

Environmental Monitoring Report

1st Annual Report
March 2018

BHU: SASEC Road Connectivity Project

Northern Bypass Road and Phuentsholing Mini Dry Port (Phuentsholing Thromde)

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

CURRENCY EQUIVALENTS

(as of 1 March 2017)

Currency unit	–	Bhutanese Ngultrum
Nu1.00	=	\$ 0.0153
\$1.00	=	Nu 65.27

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) 1.2-km access road from an Indian border constructed at Pasakha area; (iii) A mini-dry port (MDP) in Phuentsholing and Alay land custom station; and (iv) The construction of about 2.7km of 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 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 construction of entrances and exits to the MDP yards and several administration and warehouse type buildings and service roads.

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

5. This is the first environmental monitoring report prepared for both Northern Bypass Road and Mini Dry Port. As of December 2017, the overall progress of physical works of the bypass is only 4%, and 35% for the mini dry port. The environmental management plans (EMPs) of both projects have been monitored and implemented on day-to-day basis by their respective Environmental Focal Persons from both Contractor's side and from Construction Supervision Consultants. The contractors regularly submit monthly EMP compliance reports to CSC and the Environmental Specialists from CSC checks the EMP and further submits to Team Leaders (TLs). TLs incorporate the environmental reports in the monthly reports.

6. Environmental Clearances have been obtained from the National Environment Commission Secretariat (NECS). The clearance for the bypass was obtained on September 27, 2017, and for the Mini Dry Port, on October 20, 2016.

7. EMPs for both projects have been monitored and implemented on day to day basic by the Environmental Focal Persons from both Contractor's side and from CSC (S.I/ES). Contractor submits monthly EMP to CSC and ES from CSC checks the EMP and further submits to Team Leader (TL). TL incorporates in the monthly reports.

II. PROJECT DESCRIPTION

A. Northern Bypass Road

1. Project Scope

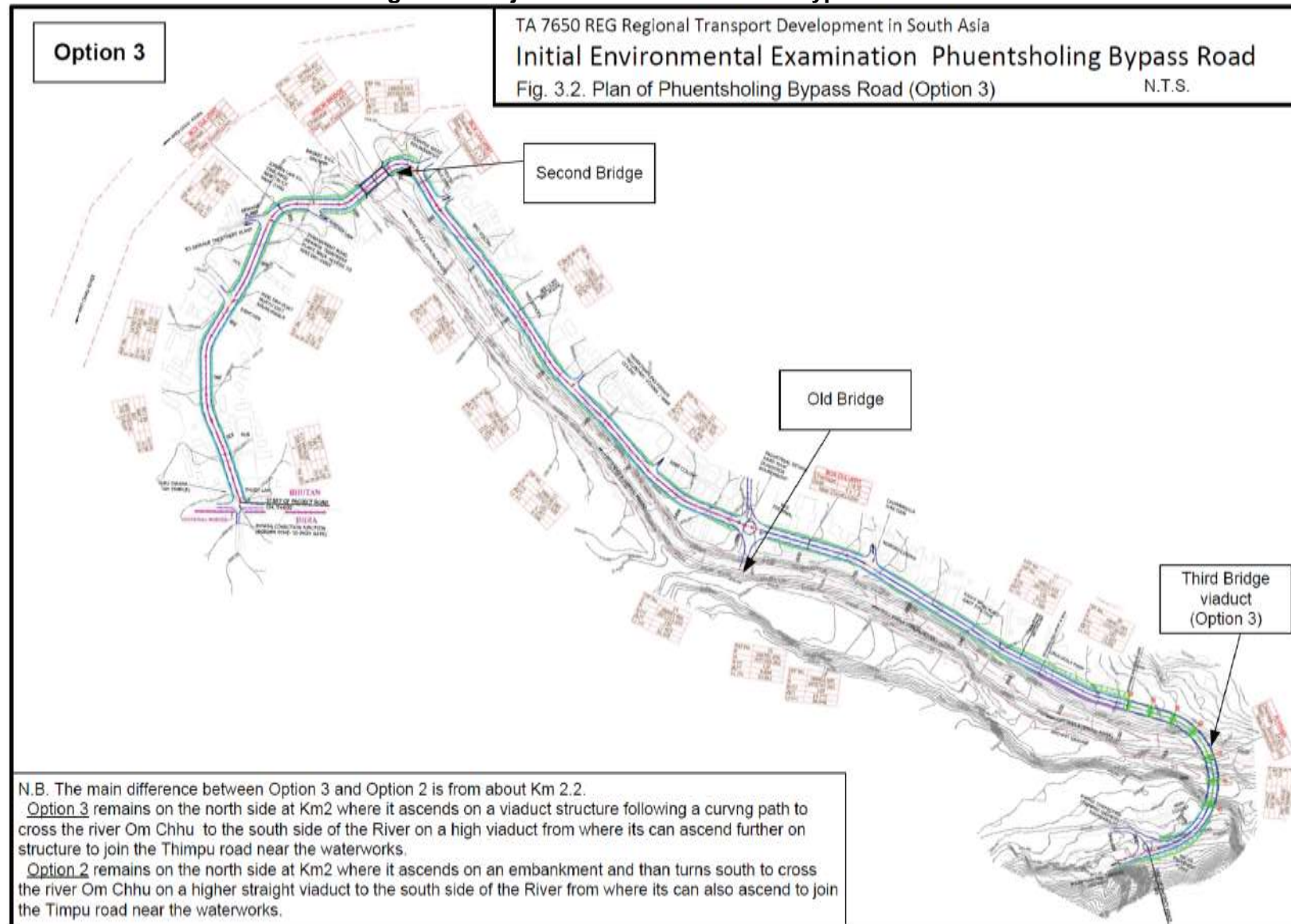
8. The Project will include construction of (i) earthworks to facilitate replacement of existing roads and upgrading of the NBR carriageway and extended road base, and surfacing works (ii) construction of bridges and viaduct over the river (iii) construction, renewing and reconstructing culverts and drains serving the NBR route (iv) providing better crossing drains and better side drains and lead off 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 2.7km. The span of the bridge is 120m and width is 19m. The works will generally be within or adjacent to existing road corridor for 2km, and 0.7 km will be new construction. The scopes 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

