Update Environmental Management Plan

May 2017

Socialist Republic of Viet Nam: Second Greater Mekong Subregion Corridor Towns Development Project

Sa Pa Subproject
Component 1: Upgrading of Provincial Route 152 (Section from Sa Pa Town to Ban Den Cross-road)

Prepared by Lao Cai ODA PMU – Department of Planning and Investment to submit to the Asian Development Bank

CURRENCY EQUIVALENTS

(Based on the rate of the State Bank of Vietnam as of 11 May 2017)

Currency Unit	-	VND (D)
1.00 dong	=	$0.0000447
$1.00	=	22,377 Dong

ABBREVIATIONS

ADB	-	Asian Development Bank
PAH	-	Project Affected Household
BOD	-	Biological Oxygen Demand
COD	-	Chemical Oxygen Demand
DCST	-	Department of Culture Sport and Tourism
DOC	-	Department of Construction
DOH	-	Department of Health
DONRE	-	Department of Environment and Natural Resources
DOLISA	-	Department of Transport Labor, Invalids and Social Affairs
DOT	-	Department of Transport
DPI	-	Department of Planning and Investment
EA	-	Executing Agency
ECC	-	Environmental Compliance Certificate
EIA	-	Environment Impact Assessment
EMP	-	Environment Management Plan
EERT	-	External Emergency Response Team
EO	-	Environmental Officer
ERT	-	Emergency Response Team
ERTL	-	Emergency Response Team Leader
ESU	-	Environmental and Social Unit
GMS	-	Greater Mekong Sub-Region
GOV	-	Government of Viet Nam
IA	-	Implementation Agency
IEE	-	Initial Environmental Examination
LISC	-	Project Implementation Supporting Consultant
MOLISA	-	Ministry of Transport Labor, Invalids and Social Affairs
MONRE	-	Ministry of Natural Resources and Environment
NGO	-	Non-Government Organization
O&M	-	Operation and Maintenance
PAM	-	Project Administration Manual
PMU	-	Project Management Project
PPC	-	Provincial Peoples Committee
PSC	-	Project Steering Committee
SO	-	Safeguards Officer
UXO	-	Unexploded Ordnances
WB	-	World Bank

WEIGHTS AND MEASURES

km	-	Kilometer
kg	-	Kilogram
ha	-	Hectare
m	-	Meter

NOTES

In this report "$" refers to US Dollars unless otherwise stated.

This environmental management plan is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.

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

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1. INTRODUCTION

1. The Environmental Management Plan (EMP) for the Sa Pa subproject is among three EMPs prepared for the subprojects under the Second Greater Mekong SubregionCorridor Towns Development Project (CTDP) in Viet Nam. The other two EMPs are for the subprojects of BacGiang and MongCai city. All these three EMPs are made separately and developed as stand-alone management tools. Details of the Greater Mekong Sub-Region (GMS) and the subprojects in Viet Nam can be found in the parent IEE, which will be updated to figure out the changes regarding locations and technologies of all components.

2. According to the Memorandum of ADB's project review mission (loan No.3353-VIE) from 29 July 2016 to 03 August 2016 in Lao Cai, BacGiang and QuangNinhfor updating Environmental Impacts Assessment (EIA), Environmental Management Plan (EMP), Social Safeguard Policy (SSP) (especially policies on affected ethnic minorities households), the environmental and social report of Sa Pa subproject will have to be updated. So far, the detailed design of the Component 1 has been completed. Therefore, as requirements of the Project Administration Manual, the updated environmental management plan is to be submitted to ADB for approval before the construction contract is awarded. The EMP under the Component 1 – Upgrading of the Provincial Route 152 (section from Sapa town to Ban Den cross-road) of the project will integrate all technical and institutional changes (compared to basic design), and information on mitigation and monitoring measures for 03 phase of the project will be specified.

