

Environmental Monitoring Report

Final Report
January 2021

Bhutan: South Asia Subregional Economic Cooperation Road Connectivity Project

Mini Dry Port

Prepared by the Phuentsholing Thromde for the Government of Bhutan and the Asian Development Bank.

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**FINAL ENVIRONMENT MONITORING
REPORT, 31 January 2021
BHU SASEC Road Connectivity Project,
Mini Dry Port**

Prepared by Phuentsholing Thromde, Royal Government of Bhutan for the Asian Development Bank

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CURRENCY EQUIVALENTS

(as of 31th January 2021)

Currency unit	–	Bhutanese Ngultrum
Nu. 1.00	=	\$ 0.0137
\$ 1.00	=	Nu. 72.75

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	PhuentsholingThromde
ROGB	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) 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. PhuentsholingThromde is one of the Executing Agencies of the Project, where it is in charge of implementing components (iii) and (iv) 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 PhuentsholingThromde (PT). The Project Management Unit (PMU) is supported by personnel from PhuentsholingThromde, where they work with supervision consultants to monitor all construction activities.
3. The Mini Dry Port (MDP), is intended to provide suitable facilities for all import/export trade with Bhutan through Phuentsholing in the short to medium term. The construction of entrances and exits to the MDP yards and several administration and warehouse type buildings and service roads have been completed on 4/2/2019 and further handed over to the Employer on 12th February 2019.
4. The MDP project is categorized as B for environment under ADB's SPS guidelines. Initial environmental examinations (IEEs) were prepared and disclosed in ADB website on March 2014.
5. This is the fourth and final environmental monitoring report prepared for the Mini Dry Port. As of January 2021, the MDP has already been completed and functional since April- 2020 by Department of Revenue and Customs.
6. Environmental Clearances were obtained from the National Environment Commission Secretariat (NECS). The clearance for the Mini Dry Port, on October 20, 2016. Refer to **Appendix 1**.
7. EMP for the projects were monitored and implemented on day-to-day basis by the Environmental Focal Persons from both Contractor's side and from CSC (SI/ES).

II. PROJECT DESCRIPTION

A. MINI DRY PORT (MDP)

I. Project Scope

8. The proposed site for the Mini Dry Port (MDP) is located north-eastern bank of the Amo Chhu River, near the Phuentsholing city sewage treatment ponds and the Bhutan/India border wall. Site reservation was completed by the Department of Trade. The site has a total estimated size of 2.2ha (5.4acres).
9. The Project included (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 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.
10. The scopes of work for MDP project including Contractor's details are provided in **Table 1**.

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

S.N	Work item	Name of Contractor	Contract award date & Start date	Contract completion date
1	Reconstructing drainage and culverts across the MDP	M/s MarushinShitaka Construction Company Ltd.	17/4/2017 & 18/4/2017	18/12/2018 Ext. 04/02/2019
S.N	Work item	Name of Contractor	Contract award date & Start date	Contract completion date
2	Administration Building	M/s MarushinShitaka 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			

