duly signed by the Contractor's EHS supervisor (or equivalent) on a daily basis. The PIU will submit quarterly environmental monitoring reports to PMU, which will include summary of daily monitoring activities of Contractor and results of any independent monitoring or inspection activities of the PIU.

20. PMU shall consolidate quarterly reports from the PIUs, which include reports from the PIU for the Trashiyangtse subproject, and results of its independent monitoring or inspection activities. PMU shall accomplish semi-annual environmental monitoring report (SEMRs), which shall be submitted to ADB for review and disclosure on ADB website. Submission of SEMR will continue until project completion.

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

21. During this reporting period, only Trashiyangtse subproject CW-01 is under construction and hence the description under this section pertains mainly to this subproject.

22. The construction of the subproject CW-01 started on 22 May 2023. The main environmental impacts during the construction are air pollution due to the release of dust during construction activities and noise pollution mainly due to the use of rock breaker so as to break a huge unanticipated rock near the building 3 and 4 area. To reduce the dust escaping into the surrounding area, green net fencing has been constructed around the project site. Moreover, to reduce the impact of noise from rock breaker, the work time has been reduced and it is ensured that only silent works are carried out during the morning and evening hours.

23. Cement bags are stored separately in a cement store to ensure fugitive emissions are reduced at site. There is a designated stockpile area near the construction site where sands and aggregates are stocked. The stock yard is fenced with green net to reduce dust emission during windy days. Moreover, to ensure minimized dust pollution especially during dry and sunny days, the road along the project site is sprinkled with water frequently.

24. Furthermore, signboard describing the project, both in English and Dzongkha, is provided at the strategic location. Safety signages are also provided at the project site along with the sign boards displaying emergency contact numbers. To ensure smooth flow of traffic, a speed reduction signboard is also displayed. Moreover, signboards to restrict entry and trespassers are also installed.

25. IEE and EMP/SEMR require conduct of ambient environmental quality monitoring throughout implementation. These included monitoring ambient air, water, noise, etc., in and around project sites to assess the quality and changes with respect to baseline conditions. As per the EMP and contract, contractors are responsible for monitoring. The details are provided in **Table 12** below.

**Table 12: Compliance to Environmental Monitoring Plan (CW-01)**

SI.No.	Activity	Method of Measurement/Indicators	Frequency	Responsibility		Compliance status
				Implementation	Monitoring	
<b>Pre-Construction</b>						
1	Land use approval	<ul style="list-style-type: none"> <li>Land Use certificate received from National Land Commission</li> </ul>	PMU	PMU	PMU	Complied
2	Subproject design and approvals	<ul style="list-style-type: none"> <li>Infrastructure design and construction approval,</li> <li>Demolition approval</li> </ul>	One time	NHDCL	PMU	Complied
3	Roles and responsibilities and awareness of project site supervision team	<ul style="list-style-type: none"> <li>Office order</li> <li>TOR for Site supervision team</li> <li>Training materials</li> <li>Participant list</li> </ul>	One time	NHDCL	PMU	Complied
4	Awareness and training of Contractor	<ul style="list-style-type: none"> <li>Pre-bid meeting to inform contractors</li> <li>No. of trainings and dates</li> <li>Contractor's attendance sheet</li> </ul>	One time	NHDCL	PMU	Complied and conducted
5	Incorporating of EMP into bid documents	<ul style="list-style-type: none"> <li>EMP included in bid document</li> </ul>	One time	NHDCL	PMU	Complied
6	Incorporating of OHS requirements into contract	<ul style="list-style-type: none"> <li>OHS component included in Contract</li> </ul>	One time	NHDCL	PMU	Complied
7	Project disclosure and information	<ul style="list-style-type: none"> <li>Project information/brief on NHDCL website,</li> <li>Project contact number on signboards</li> <li>Minutes of Meeting/ Consultation with Affected people and community</li> </ul>	One time	NHDCL	PMU	Complied
<b>Construction phase</b>						
8	Consent and Permits	<ul style="list-style-type: none"> <li>Tree removal</li> <li>Waste disposal</li> </ul>	One time	Contractor	PIU	Complied

Sl.No.	Activity	Method of Measurement/Indicators	Frequency	Responsibility		Compliance status
				Implementation	Monitoring	
9	Recruitment of workers	<ul style="list-style-type: none"> <li>No. of workers (nationals/foreign-by gender)</li> <li>No. of skilled and unskilled workers</li> <li>No. of workers below age 18</li> </ul>	During recruitment	Contractor	PIU	Complied
10	Workers' welfare (health and safety)	<ul style="list-style-type: none"> <li>No. of worker camps</li> <li>Availability of safe drinking water, electricity and sanitation facilities (with separate toilets for males and females)</li> <li>PPE distribution list/records</li> <li>Ocular inspection of the cleanliness of worker camps</li> <li>safety structure installed</li> <li>Overtime facilities provided</li> <li>Emergency Contactnumbers displayed</li> <li>Assembly points identified</li> <li>Emergency protocols</li> <li>First aid kit</li> <li>Warning signs at risky /hazardous areas</li> <li>Records in accident register with incidents and actions taken.</li> <li>No of fire extinguishers installed at site</li> <li>Type and no. of trainings (training record)</li> </ul>	Monthly	Contractor	PIU	Complied
11	If to be needed, temporary land requirement for worker camps and storage	<ul style="list-style-type: none"> <li>Land lease agreement between Contractor and landowner/government</li> </ul>	One time	Contractor	PIU	Complied
12	Air pollution	<ul style="list-style-type: none"> <li>Ambient air quality measurement</li> <li>Use of electrical appliances</li> <li>Ocular observation of vehicles and site conditions</li> <li>Use of reconditioned machines and vehicles.</li> <li>Maintenance of machines</li> </ul>	Semi-annually (ambient air quality measurement)  Monthly or as necessary (ocular)	Contractor	PIU	Complied and conducted  Baseline data collected and periodic monitoring will be carried out.

SI.No.	Activity	Method of Measurement/Indicators	Frequency	Responsibility		Compliance status
				Implementation	Monitoring	
13	Dust pollution /minimization	<ul style="list-style-type: none"> <li>Ambient air quality measurement</li> <li>Ocular observation of dust and dust suppression measures undertaken as per EMP</li> </ul>	Semi- annually (ambient air quality measurement)  Monthly or as necessary (ocular)	Contractor	PIU	Complied.
14	Water supply and conservation	<ul style="list-style-type: none"> <li>No. of water storage tanks.</li> <li>Measures taken during periods of shortage.</li> <li>No. of water supply repair and maintenance works</li> </ul>	Monthly or as necessary	Contractor	PIU	Complied (No water shortage experience till date)
15	Waste management of worker camps, construction sites	<ul style="list-style-type: none"> <li>No. and types of waste bins installed</li> <li>No. of truckloads of construction waste disposed</li> <li>Types of solid waste segregated and reused</li> <li>Ocular inspection of camps and construction site</li> <li>Segregation, storage of hazardous waste</li> </ul>	Monthly or as necessary	Contractor	PIU	Complied (Monthly record of total waste generated is maintained at site)
16	Generation of excavated soil	<ul style="list-style-type: none"> <li>% soil reused for construction</li> <li>% soil disposed</li> <li>Ocular observation of soil pileup at site</li> </ul>	One time	Contractor	PIU	Complied (Monthly record of soil deposited maintained)
17	Site drainage	<ul style="list-style-type: none"> <li>Site drainage</li> <li>Connection to storm water drainage</li> <li>Repair and maintenance of drains</li> <li>Ocular observation of site drainage</li> </ul>	Monthly or as necessary	Contractor	PIU	Complied.
18a	Noise pollution and disturbance to the BNC	<ul style="list-style-type: none"> <li>Ambient noise level measurement</li> <li>Incorporation of the noise reduction measures into the Contract document</li> </ul>	Semi- annually (ambient noise level measurement)	Contractor	PIU	Complied
		<ul style="list-style-type: none"> <li>Complaints by the Range Office</li> </ul>	Monthly or as necessary (monitoring of complaints)	Contractor	PIU	No complaints received from Range office

SI.No.	Activity	Method of Measurement/Indicators	Frequency	Responsibility		Compliance status
				Implementation	Monitoring	
18b	Disturbance to the local community	<ul style="list-style-type: none"> <li>Ambient noise level measurement</li> <li>No. of complaints received from neighboring community</li> </ul>		Contractor	PIU	Complied (One grievance related to noise pollution was received and immediately resolved)
19	Congestion and blockages/obstructions	<ul style="list-style-type: none"> <li>No. of complaints on congestion caused by Construction traffic</li> <li>Ocular observation of road conditions (spillage of construction material along access road, blockage of drains and footpaths)</li> </ul>	Monthly	Contractor	PIU	Complied.
20	Material storage	<ul style="list-style-type: none"> <li>No. of material storage sheds</li> <li>Ocular observation on material storage at site</li> <li>Material inventory</li> </ul>	Monthly	Contractor	PIU	Complied
21	Community health and safety	<ul style="list-style-type: none"> <li>Consultation with community (minutes of meeting, participant list)</li> <li>No. of safety signs</li> <li>Installation of barricades</li> <li>Obstruction of access routes/paths</li> <li>No. of accidents occurred</li> <li>No. of complaints received</li> </ul>	Monthly	Contractor	PIU	Complied
22	Camp closure	<ul style="list-style-type: none"> <li>Ocular observation of site conditions and compliance to EMP</li> </ul>	One time	Contractor	PIU	NA
<b>Operation phase</b>						
23	Operation phase (e.g. building management)	<ul style="list-style-type: none"> <li>Maintenance records</li> </ul>	Every quarter	NHDCL estate management	PMU	NA
24	Fire hazard	<ul style="list-style-type: none"> <li>No. of fire extinguishers, and maintenance record</li> </ul>	Once a year	NHDCL estate management	PMU	NA
25	Sewage and sanitation	<ul style="list-style-type: none"> <li>Maintenance record</li> </ul>	Once a year	NHDCL estate management	PMU	NA
26	Waste management	<ul style="list-style-type: none"> <li>Maintenance record</li> </ul>	Monthly	NHDCL estate management	PMU	NA

26. As per the IEE and EMP, the monitoring frequency specified is semi-annually for both air and noise quality monitoring. Two locations/sampling points are considered for this project which is the labor camp site and project site office. For this subproject, sampling and analysis was carried out by Bhutan Ecolab Services, Pekarzhang, Phuentsholing.

27. The contractor is required to ensure adequate water for domestic and construction purposes. To ensure the availability of safe drinking water for the workers, the existing municipal water supply line is utilized for the project and the water quality for Trashiyangtse municipal is provided in **Appendix 6**.

