

Environmental Monitoring Report

Bi-Annual Report
July 2020

BHU: SASEC Road Connectivity Project Phuentsholing Thromde

Prepared by the Ministry of Works and Human Settlement for the Royal Government of Bhutan
and the Asian Development Bank.

BI-ANNUAL ENVIRONMENT MONITORING REPORT

BHU SASEC Road Connectivity Project Northern Bypass Road and Mini Dry Port



CURRENCY EQUIVALENTS

(as of 10th June 2020)

Currency unit	–	Bhutanese Ngultrum
Nu. 1.00	=	\$ 0.0132
\$ 1.00	=	Nu. 75.5

ACRONYMS

ADB	Asian Development Bank
BPCL	Bhutan Power Corporation Limited
CC	Construction Contractor
CSC	Construction Supervision Consultant
DFPS	Department of Forest & Park Services
EFRC	Environment-Friendly Road Construction
EIA	Environment Impact Assessment
EMP	Environmental Management Plan
ES	Environmental Specialist
MDP	Mini Dry Port
NBR	Northern Bypass Road
NCD	Nature Conservation Division
NECS	National Environment Commission Secretariat
NRDCL	Natural Resource Development Corporation Limited
PMO	Project Management Office
PT	Phuentsholing Thromde
RGOB	Royal Government of Bhutan
ROW	Right of way

WEIGHTS AND MEASURES

ha	-	Hectare
km	-	Kilometer
m	-	Meter

NOTES

In this report, "\$" refers to US dollars

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I. EXECUTIVE SUMMARY

1. The Royal Government of Bhutan (RGOB) and the Asian Development Bank approved the SASEC Road Connectivity Project (the Project) in July 2014. The project includes the following components: (i) 68-km of National Highway between Nganglam and Dewathang; (ii) 1.2km access road from an Indian border constructed at Pasakha area; (iii) Mini-dry port (MDP) in Phuentsholing and Alay land custom station; and (iv) The construction of about 2.7km of a bypass road in Phuentsholing city, or the Northern Bypass Road (NBR).

2. Phuentsholing Thromde is one of the Executing Agencies of the Project, where it is in charge of implementing components 3 and 4 of the Project – the mini dry port (MDP) in Phuentsholing and Alay land custom station; and the 2.7-km Northern Bypass Road in Phuentsholing. Both components are being implemented by the Phuentsholing Thromde (PT). The Project Management Unit (PMU) is supported by personnel from Phuentsholing Thromde, where they work with supervision consultants to monitor all construction activities.

3. The Northern Bypass Road is a 4-lane road that starts at the second Indo-Bhutan gate, near the mini dry port and ends at the existing Phuentsholing – Thimphu road. The bypass road will decongest the traffic flow within the urban core of Phuentsholing. The Mini Dry Port, on the other hand, is intended to provide suitable facilities for all import/export trade with Bhutan through Phuentsholing in the short to medium term. The project requires the construction of entrances and exits to the MDP yards and several administrative and warehouse-type buildings and service roads.

4. Both projects were categorized as B for the environment under ADB's SPS guidelines. Initial environmental examinations (IEEs) were prepared and disclosed on the ADB website in March 2014. The project administration manual (PAM) requires the submission

5. This is the third bi-annual environmental monitoring report prepared for both Northern Bypass Road and Mini Dry Port. As of May 2020, the overall progress of the Northern bypass I is 100%, Northern bypass II is 80% and 100% for the mini dry port. The environmental management plans (EMPs) of both projects have been monitored and implemented on a day-to-day basis by their respective Environmental Focal Persons from both Contractor's side and Construction Supervision Consultants.

6. Environmental Clearances have been obtained from the National Environment Commission Secretariat (NECS). The clearance for the Northern Bypass was obtained on September 27, 2017, and for the Mini Dry Port, on October 20, 2016. Refer to **Appendix 1** and **Appendix 2**.

7. EMPs for both projects have been monitored and implemented on a day to day basis by the Environmental Focal Persons from both Contractor's side and from CSC (S.I/ES). The contractor submits monthly EMP to CSC and ES from CSC checks the EMP and further submits to Team Leader (TL). TL consolidates all information and incorporates in the form or monthly report. The monthly reports are compiled in the format of semi-annual environmental compliance monitoring report.

II. PROJECT DESCRIPTION

A. Northern Bypass Road

1. Project Scope

8. The Project includes the construction of (i) earthworks to facilitate the replacement of existing roads and upgrading of the NBR carriageway and extended road base, and surfacing works (ii) construction of bridges and underpass (iii) construction, renewing and reconstructing culverts and drains serving the NBR route, and (iv) providing better crossing drain and better side drains and leadoff drainage facilities.

9. The project works require widening, reconstruction and a new section of road and additional crossing over the Om Chhu River. The total road length is about 2.7 Km. The span of the bridge is 120m and width is 19 m. The works will generally be within or adjacent to existing road corridor for 2 Km, and 0.7 km will be new construction. The scope of work for NBR connectivity project including Contractor's details are provided in **Table 1**.

Table 1. Work item, contractor's schedule, date of award and completion date

SN	Work item	Name of Contractor	Contract award date/start date	Contract completion date
1.	Earthworks to facilitate the replacement of existing roads and upgrading of the NBR carriageway and extended road base, and surfacing works	M/s Marushin Shitaka – Rigsar Construction (J/V)	17/08/2017/ and 1/9/2017	28/02/2020
2.	Construction of bridges 120m length and 19m width and underpass over the river			NBR I: 25/01/2019
3.	Construction, renewing and reconstructing culverts and drains serving the NBR route			NBR II: 15/11/2020
4.	Providing better crossing drains and better side drains and leadoff drainage facilities.			
5.	Road widening works			
6.	Reconstruction and a new section of road			

Figure 1: Project Location of Northern Bypass Road



2. Implementation Arrangement

10. The Phuentsholing Thromde (PT) under the Ministry of Works and Human Settlement (MOWHS) is the implementing agency for NBR and MDP. Phuentsholing Thromde the Project Implementation Unit (PIU) will be administering the projects and will be responsible for the day-to-day operation of Northern Bypass Road and Mini Dry Port.

11. Project Manager (PM) from the PIU will be the environmental focal person for the PT at the PIU level, who is responsible for ensuring the compliance of environmental conditions of the project. Construction Supervision Consultant (CSC) hired is part of the PIU.

12. CSC includes Team Leader (the Engineer) Bridge Engineer, Material Engineer, Quantity Surveyor, Environmental Specialist (ES), Resettlement & Social Specialist (RS), and Resident Engineer (RE) and Site Inspector (SI).

13. RE and SI will be the main persons who will carry out the daily monitoring of construction works; and ensure the implementation of environmental mitigation measures as prescribed in the EMP by the Construction Contractor (CC).

14. The contractor through its Project Manager/Engineer will be responsible for the submission of monthly EMP compliance report. Similarly, RE will also make the monthly project progress report including the section on compliance of environmental safeguard provisions.

15. Environment Specialist (ES) will carry out intermittent environmental compliance monitoring of the project to ensure the environmental mitigation measures or conditions are adequately addressed. ES will be responsible for compiling and submitting the annual environmental monitoring report to the PT through PIU, and to the ADB.

16. A District Environmental Committee (DEC) consists of Dzongkhag planning officer, Dzongkhag forest officer, Dzongkhag land record officer, Dzongkhag agriculture officer, Dzongkhag environmental officer, and Dzongkhag Engineer. The District Environmental Officer (DEO) is district official of NECS.

17. DEC is responsible for issuing Environmental Clearance to some project activities mandated to the committee and for checking compliance of the projects to which it issues EC periodically. As part of its regular activities, NECS gives general training and orientation to DEOs before sending them to districts. These orientations focus mainly on Bhutan's environmental requirements.

3. Project Implementation Progress

18. The progress of work as of 10th June 2020 is shown in **Table2**

Table 2. Work Progress as of 10th June 2020

Item No.	Activities	% Completed
1	Camp and site office establishment	100%
2	Setting up of concrete batching plant	100%
3	Road work	100% NBR I 70% NBR II
4	Construction of boundary wall	100%
5	Construction of Sewerage and Drainage system	100% NBR I 80% NBR II
6	Construction of Road Network (flexible)	100% NBR I 70% NBR II
7	Underpass	100%
8	Construction of bridge	90%
9	Earthwork	100%
10	Sub-Base work	100%
Overall project completion		80%

4. Construction Approach and Methodology

20. NBR construction will be carried out in an environment-friendly manner following the principles of balance cut and fill. Excess excavated materials will be disposed of in the pre-identified at Toorsa Riverside approved by Phuentsholing Thromde.

5. Project Cost / Implementation Schedule

21. The total quoted cost for NBR is Nu. 444.532 million (NBR I Nu.198,408 & NBR II Nu. 246,124) project started on 1 September 2017, and will be completed on 28 February 2020, NBR I start date 17 August 2017 and completion 25 January 2020, NBR II start date 1 September 2017 and completion 15 November 2020

6. Project Categorization

22. The Project is classified as category B as per ADB's Safeguard Policy Statement (2009).

B. Mini Dry Port

1. Project Scope

23. The proposed site for the Mini Dry Port (MDP) is located north-eastern bank of the Ammo Chhu River, near the Phuentsholing city sewage treatment ponds and the Bhutan/India border wall. Site reservation has been completed by the Department of Trade. The site has a total estimated size of 2.2ha (5.4acres).