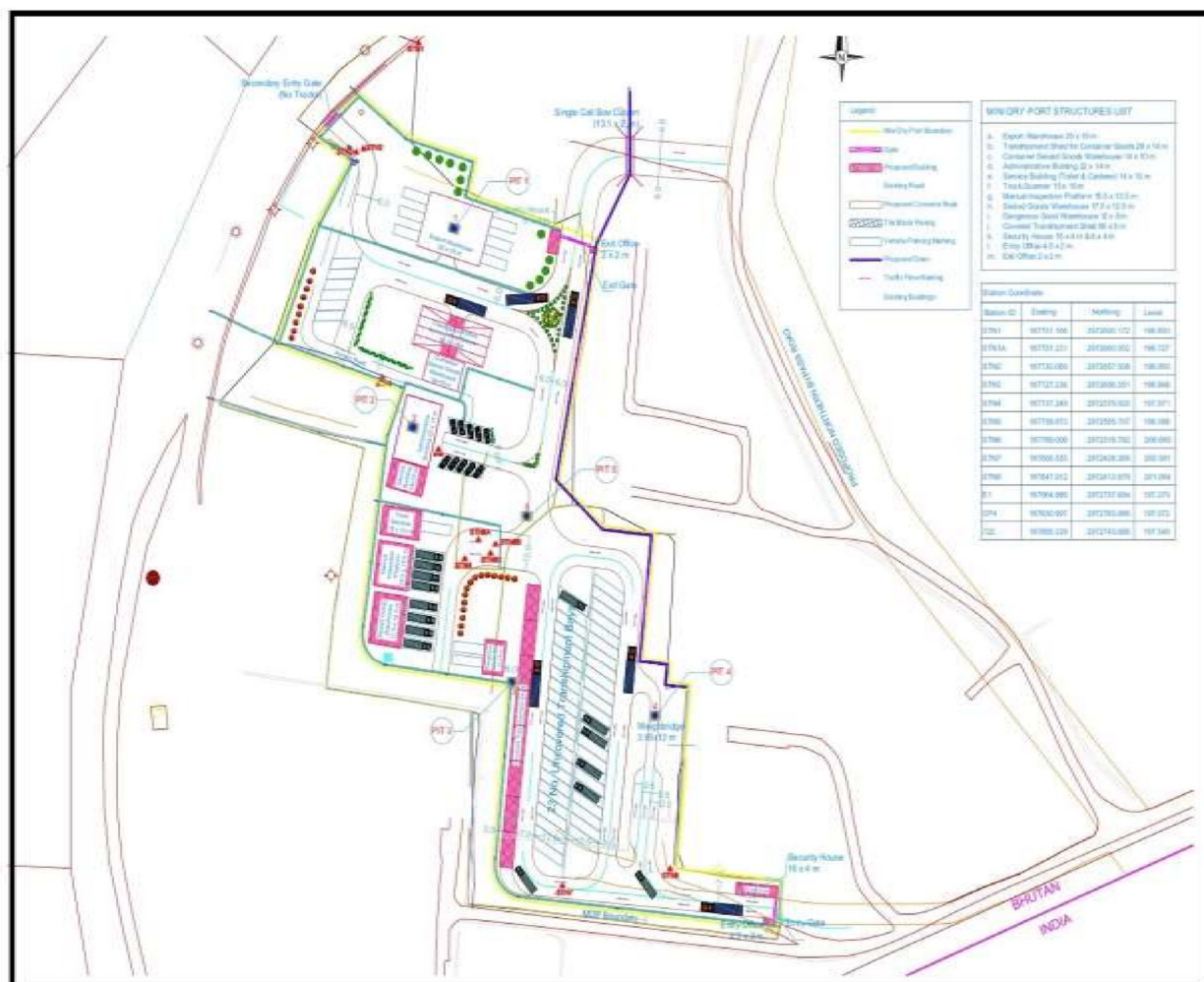


Figure 1: Project Location of Phuentsholing Mini Dry Port

II. Implementation Arrangement

11. Project Manager (PM) from the PIU was the environmental focal person for the PT at the PIU level, who was responsible for ensuring the compliance of environmental conditions of the project. Construction Supervision Consultant (CSC) hired was part of the PIU.
12. CSC included 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 were the main persons who carried out the daily monitoring of construction works; and ensured the implementation of environmental mitigation measures as prescribed in the EMP, by the Construction Contractor (CC).
14. The contractor, through its Project Manager/Engineer, was responsible for submission of monthly EMP compliance report. Similarly, RE made the monthly project progress report which included the section on compliance of environmental terms and conditions.
15. Environment Specialist (ES) carried out intermittent environmental compliance monitoring of the project and ensured the environmental mitigation measures or conditions were adequately addressed.

ES was 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) consisted 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) was the district official of NECS.
17. DEC was responsible for issuing the Environmental Clearance for some project activities mandated by the committee and for checking compliance of the projects to which it issued EC periodically. As part of its regular activities, NECS gave general training and orientation to DEOs before sending them to districts. These orientations focused mainly on Bhutan's environmental requirements.

III. Project Implementation Progress

18. The progress of work as of January 1st, 2021 is shown in **Table 2**.

Table 2: Work Progress as of January 2021

Item No.	Activities	Completed	Remarks
1	Camp and site office establishment	100%	The MDP site is completed and handing taking done on 11/2/2019.
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%	

IV. Construction Approach and Methodology was adopted during implementation

19. MDP construction was carried out in an environment friendly manner following the principles of balance cut and fill, hence no disposal site was required.

V. Project Cost / Implementation Schedule

20. The Project cost for MDP was Nu.134.854 million and provisional sum of Nu. 31.165 million was for IT System, Cold Storage and contingency costs. MDP project started on April 17, 2017 and was to be completed on December 18, 2018 as per contract, but was granted an extension until 4 February 2019 and completed. The cost of EMP was Nu. 0.8 Million.

VI. Project Categorization

21. The Project was classified as category B in accordance with ADB's Safeguard Policy Statement (2009) as no significant impacts were envisioned.

III. SAFEGUARDS COMPLIANCE

A. Compliance to Financing Agreement (Special Operations)

22. The environmental safeguard requirements are indicated in Financing Agreement (Grant Number 0400-BHU) between ADB and Kingdom of Bhutan dated 5th September 2014. These financing agreement provisions and compliance status are provided in **Table 3**.