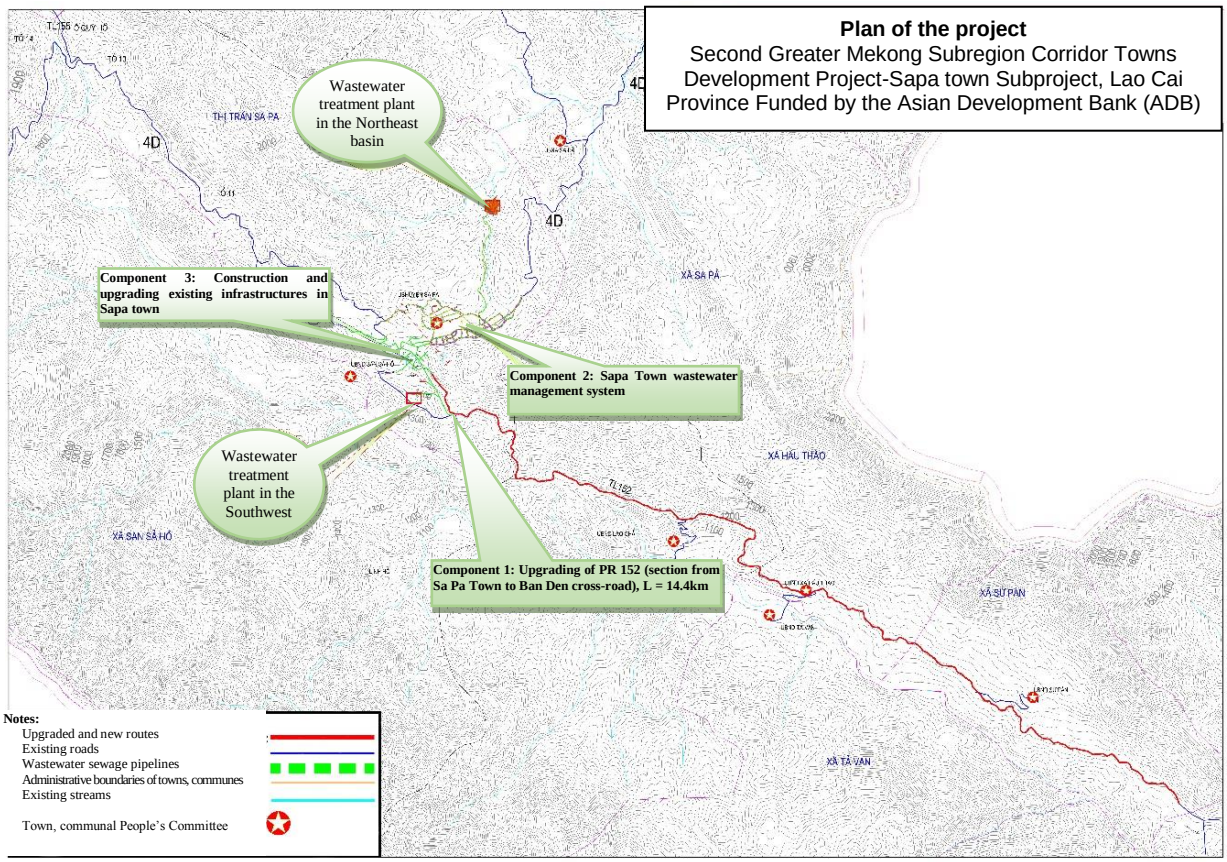
A. Overview of Sa Pa Subproject

3. Objectives of Sapa town Subproject are to: Rehabilitate, upgrade and construct inner roads, ring roads linking Sapa towns to communes in Sapa sub-districts and to Bao Thang district, Lao Cao province so as to smoothen the travel of local people and tourists, and strengthen the capacity of goods transportation; Improve living conditions of people in SaPa town, enhance intellectual standard of local people, especially the poor through the rehabilitation of infrastructures of water supply and drainage, environmental improvement and climate resilience; Boost the capacity for shareholders in the process of project implementation and operation.

4. Sa Pa Subproject consists of 05 Components:

- Component 1: Upgrading of Provincial Route 152 (section from Sapa Town to Ban Den cross-section) with a length of14.3 km.
- Component 2: Sapa Wastewater System Management (Construction of 02 new wastewater treatment plants and wastewater collection system with a capacity of 7,500 m3/day)
- Component 3: Construction and upgrading of existing infrastructures in Sapa Town (including underground power system, underground information system of 11 inner roads with a length of L = 2,815.6; and design for 10 intersections at the positions which are favorable for the pedestrian).
- Component 4: Green Environmental Improvement (Develop the Green Cities Action Plan - GCAP integrated into tourism potential, natural landscape protection and locally cultural preservation).
- Component 5: Technical Assistance and Capacity Building (for relevant authorities of the Province and PMU, project implementation and operation after the project is completed).

5. Total investment is approximately 41,090,000 USD, including: (i) 34,060,000 USD financed by the Asian Development Fund(ADF); (ii) 7,030,000 USD counterpart fund.



Figuer1: Map of Components of Sa Pa Subproject

B. Detailed description for the Component 1 – Upgrading of the Provincial Route 152

6. This Updated Environmental Management Plan (u-EMP) is carried out for the Component 1 – Upgrading of the Provincial Route 152 of Sa Pa Subproject.

Location of the Component 1–Upgrading of Provincial Route 152

7. The Component 1 – Upgrading of Provincial Route 152 under the Sa Pa Subproject runs through 06 towns/communes: Sa Pa Town, Lao Chai, Hau Thao, Ta Van, Su Pan, Ban Ho communes. The Component 1 consists of 02 routes: (i) Main route: the start point is at the Violet road intersection, the end point is tapered to the Ban Den cross-road; (ii) Branch: Start point is at the end of Cau May street; end point is at the Violet road intersection (start point of main route).