24. The Project will include (i) the clearing and reconstruction of drainage around the storage areas and internal roads, renewing and reconstructing drainage and culverts across the MDP site, providing better crossing drains and better perimeter drains and leadoff drainage facilities; (ii) earthworks to facilitate resurfacing and paving of cargo-handling areas of the existing and new MDP yards; (iii) construction of warehouse sheds in the terminal yards; (iv) installation of new

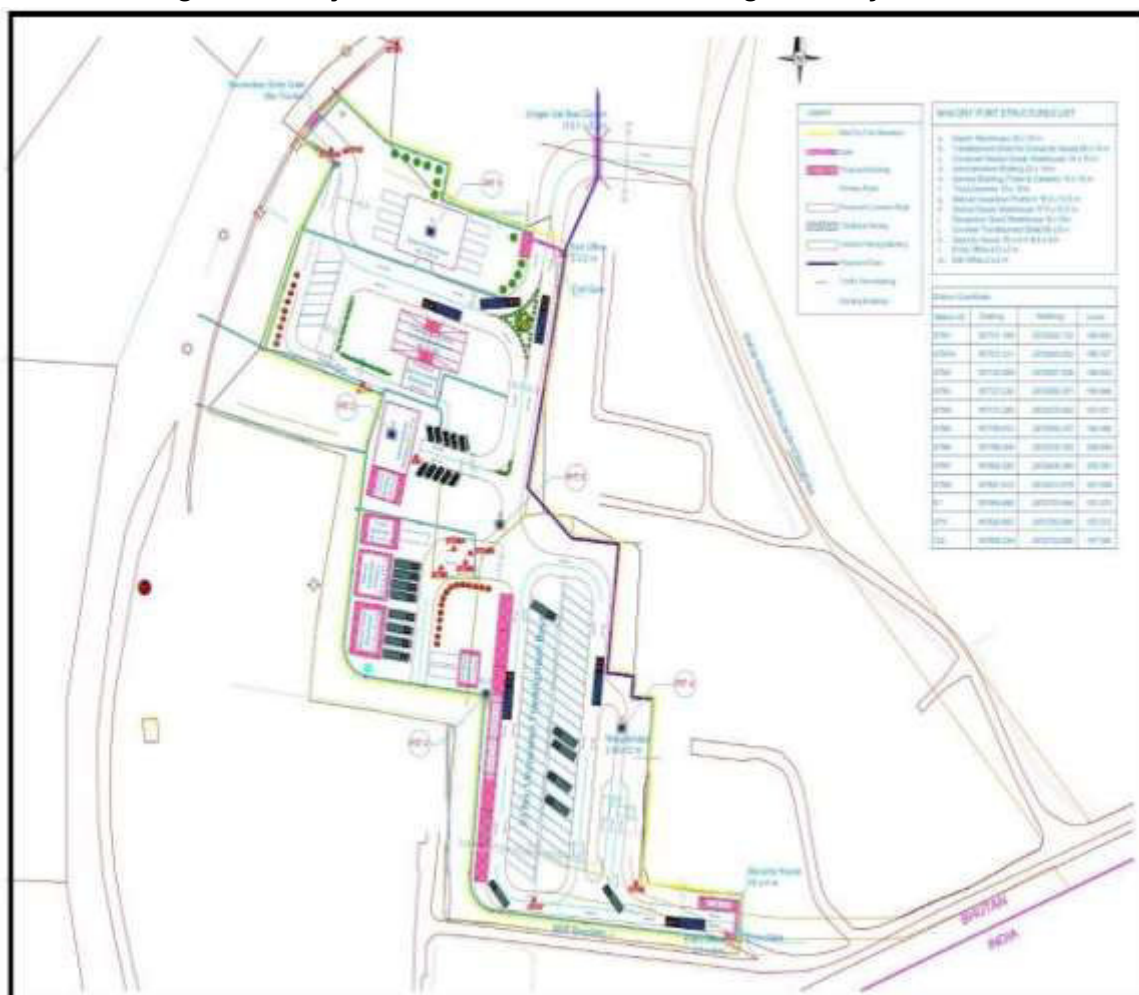
toilet facilities with showers and cleansable septic tanks; (v) installation and re-provisioning of water supply and sewerage services; and (vi) installation and re-provisioning for electric power and telecommunications.

25. The scopes of work for MDP connectivity project including Contractor's details are provided in **Table 3**.

Table 3. Work item, contractor's schedule, date of award and completion date

S.N	Work item	Name of Contractor	Contract award & Start date	Contract completion date
1	Reconstructing drainage and culverts across the MDP	M/s Marushin Shitaka Construction Company Ltd.	17/4/2017 & 18/4/2017	18/12/2018 Ext. 04/02/2019
2	Administration Building	M/s Marushin Shitaka Construction Company Ltd.	17/4/2017 & 18/4/2017	18/12/2018 Ext. 04/02/2019
3	Security Housing			
4	Entrance and exit gates			
5	Boundary walls			

Figure 2: Project Location of Phuentsholing Mini Dry Port



3. Project Implementation Progress

26. The progress of work as of 10 June 2020, is shown in **Table 4**.

Table 4. Work Progress as of June 10th 2020

Item No.	Activities	Completed	Remarks
1	Camp and site office establishment	100%	The MDP site is complete and has been handed over to Revenue & Customs.
2	Setting up of reversible concrete mixture	100%	
3	Road work	100%	
4	Construction of boundary walls	100%	
5	Construction of buildings	100%	
6	Construction of gates	100%	
7	Construction of drainage	100%	
8	Landscaping	100%	
Overall project completion		100%	

4. Construction Approach and Methodology

27. MDP construction will be carried out in an environment-friendly manner following the principles of balance cut and fill, hence no disposal site is required.

5. Project Cost / Implementation Schedule

28. The quoted cost for MDP is Nu.134.854 million and the provisional sum of Nu. 45 million is for IT, warehouse and contingency costs. MDP project started on 17 April 2017, and was supposed to be completed on 18 December 2018, but requested for an extension until 4 February 2019.

6. Project Categorization

29. The Project is classified as category B in accordance with ADB's Safeguard Policy Statement (2009) as no significant impacts are envisioned.

III. SAFEGUARDS COMPLIANCE

A. Compliance to Financing Agreement (Special Operations)

30. The environmental safeguard requirements are indicated in the Financing Agreement (Grant Number 0400-BHU) between ADB and the Kingdom of Bhutan dated 5 September 2014. These financing agreement provisions and compliance status are provided in **Table 5**.

Table 5: Status of Compliance to Environmental Provisions of the Financing Agreement

SN	Environmental Provision	Compliance Status		
		Northern Road	Bypass	Mini Dry Port
1	<p>Schedule 4. Item 6(a): <u>Conditions for awards of contracts</u></p> <p>6. The Beneficiary shall ensure that no Works contract which involves environmental impacts is awarded until:</p> <p>(a) The relevant environmental authority of the Beneficiary has granted the final approval of the EIA and/or IEE; and</p> <p>(b) The Beneficiary has incorporated the relevant provisions from the EMP into the Works contract.</p>	<p>Complied. The EC was accorded as per IEE on 27/9/2017 while the civil works contract commenced on 1/9/2017.</p> <p>Complied. The EMP prepared and submitted by the Contractor has been approved for implementation which is being monitored from time to time.</p>	<p>Complied. The EC was accorded as per IEE on 20/10/2016 while the civil works contract commenced on 18/4/2017.</p> <p>Complied. The EMP prepared and submitted by the Contractor has been approved for implementation which is being monitored from time to time.</p>	

SN	Environmental Provision	Compliance Status		
		Northern Road	Bypass	Mini Dry Port
2	<p>Schedule 5. Item 2:</p> <p><u>Counterpart Funds</u></p> <p>2. The Beneficiary shall make available the Loan and Grant proceeds to the Project Executing Agencies under appropriate arrangements acceptable to ADB and shall provide or cause each Project Executing Agency to provide, as necessary, respective counterpart staff, land, facilities, and funding required for timely and effective implementation of the Project, including, without limitation, any funds required (a) to meet any shortfall between cost and revenues for the O&M of Project facilities; (b) to mitigate unforeseen environmental or social impacts; and (c) to meet any additional costs arising from design changes, price escalation in construction costs and/or unforeseen circumstances. The Beneficiary shall cause the relevant Project Executing Agency to make the resources thus required available on an annual basis for each fiscal year.</p>	<p>Complied.</p> <p>The counterpart funding from the RGOB is being disbursed timely for compensation to the affected parties. The Project Coordinator and Project Manager have been appointed as counterpart staff to the project</p>		<p>Complied.</p> <p>The counterpart funding from the RGOB is being disbursed timely for compensation to the affected parties. The Project Coordinator and Project Manager have been appointed as counterpart staff to the project</p>