Table 3: Status of Compliance to Environmental Provisions of the Financing Agreement

S.N	Environment Provision	Compliance Status
		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>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 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 was monitored from time to time.</p>
S.N	Environmental Provision	Compliance Status
2	<p>Schedule 5. Item 2: <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 were disbursed timely for compensation to the affected parties. The</p> <p>Project Coordinator and Project Manager were appointed as counterpart staff to the project</p>
3	<p>Schedule 5. Item 5: <u>Environment</u></p>	Complied.

	<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>The compliance requirements with regard to social and environmental safeguards, health and safety and EMP had been satisfactorily complied</p>
S.N	Environmental Provision	Compliance Status
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. Project Manager and the Project Engineer from PT monitored 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</p>	<p>Not applicable. No indigenous people were located within the project premises.</p> <p>Complied. The required funds for environmental and social measures were disbursed on need basis. Impacts to environmental, resettlement or indigenous peoples was not anticipated.</p> <p>No affect to road and agricultural land.</p>

	<p>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>	
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>Submitted quarterly and annual reports</p> <p>All unanticipated incidences were reported to client and ADB</p> <p>Reported all actual or potential breach of compliance</p>

B. Compliance to Project Administration Manual

23. The Project Administration Manual¹ (PAM) described how the Phuentsholing Thromde, Department of Roads, and Ministry of Works and Human Settlements would 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.

24. The PAM was mandatory and served as the main document describing implementation details. The status of implementing the environmental safeguards requirements set out in PAM are provided in **Table 4**.

Table 4: Status of Compliance to Environmental Provisions of the Project Administration Manual

SN	Environmental Provision	Compliance Status
		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 (NBR) and Phuentsholing Mini Dry Port (MDP).</p>	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 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.</p>	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 (EFP) was appointed from Consultant site Inspector and from Contractor Project Engineer
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</p>	Complied. The air and noise monitoring equipment were procured and air and noise monitoring was conducted every few months.

	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.	
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>	<p>Complied.</p> <p>All the necessary environmental clearance and forest permits were obtained by PMU before starting construction works.</p>
6	<p>Schedule VIII. Item 43:</p> <p><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>	<p>GRM had been established. If there were project affected people, they were asked to approach the PMU and the Dzongkhag Land Committee.</p>
7	<p>Schedule VIII. Item 44:</p> <p><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, 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</p>	<p>Complied</p> <p>Reporting system was followed by the contractor and the process followed for compiling the environmental monitoring report.</p>

C. Compliance to the Civil Works Contract Agreement

Table 5: Status of Compliance to Environmental Provisions of the Civil Works Contract Agreement

SN	Description	Compliance Status
		Mini Dry Port
1	Orientation for Contractors, Workers on environmental and social management	Orientation for Contractor and worker on environmental was conducted, 100% compliance has been achieved.
2	Loss of vegetation	119 trees were cut down and handed over to NRDCL. Trees have been planted in the compound of the MDP, but not at the capacity it was felled.
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

25. The environmental management plan (EMP) for Mini Dry Port is provided in **Table 6**.

Table 6: Status of Compliance to Environmental Provisions of the Environmental Management Plan – Mini Dry Port

S.N	Activity	Mitigation Measures	Compliance attained (Yes, No, Partial)	Location	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 • IEE recommendations have been incorporated in the design • Unnecessary stockpiling of rock and bitumen-based materials near road is avoided • Water and power supply if provided from different source from community 	Yes	MDP	Complied	
2	Environmentally responsible procurement	<ul style="list-style-type: none"> • Procured air and noise monitoring equipment. • Contractor engineer is trained at site on a day to day basis on the environmental do's and don'ts. 	Yes The equipment for monitoring air and noise procured	MDP	Air pollutions were within limits but on the slightly higher end of the spectrum. A precautionary compliance letter was submitted to the contractor	
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 recently conducted. • Health awareness campaign on STD/HIV/AIDS has been conducted at contractor's camp area 	Yes 22/03/2018 HIV/AIDS/STD had been conducted at contractor's camp site.	MDP	Complied	

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	MDP	Complied	Trees have been replanted in the MDP compound.
5	Tree Cutting	<ul style="list-style-type: none"> 119 trees felled only in required area with approval from Department of Forestry. 	Yes	MDP	Complied	
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 had been conducted at camp area on health issues. 	Yes	MDP	Complied	
2	Loss of vegetation and impacts to fauna	<ul style="list-style-type: none"> Impact on vegetation and fauna was very minimal. 	Yes	MDP	Complied	
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	MDP	Complied	
4	Materials exploitation and management of quarry and borrow areas	<ul style="list-style-type: none"> Not required as construction materials were transported from approved private mines 	No	MDP	Not required as the mines/quarry were managed by private individual	
5	Spoil Disposal	<ul style="list-style-type: none"> Till date there was no spoil disposal issues where we followed (cut and fill) 	Yes	MDP	Complied	
6	General Construction Waste Disposal	<ul style="list-style-type: none"> Contractor was to make two pits for organic & non -organic waste, with sufficient refuse bins within site camps and offices. 	Yes	MDP	Complied	
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 	Yes	MDP	Complied	