#### **A. General condition of surroundings at the project site**

28. Specifically, the following general conditions and measures were adopted at site.

- Confirm if any dust was noted to escape the site boundaries and identify dust suppression techniques followed for site/s.
  - No dust noted to escape from site boundaries. Green nets were used to contain dusts. Roads near to the site were sprinkled with water to suppress dusts.
- Identify if muddy water is escaping site boundaries or if muddy tracks are seen on adjacent roads.
  - None.
- 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 major erosion and sedimentation encountered and hence no control measures required at site.
- Identify designated areas for concrete works, chemical storage, construction materials, and refueling.
  - No separate chemical storage constructed at site. Refueling is done at the Bhutan Oil Distributer fuel station. Cement and materials stocked properly. Photographs attached in Appendix 1.
- Confirm spill kits on site and site procedure for handling emergencies.
  - First Aid Box kept at site and emergency medical evacuation plan to be prepared and the workers to be briefed during Tool Box talk.
- Identify any chemical stored on site and provide information on storage condition. Attach photograph.
  - No use of chemicals was anticipated initially. However, with the unanticipated presence of embedded rocks, acconex (silent blasting technique) had to be used for breaking the rocks. Since the amount of acconex purchased and used was very little, the chemical was stored in the general store beside contractor's site office as an interim measure.
- Describe management of stockpiles (construction materials, excavated soils, spoils, etc.).
  - Stockpiles properly stored. Spoils deposited at pre-identified disposal sites. Photographs attached in Appendix 1.
- Describe management of solid and liquid wastes on-site (quantity generated, transport, storage and disposal).
  - General household wastes are dumped using the Municipal Waste collection system. The contractor has been instructed to keep record of wastes generated.
- Provide information on barricades, signages, and on-site boards.
  - The signboards are provided at strategic locations. Photographs attached in Appendix 1.
- Indicate if there are any activities being undertaken out of working hours and how that is being managed.





Site No.	Date of Testing	Site Location	Parameters (Monitoring Results)						
			pH	Conductivity µS/cm	BOD mg/L	TSS mg/L	TN mg/L	TP mg/L	Turbidity (5Ntu)
1		Bayling	8.41	-	-	-	-	-	1.52
2		Bimkhar	-	-	-	-	-	-	-

\* See Appendix 6: Municipality Water Quality Result

## VII. GRIEVANCE REDRESS MECHANISM

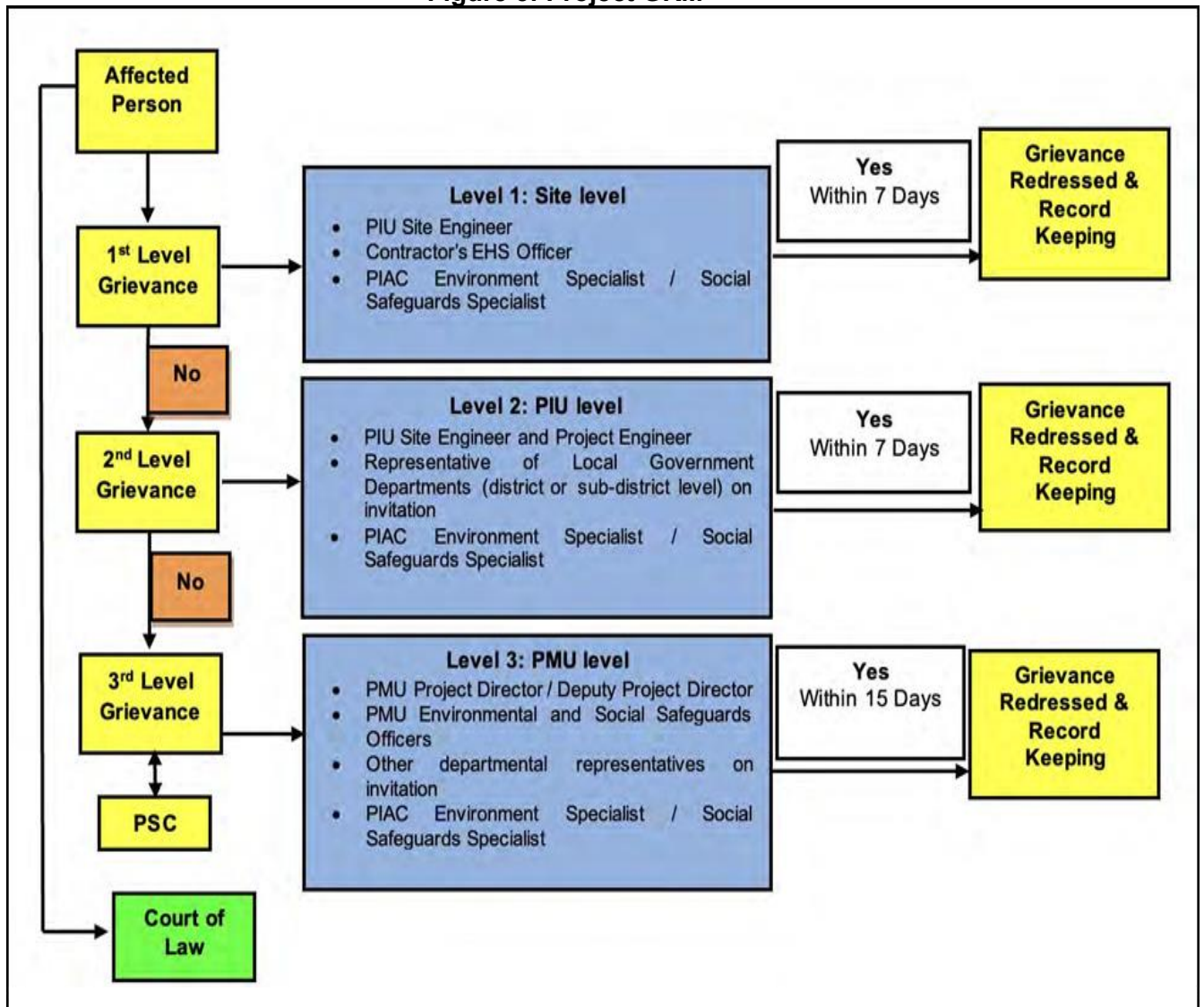
### A. Grievance Redress Mechanism

29. The project will adopt a three-tier Grievance Redress Mechanism (GRM) in implementing the project. The GRM will receive, evaluate, and facilitate the resolution of social, environmental or any other project related grievances. The GRM will aim to provide a time-bound and transparent mechanism to voice and resolve social and environmental concerns linked to the project. The GRM described below has been developed in consultation with stakeholders. Public awareness campaign will be conducted to ensure that awareness on the project and its grievance redress procedures are generated and shared with affected persons and other stakeholders. The campaign will ensure that the poor, vulnerable and others are made aware of the need for and process in availing the GRM.

30. The GRM provides an accessible, inclusive, gender-sensitive and culturally appropriate platform for receiving and facilitating resolution of affected persons' grievances related to the project. The three-tier GRM for the project is outlined below, each tier having time-bound schedules and with responsible persons identified to facilitate and address grievances at each stage, as required. Public awareness campaigns will ensure that awareness on grievance redress procedures is generated through the campaign. The Environmental and Social Safeguard Officer of PMU will have the overall responsibility for timely grievance redress on environmental and social safeguards issues.

GRM has been established and GRC is formed at the PMU level. GRM and GRC at the PIU and site levels are established upon designation of PIU staff and contract award vide letter no. NHDCL/ADB-GRAHSP/2023/1362 dated 20 June 2023.

Figure 3: Project GRM



EHS = Environmental Health and Safety, NHDCL = National Housing Development Corporation Limited, PIAC = Project Implementation Assistance Consultant, PIU = Project Implementation Unit, PMU = Project Management Unit, PSC = Project Steering Committee.

### VIII. COMPLAINTS RECEIVED DURING REPORTING PERIOD

31. During the reporting period, the subproject received one grievance on 21 July 2023 regarding noise pollution at the construction site due to rock-breaker used for breaking embedded rock encountered during foundation excavation. On 20 July 2023, one of the residents of existing NHDCL colony lost her husband and son to the flash flood that occurred at Ungar village, Lhuentse. The relatives and friends residing in the colony could not sleep whole night attending to calls and consoling the victim's family and the next day they couldn't take rest due to the disturbance from the rock breaker used at site. A verbal complaint was received to stop the rock breaking, and the issue was resolved immediately by ceasing the work for a day.

32. The details of the complaint resolved are documented in **Table 13** below.

**Table 16: Details of Complaints Resolved**

Package No	No. of complaints received			Type of Common and Major Grievances	Time taken for resolution (days)
	In Reporting period	Previously Pending	Cumulative		
CW-01	1	0	1	Noise pollution	Resolved immediately.

#### A. GRC Meetings

33. No GRC meetings have been conducted yet. If required or conducted details shall be recorded and presented in a tabular form.

**Table 17: GRC Meetings**

S. No	Package No.	No, of meeting in Reporting Period	Cumulative meetings till date
1-	CW-01	None	None

## IX. PUBLIC CONSULTATION

34. Two public consultations were carried out in early 2021 during design phase and IEE preparation. No consultations were carried out during the reporting period.

## X. TRAINING AND CAPACITY BUILDING ACTIVITIES

35. One two-days training conducted by PIAC for PMU/PIU and contractor (CW-01 package) on 12-13 June 2023. Similar trainings will be conducted for other contract packages once the contract works are awarded.

36. The trainings and capacity building programs (workshops, seminars, on/off-site trainings, awareness etc.) related to environmental safeguards, implementation of EMPs, health and safety etc., organized and conducted by the Trashiyangtse PIU and contractor's EHS officer is provided in Table 18 below.

**Table 18: Training / Capacity Building Activities Conducted**

Package No.	Date	Training activity	Venue & duration	Trainer	Target Group	Number of participant (M / F)	Details (purpose, and main feedback/outcome)
CW-01	27 June 2023	Awareness Program on Health	Labor camp site	Rinchen Namgay, VCT focal, Trashiyangtse Hospital	Laborers	28 (M)	Create awareness on HIV/AIDS, STI, and Dengue Fever
	17 July 2023	Awareness program on drugs and alcohol	Construction site	Dasho OC (Officer in Command), Royal Bhutan Police	Laborers	34 (M)	Make laborers aware on the rules and regulations pertaining to the use of drugs and alcohol, and rape case
Other subprojects not yet awarded	NA	NA	NA	NA	NA	NA	NA

## XI. SUMMARY OF KEY ISSUES AND REMEDIAL ACTIONS

### A. Findings

37. This Semi-annual Environmental Monitoring Report (SEMR) for the period of March 2023 to August 2023 is prepared as per the ADB SPS requirements. This SEMR describes progress with the implementation of the subproject-wise EMPs, and compliance status. This is the third SEMR prepared for this Green and Resilient Affordable Housing Sector Project. The Project will include about 14 subprojects/contract packages. At the end of this reporting period (August 2023), only one package, CW-01, Trashiyangtse is awarded and construction ongoing. Dradulthang, Nganglam and Toed will be contracted out soon. Rest of the packages will follow suit. Since no other packages have been awarded, only the field findings of Trashiyangtse subproject CW-01 is being reported.