SN	Environmental Provision	Compliance Status	
		Northern Bypass Road	Mini Dry Port
3	<p>Schedule 5. Item 5:</p> <p><u>Environment</u></p> <p>5. The Beneficiary shall ensure, or cause the relevant Project Executing Agency to ensure, that the preparation, design, construction, implementation, operation and decommissioning of the Project and all Project facilities comply with (a) all applicable laws and regulations of the Beneficiary relating to environment, health and safety; (b) the Environmental Safeguards; and (c) all measures and requirements set forth in the EIA, the IEE, the EMP, and any corrective or preventative actions set forth in a Safeguards Monitoring Report.</p>	<p>Complied.</p> <p>The compliance requirements with regard to social and environmental safeguards, health and safety and EMP are being satisfactorily complied.</p>	<p>Complied.</p> <p>The compliance requirements with regard to social and environmental safeguards, health and safety and EMP are being satisfactorily complied.</p>
4	<p>Schedule 5. Item 9:</p> <p><u>Human and Financial Resources to Implement Safeguards</u></p> <p><u>Requirements</u></p> <p>9. The Beneficiary shall make available, or cause the Project Executing Agencies to make available, necessary budgetary and human resources to fully implement the EMP and the RP.</p>	<p>Complied.</p> <p>Project Manager and the Project Engineer from PT monitors the site from time to time.</p>	<p>Complied.</p> <p>Project Manager and the Project Engineer from PT monitor the site from time to time.</p>
5	<p>Schedule 5. Item 10:</p> <p><u>Safeguards – Related Provisions in Bidding Documents and Works Contracts</u></p> <p>10. The Beneficiary shall ensure, or cause the Project Executing Agencies to ensure, that all bidding documents and contracts for Works contain provisions that require contractors to:</p> <p>(a) Comply with the measures relevant to the contractor set forth</p>	<p>Not applicable. No indigenous people are located within project premises.</p> <p>Complied. The required funds for environmental and social measures are being disbursed on a need basis. Impacts on Environmental, resettlement or</p>	<p>Not applicable. No indigenous people are located within project premises.</p> <p>Complied. The required funds for environmental and social measures are being disbursed on a need basis. Impacts to environmental, resettlement or indigenous peoples are not anticipated.</p>

SN	Environmental Provision	Compliance Status		
		Northern Road	Bypass	Mini Dry Port
	<p>in the EIA, the IEE, the EMP, the RP and any indigenous peoples plan (to the extent they concern impacts on affected people during design and/or construction), and any corrective or preventative actions set forth in a Safeguards Monitoring Report;</p> <p>(b) Make available a budget for all such environmental and social measures;</p> <p>(c) Provide the Project Executing Agency with written notice of any unanticipated environmental, resettlement or indigenous peoples risks or impacts that arise during design, construction, implementation or operation of the Project that was not considered in the EIA, the IEE, the EMP, and the RP;</p> <p>(d) Adequately record the condition of roads, agricultural land and other infrastructure prior to starting to transport materials and construction; and</p> <p>Reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition upon the completion of construction.</p>	<p>indigenous peoples are not anticipated.</p> <p>No effect on the road and agricultural land. To be implemented upon project completion.</p>		<p>No effect on the road and agricultural land. To be implemented upon project completion.</p>
6	<p>Schedule 5. Item 11: <u>Safeguards Monitoring and Reporting</u></p> <p>11. The Beneficiary shall do the following or cause the Project Executing Agencies to do the following:</p> <p>a.) Submit annual Safeguards Monitoring Reports to ADB for disclosure on ADB's website and disclose relevant information from such reports to affected persons promptly when requested;</p> <p>b.) If any unanticipated environmental and/or social risks</p>	<p>N/A (no unanticipated risks have been experienced so far)</p> <p>N/A (no major environmental or social issues are anticipated in the project that warrants engagement of external expert)</p> <p>N/A (there has been no breach in compliance so far)</p>		N/A

SN	Environmental Provision	Compliance Status		
		Northern Road	Bypass	Mini Dry Port
	<p>and impacts arise during construction, implementation or operation of the Project that were not considered in the EIA, the IEE, the EMP, and the RP, promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan;</p> <p>c.) No later than 3 months from award of the first Works contract, engage or cause to be engaged qualified and experienced external experts or qualified non-governmental organizations under a selection process and terms of reference acceptable to ADB, to verify information produced through the Project monitoring process for environment, resettlement and indigenous peoples (if any), and facilitate the carrying out of any verification activities by such external experts; and</p> <p>d.) Report any actual or potential breach of compliance with the measures and requirements set forth in the EMP and the RP promptly after becoming aware of the breach.</p>			

B. Compliance to Project Administration Manual

31. The Project Administration Manual¹ (PAM) describes how the Phuentsholing Thromde, Department of Roads, and Ministry of Works and Human Settlements will implement the project and deliver the results on time, with quality, within budget, and in accordance with government and Asian Development Bank (ADB) policies and procedures.
32. The PAM is mandatory and serves as the main document describing implementation details. The status of implementing the environmental safeguards requirements set out in PAM is provided in Table 6.

Table 6. Status of Compliance to Environmental Provisions of PAM

SN	Environmental Provision	Compliance Status	
		Northern Bypass Road	Mini Dry Port
1	Schedule VIII. Item 31: Categorization 31. The subprojects Northern Bypass Road (NBR) and Phuentsholing Mini Dry Port (MDP) are category B. Initial Environment Examination (IEE) reports have been prepared for Northern Bypass Road (NBR) and Phuentsholing Mini Dry Port (MDP).	100 % complied	100% complied
2	Schedule VIII. Item 32: Implementation of Environmental Management Plan (EMP) 32. PT will ensure that all environment safeguard requirements under the project will be implemented as required by the IEEs for NBR and MDP. An EMP has also been prepared for the NBR and MDP. The EMP matrix from the final IEE reports will be attached to the bidding documents. The contractors will be required to include the costs for implementing the environmental clauses and EMP in their bids.	Complied as per detailed design.	Complied as per detailed design.
3	Schedule VIII. Item 33: 33. The EMP is a plan for implementation and monitoring of environmental mitigation and enhancement measures during project construction and operation. Specific measures with details on the location, time and responsible agency for implementation and monitoring is given in the EMP. Mitigation measures for implementation during the construction stage is implemented by the contractor and during the operation stage by PT through PIU. The Environmental Specialist in the consulting services for both the PT subprojects will support PT to guide and monitor the implementation of EMPs by contractors. An	Complied. Environmental Focal Person (EFP) has been appointed from Consultant site Inspector and from Contractor Project Engineer	Complied. Environmental Focal Person (EFP) has been appointed from Consultant site Inspector and from Contractor Project Engineer

SN	Environmental Provision	Compliance Status	
		Northern Bypass Road	Mini Dry Port
	Environmental Focal Person (EFP) will be appointed under PT. Similarly, an EFP will be appointed at the site level under the consulting services for conducting day to day monitoring of EMP implementation. An EFP will also be appointed by the contractor for each contract package to ensure proper implementation of the EMP.		
4	Schedule VIII. Item 34: 34. The EMP includes the collection of baseline data on air and noise quality during the pre-construction stage. The Environmental Specialist in the consulting services will be responsible for procuring the monitoring equipment and organizing training on the operation of the equipment by the supplier for the EFP under the PIUs, consulting services and contractors before the start of construction works. The Environmental Specialist in the consulting services will be responsible for the baseline data collection on air, noise, and water quality before construction works begin, during construction and during early stages of operation as given in the EMP. After the construction works are over, the monitoring equipment will be handed over to PT for use by the EFP for other projects. An initial coordination cum training workshop will be organized by PT with technical support from consulting services and ADB as necessary.	Complied. The air and noise monitoring equipment was procured and air and noise monitoring are being conducted every few months.	Complied. The air and noise monitoring equipment was procured and air and noise monitoring are being conducted every few months.
5	Schedule VIII. Item 35: 35. All required clearances such as the environmental clearance and forestry clearance must be obtained by the PIUs before the start of	Complied. All the necessary environmental clearance and forest	Complied. All the necessary environmental clearance and forest permits are

SN	Environmental Provision	Compliance Status	
		Northern Bypass Road	Mini Dry Port
	construction works for all project components.	permits are obtained by PMU before starting construction works.	obtained by PMU before starting construction works.
6	Schedule VIII. Item 43: <u>Grievance Redress Mechanism</u> <p>43. A grievance redress mechanism will be established to receive and facilitate the resolution of concerns, complaints and grievances of affected people and relevant agencies on the social and environmental performance of the project in a time-bound and transparent manner. The project-specific GRM is not intended to bypass the government's own redress process, rather it is intended to address project-affected people's concerns and complaints promptly, making it readily accessible to all segments of affected persons and is scaled to the risks and impacts of the project.</p>	GRM has been established. If there are project-affected people, they can approach to PMU and the Dzongkhag Land Committee.	GRM has been established. If there are project-affected people, they can approach to PMU and the Dzongkhag Land Committee.
7	Schedule VIII. Item 44: <u>Monitoring and Reporting</u> <p>44. Implementation of the EMP will be monitored by PIUs with the support of consulting services. For environment safeguards, records on implementation of the mitigation measures on-site will be maintained by the contractor. Based on these records and spot checks of at least once a month by PIUs and consultants, monitoring reports will be compiled by the Environmental Specialists in consulting services on a semi-annual basis. If there are any changes in the design or alignment, the EMP and RP of the respective subproject will be updated to account for any additional or new impacts. Further, the need for revising the IEE</p>	Complied. The reporting system is being followed by the Contractor and the process is being followed for compiling the environmental monitoring report.	Complied The reporting system is being followed by the contractor and the process being followed for compiling the environmental monitoring report.