		<ul style="list-style-type: none"> Contractor maintains their machines and vehicles in Phuentsholing workshops Project vehicles were fuelled from Phuentsholing fuelling station. 				
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 will not be soil contamination 	Yes Setting up of asphalt plant & rock crushers were done by the contractor later away from the construction site. Location was near quarry site (Toorsa Site).	MDP	Complied	The crusher and asphalt plant has been removed as the area was under the PCR project and currently houses temporary housing for Bhutanese who migrated from Jaigoan (neighbouring Indian city) during the pandemic.
9	Noise and dust nuisances	<ul style="list-style-type: none"> Construction site is near human settlement, but noise was to monitor throughout the day, to make sure no complaints are filed. No overtime work was encouraged, as the noise from site would not have impacted the people. <ul style="list-style-type: none"> Project vehicles were maintained on time. Water tanker was deployed by contractor to subside the dust along the road within project area. Air and noise had been monitored by CSC. 	Yes	MDP	Complied	
10	Blasting (if required)	<ul style="list-style-type: none"> N/A 	No	MDP	Project did not encounter rock until the completion of the project.	

11	Erosion control / runoff	<ul style="list-style-type: none"> • Temporary drainage has been constructed 	Partial	MDP	Complied	
12	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 were strictly prohibited within project premises 	No	MDP	Complied	
13	Water Resources	<ul style="list-style-type: none"> • Water was sourced from different sources within the community • Camps were located away from the water source • Contractor transported water by water tanker 	Yes	MDP	Complied	

V. COMPLIANCE TO ENVIRONMENTAL CLEARANCE

26. The Environmental Compliance of Mini Dry Port (MDP) project was prepared as per terms and conditions of EC and implementation of Environmental Management Plan (EMP) of the project. **Table 7** contains the compliance requirements and the status compliance of MDP.

Table 7: 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 was no modification in proposal till completion of the project i.e., 12/2/2019
2	The holder shall ensure that this environmental clearance is valid for the establishment of mini dry port at Phuentsholing under Phuentsholing Thromde	Construction was within the premises of the Mini Dry Port (MDP) project and it was valid under Phuentsholing Thromde.
3	<ul style="list-style-type: none"> 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. Act of Bhutan 2009 and its Regulation 2012, and the Water Act 2011 and its Regulation 2014 	Construction was carried out as per the mentioned laws. The site was monitored by the Dzongkhag Environmental Officer, PT as well as the site supervisor from the consultant's firm
4	The holder shall ensure that the activity complies with the Environmental Standards, 2010	119 trees within the project area. Forest permit was obtained by PT before tree felling.
5	The holder shall ensure compliance to the Undertaking submitted to NECS	Construction was 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 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 was 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 had been no adverse visual effects that need to be covered till completion of the project
9	The holder shall ensure that activity is confined within the allotted area	No works other than the Construction of mini dry port were carried out within the allotted area.
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 did not encounter 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 had not affected any sites of this nature till completion period and MDP is functioning well after taking over by the client

No.	Compliance Requirement	Status
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 findings till completion of the project.
13	The holder shall ensure that the import and use of second-hand equipment and machineries are strictly prohibited	No second-hand equipment. All required equipment were purchased and were 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	No such activity occurred during construction period.
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, such issues mentioned were not faced.
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	Complied. In case the materials were not reused it was disposed in a designated area which was allocated by the Phuentsholing Thromde.
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	Excavated materials were disposed at disposal site near Toorsa river approved by the Phuentsholing Thromde. The site currently falls under PTDP project and the materials have been reused for their project activity.
18	The holder shall ensure that vehicles carrying construction materials are totally covered / closed	Tarpaulin was used to cover all vehicles carrying construction materials
19	The holder shall ensure that dusts generated during construction are adequately suppressed by sprinkling water in and around the construction premises	Water tanker was dispersed every 30-40 minutes to sprinkle water in and around the project area
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	Waste truck collected all the waste from the labour camps, and project sites.
21	The holder shall ensure that littering is avoided at all times	Dust bins were fitted around the project site.
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	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.
23	The holder shall ensure that plastic and metallic wastes generated are properly collected and reused / recycled	Bins were installed around the project premises.
24	The holder shall ensure that general housekeeping, cleanliness and hygiene is maintained all the time	It was compiled during entire construction period

No.	Compliance Requirement	Status
25	The holder shall ensure that adequate sanitation facility is provided for the workers and employees	There were six toilets at the worker's camp. The camp had 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 were issued to the workers and they maintained the safety norms.
27	The holder shall ensure that underage workers are not employed	No underage workers engaged at site.
28	The holder shall ensure that first aid kit is made available at the site	First aid kit was available at the project 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 were placed 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 was 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	Not required as the project is complete
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	Complied and submitted to NEC
33	The holder shall ensure that the environmental unit / focal person assert strict implementation of these environmental terms and conditions at all times.	Contractor appointed Safety Officer. From PIU, PM took care of safety issues and from CSC side Environmental Focal Person monitored.