Sl.No	Work item	Name of Contractor	Contract award date/start date	Contract completion date
1.	Earthworks to facilitate 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	28/2/2020
2.	Construction of bridges 120m length and 19m width and viaduct over the river			
3.	Construction, renewing and reconstructing culverts and drains serving the PBR route			
4.	Providing better crossing drains and better side drains and lead off 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 and NBR will be implemented through the Project Implementation Unit (PIU). Under the PIU there are three Project Implementation Units (PIUs) responsible for day-to-day operation of Northern Bypass Road Project.

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 submission of monthly EMP compliance report. Similarly, RE will also make the monthly project progress report which includes the section on compliance of environmental terms and conditions.

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 December 31, 2017 is shown in

19. **Table 2.**

Table 2. Work Progress as of 31st December, 2017

Item No.	Activities	% Completed	Remarks
1	Camp and site office establishment	50%	Only labour camps were constructed
2	Setting up of concrete batching plant	100%	
3	Road work	Nil	

Item No.	Activities	% Completed	Remarks
4	Construction of Gabion wall for diversion road	100%	
5	Construction of boundary wall	80%	Completed
6	Construction of bridges	5%	Foundation excavation works ongoing
7	Construction of drainage	25%	
8	Landscaping	Nil	
Overall project completion		4%	

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 in the pre- identified at Toorsa River side approved by Phuentsholing Thromde.

5. Project Cost / Implementation Schedule

21. The total quoted cost for NBR is Nu.444.5 million, NBR project started on September 01, 2017 and will be completed on February 28, 2020.

6. Project Categorization

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

B. Mini Dry Port

1. Project Scope

23. The proposed site for the Mini Dry Port (MDP) is located northeastern bank of the Amo 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 lead off drainage facilities (ii) earthworks to facilitate resurfacing and paving of cargo-handling area as 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.