SN	Environmental Provision	Compliance Status	
		Northern Bypass Road	Mini Dry Port
	reports will also be reviewed and confirmed in discussion with ADB		

C. Compliance to the Civil Works Contract Agreement

Table 7. Status of Compliance to Environmental Provisions of Civil Works Contract

S.N	Description	Compliance Status	
		Northern Bypass Road	Mini Dry Port
1	Orientation for Contractors, Workers on environmental and social management	Orientation for contractor and worker on the environment was conducted. Almost 70% of compliance has been achieved.	Orientation for Contractor and worker on environmental was conducted, almost 100% compliance has been achieved.
2	Loss of vegetation	159 trees were cut down and handed over to NRDCL	119 trees were cut down and handed over to NRDCL
3	Drainage and Hydrological Impacts	Complied	Complied
4	Procurement and storage materials	Complied	Complied
5	Solid waste management	Complied	Complied
6	Noise and Dust pollution	Complied	Complied
7	Excavation and disposal	N/A	N/A

IV. COMPLIANCE TO ENVIRONMENTAL MANAGEMENT PLAN

33. The environmental management plan (EMP) for Northern Bypass Road II is provided in **Table 8 - Table 9. Table 8 – Table 10** presents the status of the activities during the pre-construction and construction stages as of 10 June 2020 for the NBR II.

Table 8. Status of Compliance to Environmental Provisions of the EMP– Northern Bypass Road-II

SN	Activity	Mitigation Measures	Compliance attained (Yes, No, Partial)	Comment/Reasons for Partial or Non Compliance	Issues for further action and target dates
PRECONSTRUCTION					
1	Design Measures	<ul style="list-style-type: none"> • IEE for NBR submitted to NEC and environmental clearance was approved. • Public clearance from Phuentsholing Thromde was obtained. • IEE recommendations have been incorporated in the design. • Unnecessary stockpiling of rock and bitumen-based materials near road is avoided. • Water and power supply is provided from different source from community 	<p>Yes. Environmental clearance for NBR has been received.</p> <p>See Appendix 1 (Environmental Clearance of Northern Bypass Road)</p>	Complied	N/A
2	Environmentally responsible procurement	<ul style="list-style-type: none"> • Contractor engineer is trained at site on day to day basis • Procured air and noise monitoring equipment 	The equipment of NBR 2 is being used for air and noise monitoring.	Complied	N/A
3	Environmental capacity development	<ul style="list-style-type: none"> • Required training on data collection and assessment for Environment baseline (air and noise) monitoring equipment was conducted recently. • Health awareness campaign on STD/HIV/AIDS has been conducted at contractor's camp area 	<p>Training on baseline data collection was not conducted by the equipment supplier.</p> <p>Yes. STD/HIV/AIDS awareness campaign was conducted at NBR II site. 50+ labourers, Bridge Engineer and site engineers were</p>	Complied	N/A

SN	Activity	Mitigation Measures	Compliance attained (Yes, No, Partial)	Comment/Reasons for Partial or Non Compliance	Issues for further action and target dates
			present during the campaign.		
4	Protect and re-provision irrigation and utilities	<ul style="list-style-type: none"> Irrigation system, water supply pipeline, power line, telecommunication lines interrupted by project work are relocated in consultation with the Consultants, PT, BPC & BT. Street light poles have been dismantled and handed over to PT. 	Yes	Complied	N/A
5	Tree Cutting	<ul style="list-style-type: none"> Trees felled only in required areas with approval from Department of Forestry. 	Yes	Complied	
CONSTRUCTION					
1	Orientation for Contractors, Workers on environmental and social management	<ul style="list-style-type: none"> We oriented our contractor during the monthly meeting and workers at construction site. Awareness campaign has been conducted at camp area on health issues. 	Yes	HIV/AIDS awareness and prevention program shall be implemented in line with social plans under the Project	N/A
2	Loss of vegetation and impacts to fauna	<ul style="list-style-type: none"> Impact on vegetation and fauna is very minimal. 	Yes	Complied	N/A
3	Drainage and Hydrological Impacts	<ul style="list-style-type: none"> Provided adequate drainage at construction sites and camps to avoid pounding and flooding 	Yes		N/A

SN	Activity	Mitigation Measures	Compliance attained (Yes, No, Partial)	Comment/Reasons for Partial or Non Compliance	Issues for further action and target dates
4	Materials exploitation and management of quarry and borrow areas	<ul style="list-style-type: none"> • Not required as construction materials are being transported from approved private mines 	No	Not required as the mines/quarry is managed by private individual	N/A
5	Spoil Disposal	<ul style="list-style-type: none"> • Spoils are dumped at identified dumping area near Toorsa River. 	Yes	Complied	N/A
6	General Construction Waste Disposal	<ul style="list-style-type: none"> • Dump pits has been kept at appropriate locations • Burning of construction wastes has been strictly prohibited • Excavated earth disposed at identified disposal site 	Yes	Complied	N/A
7	Use of hazardous substances and hazardous waste disposal	<ul style="list-style-type: none"> • No hazardous substances and waste are generated at construction site • Oils and lubricants for machineries, vehicles & equipments are kept safely in storeroom at site • Contractor maintains their machines and vehicles in Phuentsholing workshops • Project vehicles are fuelled from Phuentsholing fuelling station. 	Yes	Complied	N/A
8	Asphalt plant rock crushers, bitumen usage and soil contamination	<ul style="list-style-type: none"> • Road work has not been started yet 	No	Compiled	N/A

SN	Activity	Mitigation Measures	Compliance attained (Yes, No, Partial)	Comment/Reasons for Partial or Non Compliance	Issues for further action and target dates
9	Noise and dust nuisances	<ul style="list-style-type: none"> • Construction site is near human settlement, but noise is monitored throughout the day, to make sure no complaints are filed. No overtime work is encouraged, as the noise from the site will impact the people. • Proper cover provided during transportation of construction materials such as soil, boulders, etc. • Strictly informed for speed limit • Water spray has been maintained for dust control • Air and noise have been monitored by CSC. 	Yes	Complied	N/A
10	Blasting (if required)	<ul style="list-style-type: none"> • Silent blasting 	Yes	Complied	N/A
11	Erosion control / run-off	<ul style="list-style-type: none"> • Site at the breast wall covered with tarpaulin sheets to avoid slides 	Yes	Complied	N/A
12	Water quality	<ul style="list-style-type: none"> • No solid wastes from construction are thrown in the river. • Washing of machinery and vehicles in the river is strictly prohibited within project premises 	Yes	Complied	N/A
13	Water Resources	<ul style="list-style-type: none"> • Water has been sourced from STP water tank 	Yes	Complied	N/A

SN	Activity	Mitigation Measures	Compliance attained (Yes, No, Partial)	Comment/Reasons for Partial or Non Compliance	Issues for further action and target dates
14	Operation of workers camps	<ul style="list-style-type: none"> Worker camps and facilities are located away from settlements and river Toilets & bathrooms with continuous water supply & electricity are made available 	Yes	Complied	N/A
15	Sanitation and diseases	<ul style="list-style-type: none"> Health awareness campaign conducted by the Health official from Consultancy as per the social plan at the worksite to the labours 	Yes	Complied	N/A
16	Safety precautions for the workers	<ul style="list-style-type: none"> Safety helmet, gumboots, safety gloves and safety jackets are provided to labours at site & made sure they use it all the time First Aid Kit box is made available at the construction site 	Yes	Complied	N/A
17	Public Safety	<ul style="list-style-type: none"> Excavated area has been barricaded with safety signboards Caution information board & Cautionary Plastic Ribbon along footpath & roadside as Temporary measures for public awareness has been maintained 	Yes	Complied	N/A
18	Traffic Conditions	<ul style="list-style-type: none"> Safety barricades and caution signals provided within construction areas. Proper traffic diversion and management was maintained with information signboards to control the traffic 	Yes	Complied	N/A

SN	Activity	Mitigation Measures	Compliance attained (Yes, No, Partial)	Comment/Reasons for Partial or Non Compliance	Issues for further action and target dates
		<ul style="list-style-type: none"> • Provided with sufficient lighting at night within and in the vicinity of construction sites 			
19	Archaeological and cultural artefacts	<ul style="list-style-type: none"> • No historical, Cultural and Religious artefacts found along with NBR-2 premises 	No	No archaeological or cultural artefacts found till now	N/A
20	Compensatory Plantation	<ul style="list-style-type: none"> • Not yet 	No		N/A