**Table 19: Findings and Key Issues**

Monitoring aspect	Findings & Key issues	Remedial measures
Availability safeguards personnel (PMU, PIU, Consultants and contractors)	PMU and PIU (Trashiyangtse, Dradulthang, and Nganglam) have safeguards focal persons (environmental and social) to look after the social and environment safeguards.  PIAC Environment Specialist is designated.	
Compliance with statutory requirements (clearance / permissions etc.,)	Environmental clearances have been obtained for 6 subprojects (Trashiyangtse, Dradulthang and Toed in Samdrup Jongkhar, Nganglam, Amochu and Phuentsholing core in Phuentsholing). EC for Sonamgang and Thimphu sites not yet applied as IEEs have not been prepared due to delay in designs finalisation.	IEEs need to be prepared and ECs applied once the designs are finalised. Subproject reports need to be prepared and approved by ADB.
Compliance with ADB loan covenants	Complied.	
Compliance with preparation, approval, disclosure of draft IEEs	Complied. Draft IEEs have been prepared and disclosed.	
Compliance with preparation, approval, disclosure of updated/final IEEs	Complied. Updated IEEs for Trashiyangtse, Dradulthang, and Nganglam subprojects are under preparation. IEEs will be updated based on final design/ in case of change in design and/or location and submitted to ADB for review and disclosure prior to start of construction.	
Contractor compliance with preconstruction requirements	Package CW-01 Trashiyangtse has been awarded and construction works ongoing. The contractor is complying with pre-construction and construction requirements so far.	

EMP implementation, monitoring, reporting	Being complied for package CW-01. EMP implementation at the construction site and labor camps need improvements.	See Table 19
Implementation of COVID19 health and safety measures	COVID19 health and safety measures are being followed as per the existing SOP although no cases have been reported at the site so far.	
Training and capacity building activities	One one-day training conducted by PIAC for PMU/PIU and contractor (CW-01 package) on 13 June 2023.	Site training subproject wise shall be conducted upon award of contracts.
Public consultation	Two public consultations were carried out in the early 2021 during design phase and IEE preparation. No consultations carried out during the reporting period.	Conduct and continue meaningful consultations for residents in nearby affected area.
GRM establishment, operationalization and complaint resolution	GRM has been established and GRC is formed at the PMU level. GRM and GRC at the PIU and Site levels are established upon designation of PIU staff and contract award vide letter no. NHDCL/ADB-GRAHSP/2023/1362 dated 20 June 2023.	

## B. EMP Implementation Improvements and Other Required Actions

38. The following lists EMP implementation improvements to be implemented to address the issues of concerns raised in the SEMR (March-August 2023).

**Table 20: EMP Implementation Improvements for CW-01 and other Required Actions**

Sl. No	Findings	Corrective Action Required	Responsibility	Timeline	Remarks
<b>Trashiyangtse Subproject CW-01</b>					
1	Insufficient waste bins at site.	Provide additional bins.	Contractor/PIU	September 2023	
2	Inadequate numbers of fire extinguishers installed at site office and labor camps (one each).	Install additional fire extinguishers and train on the use of fire extinguisher.	Contractor/PIU	September 2023	
2	General briefing on emergency / medical evacuation provided to the	Prepare Emergency management procedures (Evacuation plan)	Contractor/PIU	September 2023	

Sl. No	Findings	Corrective Action Required	Responsibility	Timeline	Remarks
	labors during toolbox talk. However, proper procedure and plan not prepared.				
3	No separate chemical storage at site.	Construction of proper chemical storage is required	Contractor/PIU	September 2023	
4	The water quality report of Trashiyangtse municipality has only few parameters (pH and turbidity).	Drinking water quality report should include more relevant parameters as per the national guideline/standard as per <b>Table 15</b> .	Contractor/PIU	November 2023	After six months together with semi-annual air and noise level monitoring.
5	Update IEE for Trashiyangtse subproject CW-01 for any unanticipated findings or changes.	Update Final IEE and EMP for Trashiyangtse subproject.	PMU/PIAC	October 2023	Unanticipated embedded rock encountered at site, small realignment of internal access road, and change in location of labour camp.
6	Siltation and erosion control is not implemented at the site	Implement siltation and erosion control	Contractor/PIU	Immediately	
7	Waste and material storage (steel, cement) at the site needs improvement.	Implement housekeeping activity /ensure proper cement storage to avoid product damage due moisture and contamination of land/nearby receiving body of water	Contractor/PIU	Immediately	
8	No public consultations conducted at the Trashiyangtse site since detailed design stage/IEE preparation stage	Conduct consultations with affected community (nearby households) (Trashiyangtse site)	PMU/PIAC	Immediately	
9	Site and worker's camp wastewater discharge management needs improvement	Construct soak-pit to treat wastewater discharges from site and worker's camp before directly discharging it into the	Contractor/PIU	Immediately	

Sl. No	Findings	Corrective Action Required	Responsibility	Timeline	Remarks
		surrounding environment.			



## APPENDICES

### APPENDIX 1: PHOTOGRAPHS

Photo 1-6: Signboards at site









**Photos 9-10: Spoil Disposal site**



**Photos 11 -12: Site inspection (green netting)**





Photo 13: Fire extinguisher in place



Photo 14: Fire extinguisher at site office



Photo 15: Materials covered during transportation



Photo 16: Cement store



Photo 17: Discussions at site



Photo 18: Site observations





**Photo 19: Slab casting**

**Photo 20: Discussions at control blasting site**



**Photo 21: Control blasting of embedded rock at site. (Silent blasting using Aconex)**



**Photos 22-23: Field observations of ongoing construction works**





**Photos 24-25: Field observations of ongoing construction works**



Photos 26-27: Toilet facility (site office)





**Photos 28-33: Meetings and discussions with project staff at site office**





(Assisted the contractor in preparing emergency evacuation plans against fire, earthquakes, floods and any medical emergency.)



Photo 34: Conducting "Tool Box talk" at 8.00 a.m.



Photo 35: Brief Physical exercise before work.



Photo 36: Information Board at PIU office.



Photo 37: Weekly schedule "reminder"!



**Photo 38: Camp location on the left bank of river Kholongchu (medium risks from floods)**



**Photos 39: Toilets for workers**



**Photos 40-41: Fire extinguishers at the labour camps**





**Photo 42: Safeguards team with Project Officials at Trashiyangtse (CW-01) site.**



**Photos 43-44: First Aid Box with basic medicines**





## **APPENDIX 2: SUMMARY OF CONSULTATIONS**

No consultations carried out during the reporting period.



## APPENDIX 3: COPIES OF ENVIRONMENTAL CLEARANCES AND PERMITS

### 1. Environmental Clearance for Trashiyangtse Throm

	<p>ཀྲུལ་ཡོངས་མཐའ་འཁོར་གནས་སྤངས་ལྷན་ཚོགས།          དཔལ་ལྷན་འབྲུག་གཞུང་།  <b>NATIONAL ENVIRONMENT COMMISSION</b>          Royal Government of Bhutan</p>	
NECS/EACD/Dzo-T/Yangtse/4061/2022/308	March 2, 2022	
<b><u>ENVIRONMENTAL CLEARANCE</u></b>		
<p>In accordance with Section 34.1 of the Environmental Assessment Act 2000, this Environmental Clearance (EC) is hereby issued to <b>National Housing Development Corporation Limited (NHDCL)</b> for construction of Affordable Housing Development Sector Project measuring an area of 2.48 acres along with the construction of 33/0.415 kV, 250kVA pad mounted substation and installation of 0.2km of high-tension line at Tashiyangtse Throm under Tashiyangtse Dzongkhag with the following terms and conditions:</p>		
<p><b>I. General</b></p>		
<p>The holder shall:</p>		
<ol style="list-style-type: none"> <li>1. Comply with provisions of the National Environment Protection Act 2007, Environmental Assessment (EA) Act 2000 and Regulation for Environmental Clearance of Projects (RECOP) 2016, Waste Prevention &amp; 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 Substances that Deplete the Ozone layer and Hydrofluorocarbons (HFCs) 2021;</li> <li>2. Ensure that the proposed activities are undertaken in line with the Initial Environmental Examination (IEE) report and project documents submitted for EC;</li> <li>3. Ensure that the local communities, properties and any religious, cultural, historic and ecologically important sites are not adversely affected by the proposed activities;</li> <li>4. Restore the damage of any public or private properties caused by the proposed activities;</li> <li>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;</li> <li>6. Ensure that safety sign boards are posted at strategic locations including sign boards indicating areas where specific gadgets are required;</li> <li>7. Erect a signboard at the take-off (entry) point of the proposed activity displaying the name of the project, contact address and details of the implementing agency; and</li> <li>8. Ensure that the copy of the EC is framed and displayed at the site office, and a copy of environmental management plan (EMP) and project documents are available at the site at all times.</li> </ol>		
<p><b>II. Environmental Standards</b></p>		
<p>The holder shall comply with the Environmental Standards 2020.</p>		
<p><b>III. Import and use of Ozone Depleting Substances (ODS)</b></p>		
<p>The holder shall import and use ODS and the HFCs as per the Revised Regulation on the Substances that Deplete the Ozone layer and HFCs 2021.</p>		
<p><b>IV. Protection and management of water resources</b></p>		
<p>The holder shall:</p>		
<ol style="list-style-type: none"> <li>1. Ensure that the proposed activities do not disrupt the water flow and pollute the water bodies; and</li> <li>2. Ensure that 30 meters or 100 feet buffer is maintained from the water resources at all times.</li> </ol>		
<p>NEC, PO Box 466, Thimphu, Bhutan          Tel: (975-2) 323384/325856/324323/326993; Fax: (975-2) 323385  <a href="http://www.nec.gov.bt">www.nec.gov.bt</a></p>		



#### V. Waste prevention and management

The holder shall:

1. Manage wastes generated from the proposed activities (project site, worker camps, site office, etc.) with the application of 4R (Reduce, Reuse, Recycle, Responsibility) principle and other environmentally friendly methods of waste management;
2. Ensure that the construction and demolition wastes from the proposed activity are disposed of as per the EMP submitted for EC;
3. Ensure that septic tanks and soak pits are constructed during project construction phase and post project completion phase for the management of sewage, grey water and kitchen waste water as per the EMP submitted for EC; and
4. Ensure that import and use of hazardous wastes are strictly prohibited.

#### VI. Management of raw materials

The holder shall:

1. Ensure that appropriate measures are put in place for handling and storage of construction materials to avoid fugitive emissions; and
2. Ensure that the construction materials are either stored in a closed shed or covered to avoid fugitive dust emissions in line with the EMP submitted for EC.

#### VII. Management of excavated materials and stormwater

The holder shall:

1. Ensure that the excavated materials from the proposed activities is managed as per the EMP submitted for EC;
2. Put appropriate measures to avoid erosion and landslides; and
3. Ensure that stormwater drains are constructed in line with the EMP submitted for EC.

#### VIII. Others

The holder shall:

1. Ensure that adequate green space is maintained around the project site;
2. Ensure that the project site is cordoned off and barricaded as per the EMP submitted for EC; and
3. Ensure that adequate measures are taken to reduce noise generated from the proposed activity.