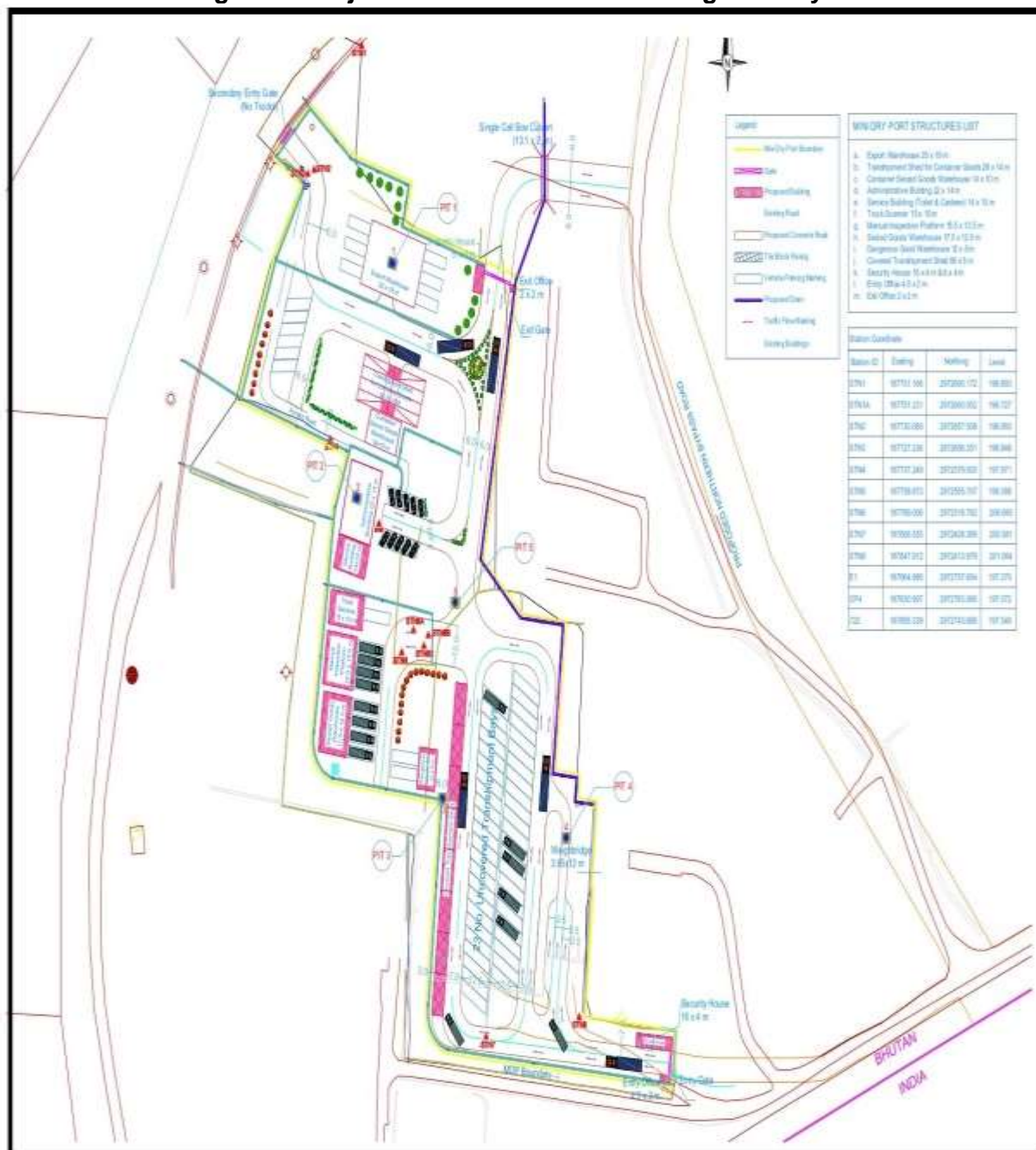
25. The scopes of work for MDP connectivity project including Contractor's details are provided in Table 3.

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

Sl. No	Work item	Name of Contractor	Contract award date/start date	Contract completion date
1.	Reconstructing drainage and culverts across the MDP	M/s Marushin Shitaka	17/4/2017 and 18/4/2017	18/12/2018

Sl. No	Work item	Name of Contractor	Contract award date/start date	Contract completion date
2.	Earthworks	Construction Company Limited		
3.	Construction of ware house sheds			
4.	Installation and re-provisioning of water supply and sewerage services			
5.	Installation and re-provisioning for electric power and telecommunications			

Figure 2: Project Location of Phuentsholing Mini Dry Port



2. Implementation Arrangement

26. The Phuentsholing Thromde (PT) under the Ministry of Works and Human Settlement (MOWHS) is the implementing agency and MDP will be implemented through the Project Implementation Unit (PIU). Under the PIU there are three Project Implementation Units (PIUs) responsible for day-to-day operation of Mini Dry Port Project.

27. 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.

28. 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).

29. RE and SI will be main the 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).

30. The contractor through its Project Manager/engineer will be responsible for submission of monthly EMP compliance report. Similarly, RE will also make the monthly project progress report which includes the section on compliance of environmental terms and conditions.

31. 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.

32. 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.

33. 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

34. The progress of work as of December 31, 2017 is shown in **Table 4**.

Table 4. Work Progress as of December 31, 2017

Item No.	Activities	Completed	Remarks
1	Camp and site office establishment	100%	
2	Setting up of reversible concrete mixture	100%	
3	Road work	Nil	
4	Construction of boundary walls	60%	
5	Construction of buildings	10%	
6	Construction of gates	Nil	
7	Construction of drainage	Nil	

Item No.	Activities	Completed	Remarks
8	Landscaping	Nil	
Overall project completion		%	

4. Construction Approach and Methodology

35. 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

36. The quoted cost for MDP is Nu.134.854 million and additional Nu. 45 million is for IT and warehouse equipment costs. MDP project started on April 18, 2017 and will be completed on December 18, 2018.