Table 9. Status of Compliance to Environmental Provisions of the Environmental Management Plan – Northern Bypass
II Site Specific

SN	Activities at Construction site	Impacts	Mitigation Measures	Mitigation Measures Implemented	Remarks	Deficiencies/Remarks/ Observations (To be completed by CSC)
1.	Rural Electricity Supply Pole and Lines	Power Supply	<ul style="list-style-type: none"> • Avoid dumping spoil towards electric pole location • If damages are unavoidable, then the poles have to be relocated to a safer place in coordination with BPCL with prior information to the affected people 	<ul style="list-style-type: none"> • 41 electric poles (falling inside ROW) have been dismantled and handed over to concerned authorities. Most of them were street lights, which will be reinstated shortly as per the design. Other electric poles carrying power supply to communities have been relocated to a safer place. • Underground power supply cables were damaged at some locations during road and drain excavation which has been reinstated immediately. 	60 electricity poles were relocated.	Complied
2.	Telecommunication poles	Public Communication	<ul style="list-style-type: none"> • Avoid dumping spoil towards telephone poles location • If damages are unavoidable, then the poles have to be relocated to a safer place in coordination with Telecom with 	<ul style="list-style-type: none"> • 1 telecommunication pole (falling inside ROW) has been dismantled and handed over to concerned authorities. The pole was relocated to a safer place. • Underground telecommunication cables were damaged at some 	Around 10 poles fall within the right of way of the project road, which was relocated.	Complied

SN	Activities at Construction site	Impacts	Mitigation Measures	Mitigation Measures Implemented	Remarks	Deficiencies/Remarks/ Observations (To be completed by CSC)
			prior information to the affected people.	locations during road and drain excavation which has been reinstated immediately.		
3.	Footpath	Accident	<ul style="list-style-type: none"> 316 meters of footpath will be dismantled since the project road alignment falls on the existing footpath. 	<ul style="list-style-type: none"> Most of the walkway in embankment have been damaged which was inevitable for the construction of the roadside drain. Temporary footpaths have been managed until the reconstruction of new footpath over the drain is completed. 	Project will be restoring the footpath.	Complied
4.	Crocodile zoo	Relocation	<ul style="list-style-type: none"> Two different species mugger crocodile & gharial crocodile, in total there are 21 crocodiles have to relocated/transported to Gelephu. 	<ul style="list-style-type: none"> Crocodile zoo handed over the land to Phuentsholing Thromde falling in the corridor of NBR Project. The zoo has become narrower and the crocodiles are partially relocated/transported to Gelephu. 	No relocation	Complied
5.	Water Supply	Water Supply lines should not be disturbed	<ul style="list-style-type: none"> In the event of unavoidable damages, the water supply has to be immediately reinstated through an 	<ul style="list-style-type: none"> Underground water supply lines were damaged at some locations during road and drain excavation which has been reinstated immediately. 	Restored the damages	Complied

SN	Activities at Construction site	Impacts	Mitigation Measures	Mitigation Measures Implemented	Remarks	Deficiencies/Remarks/ Observations (To be completed by CSC)
			alternative arrangement. • Water supply has to be reinstated immediately			
6.	Encroachment, disturbance and damage of religious and holy sites	Historical sites/ damage to archaeological monuments and unearthed evidence	• No historical, Cultural and Religious sites found along with PBR premises/upon discovery of archaeological relics. • Notify the PMO to contact relevant government authority to investigate and undertake recovery.	• Not applicable	Inform PT/MoHCA	Complied Not found anything yet.

V. COMPLIANCE TO ENVIRONMENTAL CLEARANCE

34. The Environmental Compliance of Northern Bypass Road (NBR) project is prepared as per terms and conditions of EC and implementation of Environmental Management Plan (EMP) of the project. **Table 10** contains the compliance requirements and the status compliance of NBR.

Table 10. NBR Compliance with the Conditions of the Environmental Clearance

No.	Compliance Requirement	Status
I. General		
1	The holder shall comply with provisions of the National Environmental Protection Act 2007, Environmental Assessment Act 2000 and its Regulation 2016, Waste Preservation and Management Act of Bhutan 2009 and its Regulation 2016, and the Water Act of Bhutan 2011 and its Regulation 2014	Construction is going on as per the mentioned laws. The site is monitored by the Dzongkhag Environmental Officer, PT as well as the site supervisor from the consultant firm.
2	The holder shall ensure that construction activities are in line with Initial Environmental Examination report submitted for EC	Construction is as per the IEE submitted and as per the Environmental Clearance issued
3	The holder shall ensure that local communities, properties and any religious, cultural, historic and ecologically important sites are not adversely affected by the activities	The construction does not affect any sites of this nature.
4	The holder shall restore the damage of any public or private properties caused by the activities	No damage caused to public or private properties so far. Any damages caused to private properties will be discussed and the damages will be restored. Any damages caused to public properties will be reported to relevant authorities and damages will be restored.
5	The holder shall 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, archaeological, and/or ecological importance	Such incident has not yet occurred. If such an incident occurs, NECS and relevant authorities will be informed.
6	The holder shall erect a signboard at the take-off point of the main entry of the activities stating the name of the activities and contact address	Safety signboards are at strategic locations which necessitate specific warning signs.

No.	Compliance Requirement	Status
II. Environmental Standards		
7	The holder shall comply with the existing Environmental Standards	
III. Import and Use of Second-hand Equipment		
8	The holder shall ensure that import and use of second-hand equipment and machineries are strictly prohibited.	No second-hand equipment were used at the site. All required equipment's were purchased and were all found to be in good condition.
IV. Water Use and Management		
9	The holder shall ensure that activities does not disrupt the water flow and pollute the water bodies	The NBR project area is along the Amo Chhu river bank, but mitigation measures are being taken to make sure the water body does not get polluted.
10	The holder shall ensure that 30 meters or 100 feet buffer is maintained from the water resources at all times	
V. Waste Prevention and Management		
11	The holder shall manage wastes generated from the activities (activity site, labour camps, offices etc.) with the application of 4R (reduce, reuse, recycle, responsibility) principle and other environmentally friendly methods of waste management	Two pits were made for organic & non -organic waste, with sufficient refuse bins within site camps and offices. Tarpaulin was used to cover lightweight materials at site.
12	The holder shall ensure that import and use of hazardous wastes are strictly prohibited	The project does not require any use or import of hazardous materials. Thus such waste will not be generated.
VI. Management of Excavated Materials and Run-Off		
13	The holder shall dispose off excess excavated materials at the pre-identified approved dumpsite only	Excavated materials are disposed at disposal site near Toorsa river. Contractor follow cut & fill.
14	The holder shall put appropriate measures to avoid erosion and landslides	Erosion/landslide issues occurred at site during monsoon season, but mitigation measures were taken.
VII. Implementation Plan		
15	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	The EMP has been 27pdated to incorporate requirements of NECs terms and conditions

No.	Compliance Requirement	Status
VIII. Monitoring and Reporting		
16	The holder shall ensure that the effective day-to-day monitoring of the EC terms and conditions are carried out by the environmental unit or designated environmental focal person	Contractor has appointed Safety Officer. From PIU, PM takes care of safety issues and from CSC side Environmental Focal Person monitors this
IX. Renewal and Modification		
17	The holder shall ensure that renewal of this EC is processed at least three (3) months prior to its expiry along with a copy EC and a report on the implementation of its terms and conditions	Yes
18	The holder shall obtain prior approval from NECS for any modification to the existing proposal / application	There has been no modification in proposal so far
X. Reservation		
19	The NECS may stop the activity or impose additional terms and conditions, as maybe deemed necessary	N/A
20	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	N/A
21	The holder may adopt best practices in executing these terms and conditions to avoid adverse environmental impacts.	N/A

VI. MONITORING ACTIVITIES UNDERTAKEN

A. Air and Noise Quality Monitoring

35. Ms. Sonam Deki, Environmental Specialist from Gyaltsen Consultancy, Thimphu conducted ambient air quality monitoring along NBR II from 27 May–6 June 2020. The purpose of the ambient air quality monitoring was established to collect ambient air quality for the project area during the construction phase, so that future air quality variation could be assessed during or after the project implementation (operation phase). The air quality monitoring was conducted over 24 hours in seven locations along the NBR I & II site. The results of the air quality monitoring are shown in the **Tables** and **14** respectively:

Table 11: NEC'S Ambient Air Quality Standards (Maximum permissible Limits in µg/m³)

Parameter	Industrial Area	Mixed Area	Sensitive Area
Total Suspended Particulate matter			
24 Hour Average	500	200	100
	360	140	70
Respirable Particulate Matter (PM₁₀)			
24 Hour Average	200	100	75
	120	60	50

Table 12: Noise Level Limits, Environmental Standard 2010 NEC

LOCATION	DAY	NIGHT
Industrial Area	75 dBA	65 dBA
Mixed Area	65 dBA	55 dBA
Sensitive Area	55 dBA	45 dBA