VI. MONITORING ACTIVITIES UNDERTAKEN

A. Air and Noise Quality Monitoring

27. Ms. Sonam Deki, Environmental Specialist from Gyaltsen Consultancy, Thimphu conducted the final ambient air quality monitoring along MDP from January 9 – 14th 2019. The purpose of the ambient air quality monitoring was established to collect ambient air quality for the project area during construction phase, so that future air quality variation could be assessed during or after the project completion (operation phase). To ensure that the project does not cause or contribute towards the growing pollution in Phuentsholing town the only test conducted in the MDP area was near the laboratory. The remaining three locations 1.) near Settlement Area, 2.) Exit Point and 3.) Entrance gate were carried out to monitor the air quality in Phuentsholing Town and to ensure the project did not contribute to the existing pollution. The air quality monitoring was conducted over 24 hours in four locations at the MDP site. The results of the air quality monitoring from September 2017 – January 2019 is reflected below in a bar graph.

i. Ambient Air Monitoring of MDP Project Area

Ambient Air Quality Monitoring From September 2017 – January 2019

Result and Interpretation of Air Quality Monitoring

28. The MDP is situated close to the Bhutan and India border and near the exit gate entering into Bhutan. The overall air quality in the MDP area over the years have been within the permissible limits of the NEC's mixed area, but on the higher spectrum. Apart from the project activities being a contributing factor towards the high air pollution, it could have also been due to burning activities across the border, heavy movement of vehicles transporting construction materials, natural factors such as heavy winds and from private construction activities. The project overall did not contribute enormously towards the air pollution of Phuentsholing town.

Mitigation Measure

29. When the project was ongoing, to ensure that the air pollution was controlled, activities such as sprinkling of water along the construction area and beyond was initiated. It was also ensured that all construction materials were covered, and all vehicles were encouraged to use tarpaulin during transporting of materials. For the safety of the worker, the contractor and the consultant engineer at site were informed and encouraged to wear suitable gears and were provided with N95 or equivalent mask.
30. Shown below is a bar graph of all the past results of Ambient Air Quality Monitoring. As you can see the air qualities monitored are slightly on the higher spectrum, but has always remained within the permissible limits of the NEC's mixed area emission standards.