6. Project Categorization

37. 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)

38. The environmental safeguard requirements are indicated in Financing Agreement (Grant Number 0400-BHU) between ADB and 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

S. N	Environmental Provision	Compliance Status	
		Northern Bypass Road	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>

S. N	Environmental Provision	Compliance Status	
		Northern Bypass Road	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>
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>

S. N	Environmental Provision	Compliance Status	
		Northern Bypass Road	Mini Dry Port
4	<p>Schedule 5. Item 9:</p> <p><u>Human and Financial Resources to Implement Safeguards 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 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 a 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 were 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>(e) Reinststate pathways, other local infrastructure, and</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 need basis. Impacts to environmental, resettlement or indigenous peoples are not anticipated.</p> <p>No effect to road and agricultural land.</p> <p>To be implemented upon project completion.</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 need basis. Impacts to environmental, resettlement or indigenous peoples are not anticipated.</p> <p>No effect to road and agricultural land.</p> <p>To be implemented upon project completion.</p>

S. N	Environmental Provision	Compliance Status	
		Northern Bypass Road	Mini Dry Port
	agricultural land to at least their pre-project condition upon the completion of construction.		
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 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>	<p>The first environmental monitoring report is being prepared to comply with the clause.</p> <p>N/A (no unanticipated risks have been experienced so far)</p> <p>N/A (no major environment or social issues are anticipated in the project that warrant engagement of external expert)</p> <p>N/A (there has been no breach in compliance so far)</p>	

B. Compliance to Project Administration Manual

39. The Project Administration Manual¹ (PAM) describes how the 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.

40. 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 the Project Administration Manual

S.N.	Environmental Provision	Compliance Status	
		Northern Bypass Road	Mini Dry Port
1	<p>Schedule VIII. Item 31: <u>Categorization</u></p> <p>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 (PBR) and Phuentsholing Mini Dry Port (MDP).</p>	100 % complied.	100% complied.
2	<p>Schedule VIII. Item 32: <u>Implementation of Environmental Management Plan (EMP)</u></p> <p>32. PT will ensure that all environment safeguard requirements under the project will be implemented as required by the IEEs for PBR and MDP. An EMP has also been prepared for the PBR 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.</p>	Complied as per detailed design.	Complied. as per detailed design.
3	<p>Schedule VIII. Item 33:</p> <p>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 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 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 implementation of EMPs by contractors. An 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.</p>	Complied. Environmental Focal Person has been appointed from Consultant (Site Inspector and from Contractor EFP (Project Engineer).	Complied. Environmental Focal Person has been appointed EFP from Consultant (Site Inspector and from Contractor EFP (Quantity Engineer).

¹<https://www.adb.org/sites/default/files/project-document/81673/39225-034-pam.pdf>

S.N.	Environmental Provision	Compliance Status	
		Northern Bypass Road	Mini Dry Port
4	<p>Schedule VIII. Item 34:</p> <p>34. The EMP includes 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 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 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.</p>	Complied. The air and noise monitoring equipment were procured and air and noise baseline monitoring are being conducted every three months.	Complied. The air and noise monitoring equipment were procured and air and noise baseline monitoring are being conducted every three months.
5	<p>Schedule VIII. Item 35:</p> <p>35. All required clearances such as the environmental clearance and forestry clearance must be obtained by the PIUs before start of construction works for all project components.</p>	Complied. All the necessary environmental clearance and forest permits are obtained by PMU before starting construction works.	Complied. All the necessary environmental clearance and forest permits are obtained by PMU before starting construction works.
6	<p>Schedule VIII. Item 43: <u>Grievance Redress Mechanism</u></p> <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 yet to be established. If, there are project affected people, they can approach to PMU and the Dzongkhag Land Committee.	GRM has yet to be established. If, there are project affected people, they can approach to PMU and the Dzongkhag Land Committee.
7	<p>Schedule VIII. Item 44: <u>Monitoring and Reporting</u></p> <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,</p>	Complied. Reporting system is being followed by the Contractor	Complied reporting system is being followed by the Contractor

S.N.	Environmental Provision	Compliance Status	
		Northern Bypass Road	Mini Dry Port
	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 reports will also be reviewed and confirmed in discussion with ADB.	and the process is being followed for compiling the environmental monitoring report.	and the process being followed for compiling the environmental monitoring report.

C. Compliance to the Civil Works Contract Agreement

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

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 environment was conducted. Almost 70% compliance has been achieved.	Orientation for Contractor and worker on environmental was conducted, almost 80% compliance has been achieved.
2.	Loss of vegetation	159 trees were cut down and handed over to NRDC	119 trees were cut down and handed over to NRDC
3.	Drainage and Hydrological Impacts	Complied	
4.	Procurement and storage materials	Complied	
5.	Solid waste management	Complied	
6.	Noise and Dust pollution	Complied	
7.	Excavation and disposal	N/A	

IV. COMPLIANCE TO ENVIRONMENTAL MANAGEMENT PLAN

41. The environmental management plan (EMP) for Northern Bypass Road and Mini Dry Port were provided in **Table 8** and **Table 10**. As per EMP of NBR, five environmental management activities were required to be implemented during the pre-construction stage; twenty-three (23) activities are required to be implemented during the construction stage; and three (03) activities are required to be implemented during the operation stage. As per EMP of MDP, five environmental management activities were required to be implemented during the pre-construction stage; twenty-three (23) activities are required to be implemented during the construction stage; and three (03) activities are required to be implemented during the operation stage.