B. Ambient Air and Noise Quality Monitoring of NBR II Project Area**Table 13. Air Quality Monitoring For NBR II**

S.N	Location	Date	In Microgram per cubic meter		Environmental Standards, 2010	
			TSPM	PM 10	TSPM	PM 10
Northern Bypass Road						
1	End Point	27/05/2020	186.01	93	200µg/m³	100µg/m³
2	Truck Parking/Weigh Bridge	28/05/2020	194.8	62.8	200µg/m³	100µg/m³
3	RICB Colony	1/06/2020	114.6	95.5	200µg/m³	100µg/m³
4	Labour Camp opposite RSTA	2/06/2020	190.2	63.4	200µg/m³	100µg/m³
5	Crocodile Farm	3/06/2020	189.3	94.6	200µg/m³	100µg/m³
6	Phuentsholing Higher Secondary School gate	4/06/2020	151.3	92.1	200µg/m³	100µg/m³
7	Take-off of NBR (gate II)	6/6/2020	194.8	94.2	200µg/m³	100µg/m³

C. Result and Interpretation of Air Quality Monitoring

The monitoring of ambient air quality was carried out along eight locations of the NBR I & II project premises: i.) End Point, ii.) Weigh bridge/Truck Parking, iii.) RICB Colony, iv.) Labour Camp opposite RSTA, v.) Crocodile Farm, vi.) Phuentsholing Higher Secondary School gate and vii.) Take-off of NBR (gate II) from May 27th – June 6th 2020. All seven locations tested within the NEC permissible limits.

There are multiple external factors which has contributed towards the air pollution level being tested within or below the permissible level.

- i) First and foremost the test was conducted during the monsoon season, in comparison to the previous test which was tested during the dry or winter season. Due to the heavy thunderstorm witnessed during the testing, dust along the roads and from construction sites were all settled. Due to the constant rainfall in Phuentsholing, the project has not had to deploy sprinkler trucks during monsoon.
- ii) As mentioned in the previous reports Phuentsholing has always faced issues with vehicle congestion as it is the business hub of Bhutan, and also an entry point for tourist from India or traveling from India to Bhutan. But with the outbreak of COVID-19, the border between India and Bhutan have been closed for the past few months, which has dramatically reduced the number of vehicles on the road. Only a few number of heavy vehicles carrying necessity good, which are sprayed with water and sanitized are allowed to enter into Bhutan. All constructions which were ongoing have all been put on hold due to lack of construction products entering into Bhutan.
- iii) To avoid community transmission, all businesses are to close by 7:00 PM, and individuals are encouraged to stay indoors, thus reducing the number of vehicle movements in the evening hours.

36. Mitigation Measures

The air pollution test was conducted at seven locations along the NBR I & II, are all within the permissible limits.

Even though there has been a drastic reduction in construction activities and vehicle movement, but with the ongoing project activities, it is ensured that the contractors continue sprinkling around the project area when required, if any project vehicles are entering or exiting Bhutan with materials the contractor is to ensure that it is covered in tarpaulin, and light construction materials such as cement, and sand are to be covered with tarpaulin at project areas.

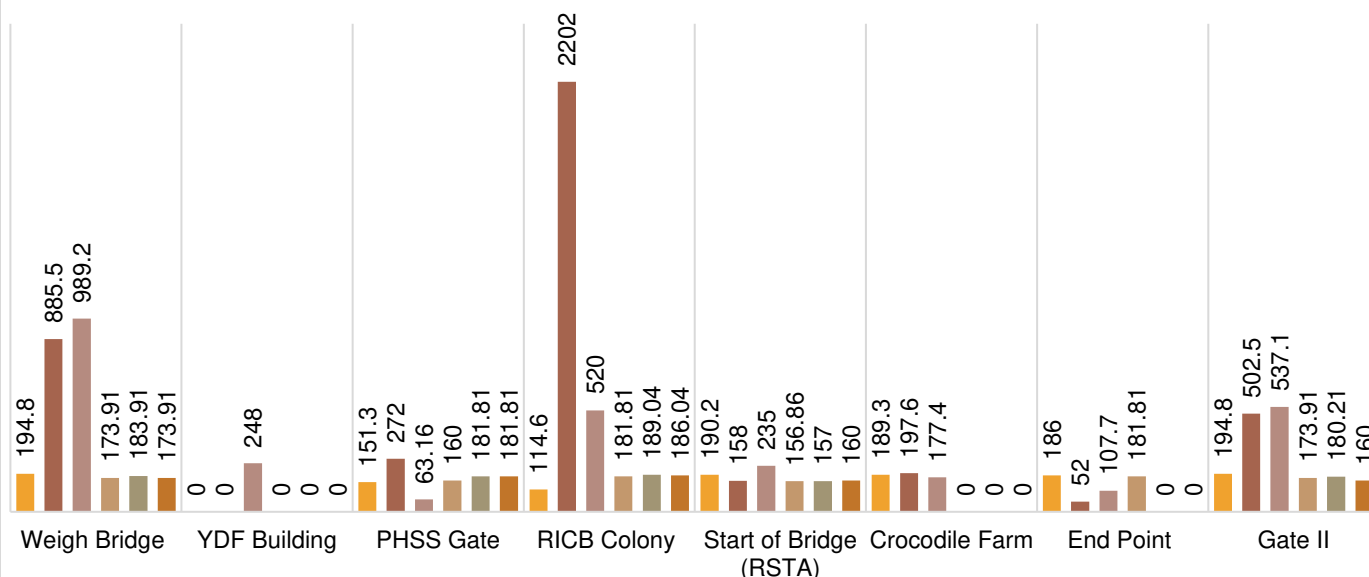
37. Ambient Air Quality Monitoring From September 2017 – June 2020

Shown below is a bar graph of all the past results of Ambient Air Quality Monitoring. As you can see the air qualities monitored over the years are slightly on the higher spectrum but remains within the permissible limits of the industrial emission standards.

The air pollution monitored in June 2020 at seven locations along the NBR I & II, are within the permissible limits of the industrial emission standards. The numerical in **GREEN** are the results from the tests conducted in June 2020, and the ones in **RED** are the pollution levels which have exceeded the permissible limits in the previous tests.

TSPM Ambient Air Quality Monitoring From September 2017 – June 2020

2020 June 2019 December 2019 January 2018 April 2017 December 2017 September



PM10 Ambient Air Quality Monitoring From September 2017 – June 2020

2020 June 2019 December 2019 January 2018 April 2017 December 2017 September

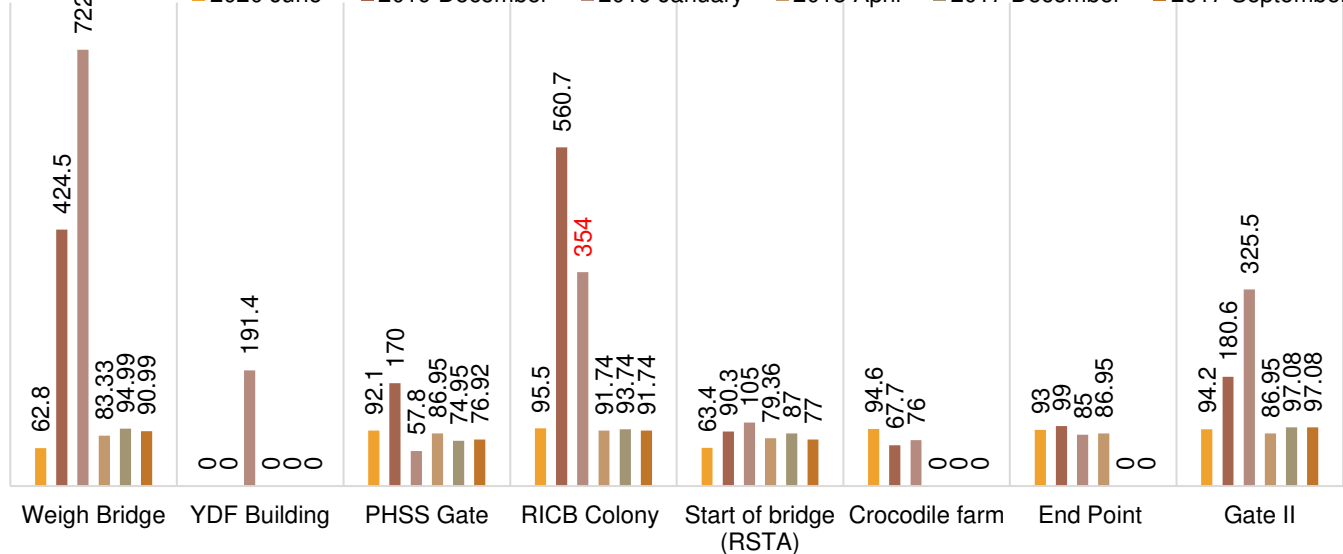


Table 14. Noise Level Monitoring (Dba) for NBR I & II

SN	Location	Date	Day (Leq)	Night (Leq)
1	End Point	27/05/2020	30	67
2	Truck Parking/Weigh Bridge	28/05/2020	63	72
3	RICB Colony	1/06/2020	57	47

4	Labour Camp opposite RSTA	2/06/2020	64	46
5	Crocodile Farm	3/06/2020	43	32
6	Phuentsholing Higher Secondary School gate	4/06/2020	35	21
7	Take-off of NBR (gate II)	6/6/2020	59	30

D. Result and Interpretation of Ambient Noise Level Monitoring

Ambient noise measurements were carried out at seven locations: i) End Point, ii) Weigh bridge/Truck Parking, iii) RICB Colony, iv) Labour Camp opposite RSTA, v) Crocodile Farm, vi) Phuentsholing Higher Secondary School gate, and vii) Take-off of NBR (gate II) from May 27th – June 6th 2020. The analysis showed that noise levels for NBR II are slightly on the higher spectrum, but it is within the national limits of mixed area and it is presented in the **Table 14**, except for two locations End point and Weigh Bridge which tested high level of noise during the evening hours. This was due to the heavy wind and rainstorm when the test was conducted.