#### IX. 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 monthly records on wastes generated including information on its management – stating types, quantities, characteristic and submit to NECS annually; and
3. Maintain monthly records of water used for domestic and sanitation purpose, construction purpose and dust suppression, and submit to NECS annually.

#### X. 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 (3) months from the date of issue of this EC as per the reporting format attached herewith.

#### XI. Renewal and modification

The holder shall:

1. Ensure that renewal of this EC is processed at least three (3) 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 including, but not limited to, change in the location of a project, change in ownership, etc.

**Reservation**

1. The NECS may stop the activity or impose additional terms and conditions, as may be deemed necessary;
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; and
3. The NECS shall not be responsible in the event of inadequate supply of raw materials.

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 offense and the proponent shall be liable in accordance with the EA Act 2000 and/or existing environmental laws.**

**Validity:**

This EC is issued with validity from **March 2, 2022** until **March 1, 2027** only for the construction of **Affordable Housing Development Sector Project** along with the construction of **33/0.415 kV, 250kVA pad mounted substation and installation of 0.2km of high-tension line.**

*This EC is issued solely pursuant to the EA Act 2000 and its Regulation, and in no way intends to overrule or alter the provisions of any law or rules in force. The Holder of this EC shall be responsible to adhere to the requirements under other laws and the issuing authority assumes no liability resulting from non-compliance or omission of any laws or rules.*



(Phento Tshering)  
**DIRECTOR**

To  
Chief Executive Officer  
National Housing Development Corporation Limited  
Post box # 1439  
**Thimphu**

**Copy to:**

1. Dasho Dzungdag, Chairman, Dzongkhag Environment Committee, Dzongkhag Administration, Tashi Yangtse for kind information and to instruct the Environment Officer to conduct necessary compliance monitoring.
2. Guard file (NECS/EACD/Dzo-T/Yangtse/4061/2022/) for record.





### III. Import and use of ODS

The holder shall import and use Ozone Depleting Substances and the Hydrofluorocarbons (HFCs) as per the Revised Regulation on the Substances that Deplete the Ozone Layer and HFCs 2021.

### IV. Protection and management of water resources

The holder shall:

1. ensure that the 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 activity (project site, labour camps, offices, etc.) with the application of 4R (Reduce, Reuse, Recycle, Responsibility) principle and other environmentally friendly methods of waste management;
2. ensure that construction wastes from the proposed activity are managed and disposed of as stated in the EMP for EC;
3. ensure that septic tanks and soak pits are constructed during project construction phase and post project completion phase for management of greywater and sewage as stated in the EMP for EC; and
4. ensure that import and use of hazardous wastes are strictly prohibited.

### VI. Management of excavated materials and run-off

The holder shall:

1. manage and dispose excess excavated materials generated from proposed activity as stated in the EMP for EC;
2. ensure that all vehicles transporting excavated materials are properly covered to avoid spillages and fugitive emissions;
3. ensure that storm water drains and silt traps are constructed as stated in the EMP for EC;
4. ensure that the storm water drains are constructed in accordance with Environmental Codes of Practice (ECOP) for storm water drainage systems 2004; and
5. put appropriate measures to avoid erosion and landslides.

### VII. Management of raw materials

The holder shall:

1. ensure appropriate measures are put in place for handling and storage of construction materials to avoid fugitive emissions; and



ensure that all vehicles transporting construction materials are properly covered to avoid spillages and fugitive emissions.

### III. Others

The holder shall:

1. ensure that adequate green space/area is maintained within the project area;
2. ensure the project site is barricaded/cordoned off as stated in the EMP for EC;
3. ensure adequate measures are undertaken to reduce noise generated from the proposed activity;
4. ensure that the power lines are installed in accordance with Environmental Codes of Practice (ECOP) for installation of underground and overhead utilities 2004; and
5. ensure that the dust generated during construction is adequately suppressed by spraying water.

### IX. 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 (hazardous and general wastes), quantities and characteristic and submit to NECS annually; and
3. maintain records of water used in the activity (separately for dust suppression and domestic purposes) and submit it to NECS annually.

### X. 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.

### XI. Renewal and modification

The holder shall:

1. ensure that renewal of this EC is processed at least three (3) 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 and payment of prescribed renewal application fee failing to 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 including, but not limited to, increase in production capacity, change in location of a project, change in ownership, etc.

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.

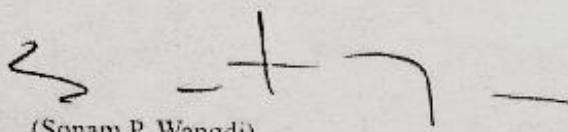
The holder may adopt best practices in executing these terms and conditions to avoid adverse environmental impacts.

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

**Validity:**

This EC is issued with validity from **August 29, 2022** until **August 28, 2027** only for construction of **Affordable Housing Development Sector Project** along with the construction of **11/0.415 kV substation and installation of 11 kV powerline measuring 200 meters.**

*This EC is issued solely pursuant to the EA Act, 2000 and its Regulations and in no way intends to overrule or alter the provisions of any law or rules in force. The Holder of this EC shall be responsible to adhere to the requirements under other laws and the issuing authority assumes no liability resulting from non-compliance or omission of any laws or rules.*



(Sonam P. Wangdi)  
**SECRETARY**


To  
Chief Executive Officer  
National Housing Development Corporation Limited  
Post box # 1439  
Thimphu.

**Copy to:**


1. Executive Secretary, Thromde Administration, Samdrup Jongkhar for kind information and to instruct the Environment Officer to conduct necessary compliance monitoring.
2. Guard file (Dzo/SJongkhar-Thromde/4125/2022/), EACD, NECS for record.

3. Environmental Clearance for Dradulthang, Samdrup Jongkhar





ཀྲུལ་ཡིངས་མཐའ་འཁོར་གནས་སྤངས་ལྷན་ཚོགས།  
 དཔལ་ལྷན་འབྲུག་གཞུང་།  
**National Environment Commission**  
 Royal Government of Bhutan



NECS/EACD/Dzo-S/Jongkhar/4126/2022/1575

August 29, 2022


**ENVIRONMENTAL CLEARANCE**

In accordance with Section 34.1 of the Environmental Assessment Act 2000, this Environmental Clearance (EC) is hereby issued to the **National Housing Development Corporation Limited (NHDCL)** for the **construction of Affordable Housing Development Sector Project** at Dradulthang, **measuring an area of 0.8 acres**, along with the **construction of 33/0.415 kV pad mounted substation and installation of 0.074 km of low tension power line** under Samdrup Jongkhar 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 (EA) Act 2000 and Regulation for Environmental Clearance of Projects (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 Substances that Deplete the Ozone layer and Hydrofluorocarbons (HFCs) 2021;
2. Ensure that the activity are undertaken in line with the Initial Environmental Examination (IEE) report and project document submitted for EC;
3. Ensure that the 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 activity;
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 proposed activity stating the name of the project, contact address, and details of the implementing agency;
7. Ensure that safety sign boards are posted at strategic locations including sign boards indicating areas where specific gadgets are required;
8. Ensure that general housekeeping, cleanliness and hygiene are maintained at all times in the labour camps and site offices; and
9. Ensure that the copy of the EC is framed and displayed at the site office, and a copy of environmental management plan (EMP) and project documents are available at the site at all times.

**II. Environmental Standards**  
 The holder shall comply with the Environmental Standards 2020.



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

### III. Import and use of Ozone Depleting Substances (ODS)

The holder shall import and use Ozone Depleting Substances and the Hydrofluorocarbons (HFCs) as per the Revised Regulation on the Substances that Deplete the Ozone Layer and HFCs 2021.

### IV. Protection and management of water resources

The holder shall:

1. Ensure that the proposed activity do not disrupt the water flow and pollute the water bodies; and
2. Ensure that a 30 meters 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 activity (project site, labour camps, offices, etc.) with the application of 4R (Reduce, Reuse, Recycle, Responsibility) principle and other environmentally friendly methods of waste management;
2. Ensure that the construction wastes from the proposed activity are managed and disposed of as stated in the EMP;
3. Ensure that septic tanks and soak pits are constructed for proper management of graywater and sewage as stated in the EMP; and
4. Ensure that import and use of hazardous wastes are strictly prohibited.

### VI. Management of raw materials

The holder shall:

1. Ensure appropriate measures are put in place for handling and storage of construction materials to avoid fugitive emissions; and
2. Ensure that all vehicles transporting construction materials are properly covered to avoid spillages and fugitive emissions.

### VII. Management of excavated materials and run-off

The holder shall:

1. Manage and dispose of excess excavated materials generated from proposed activity as stated in the EMP;
2. Ensure that all vehicles transporting excavated materials are properly covered to avoid spillages and fugitive emissions;
3. Ensure that the dust generated during construction is adequately suppressed by spraying water;
4. Ensure that the storm water drains are constructed in accordance with Environmental Codes of Practice (ECOP) for storm water drainage systems 2004; and
5. Put appropriate measures to avoid erosion and landslides.

### VIII. Others

The holder shall:



1. Ensure that adequate green space is maintained around the project site;
2. Ensure that the project site is barricaded/cordoned off as per the EMP submitted for EC;
3. Ensure that adequate measures are taken to reduce noise generated from the proposed activity; and
4. Ensure that underground and overhead utilities are installed in accordance with the Environmental Codes of Practice (ECOP) for installation of underground and overhead utilities 2004.

#### **IX. 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 monthly records on wastes generated including information on its management – stating types, quantities, characteristic and submit to NECS annually; and
3. Maintain monthly records of water used for domestic and sanitation purpose, construction purpose and dust suppression, and submit to NECS annually.

#### **X. 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 (3) months from the date of issue of this EC as per the reporting format attached herewith.

#### **XI. Renewal and modification**

The holder shall:

1. Ensure that renewal of this EC is processed at least three (3) 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 and payment of prescribed renewal application fee failing to 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 including, but not limited to, change in the location of a project, change in ownership, etc.

#### **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 with the EA Act 2000 and/or existing environmental laws.**

**Validity:**

This EC is issued with validity from **August 29, 2022** until **August 28, 2027** only for the construction of the **Affordable Housing Development Sector Project along with the construction of 33/0.415 kV pad mounted substation and installation of 0.074 km of low tension power line.**

*This EC is issued solely pursuant to the EA Act 2000 and its Regulation, and in no way intends to overrule or alter the provisions of any law or rules in force. The Holder of this EC shall be responsible to adhere to the requirements under other laws and the issuing authority assumes no liability resulting from non-compliance or omission of any laws or rules.*

  
(Sonam P. Wangdi)  
**SECRETARY**



To  
Chief Executive Officer  
National Housing Development Corporation Limited  
Post box # 1439  
**Thimphu.**

**Copy to:**

1. Executive Secretary, Thromde Administration, Samdrup Jongkhar for kind information and to instruct the Environment Officer to conduct necessary compliance monitoring.
2. Guard file (NECS/EACD/Dzo-S/Jongkhar/4126/2022/) for record.