42. **Table 8** and **Table 10** list the status of activities during the pre-construction and construction stages as of December 31, 2017 for the two projects.

Table 8. Status of Compliance to Environmental Provisions of the Environmental Management Plan – Northern Bypass Road

SN	Activity	Mitigation measures	Compliance attained (Yes, No, Partial)	Comment/Reasons for Partial or Non-Compliance	Issues for further action and target dates
PRE-CONSTRUCTION					
1	Design measures	<ul style="list-style-type: none"> • IEE for NBR submitted to NEC and environmental clearance is 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. 	Yes. Environmental clearance for NBR has been received. See Appendix 1 (Environmental Clearance of Northern Bypass Road)		
2	Environmentally responsible procurement	<ul style="list-style-type: none"> • Procured air and noise monitoring equipment. • Contractor engineer is trained at site on day to day basis. 	Yes. The equipment of MDP is being used for air and noise monitoring.		
3	Environmental capacity development	<ul style="list-style-type: none"> • Environment baseline (air and noise) monitoring equipment and required training on data collection and assessment is 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 MDP on November 17, 2017. 50 labourers and 10 site engineers were present during the campaign.</p>		
4	Protect and re-provision irrigation and utilities	<ul style="list-style-type: none"> • Power, water supply, telecommunications being monitored in consultation with PT, BPC & BT and irrigation systems are not interrupted by project work till now. 	Yes		
5	Tree cutting	<ul style="list-style-type: none"> • 159 trees felled only in required area with approval from Department of Forestry. 	Yes		

SN	Activity	Mitigation measures	Compliance attained (Yes, No, Partial)	Comment/Reasons for Partial or Non-Compliance	Issues for further action and target dates
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		
2	Loss of vegetation and impacts to fauna	<ul style="list-style-type: none"> Impact on vegetation and fauna is very minimal. 	Yes		
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		
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	
5	Spoil Disposal	<ul style="list-style-type: none"> Spoils are dumped at identified dumping area near Toorsa river. Contractor follows cut and fill. 	Yes		
6	General Construction Waste Disposal	<ul style="list-style-type: none"> Contractor has made two pits for organic waste/ non -organic waste, with sufficient refuse bins within site camps and offices. 	Yes		
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, Contractor maintains their machines and vehicles in Phuentsholing workshops Project vehicles are fueled from Phuentsholing fueling station. 	Yes		
8	Asphalt plant rock crushers, bitumen usage and soil contamination	<ul style="list-style-type: none"> As per Contractor's work plan they will not establish asphalt plant and rock crushers. They will source from private firm. Therefore, there would not be soil contamination 	Yes		
9	Noise and dust nuisances	<ul style="list-style-type: none"> -Noise is very minimal as construction site is away from human settlements. 	Yes.		

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"> -Project vehicles are maintained on time. -Water tanker is being deployed by contractor to subside the dust along the road within project area. -Air and noise have been monitored by CSC. 			
10	Blasting (if required)	N/A	No	Project did not encounter rock till now.	
11	Erosion control / run-off	<ul style="list-style-type: none"> -temporary drainage has been constructed. 	Partial		
13	Water quality	<ul style="list-style-type: none"> -Camps and site office are located away from river. -No solid waste from construction are thrown in river. -Washing of machinery and vehicles in river is strictly prohibited within project premises. 	No		
14	Water resources	<ul style="list-style-type: none"> -Water has been sourced from different source from community. -Camps are located away from the water source. -Contractor brings water by water tanker. 	Yes		

Table 9. Status of Compliance to Environmental Provisions of the Environmental Management Plan – Mini Dry Port

SN	Activity	Mitigation measures	Compliance attained (Yes, No, Partial)	Comment/Reasons for Partial or Non-Compliance	Issues for further action and target dates
PRE-CONSTRUCTION					
1	Design measures	<ul style="list-style-type: none"> -IEE for MDP submitted to NEC and environmental clearance is approved. -Public clearance from Phuentsholing Thromde was obtained. 	Yes		