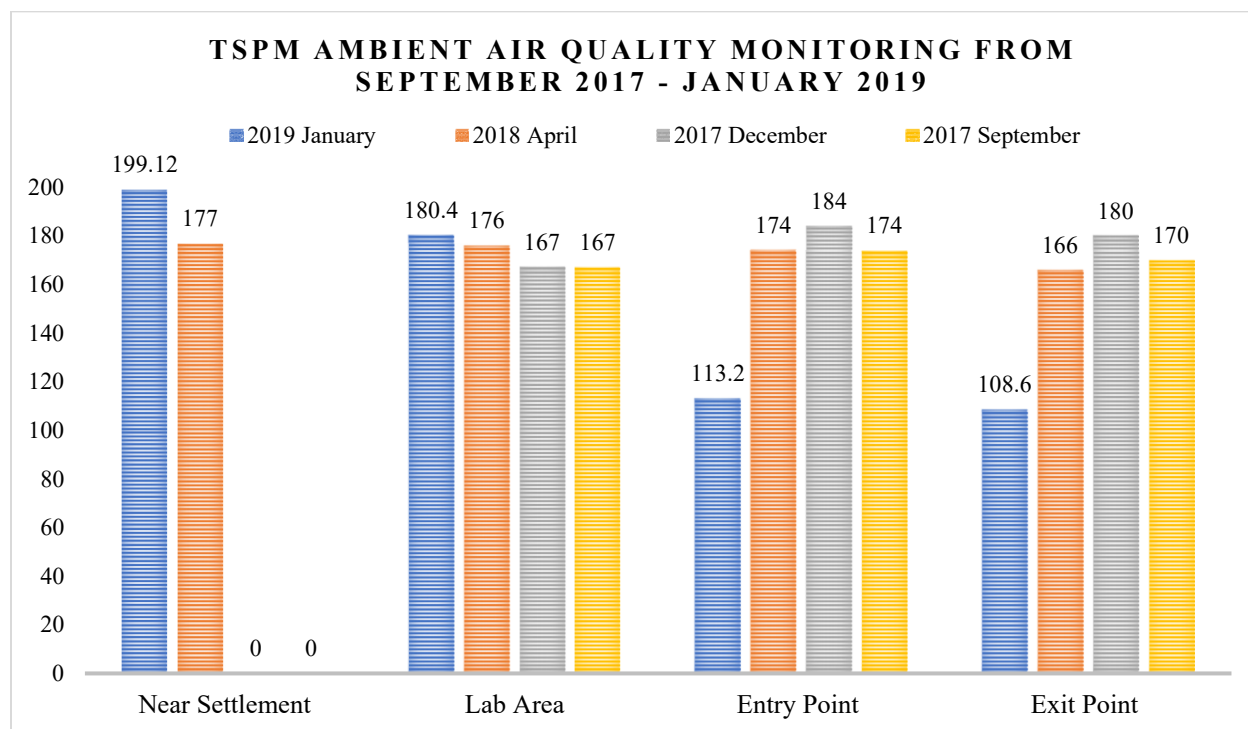


Figure 2: TSPM Ambient Air Quality Monitoring from September 2017 - January 2019

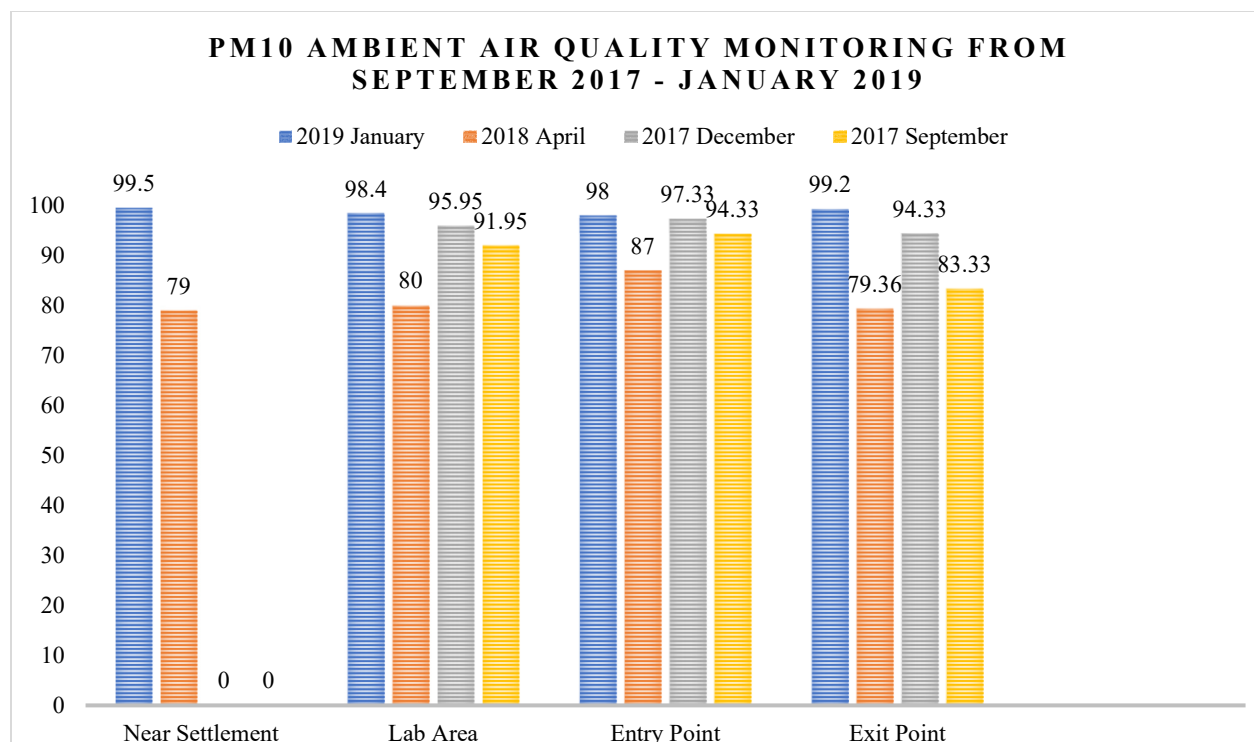


Figure 3: PM10 Ambient Air Quality Monitoring from September 2017 - January 2019

ii. Noise Quality Monitoring of MDP Project area

31. The Noise test was conducted to ensure that the project does not generate too much sound to impact the community. The locations for the noise testing were dispersed similar to the air quality monitoring to ensure that the noise was not only generated from project activities but from activities outside the project and natural factors. The overall noise quality in the MDP area over the years have mostly been within the permissible limits of the NEC's mixed area, except for a few tests. Apart from the project activities being a contributing factor towards the high noise pollution, it could have also been due to human activities across the border, movement of heavy vehicles, natural factors such as heavy winds, thunderstorms and from private construction activities. The project overall did not contribute enormously towards the air pollution of Phuentsholing town.