#### 4. Environmental Clearance for Phuentsholing Thromde





ལྷན་ཁོག་གི་མཐོན་འཕེལ་གནས་སྤངས་ལྷན་ཚོགས།  
 དཔལ་ལྷན་འབྲུག་གཞུང་།  
**National Environment Commission**  
 Royal Government of Bhutan



NECS/EACD/Pling-Thromde/4060/2022/305

March 02, 2022

**ENVIRONMENTAL CLEARANCE**

In accordance with Section 34.1 of the Environmental Assessment Act 2000, this Environmental Clearance (EC) is hereby issued to **National Housing Development Corporation Limited (NHDCL)** for construction of **Affordable Housing Development Sector Project** at Phuentsholing, measuring an area of **0.64 acres** along with construction of **33/0.415 kV pad mounted substation and installation of 0.09km of low-tension underground cables** under Phuentsholing 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 (EA) Act 2000 and Regulation for Environmental Clearance of Projects (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 Substances that Deplete the Ozone layer and Hydrofluorocarbons (HFCs) 2021;
2. Ensure that the proposed activity is undertaken in line with the Initial Environmental Examination (IEE) report and project document submitted for EC;
3. Ensure that the local communities, properties and any religious, cultural, historic and ecologically important sites are not adversely affected by the proposed activities;
4. Restore the damage of any public or private properties caused by the proposed activity;
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. Ensure that safety sign boards are posted at strategic locations including sign boards indicating areas where specific gadgets are required;
7. Erect a signboard at the take-off (entry) point of the proposed activity displaying the name of the project, contact address and details of the implementing agency; and
8. Ensure that the copy of the EC is framed and displayed at the site office, and a copy of environmental management plan (EMP) and project documents are available at the site at all times.

**II. Environmental Standards**

The holder shall comply with the Environmental Standards 2020.

**III. Import and use of Ozone Depleting Substances (ODS)**

The holder shall import and use ODS and the HFCs as per the Revised Regulation on the Substances that Deplete the Ozone layer and HFCs 2021.

**IV. Protection and management of water resources**

The holder shall:

1. Ensure that the proposed activity do not disrupt the water flow and pollute the water bodies;  
and
2. Ensure that 30 meters 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 proposed activity (project site, worker camps, site office, etc.) with the application of 4R (Reduce, Reuse, Recycle, Responsibility) principle and other environmentally friendly methods of waste management;
2. Ensure that the construction and demolition wastes from the proposed activity are disposed of as per the EMP submitted for EC;
3. Ensure that sewage system is constructed and managed as per the EMP submitted for EC; and
4. Ensure that import and use of hazardous wastes are strictly prohibited.

#### VI. Management of raw materials

The holder shall:

1. Ensure that appropriate measures are put in place for handling and storage of construction materials to avoid fugitive emissions; and
2. Ensure that the construction materials are either stored in a closed shed or covered to avoid fugitive dust emissions in line with the EMP submitted for EC.

#### VII. Management of excavated materials and stormwater

The holder shall:

1. Ensure that the excavated materials from the proposed activity is managed as per the EMP submitted for EC;
2. Put appropriate measures to avoid erosion and landslides; and
3. Ensure that stormwater drains are constructed in line with the EMP submitted for EC.

#### VIII. Others

The holder shall:

1. Ensure that adequate green space is maintained around the project site;
2. Ensure that the project site is cordoned off and barricaded as per the EMP submitted for EC; and
3. Ensure that adequate measures are taken to reduce noise generated from the proposed activity.

#### IX. 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 monthly records on wastes generated including information on its management – stating types, quantities, characteristic and submit to NECS annually; and
3. Maintain monthly records of water used for domestic and sanitation purpose, construction purpose and dust suppression, and submit to NECS annually.

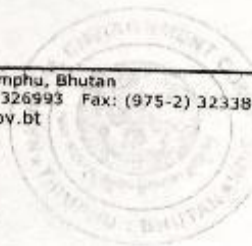
#### X. Implementation plan

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 (3) months from the date of issue of this EC as per the reporting format attached herewith.

#### XI. Renewal and modification

The holder shall:

NEC, PO Box 466, Thimphu, Bhutan  
Tel: (975-2) 323384/325856/324323/326995 Fax: (975-2) 323385  
www.nec.gov.bt



*[Handwritten signature]*



1. Ensure that renewal of this EC is processed at least three (3) 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 including, but not limited to, change in the location of a project, change in ownership, etc.

#### Reservation

1. The NECS may stop the activity or impose additional terms and conditions, as may be deemed necessary;
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; and
3. The NECS shall not be responsible in the event of inadequate supply of raw materials.

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 with the EA Act 2000 and/or existing environmental laws.**

#### Validity:

This EC is issued with validity from **March 02, 2022** until **March 01, 2027** only for the construction of **Affordable Housing Development Sector Project** along with the construction of **33/0.415 kV pad mounted substation** and installation of **0.09km of low-tension underground cable.**

*This EC is issued solely pursuant to the EA Act 2000 and its Regulation, and in no way intends to overrule or alter the provisions of any law or rules in force. The Holder of this EC shall be responsible to adhere to the requirements under other laws and the issuing authority assumes no liability resulting from non-compliance or omission of any laws or rules.*



(Phento Tshering)  
DIRECTOR



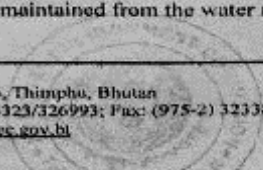

To  
Chief Executive Officer  
National Housing Development Corporation Limited  
Post box # 1439  
Thimphu



#### Copy to:

1. Executive Secretary, Thromde Administration, Phuentsholing for kind information and to instruct the Environment Officer to conduct necessary compliance monitoring.
2. Guard file (NECS/EACD/Pling-Thromde/4060/2022/) for record.

5. Environmental Clearance for Amochhu (Bangay), Phuentsholing

	<p style="font-size: 1.2em; margin: 0;">ཀླུ་ཡོངས་མཐའ་འཁོར་གནས་སྤངས་ལྷན་ཚོགས།</p> <p style="font-size: 1.2em; margin: 0;">འབྲུག་ལྗོངས་འཕུག་གཞི་རྒྱུ།</p> <p style="font-weight: bold; margin: 0;">National Environment Commission</p> <p style="margin: 0;">Royal Government of Bhutan</p>	
NECS/EACD/Pling-Thromde/4059/2022/307	March 2, 2022	
<b><u>ENVIRONMENTAL CLEARANCE</u></b>		
<p>In accordance with Section 34.1 of the Environmental Assessment Act 2000, this Environmental Clearance (EC) is hereby issued to <b>National Housing Development Corporation Limited (NHDCL)</b> for the construction of <b>Affordable Housing Development Sector Project</b> located at Bangay, measuring an area of <b>2.27 acres</b>, along with the construction of <b>33/0.415 kV pad mounted substation and installation of 0.25km of low tension underground cable</b> under Amochu, Phuentsholing Thromde with the following terms and conditions:</p>		
<p><b>I. General</b> The holder shall:</p>		
<ol style="list-style-type: none"> <li>1. Comply with provisions of the National Environment Protection Act 2007, Environmental Assessment (EA) Act 2000 and Regulation for Environmental Clearance of Projects (RECOP) 2016, Waste Prevention &amp; 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 Substances that Deplete the Ozone layer and Hydrofluorocarbons (HFCs) 2021;</li> <li>2. Ensure that the proposed activities are undertaken in line with the Initial Environmental Examination (IEE) report and project documents submitted for EC;</li> <li>3. Ensure that the local communities, properties and any religious, cultural, historic and ecologically important sites are not adversely affected by the proposed activities;</li> <li>4. Restore the damage of any public or private properties caused by the proposed activities;</li> <li>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;</li> <li>6. Ensure that safety sign boards are posted at strategic locations including sign boards indicating areas where specific gadgets are required;</li> <li>7. Erect a signboard at the take-off (entry) point of the proposed activity displaying the name of the project, contact address and details of the implementing agency; and</li> <li>8. Ensure that the copy of the EC is framed and displayed at the site office, and a copy of environmental management plan (EMP) and project documents are available at the site at all times.</li> </ol>		
<p><b>II. Environmental Standards</b> The holder shall comply with the Environmental Standards 2020.</p>		
<p><b>III. Import and use of Ozone Depleting Substances (ODS)</b> The holder shall import and use ODS and the HFCs as per the Revised Regulation on the Substances that Deplete the Ozone layer and HFCs 2021.</p>		
<p><b>IV. Protection and management of water resources</b> The holder shall:</p>		
<ol style="list-style-type: none"> <li>1. Ensure that the proposed activities do not disrupt the water flow and pollute the water bodies; and</li> <li>2. Ensure that 30 meters or 100 feet buffer is maintained from the water resources at all times.</li> </ol>		
<hr style="width: 50%; margin: 0 auto;"/> <p style="font-size: 0.8em; margin: 0;">NEC, PO Box 466, Thimphu, Bhutan Tel: (975-2) 323384/323856/324323/326993; Fax: (975-2) 323385 <a href="http://www.nec.gov.bt">www.nec.gov.bt</a></p> <div style="display: flex; justify-content: space-between; align-items: center; margin-top: 10px;">   </div>		

**V. Waste prevention and management**

The holder shall:

1. Manage wastes generated from the proposed activities (project site, worker camps, site office, etc.) with the application of 4R (Reduce, Reuse, Recycle, Responsibility) principle and other environmentally friendly methods of waste management;
2. Ensure that the construction and demolition wastes from the proposed activity are disposed of as per the EMP submitted for EC;
3. Ensure that septic tanks and soak pits are constructed during project construction phase and post project completion phase for the management of sewage, grey water and kitchen waste water as per the EMP submitted for EC; and
4. Ensure that import and use of hazardous wastes are strictly prohibited.

**VI. Management of raw materials**

The holder shall:

1. Ensure that appropriate measures are put in place for handling and storage of construction materials to avoid fugitive emissions; and
2. Ensure that the construction materials are either stored in a closed shed or covered to avoid fugitive dust emissions in line with the EMP submitted for EC.

**VII. Management of excavated materials and stormwater**

The holder shall:

1. Ensure that the excavated materials from the proposed activities is managed as per the EMP submitted for EC;
2. Put appropriate measures to avoid erosion and landslides; and
3. Ensure that stormwater drains are constructed in line with the EMP submitted for EC.

**VIII. Others**

The holder shall:

1. Ensure that adequate green space is maintained around the project site;
2. Ensure that the project site is cordoned off and barricaded as per the EMP submitted for EC; and
3. Ensure that adequate measures are taken to reduce noise generated from the proposed activity.

**IX. 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 monthly records on wastes generated including information on its management – stating types, quantities, characteristic and submit to NECS annually; and
3. Maintain monthly records of water used for domestic and sanitation purpose, construction purpose and dust suppression, and submit to NECS annually.

**X. 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 (3) months from the date of issue of this EC as per the reporting format attached herewith.

**XI. Renewal and modification**

The holder shall:





1. Ensure that renewal of this EC is processed at least three (3) 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 including, but not limited to, change in the location of a project, change in ownership, etc.