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"> -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. 			
2	Environmentally responsible procurement	<ul style="list-style-type: none"> -Procured air and noise monitoring equipment. Contractor engineer is trained at site on day to day basis on environmental dos. 	The equipment for monitoring air and noise procured.		
3	Environmental capacity development	<ul style="list-style-type: none"> -Environment baseline (air and noise) monitoring equipment and required training on data collection and assessment is conducted recently. - Health awareness campaign on STD/HIV/AIDS has been conducted at contractor's camp area. 	Yes		
4	Protect and re-provision irrigation and utilities	<ul style="list-style-type: none"> Power, water supply, telecommunications are being monitored in consultation with PT, BPC & BT and irrigation systems are not interrupted by project work till now. 	Yes		
5	Tree cutting	<ul style="list-style-type: none"> -119 trees felled only in required area with approval from Department of Forestry. 	Yes		
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		
2	Loss of vegetation and impacts to fauna	<ul style="list-style-type: none"> Impact on vegetation and fauna is very minimal. 	Yes		
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		

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	
5	Spoil Disposal	<ul style="list-style-type: none"> -Till date there is no spoil disposal issues where we follow (cut and fill) 	Yes		
6	General Construction Waste Disposal	<ul style="list-style-type: none"> -Contractor has made two pits for Organic waste/non-organic, sufficient refuse bins within site camps and offices. 	Yes		
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, Contractor maintains their machines and vehicles in Phuentsholing workshops -Project vehicles are fueled from Phuentsholing fueling station. 	Yes		
8	Asphalt plant rock crushers, bitumen usage and soil contamination	<ul style="list-style-type: none"> -As per Contractor's work plan they will not establish asphalt plant and rock crushers. They will source from private firm. Therefore, there would be soil contamination 	Yes		
9	Noise and dust nuisances	<ul style="list-style-type: none"> -Noise is very minimal as construction site is away from human settlements. -Project vehicles are maintained on time. -Water tanker is being deployed by contractor to subside the dust along the road within project area. -Air and noise have been monitored by CSC. 	Yes		
10	Blasting (if required)	N/A	No	Project did not encounter rock till now.	
11	Erosion control / run-off	<ul style="list-style-type: none"> -temporary drainage has been constructed. 	Partial		

SN	Activity	Mitigation measures	Compliance attained (Yes, No, Partial)	Comment/Reasons for Partial or Non- Compliance	Issues for further action and target dates
13	Water quality	<ul style="list-style-type: none"> • Camps and site office are located away from river. • No solid waste from construction are thrown in river. • washing of machinery and vehicles in river is strictly prohibited within project premises. 	No		
14	Water resources	<ul style="list-style-type: none"> • Water has been sourced from different source from community. • camps located away from the water source. • Contractor brings water by water tanker. 	Yes		

V. COMPLIANCE TO ENVIRONMENTAL CLEARANCE

43. 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. Northern Bypass Road's Compliance with the Terms and 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
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, archeological, and/or ecological importance	There have been no such chance findings yet
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.
II. Environmental standards		
7	The holder shall comply with the existing Environmental Standards	
III. Import and use of secondhand equipment		
8	The holder shall ensure that import and use of secondhand equipment and machineries are strictly prohibited.	No secondhand equipment were used at the site. Equipment 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	NBR construction site is away from the rivers and streams, accept the construction of two bridges.
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	
12	The holder shall ensure that import and use of hazardous wastes are strictly prohibited	

No.	Compliance Requirement	Status
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	N/A. No erosion/landslide issues have been faced so far
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 updated to incorporate requirements of NECs terms and conditions
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	
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	
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	
21	The holder may adopt best practices in executing these terms and conditions to avoid adverse environmental impacts.	

44. The Environmental Compliance of Mini Dry Port (MDP) 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 MDP.

Table 11. Mini Dry Port's Compliance with the Terms and Conditions of the Environmental Clearance

No.	Compliance Requirement	Status
1	As per Section 28.3 of the Regulation for the Environmental Clearance of Projects 2002, any modification of the proposal / application shall take place only with the prior approval of the NECS	There has been no modification in proposal so far
2	The holder shall ensure that this environmental clearance is valid for the establishment of mini dry port at Phuentsholing under Phuentsholing Thromde	Construction is within the premises of the Mini Dry Port (MDP) project.
3	The holder shall ensure that the activity is in line with the National Environmental Protection Act 2007, Environmental Assessment Act 2000 and its Regulation 2002, Waste Prevention and Management	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