Result and Interpretation of Ambient Noise Level Monitoring

32. When the MDP project was ongoing, to ensure that the communities were not affected by the noise generated from the project activities, it was ensured that all loud noise generating work was stopped after work hours. Drivers were also informed not to unnecessarily honk. The project could only monitor the noise from the project activities. The Noise monitoring test was conducted once during the day and the other at night time. The noise generated during the testing are not permanent, and did not have any future impact.
33. Below is a graphical representation of noise monitoring for both day and night from September 2017 – January 2019. As represented below the noise at all locations in the MDP Project area have been within the permissible limits of the NEC's mixed area.

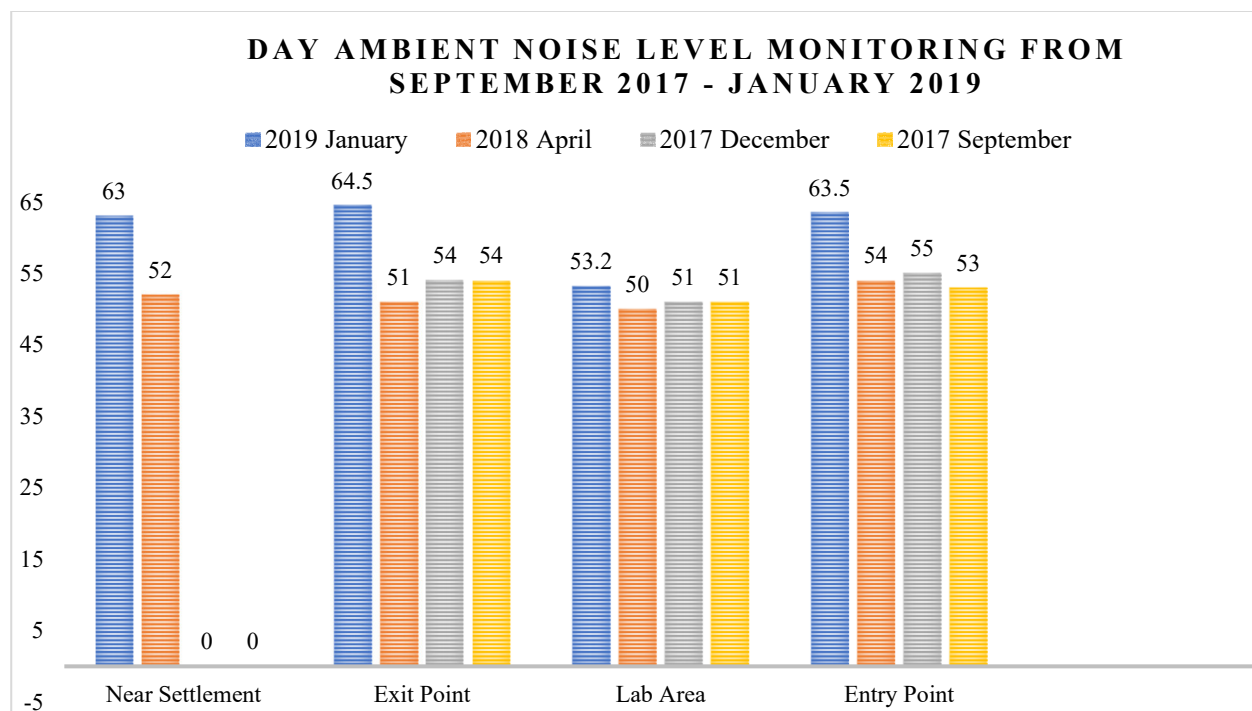


Figure 4: Day Ambient Noise Level Monitoring From September 2017 - January 2019

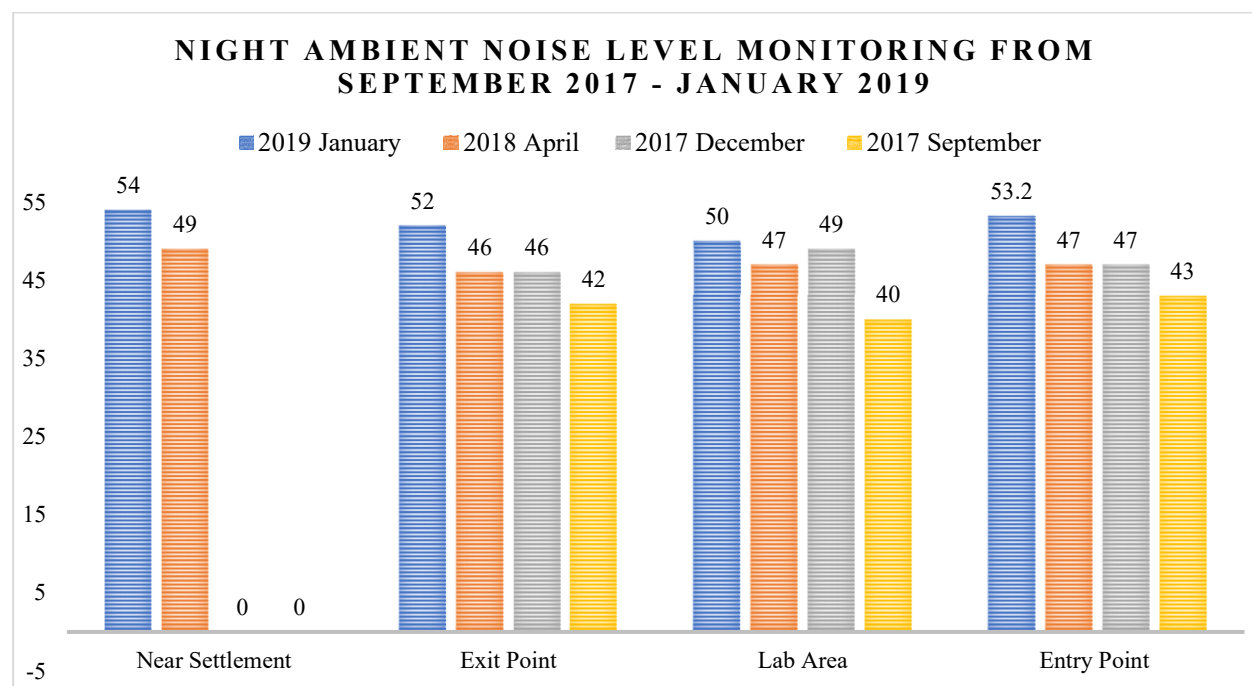


Figure 5: Night Ambient Noise Level Monitoring From September 2017 - January 2019

VII. CONCLUSION

34. This Final Environmental Monitoring Report covering the Mini Dry Port under the SASEC Connectivity Project, was prepared in compliance to the requirements of SPS 2009.
35. The contract package for the Mini Dry Port was awarded to M/s Marushin Shitaka Construction Company Limited.
36. Baseline data collection for air quality and noise level monitoring for the two projects was conducted by M/s Gyaltsen Consultancy.
37. The Environmental Clearances (EC) for MDP were obtained from the National Environmental Commission. The EC for the MDP will be effective until October 19, 2021.
38. Occupational health and safety measures were compiled by issuing the necessary safety outfits like safety helmet, safety gumboots, safety boots, safety jackets and dust mask. Excavation more than 1m depth was fenced for safety purposes. Water tankers were deployed to sprinkle the water along the project road as and when needed to suppress dust. All the necessary facilities were provided to the labours and staff living within the construction area.