#### Reservation

1. The NECS may stop the activity or impose additional terms and conditions, as may be deemed necessary;
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; and
3. The NECS shall not be responsible in the event of inadequate supply of raw materials.

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 offense and the proponent shall be liable in accordance with the EA Act 2000 and/or existing environmental laws.**

#### Validity:

This EC is issued with validity from **March 2, 2022** until **March 1, 2027** only for the **construction of Affordable Housing Development Sector Project along with the construction of 33/0.415 kV pad mounted substation and installation of 0.25km of low-tension underground cable.**

*This EC is issued solely pursuant to the EA Act 2000 and its Regulation, and in no way intends to overrule or alter the provisions of any law or rules in force. The Holder of this EC shall be responsible to adhere to the requirements under other laws and the issuing authority assumes no liability resulting from non-compliance or omission of any laws or rules.*



(Phento Tshering)  
DIRECTOR

To  
Chief Executive Officer  
National Housing Development Corporation Limited  
Post box # 1439  
Thimphu.

#### Copy to:

1. Executive Secretary, Thromde Administration, Phuentsholing for kind information and to instruct the Environment Officer to conduct necessary compliance monitoring.
2. Guard file (NECS/EACD/Pling-Thromde/4059/2022/) for record.

---

NEC, PO Box 466, Thimphu, Bhutan  
Tel: (975-2) 323384/325856/324323/326993; Fax: (975-2) 323385  
[www.nec.gov.bt](http://www.nec.gov.bt)

#### 6. Environmental Clearance for Nganglam, Pema Gatshel





ཀླུ་ཡོངས་མཐའ་འཁོར་གནས་སྤངས་ལྷན་ཚོགས།  
དཔལ་ལྷན་འབྲུག་གཞུང་།

**National Environment Commission**

Royal Government of Bhutan



NECS/EACD/Dzo-P/GATSHEL/4124/2022/1586

August 29, 2022

### ENVIRONMENTAL CLEARANCE

In accordance with Section 34.1 of the Environmental Assessment Act 2000, this Environmental Clearance (EC) is hereby issued to **National Housing Development Corporation Limited (NHDCL)** for construction of **Affordable Housing Development Sector Project** at Nganglam under Pemagaishel 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 (EA) Act 2000 and Regulation for Environmental Clearance of Projects (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 Substances that Deplete the Ozone Layer and HFCs 2021;
2. ensure that the activity is in line with the Initial Environmental Examination (IEE) 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 activity;
4. restore the damage of any public or private properties caused by the activity;
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 proposed activity stating the name of the project, contact address, and details of the implementing agency;
7. ensure that safety sign boards are posted at strategic locations including sign boards indicating areas where specific gadgets are required;
8. ensure that general housekeeping, cleanliness and hygiene are maintained at all times in the labour camps and site offices; and
9. ensure that the copy of the environmental clearance is framed and displayed at the site office and a copy of project documents is available at the site at all times.

#### II. Environmental standards

The holder shall comply with the Environmental Standards 2020.

#### III. Import and use of ODS

The holder shall import and use Ozone Depleting Substances and the Hydrofluorocarbons (HFCs) as per the Revised Regulation on the Substances that Deplete the Ozone Layer and HFCs 2021.

NEC, PO Box 466, Thimphu, Bhutan  
Tel: (975-2) 323384/325856/324323/32699  
www.nec.gov.bt Fax: (975-2) 323385

92

#### IV. Protection and management of water resources

The holder shall:

1. ensure that the 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 activity (project site, labour camps, offices, etc.) with the application of 4R (Reduce, Reuse, Recycle, Responsibility) principle and other environmentally friendly methods of waste management;
2. ensure that the construction wastes from the proposed activity are managed and disposed of as stated in the EMP;
3. ensure that septic tanks and soak pits are constructed for proper management of graywater and sewage as stated in the EMP; and
4. ensure that import and use of hazardous wastes are strictly prohibited.

#### VI. Management of excavated materials and run-off

The holder shall:

1. manage and dispose of excess excavated materials generated from proposed activity as stated in the EMP;
2. ensure that all vehicles transporting excavated materials are properly covered to avoid spillages and fugitive emissions;
3. ensure that the dust generated during construction is adequately suppressed by spraying water;
4. ensure that the storm water drains are constructed in accordance with Environmental Codes of Practice (ECOP) for storm water drainage systems 2004; and
5. put appropriate measures to avoid erosion and landslides.

#### VII. Management of raw materials

The holder shall:

1. ensure appropriate measures are put in place for handling and storage of construction materials to avoid fugitive emissions; and
2. ensure that all vehicles transporting construction materials are properly covered to avoid spillages and fugitive emissions.

#### VIII. Others

The holder shall:

1. ensure that adequate green space/area is maintained within the project area;
2. ensure the project site is barricaded/cordoned off as stated in the EMP for EC;
3. ensure adequate measures are undertaken to reduce noise generated from the proposed

201



activity; and

4. ensure that underground and overhead utilities are installed in accordance with the Environmental Codes of Practice (ECOP) for installation of underground and overhead utilities 2004.

#### **IX. 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 (hazardous and general wastes), quantities and characteristic and submit to NECS annually; and
3. maintain records of water used in the activity (separately for dust suppression and domestic purposes) and submit it to NECS annually.

#### **X. 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.

#### **XI. Renewal and modification**

The holder shall:

1. ensure that renewal of this EC is processed at least three (3) 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 and payment of prescribed renewal application fee failing to 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 including, but not limited to, increase in production capacity, change in location of a project, change in ownership, etc.

#### **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 with the EA Act 2000 and/or existing**

environmental laws.

**Validity:**

This EC is issued with validity from **August 29, 2022** until **August 28, 2027** only for construction of the **Affordable Housing Development Sector Project** at Nganglam under Pemagatshel Dzongkhag.

*This EC is issued solely pursuant to the EA Act, 2000 and its Regulations and in no way intends to overrule or alter the provisions of any law or rules in force. The Holder of this EC shall be responsible to adhere to the requirements under other laws and the issuing authority assumes no liability resulting from non-compliance or omission of any laws or rules.*



(Sonam P Wangdi)

**SECRETARY**

To  
Chief Executive Officer  
National Housing Development Corporation Limited  
Post box # 1439  
Thimphu.

**Copy to:**

1. Dasho Dzungdag, Chairman, Dzongkhag Environment Committee, Dzongkhag Administration, Pemagatshel for kind information and to instruct the Environment Officer to conduct necessary compliance monitoring; and
2. Guard file (Dzo-Pemagatshel/4124/2022), EACD, NECS for record.

## APPENDIX 4: SAMPLES OF ENVIRONMENTAL SITE INSPECTION REPORT

### (i) Daily Monitoring Sheet for Contractor


**Appendix 10: Sample Environmental Site Inspection Checklist for Contractors**  
**DAILY MONITORING SHEET FOR CONTRACTORS**

GREEN AND RESILIENT AFFORDABLE HOUSING SECTOR PROJECT  
Contractor Monitoring Sheet

**Name of Subproject:** Trashiyangtshé  
**Location of Subproject:** Trashiyangtshé  
**Chainage covered (for linear works):** \_\_\_\_\_  
**Supervising PIU:** NHDCL  
**Contractor:** Penjor Construction Private Limited  
**Contractor EHS Supervisor (or equivalent):** Kencho  
**Date of monitoring:** 31/08/2023

**Summary of Findings**

Monitoring Item	Status	Remarks
<b>1. Compliance with Local Permit Requirements</b>	<b>(Secured / Application Submitted / Not Applicable)</b>	
<i>Location/zoning permits</i>	Secured	
<i>Permit to construct</i>	Secured	
<i>Building permit</i>	Secured	
<i>Transport / hauling permits</i>	Secured	
<b>2. Compliance with IEE Requirements</b>	<b>(Approved / Under Preparation / Submitted to PIU for Approval)</b>	
<i>Site-specific EMP (SEMP)</i>	Submitted to PIU	
<i>Corrective Action Plan, if any</i>	Nil	
<b>3. Compliance with SEMP</b>		
<b>Construction Site</b>	<b>(Satisfactory / Needs Improvement / Not Implemented)</b>	
- Conduct of toolbox talk	Satisfactory	Toolbox meeting daily and major on Monday
- Use of PPE	Satisfactory	
- Rest areas for male and female workers	Satisfactory	No female workers
- Toilets for male and female workers	Satisfactory	
- Medical kits	Satisfactory	
- Drinking water supply	Satisfactory	
- Dust control	Not Implemented	Rainy season
- Noise control	Satisfactory	Reduced the working hours
- Solid waste management	Satisfactory	
- Wastewater management	Satisfactory	
- Chemicals storage (fuel, oil, etc.)	Not Implemented	Not applicable since no chemical at site
- Siltation or erosion control	Not Implemented	Not applicable since area is already levelled
- Heavy equipment staging / parking area	Satisfactory	
- Barricades around excavation sites	Satisfactory	





- Access to residential houses/shops/businesses	Satisfactory	
- Traffic routing signages	Satisfactory	
- Lightings at night	Satisfactory	
- Trench shoring / landslide protection	Satisfactory	

Monitoring Item	Status (Available / Needs Improvement / Not Available)	Remarks
<b>Construction Workers' Camp Site</b>		
- Quarters for male and female workers	Available	No female workers
- Sleeping utilities (e.g. beds, pillows, blankets, mosquito nets, etc.)	Available	
- Power/Electricity supply	Available	
- Drinking water supply	Available	
- Toilets for male and female workers	Available	No female workers
- General purpose water supply (cooking, washing, bathing)	Available	
- Cooking facilities and areas	Available	
- Solid waste management	Available	
- Wastewater management	Available	Wastewater connected to Storm water drain
- Pest control	Not Available	No pest
<b>4. Implementation of GRM</b>	<b>(Yes / No or None / Under Resolution)</b>	
Complaints	Yes	
Complaints resolution	Resolved	
<b>5. Environmental Quality Measurement</b>	<b>(Passed / Failed / Not Applicable)</b>	
Ambient air quality sampling	Passed	
Noise level measurement	Passed	
Receiving water quality sampling	Passed	

Other Issues: \_\_\_\_\_

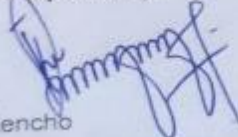
\_\_\_\_\_

\_\_\_\_\_

**Attachments:**

1. Copies of permits obtained, if any.
2. Photos taken at worksites, if any.  
(photos attached in previous monitoring sheets should not be used again).
3. Laboratory results of environmental quality measurements, if any.