No.	Compliance Requirement	Status
	Act of Bhutan 2009 and its Regulation 2012, and the Water Act 2011 and its Regulation 2014	
4	The holder shall ensure that the activity complies with the Environmental Standards, 2010	119 trees within the project area. Forest permit shall be obtained by PT
5	The holder shall ensure compliance to the Undertaking submitted to NECS	Construction is as per the IEE submitted and as per the Environmental Clearance issued
6	The holder shall ensure compliance to all terms and conditions of stakeholder clearances at all times	Construction is being carried out as per stakeholder clearances
7	The holder shall ensure that the activity is carried out as per the application submitted for environmental clearance	Construction is as per the IEE submitted and as per the Environmental Clearance issued
8	The holder shall ensure that adverse visual impact on the environment due to the activity is minimized	There are no adverse visual effects that need to be covered
9	The holder shall ensure that activity is confined within the allotted area	No works other than the Construction of mini dry port.
10	The holder shall be solely responsible for any dispute arising due to the activity	As all disputes and settlements have been made during the IEE stage, the construction phase does not envisage any disputes.
11	The holder shall ensure that local residents, households, communities, public, private parties, and any religious, historic and ecologically important sites are not adversely affected by this activity	The construction does not affect any sites of this nature.
12	The holder shall ensure that NECS is informed of any chance finds of precious metals or minerals or articles that have economic, religious or ecological significance	There have been no such chance findings yet
13	The holder shall ensure that the import and use of secondhand equipment and machineries are strictly prohibited	No secondhand equipment. Equipment used at the site was all found to be in good condition.
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	Due to the flat terrain excavated materials will not be rolled over yes sir.
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 pre-identified / approved dumpsite only	N/A (cut & fill since the nature of land is flat terrain, there is not much excavated materials to be disposed.)
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 labour 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	

No.	Compliance Requirement	Status
22	The holder shall be solely responsible for managing wastes generated with the application of 4R (Reduce, Reuse, Recycle and 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	There are six toilets at the workers camp. The camp has adequate water for both cooking and washing.
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.	Gum boots, helmets, and face masks have been issued to the workers.
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	Safety signboards are at strategic locations with specific warning signs.
30	The holder shall ensure that a copy of the environmental clearance is available at the worksite at all times	Copy of the EC is made available with the Contractor office
31	The holder shall ensure that renewal of this environmental clearance is processed at least one month prior to its expiry along with a copy of 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 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.	Contractor has appointed Safety Officer. From PIU, PM takes care of safety issues and from CSC side Environmental Focal Person monitors this

VI. MONITORING ACTIVITIES UNDERTAKEN

A. Air Quality Monitoring

45. Mr. Ugyen Dorji, Environmental Specialist from Gyaltsen Consultancy, Thimphu conducted ambient air quality monitoring along NBR on September 15-21, 2017 and MDP on September 8-11, 2017. Air quality monitoring was done for 24 hours in 8 locations.

Table 12. Air Quality Monitoring Results

SI No	Location	Date	In Microgram per cubic meter		Environmental Standards, 2010	
			TSPM	PM 10	TSPM	PM 10
Northern Bypass Road						
1	Takeoff of PNB (gate II) Ch: 0+000km	15.09.2017	170.21	97.08	200µg/m³	100µg/m³
2	Weight bridge Ch: 0+500km	18.09.2017	173.91	90.99	200µg/m³	100µg/m³
3	Phuentsholing Higher Secondary School gate Ch: 1+050km	19.09.2017	181.81	76.92	200µg/m³	100µg/m³
4	Near underpass area Ch: 1+500km	20.09.2017	186.04	91.74	200µg/m³	100µg/m³
5	Near start of bridge point Ch: 2+350km	21.09.2017	160.00	77	200µg/m³	100µg/m³
Mini Dry Port						
1	Entrance (gate)	08.09.2017	174	94.33	200µg/m³	100µg/m³
2	Near laboratory (middle)	09.09.2017	167	91.95	200µg/m³	100µg/m³
3	Exit point	11.09.2017	170	83.33	200µg/m³	100µg/m³

46. The results show that the suspended particulate matter (SPM) and respirable particulate matter (RPM, PM₁₀) are below the level prescribed in Environmental Standards, 2010.

B. Noise Level Monitoring

47. 24-hour monitoring of noise level was also monitored along NBR on September 15-21, 2017 and at MDP on September 8-11, 2017. Mr. Dorji from Gyaltsen Consultancy, Thimpu also conducted the noise level monitoring.

Table 13. Noise Level Monitoring

S. No	Location	Date	Day (Leq)	Night (Leq)	Environmental Standards, 2010	
					Day (Leq)	Night (Leq)
Northern Bypass Road						
1	Takeoff of PNB (gate II) Ch: 0+000km	15.09.2017	63	50	65 dB(A)	55 dB(A)
2	Weight bridge Ch: 0+500km	18.09.2017	60	48	65 dB(A)	55 dB(A)
3	Phuentsholing Higher Secondary School gate Ch: 1+050km	19.09.2017	58	45	65 dB(A)	55 dB(A)
4	Near underpass area Ch: 1+500km	20.09.2017	61	47	65 dB(A)	55 dB(A)
5	Near start of bridge point Ch: 2+350km	21.09.2017	50	44	65 dB(A)	55 dB(A)
Mini Dry Port						
1	MDP (gate)	08.09.2017	53	43	65 dB(A)	55 dB(A)
2	MDP (near lab)	09.09.2017	51	40	65 dB(A)	55 dB(A)
3	MDP (exit point)	11.09.2017	54	42	65 dB(A)	55 dB(A)

48. The results show that the noise levels are below the levels prescribed in Environmental Standards, 2010.

VII. CONCLUSION

49. 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. There are different subprojects under SASEC under various stages of civil works.