39. There were no complaints nor grievances lodged with Phuentsholing Thromde during the reporting period for MDP.
40. Trees were planted in the MDP compound as a compensation for the removal of 119 trees. No images have been incorporated as the area is closed to the general public due to COVID.
41. Recent images of MDP are not attached because after the handing over of the project, the MDP was restricted for entry, due to the relocation of the custom's station to the port. Secondly, due to the pandemic, the MDP is a containment zone and is guarded off for safety reason. The images attached below are from the previous years after the completion of the project and some during on-going project.

VIII. PHOTO LOG OF MINI DRY PORT



Picture 1: MDP Site



Picture 2: MDP exit gate



Picture 3: Near residential area



Picture 4: Near Lab area



Picture 5: Road near the MDP exit gate



Picture 6: MDP site near Entry gate

DISPOSAL OF CONSTRUCTION MATERIALS



COMPLETED STRUCTURE

	
DRIVER SHED	DANGEROUS WAREHOUSE
	
CARGO PARKING	SEIZED GOOD'S WAREHOUSE
	
MANUAL INSPECTION PLATFORM	RIGID PAVEMENT
	
PAVER BLOCK IN FRONT of SERVICE BUILDING	ADMINISTRATIVE BUILDING

རྒྱལ་ཡོངས་མཐའ་འཁོར་གནས་སྤངས་ལྟན་མོགས།
 དཔལ་ལྷན་འབྲུག་གཞུང་།
National Environment Commission
 Royal Government of Bhutan

October 20, 2016

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.

10/11/21

APPENDIX 2: FORESTRY CLEARANCE FOR MINI DRY PORT

62/2013-2014/923

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/ 920

The Cb of 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/1(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
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8-4
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