As mentioned in the previous reports Phuentsholing has always faced issues with vehicle congestion which contributed towards the noise pollution, but with the outbreak of COVID-19, the border between India and Bhutan have been closed for the past few months, which has dramatically reduced the number of vehicles on the road, and other activities which have contributed towards noise pollution such as construction activities are all on hold, most of the workshops are closed and other businesses are to close by 7:00 PM, which has drastically reduced the noise level in Phuentsholing.

The main source of noise emission during the morning and evening hours were due to movement of vehicles, people and mainly from natural factors like wind and rain storm, rainfall, wind and animals. All the noise caused by manmade activities are temporary and will not have long term impact.

38. Mitigation Measures

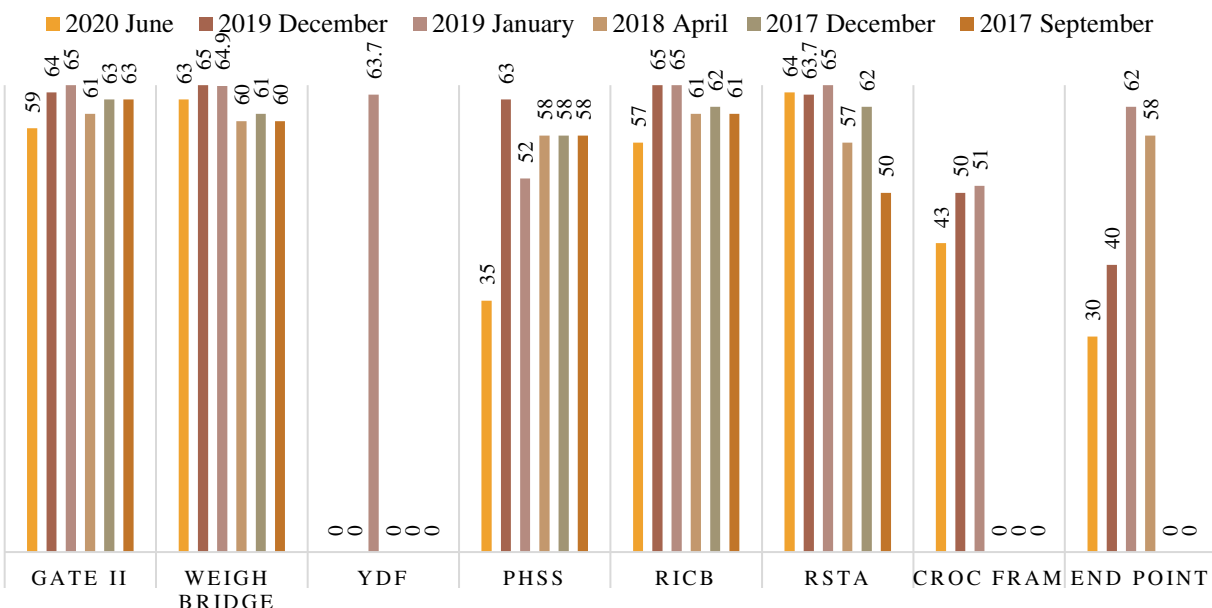
The noise pollution test conducted at seven locations along the NBR I & II are all within the permissible limits except for locations End Point and Weigh Bridge, which has indicated high noise level during the evening hours. This was caused due to the wind and rainstorm which occurred during the testing.

Even though there has been a drastic reduction in construction activities and vehicle movement, but as the project continues to progress, the contractors are to ensure that work does not continue beyond the Bhutan Government approved time, and no construction or sound making activities to take place after work hours without legal permission from the Client and the RGoB. During work hours project vehicles are discouraged to honk unnecessarily so as to not cause any disturbance to the neighboring communities.

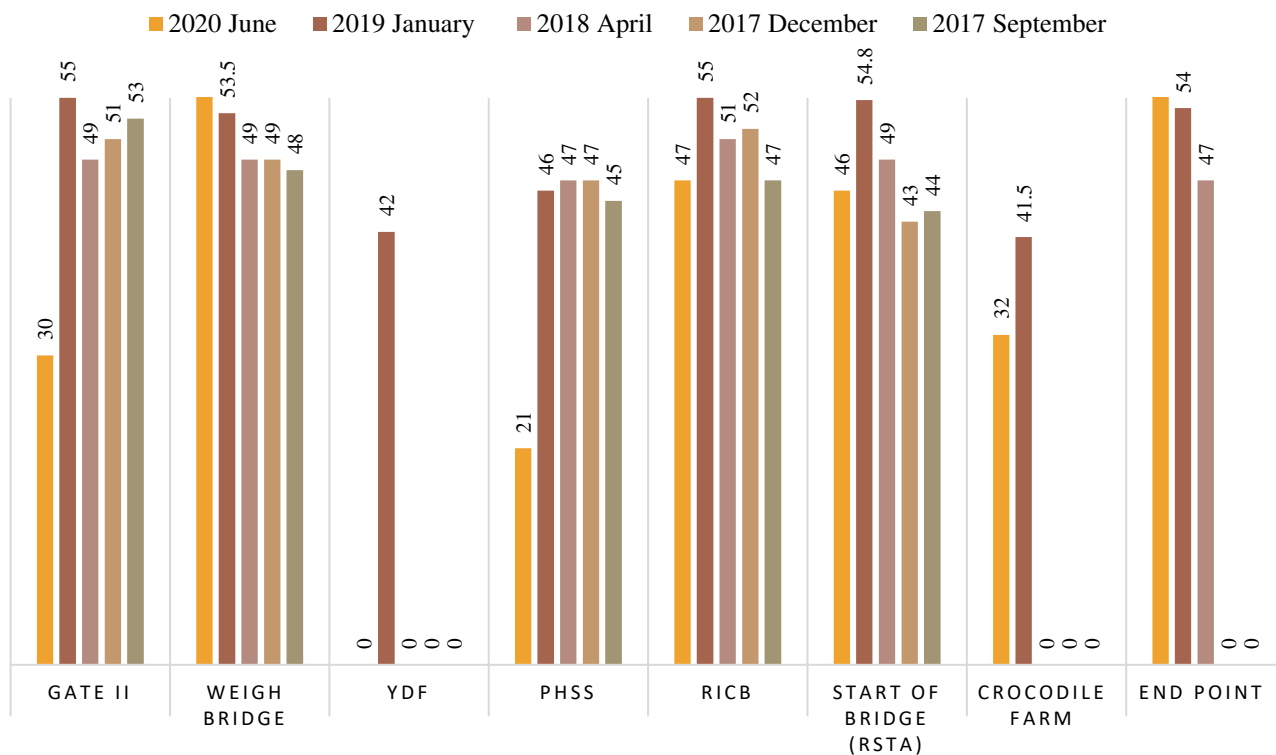
39. Ambient Noise Level Monitoring From September 2017 – June 2020

Show below is a bar graph of all the past results of Noise level monitoring from September 2017 – June 2020 along the NBR I & II project area. As you can see the noise level at all locations in the project area is within the national limits of mixed area except for locations End point and Weigh Bridge for June 2020.