50. 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. Almost 90% of bridge foundation excavations were completed.

51. Baseline data collection for air quality and noise level monitoring for the two projects was conducted by M/s Gyaltsen Consultancy on September 15-21, 2017 along the NBR, and from September 8-11, 2017 at MDP.

52. The environmental clearances for both NBR and MDP were obtained from the National Environmental Commission. The EC for NBR is valid until September 26, 2020, while that of the MDP will be effective until October 19, 2021.

53. Occupational health and safety measures are being complied by issuing the necessary safety outfits like safety hamlet, safety gumboots, safety boots, safety jackets and dust mask. 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.

54. There were no complaints nor grievances lodged with Phuentsholing Thromde during the reporting period for both NBR and MDP.

55. The Environmental Specialists have very limited input monitoring the construction site and EMP implementation. Site Inspector from CSC represents the ES and monitors the construction sites on a regular basis. 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.

56. Awareness on the environmental and occupational health and safety measures was conducted by the Environmental Specialists (CSC) on December 22, 2017 to Environmental focal persons and labourers at MDR.

57. 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 submits to Phuentsholing Thromde.

58. The construction of NBR was started in September 01, 2017 and will be completed in February 28, 2020. The MDP was started in April 18, 2017 and will be completed in December 18, 2018.

APPENDIX 1: ENVIRONMENTAL CLEARANCE OF NORTHERN BYPASS ROAD



ཀྲུལ་ཡོངས་མཐའ་འཁོར་གནས་སྤངས་ལྷན་ཆེན།
 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: PHOTO LOG OF NORTHERN BYPASS ROAD



Picture:1 Safety sign at road side



Picture: 2 New boundary walls at Gurudhwara



Picture: 3 Labours with PPE at Construction site. Picture:4 New boundary wall along the NBR



Picture:5 Bridge foundation excavation



Picture: 6 Disposal site near Toorsa river



Picture: 7 Drain construction site along NBR



Picture: 8 Water tanker at construction site

APPENDIX 3: ENVIRONMENTAL CLEARANCE OF MINI DRY PORT



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



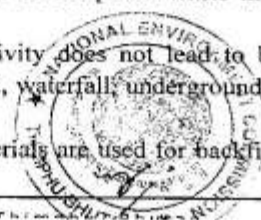
NECS/ESD/Dzo-Chukha/3379/3380/2016/1946

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 4: FORESTRY CLEARANCE OF MINI DRY PORT

62/2013-2014

ROYAL GOVERNMENT OF BHUTAN
MINISTRY OF AGRICULTURE AND FORESTS
DEPARTMENT OF FORESTS AND PARK SERVICES
THIMPHU, BHUTAN
"Sustaining Forest Resources for Present and Future Generations"

April 9, 2014

FRMD/MPS/2(b)/2013-2014/ 950

The Chief Forestry Officer
Gedu Territorial Division
Gedu, Chukha

Subject: Forestry Clearance for clearing Sal forest for proposed Mini Dry Port by Phuntsholing Thromde

This has reference to your letter vide No.GFD/CTM/6-4/2014/483 dated 26th March 2014 requesting forestry clearance for clearing of Sal forest (GRF) for establishment of Mini Dry Port by Phuntsholing Thromde with financial assistance from ADB. An approval to this effect has been accorded by Hon'ble Secretary, Ministry of Agriculture and Forests vide No.FRMD/MPS/11(a)/2013-2014/923 dated 8th April 2014.

Therefore, you are hereby directed to hand over 119Nos. of *Shorea* sp. and *Terminalia* sp. to NRDCL for extraction after marking. You are further asked to carry out consistent monitoring.

(Chencho Norbu)
Director General

Cc:

1. The CEO, NRDCL for kind information.
2. The Offg. Executive Secretary, Phuntsholing Thromde for kind information and follow up.
3. The CPO, FRMD for information and follow up.
4. Office copy for record.

8-4
14/4/14
502

Gen.
T.C.
2.0 P/Kj

APPENDIX 5: PHOTO LOG OF MINI DRY PORT



Picture: 1 Project information signboard



Picture: 2 Safety signboard



Picture: 3 Contractor/CSC site office



Picture: 4 Safety equipment at MDP Site Office



Picture: 5 Boundary walls at MDP Project



Picture: 6 Labour camp at MDP Project area



Picture: 7 Awareness on Environmental dos & don'ts



Picture: 8 Awareness on AIDS/HIV