Prepared by:



Kencho

Environment & Health Safety Officer  
M/s Penjor Construction Pvt. Ltd  
Trashiyangtse

## (ii) Site Inspection Checklist for PMU/PIU

**Appendix 11: Sample Environmental Site Inspection Checklist for PMU/PIU**

**INSPECTION CHECKLIST FOR PMU AND PIUs**

**GREEN AND RESILIENT AFFORDABLE HOUSING SECTOR PROJECT**  
**SITE INSPECTION CHECKLIST**

Subproject: **Trashiyangtse, CW01** Date: **31 August 2023**  
 Location: **Trashiyangtse, Town**  
 Chainage (for linear works):

Monitoring/Inspection Questions		Findings			Comments / Clarifications
1.	Supervision and Management Onsite	Yes	No	NA	
	a. Is an EHS supervisor available?	✓			
	b. Is a copy of the SEMP available?	✓			
	c. Are daily toolbox talks conducted on site?	✓			Major on Monday
2.	The Facilities	Yes	No	NA	
	a. Are there a medical and first aid kits on site?	✓			
	b. Are emergency contact details available on-site?	✓			
	c. Are there PPEs available? What are they?	✓			Safety boots, Helmet, Mask, and gloves
	d. Are the PPEs in good condition?	✓			
	e. Are there firefighting equipment on site?	✓			
	f. Are there separate sanitary facilities for male and female workers?			✓	Available for male workers only since no female workers
	g. Is drinking water supply available for workers?	✓			
	h. Is there a rest area for workers?	✓			
	i. Are storage areas for chemicals available and with protection? in safe locations?			✓	No Chemicals at the site
3.	Occupational Health and Safety	Yes	No	NA	
	a. Are the PPEs being used by workers?	✓			
	b. Are excavation trenches provided with shores or protection from landslide?	✓			
	c. Is break time for workers provided?	✓			Lunchtime one hour
	d. How many for each type of collection vehicle is in current use?				✓ Walking distance
4.	Community Safety	Yes	No	NA	
	a) Are excavation areas provided with barricades around them?	✓			
	b) Are safety signages posted around the sites?	✓			
	c) Are temporary and safe walkways for pedestrians available near work sites?	✓			
	d) Is there a record of treated wastewater quality testing/measurement?			✓	
5.	Solid Waste Management	Yes	No	NA	
	a. Are excavated materials placed sufficiently away from water courses?	✓			
	b. Is solid waste segregation and management in place?	✓			
	c. Is there a regular collection for solid wastes from work sites?			✓	

*ls* *AR*

6.	Monitoring/Inspection Questions	Findings			Comments / Clarifications
		Yes	No	NA	
	a) Are there separate sanitary facilities for various types of use (septic tanks, urination, washing, etc.)?	✓			
	b) Is any wastewater discharged to storm drains?		✓		
	c) Is any wastewater being treated prior to discharge?		✓		
	d) Are measures in place to avoid siltation of nearby drainage or receiving bodies of water?		✓		
	e) Are silt traps or sedimentation ponds installed for surface runoff regularly cleaned and freed of silts or sediments?		✓		
7.	Dust Control	Yes	No	NA	
	a. Is the construction site watered to minimize generation of dust?		✓		No dust during monsoon season
	b. Are roads within and around the construction sites sprayed with water on regular intervals?		✓		Road outside all blacktopped
	c. Is there a speed control for vehicles at construction sites?	✓			
	d. Are stockpiles of sand, cement and other construction materials covered to avoid being airborne?	✓			Cement-stocked in cover store
	e. Are construction vehicles carrying soils and other spoils covered?	✓			
	f. Are generators provided with air pollution control devices?			✓	No generator
	g. Are all vehicles regularly maintained to minimize emission of black smoke? Do they have valid permits?	✓			
8.	Noise Control	Yes	No	NA	
	a) Is the work only taking place between 7 am and 7 pm, week days?			✓	8:0AM - 6:0PM on week days and 8:0AM - 2:0PM on weekend (Sunday)
	b) Do generators operate with doors closed or provided with sound barrier around them?			✓	
	c) Is idle equipment turned off or throttled down?			✓	
	d) Are there noise mitigation measures adopted at construction sites?			✓	No heavy noise equipment and working hours ceased after 6.0PM
	e) Are neighboring residents notified in advance of any noisy activities expected at construction sites?	✓			
9.	Traffic Management	Yes	No	NA	
	a) Are traffic signages available around the construction sites and nearby roads?	✓			
	b) Are re-routing signages sufficient to guide motorists?	✓			
	c) Are the excavation sites along roads provided with barricades with reflectors?	✓			
	d) Are the excavation sites provided with sufficient lighting at night?	✓			



10.	Monitoring/Inspection Questions	Findings			Comments / Clarifications
		Yes	No	NA	
	Recording System				
	a) Do the contractors have recording system for SEMP implementation?	✓			
	b) Are the daily monitoring sheets accomplished by the contractor EHS supervisor (or equivalent) properly compiled?	✓			
	c) Are laboratory results of environmental sampling conducted since the commencement of construction activities properly compiled?	✓			
	d) Are these records readily available at the site and to the inspection team?	✓			

Other Issues:

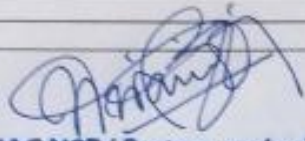
---



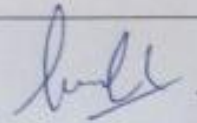
---



---



**PIAC NSE ( Eastern region)**  
(Trashiyangtse, Samdrupongkhar & Nganglam.)  
**GRAHSP-NHDCL/ ADB**



**Project Engineer**  
**GRAHSP - ADB**  
National Housing Development Corporation Ltd.  
Thimphu : Bhutan

Prepared by: \_\_\_\_\_  
Name, Designation and Signature

**APPENDIX 5: OFFICE ORDER (LETTER) ON GRIEVANCE REDRESS COMMITTEE (GRC) FORMATION TO ADDRESS SOCIAL, ENVIRONMENTAL AND OTHER GRIEVANCES IN GRAHSP CW01, NHDCL.**



ཕྱི་རྒྱལ་ཡོངས་ཁྱིམ་བཞེས་གོང་འཕེལ་ལས་འཛིན་ཚད།  
National Housing Development Corporation Limited  
Thimphu: Bhutan



NHDCL/ADB-GRAHSP/2023/1362

20<sup>th</sup> June, 2023

**Grievance Redress Mechanism (GRM) Committee**

**Ref:**

1. Project No: 54355-001, Loan4150/Grant0812-BHU: GRAHSP-NHDCL

With reference to the Project Administration Manual and Agreed Action No. 26 of the Aide Memoire from the ADB Mission held from 22 May to 1 June 2023, the CW01 subproject in Tashiyangtse has adopted a three-tier GRM. The process and time frame to be followed are as per the PAM.

**Level1: Site level**

1. PIU: Mr. Tashi Tobgay- PE/ Mr. Pema Norbu -Supervisor
2. Contractor CW01: Mr. Kencho, Environment, Safety and Social Safeguard Focal/manager and Mr. Tashi Tshering-PM
3. PIAC: Mr. KD Chamling-ESS/ Mr. Rajesh Pradhan-SGCES

**Level 2: PIU Level**

1. PIU: Mr. Tashi Tobgay- PE and Mr. Pema Norbu -Supervisor
2. Representative from local Govt. (on invitation-based on case nature)
3. PIAC: Mr. KD Chamling-ESS/ Mr. Rajesh Pradhan-SGCES/ Deputy Team Leader PIAC

**Level 3: PMU level**

1. Mr. Tandin Dorji, Project Director, GRAHSP
2. Ms. Dorji Wangmo-PMU Environmental Safeguard Focal, Ms. Dorji Dema-PMU Social Safeguard Focal, Ms. Sonam Choden-PMU Gender Focal
3. Project Management Committee members, NHDCL
4. PIAC: Mr. KD Chamling-ESS, Mr. Rajesh Pradhan-SGCES and Team Leader-PIAC

Issued for implementation with effect from 15<sup>th</sup> June 2023

Thanking you,  
Sincerely,

*Tandin Dorji*

Project Director  
GRAHSP, NHDCL



CC;

CEO, PMU, PIAC, GRAHSP NHDCL  
Project Officer, GRAHSP, ADB  
PM, Contractor CW01

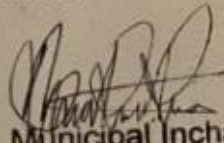
## APPENDIX 6: MUNICIPALITY WATER QUALITY RESULT

### Data of Water Supply For Trashiyangtse Municipal Authority

Total Nos of Water Source : 4  
 Name : Bayling Water Source at tyangtse Town  
 Location: Bayling  
 Main water pipe line Sizes  
 Source to sedimentation size : 100mm ,GI Pipe  
 Sedimentation to Treatment plant size : 100mm& 50mm  
 Treatment plant to Reservoir Tank size : 80mm& 50mm  
 Reservoir tank to mainline pipe distribution size : 50mm, 40mm, 32mm  
 Mainline pipe to Water meter Line size : 1/2" & 1" inch  
 Nos of Zone/ Area : Town,bayling,Rinchengang, khabir, Tshemidung & serkhangchu area  
 Nos of Water meter Consumers : 235  
 Nos of Air release Valve : 3  
 Total Nos of control gate Valve : 60  
 Turbidity ( 5NTu) : 1.52  
 PH ( 6.5-8.5 ) : 8.41

Name : Bimkhar Water Source at tyangtse Town  
 Location: Bimkhar  
 Main water pipe line Sizes 110mm  
 Source to sedimentation size : 100mm  
 Sedimentation to Treatment plant size : 100mm& 50mm  
 Treatment plant to Reservoir Tank size : 90mm (no reservoir tank)  
 Reservoir tank to mainline pipe distribution size : 50mm, 40mm, 32mm  
 Mainline pipe to Water meter line size : 1/2" & 1" inch  
 Nos of Zone/ Area : Town, Rigney, Bimkhar, Beychen area  
 Nos of Water meter Consumers : 125  
 Nos of Air release Valve : 3 1  
 Total Nos of control gate Valve : 46

Name : For Duksum Town water supply ( 2 sources /Baynakhar)  
 Location: Baynakhar village  
 Main water pipe line Sizes  
 Source to sedimentation size : 50mm  
 Sedimentation to Treatment plant size : 50mm  
 Treatment plant to Reservoir Tank size : 50mm (treatment plant not working)  
 Reservoir tank to mainline pipe distribution size : 32mm  
 Mainline pipe to Water meter line size : 3/4" / 25mm  
 Nos of Zone/ Area : Gomcora

  
 Municipal Incharge  
 Municipal Authority

APPENDIX 7: FOREST CLEARANCE APPLICATION



Penjor Construction Pvt. Ltd

Thimphu: Bhutan  
License No. 1000788 CDB, Reg. No.1958

Date: 30<sup>th</sup> June 2023

PCPL/TY/2023/34

The Chief Forest Officer,  
Department of Forest,  
Trashiyangtse.

Sub: Falling of trees.

Sir,

We are awarded work for the Construction of G+1 storied RCC residential (8 Buildings) and site development works, Trashiyangtse. In connection to that we are levelling the ground to its design level and in building no 4 exactly one tree fall on that location.

Therefore, we would like to request sir to kindly give us approval for falling of tree.