DAY AMBIENT NOISE LEVEL MONITORING FROM SEPTEMBER 2017 - JUNE 2020



NIGHT AMBIENT NOISE LEVEL MONITORING FROM SEPTEMBER 2017 - JUNE 2020



VII. CONCLUSION AND RECOMMENDATION

40. This Annual Environmental Monitoring Report covering the Northern Bypass Road and Mini Dry Port, both category B subprojects under the SASEC Connectivity Project, was prepared in compliance to the requirements of SPS 2009.
41. The contract package for Northern Bypass Road has been awarded by Phuentsholing Thromde under Ministry of Works and Human Settlement to M/s Marushin Shitaka - Rigsar Construction (J/V). The contract package for the Mini Dry Port has been awarded to M/s Marushin Shitaka Construction Company Limited. Overall, the Northern Bypass Road project exhibited standard level of compliance achieving 80% as per EMP implementation. 100% of bridge foundation excavations is completed.
42. Baseline data collection for air quality and noise level monitoring for the two projects was conducted by M/s Gyaltsen Consultancy from 27 May – 6 June 2020 along the NBR I & II.
43. The environmental clearances for both NBR and MDP were obtained from the National Environmental Commission. The EC for NBR is valid until 26 September 2020, while that of the MDP will be effective until 19 October 2021.
44. Occupational health and safety measures are being complied by issuing the necessary safety outfits like safety helmet, gumboots, safety boots, reflective jackets and facemask. Excavation more than 1m depth is fenced for safety purposes. Water tanker is deployed to sprinkle the water along the project road and the proposed mini dry port facilities as and when needed to suppress dust. All the necessary facilities are provided to the labours and staff living within construction area.
45. There were no complaints and grievances lodged with Phuentsholing Thromde during the reporting period for both NBR and MDP.
46. The Environmental Specialists have very limited input for monitoring the construction sites and EMP implementation. Site Inspector from CSC represents the Environment Specialist and monitors the construction sites regularly. For NBR, Mr. Jambay (Project Engineer) from the contractor is the Environmental Focal Person cum Safety Officer. For MDP, Mr. Santosh K. Shaha (Quantity Engineer), also from the contractor, serves as the Environmental Focal Person cum Safety Officer.
47. Awareness on the environmental and occupational health and safety measures was conducted by the Environmental Specialists (CSC) on 22 December 2017 to environmental focal persons and labourers at MDP.
48. Awareness on COVID-19 was communicated to the contractor, and it is being ensured that the workers are following with the COVID prevention procedures. Safety signages on COVID are placed in the project site.
49. Contractor will have to submit the EMP on monthly basis and the EMP is cross-checked by SI/ES/RE and TL. Approved EMP is attached with the monthly progress report and submitted to Phuentsholing Thromde.

PHOTO LOG OF AIR AND NOISE MONITORING EQUIPMENT



Picture 1: Air monitoring equipment



Picture 2: Noise monitoring equipment



Picture 3: Water sprinkler truck

PHOTO OF CAUTIONARY SIGN BOARDS ALONG NBR II



**PROGRESS OF NBR I
BEFORE**



AFTER





PROGRESS OF NBR II BEFORE



AFTER





APPENDIX 1: ENVIRONMENTAL CLEARANCE OF NORTHERN BYPASS ROAD



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



NECS/ESD/Dzo-Chukha/3477/2017/ 1376

September 27, 2017

Environmental Clearance

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

I. General

The holder shall:

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

II. Environmental standards

The holder shall comply with the existing Environmental Standards.

III. Import and use of secondhand equipment

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

IV. Water use and management

The holder shall:

1. ensure that activities does not disrupt the water flow and pollute the water bodies; 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 activities (activity site, labour camps, offices etc.) with the application of 4R (Reduce, Reuse, Recycle, Responsibility) principle and other environmentally friendly methods of waste management; and
2. ensure that import and use of hazardous wastes are strictly prohibited.

VI. Management of excavated materials and run-off

The holder shall:

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

VII. Implementation plan

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

VIII. Monitoring and reporting

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

IX. Renewal and modification

The holder shall:

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

Reservation

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

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

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



Validity:

This EC is issued with valid from **September 27, 2017** until **September 26, 2020** for the construction of Northern Bypass Road only.

(Sign & Seal)
Secretary



To,
Dasho Thrompon
Phuentsholing Thromde
Chukha

Copy to:

1. Chief Environment Officer, Compliance Monitoring Division, NECS for information.
2. Environment Officer, Dzongkhag Administration, Chukha for necessary action.
3. Guard file, Dzo-Chukha, ESD, NECS for record.

APPENDIX 2: ENVIRONMENTAL CLEARANCE OF MINI DRY PORT



ཏུལ་ཡོངས་མཐའ་འཁོར་གནས་སྤངས་ལྷན་ཆེན།
ཏུལ་ལྷན་འབྲུག་གཞུང་།
National Environment Commission
Royal Government of Bhutan



NECS/ESD/Dzo-Chukha/3379/3380/2016/1946

October 20, 2016

Environmental Clearance

The National Environment Commission Secretariat (NECS) is pleased to issue environmental clearance in respect of Dasho Thrompon, Phuentsholing Thromde as approved during the meeting held on October 4, 2016 for establishment of mini dry port at Phuentsholing under Phuentsholing Thromde with the following terms and conditions:

1. As per Section 28.3 of the Regulation for the Environmental Clearance of Projects 2002, any modification of proposal/application shall take place only with prior approval from NECS;
2. The holder shall ensure that this environmental clearance is valid for establishment of mini dry port at Phuentsholing under Phuentsholing Thromde;
3. The holder shall ensure that the activity is in line with the National Environment Protection Act 2007, Environmental Assessment Act 2000 and its Regulation 2002, Waste Prevention & Management Act of Bhutan 2009 and its Regulation 2012, The Water Act of Bhutan 2011 and its Regulation 2014;
4. The holder shall ensure that the activity complies with the Environmental Standards 2010;
5. The holder shall ensure compliance to the Undertaking submitted to NECS;
6. The holder shall ensure compliance to all terms and conditions of stakeholder clearances at all times;
7. The holder shall ensure that the activity is carried out as per the application submitted for environmental clearance;
8. The holder shall ensure that adverse visual impact on the environment due to the activity is minimized;
9. The holder shall ensure that activity is strictly confined within the allocated area;
10. The holder shall be solely responsible for any dispute arising due to the activity;
11. The holder shall ensure that local residents, households, communities, public, private parties and any religious, cultural, historic and ecologically important sites are not adversely affected by this activity;
12. The holder shall ensure that NECS and any other relevant authorities are informed of any unanticipated or unforeseen chance-find of any precious metals or minerals or articles, that have economic, cultural, religious or ecological importance;
13. The holder shall ensure that import and use of secondhand equipment and machineries are strictly prohibited;
14. The holder shall ensure that import and use of scrap and waste in any form is strictly prohibited;
15. The holder shall ensure that proposed activity does not lead to blockage, storage or diversion of river, stream, irrigation channel, waterfall, underground water source or any other water resource or water course;
16. The holder shall ensure that excavated materials are used for backfilling and disposal of

- the same in water bodies, agricultural land and other surrounding environment is avoided at all times;
17. The holder shall ensure that excess excavated materials generated during construction, if any, are loaded, hauled and dumped at the pre-identified/approved dumpsite only;
 18. The holder shall ensure that vehicles carrying construction materials are totally covered/closed;
 19. The holder shall ensure that dusts generated during construction are adequately suppressed by sprinkling water in and around the construction premises;
 20. The holder shall ensure that wastes generated from labor camps, worksites and offices are managed as required under the Waste Prevention and Management Act of Bhutan, 2009 and its Regulation 2012;
 21. The holder shall ensure that littering is avoided at all times;
 22. The holder shall be solely responsible for managing wastes generated with the application of 4R (Reduce, Reuse, Recycle & Responsibility) principle and other environmentally friendly methods of waste management;
 23. The holder shall ensure that plastic and metallic wastes generated are properly collected and reused/recycled;
 24. The holder shall ensure that general housekeeping, cleanliness and hygiene is maintained all the time;
 25. The holder shall ensure that adequate sanitation facility is provided for the workers and employees;
 26. The holder shall ensure that adequate safety gadgets and outfits are provided to all the workers and any other person entering the worksite such as safety helmets, eye goggles, breathing masks, ear muffs, safety boots, etc.;
 27. The holder shall ensure that underage workers are not employed;
 28. The holder shall ensure that first aid-kit is made available at the site;
 29. The holder shall ensure that signboard is erected at appropriate location stating the name of the Project and contact address of the implementing agency;
 30. The holder shall ensure that a copy of the environmental clearance is available at the worksite at all times;
 31. **The holder shall ensure that renewal of this environmental clearance is processed at least one (01) month prior to its expiry along with a copy environmental clearance and a report on the implementation of its terms and conditions;**
 32. The holder shall ensure that detailed implementation plan is prepared focusing on the implementation of terms and conditions of this environmental clearance and submitted to NECS **within three (03) months** from the date of issue of this environmental clearance; and,
 33. The holder shall ensure that the environmental unit/focal person assert strict implementation of these environmental terms and conditions at all times.

Failure to comply with any of the above terms and conditions shall constitute an offence under the Environmental Assessment Act 2000, its Regulations 2002 and the National



Environment Protection Act 2007 and the environmental clearance shall be suspended or revoked in part or whole without any liability on the part of the Royal Government.

This environmental clearance is valid till **October 19, 2021** and is subject to periodic review and changes.

[Signature]
Secretary

To,
The Dasho Thrompon
Phuentsholing Thromde
Phuentsholing

Copy to:

1. The Dasho Dzongdag, Dzongkhag Administration, Chukha for kind information.
2. The Chief Environment Officer, Compliance Monitoring Division, NECS, Thimphu for necessary action.
3. The Dzongkhag Environment Officer, Dzongkhag Administration, Chukha for necessary action.
4. Guard File (Dzo-Chukha), ESD, NECS for record.

SASEC



APPENDIX 3: FORESTRY CLEARANCE OF MINI DRY PORT