Thanking you

Yours sincerely

Mani Kumar Mongar  
Project Manager  
M/s. Penjor Construction Pvt. Ltd.  
Trashiyangtse.


12224131

*Pasang Dangi*


*✓ Name and surname to be filled.  
✓ Since - 1w tree fall (PNE size) within 1w construction site*

*[Signature]*  
Forest Range Officer  
Trashiyangtse  
*K. T. Yangtse*

## APPENDIX 8: APPROVAL FOR CONSTRUCTION OF LABOR CAMP



དཔལ་ལྷན་འབྲུག་གཞུང་།  
 བཀོལ་ལྷན་འཛིན་པ་ལྷན་ཚུན་།  
 ROYAL GOVERNMENT OF BHUTAN  
 DZONGKHAG ADMINISTRATION, TRASHIYANGTSE



---

Yangdzong/Throm-(12)2022-2023/ 454 Date: 29/06/2023

Project Manager  
 Penjore Construction Pvt Ltd  
 Thimphu

**Sub: Approval for Construction of Labor camp.**

Sir,  
 As per your application submitted to Dzongkhag Administration regarding the above cited subject, the Dzongkhag Administration is pleased to issue approval with the following terms and conditions:

1. *Labor camp to be constructed at the identified area by the Dzongkhag Administration.*
2. *Septic tank and proper drainage to be constructed within the camp.*
3. *Waste produced from the camp to be dumped at the identified site.*

(*Baburam Sherpu*)  
 Dzongdag

Cc:


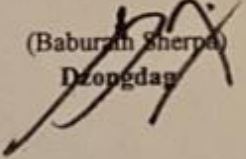
1. BI, Dzongkhag Administration, Trashy Yangtse for information and necessary follow up
2. Office copy

---



PABX: 975-04-781109/781252/781202    FAX No: 04-781135    website: www.trashiyangtse.gov.bt



## APPENDIX 9: APPROVAL FOR DUMPING OF EXCAVATED WASTE

	<p>དཔལ་ལྷན་འབྲུག་གཞུང་། བཀྲིས་གཡང་ཅེ་རྫོང་འཕགས་བདག་སྐྱོང་།</p>
<p>ROYAL GOVERNMENT OF BHUTAN DZONGKHAG ADMINISTRATION, TRASHIYANGTSE</p>	
<p>Yangdzong/Throm(12)2022-2023 (4451)</p>	<p>29/06/2023</p>
<p>Project Manager Penjore Construction Pvt Ltd Thimphu</p>	
<p><b>Sub: Approval for excavation of plot and dumping of excess excavated materials.</b></p>	
<p>Sir,</p>	
<p>This has reference to your application submitted regarding the above cited subject, in this regard, the Dzongkhag Administration is pleased to accord the approval with the following terms and conditions:</p>	
<ol style="list-style-type: none"> <li>1. The excess excavated materials generated during the excavation should be disposed at the pre-identified dumpsite: <u>below the Municipal Office and near plot YA1-19</u>.</li> <li>2. During the course of excavation if the town infrastructures such as road, drainage, water pipelines and electricity lines etc. are damaged, you have to repair it at your own cost.</li> <li>3. Ensure that the activity is in line with the Forestry Clearance and any religious, cultural historic and ecologically important sites are not affected by the activity.</li> <li>4. The approval is valid for a year from the date of issue.</li> </ol>	
<p>(Baburzin Sherpa) Dzongdag</p> 	
<p>Cc:</p> <ol style="list-style-type: none"> <li>1. DRO, Dzongkhag Administration, Trashi Yangtse for information.</li> <li>2. BI, Dzongkhag Administration, Trashi Yangtse for information and necessary action.</li> <li>3. Office copy.</li> </ol>	
<p>PABX: 975-04-781109/781252/781202      FAX No: 04-781135      website: www.trashiyangtse.gov.bt</p>	

## APPENDIX 10: CLEARANCE FROM BHUTAN TELECOM LIMITED


འབྲུག་བརྒྱུད་འཕྲིན་ཚོང་ཁང།


**TELECOM LIMITED**  
 Eastern Region, Samdrup Jongkhar  
 TRASHIYANGTSE EXCHNAGE

---


Ref. No: BT/ER/TY/20/2023/ 59 Date: 04<sup>th</sup> July' 2023

The Project Engineer  
 GRAHSP-ADB  
 PIU Trashiyangtse.

**Subject: Clearance for existing BTL Infrastructures.**

Sir,  
 We Confirmed that BTL, don't have any infra like landline UG/overhead cable, fiber and other infra installed at the location where your project will be executed. Therefore, BTL hereby issued the clearance for executing the project.

Thanking you,



*Dorji*  
 04/07/23  
 Sr. Manager  
 Bhutan Telecom Ltd.  
 Trashi Yangtse

Dorji, Senior Technical officer  
 Bhutan Telecom Ltd  
 Trashiyangtse.

CC:  
 ✓ 1. Regional Director, Bhutan Telecom Ltd, SJK kind information.  
 ✓ 2. Office copy.

---

Registered Office: Drophen Lam 2/28, Post Box 134, Thimphu 11001, Bhutan.  
 Tel: (975)-2-343434 | [www.bt.bt](http://www.bt.bt)



## APPENDIX 11: ENVIRONMENTAL BASELINE MONITORING RESULT



**BHUTAN ECOLAB SERVICES, PEKARZHING, P/LING.**

*INSPIRING ENVIRONMENTAL SERVICES...*

TEST REPORT							
Name & Address of the Customer:	Green & Resilient Affordable Housing Sector Project; M/s Penjor Construction Pvt Ltd, Tashiyangtse, Bhutan			Report No.	BES/433		
Type of Analysis:	Ambient air quality analysis			Date of Result Dispatch	19/07/23		
Sampling Location:	Project Area			Sample No.:	BES/23/433		
Date of Sampling:	11/07/23 to 12/07/23			Sample Description:	Ambient Noise		
Sampler	Bhutan Ecolab Team						
Sl.No.	POLLUTANTS	UOM	ANALYSIS		MAX.PL (NECS)	MAX.PL (WHO)	TEST REF METHOD
			Location 1	Location 2			
1	Conc. Of TSPM	µg/m <sup>3</sup>	8.49	9.79	500(24 hr mean)	150 (24 hr mean)	IS: 5182: Part 4: 1999
2	Conc. Of PM <sub>10</sub>	µg/m <sup>3</sup>	5.24	6.55	200(24 hr mean)	50 (24 hr mean)	IS: 5182: Part 23: 2011
	Conc. of PM <sub>2.5</sub>	µg/m <sup>3</sup>	4.25	4.95	60(24 hr mean)	120(24 hr mean)	IS: 5182: Part 6: 2011
5	Conc. Of NO <sub>2</sub>	µg/m <sup>3</sup>	12.89	14.65	200 (1 hr mean)	20 (24 hr mean)	IS: 5182: Part 2: 2011
6	Conc. Of SO <sub>2</sub>	µg/m <sup>3</sup>	BDL	BDL	5000(8 hr mean)	30 (1 hr mean)	IS: 5182: Part 2: 2011
7	Conc. Of CO	ppm	BDL	BDL			
8	Temperature	°C	25.13	24.49			
9	Air Pressure	mbar	820.33	818.13			
10	RH	%	72.66	74.98			
<i>Note: Maximum permissible limit as per Environmental Discharge Standard, 2020 (ambient air), NECS, RGoB &amp; WHO</i>							
<i>*BDL: Below detectable limit; MAX.PL: Maximum Permissible Limit; UOM: Unit of Measurement;</i>							

\*BDL:-Below Detectable limit; \*LPM: - liters per minute; \*Max.PL:- Maximum Permissible Limit

\*Weather condition at the time of sampling: cloudy

GEO-COORDINATES OF SAMPLING LOCATIONS:

Location 1: Near project site office

Location 2: Near labor camp site/near homestay

EQUIPEMENT OF USED SPECIFICATION:

- 1) Equipment Name: AQM-09 real time sampler
- 2) Model No.: AQM-09
- 3) Make: Oceanus

Prepared by:

For Bhutan Ecolab Services;



1

CONTACT NO. +975-17449115/77734954; EMAIL : [tenzin85yeshi@gmail.com](mailto:tenzin85yeshi@gmail.com)



BHUTAN ECOLAB SERVICES, PEKARZHING, P/LING.

INSPIRING ENVIRONMENTAL SERVICES...

TEST REPORT							
Name & Address of the Customer:		Green & Resilient Affordable Housing Sector Project; M/s Penjor Construction Pvt Ltd, Tashiyangtse, Bhutan			Report No.	BESLM/349	
Type of Analysis:		Ambient Noise level			Date of Result Dispatched:	19-07-23	
Sampling Location:		Project Area			Sample No.:	SLM/381	
Date of Sampling:		11/07/23 to 12/07/23			Sample Description:	Ambient Noise	
Sampler		Bhutan Ecolab Team					
ANALYSIS							
SL.NO	PARAMETER	UOM	RESULT (Avg)		MAX.PL (NECS)	MAX.PL (WHO)	TEST REF. METHOD
			Location 1	Location 2			
1	Sound Pressure Level (SPL)	Db			65 (Day)	84 (8-hour exposure)	SLM continuous recording
			42.01 (Day)	42.88 (Day)	55 (Night)		
			41.09 (Night)	35.01 (Night)			
* UOM: Unit of Measurement; Max.PL: Maximum Permissible Limit; WHO: World Health Organization							
Note: Noise level Limits, National Environment Commission Secretariat (NECS), 2020 & WHO standards.							

GEO-COORDINATES OF SAMPLING LOCATIONS:

Location 1: Near project site office

Location 2: Near labor camp site/near home stay

Report Prepared by:

*Ashim*

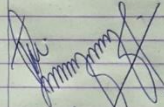
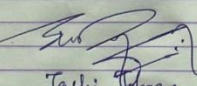
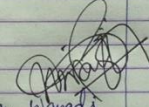
For M/s Bhutan Ecolab Services (BES);

*Ashim*



2

**APPENDIX 12: GRIEVANCE RECORDS**

SL. NO.	DATE OF RECEIPT OF GRIEVANCE	NAME AND CONTACT DETAILS OF COMPLAINANT	DISCRIPTION OF COMPLAINT	NATURE OF COMPLAINT	DECISIONS TAKEN	RESPONSES GIVEN TO COMPLAINANT AND DATE	GRIEVANCE SOLVED/ CLOSED
1.	21/07/2023	Tshering Dema 17552967 Complain made through Sangay Tenzin NHDL focal person.	Noise from the excavator rock breaking causing inconvenience and frustration to the tenant.	The unexpected mishap caused by flash flood at Khimse on 20/07/2023 has lost her husband and son whereby she was not able to sleep the whole night attending emergency calls and evadence from relatives and near ones. They requested to halt the rock breaking activities at site.	Both excavators were stopped.	Immediately stopped the rock breaking activities at site.	Issues solved and closed.
		 Kencho EHS, M/s PEPL	 Tashi Sangay (PIU - GRAHSP)	 Nagen Wangdi (PIAC - GRAHSP)			