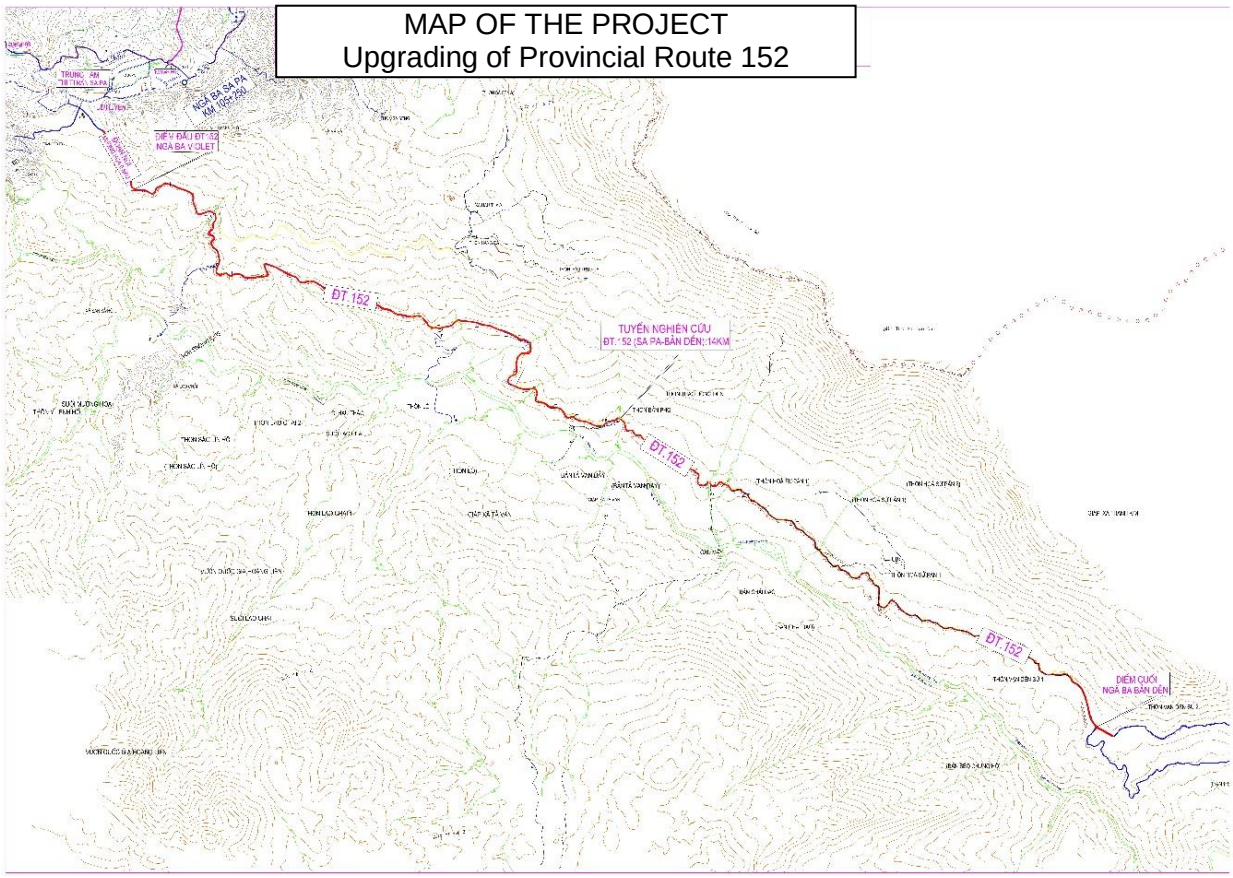


Figure 2: Alignment of the Component 1 – Upgrading of Provincial Route 152

Figure 3: Location of the Component 1 – Upgrading of Provincial Route 152

- **Current status of the Provincial Route 152**

8. The section to be upgraded is the class A rural road with the road surface of 3.5m wide and roadbase of 5m wide. Almost all asphalted road surface is now cracked and peeled in segments.

9. Drainage system across the road: the drainage system is placed in the road but the sewers have Low dimensions or get stuck that can't ensure the water drainage. Therefore, in case of heavy rains, water is overflowed on the road surface.

10. Drainage system along the road: ditches have been built along road but have not been reinforced, and that some segments get stuck and can't ensure the drainage of water flowed from road surface and from the positive talus roof of the roadside.

11. In addition, the road has some embankment works, guard rails to protect the roadbase and traffic signs. When the road is expanded and upgraded, these works no longer can protect the roadbase and have been asynchronously invested.

12. Current status of using land along the Provincial Road 152: Land fund of the Provincial Road 152 (section from Sa Pa town to Ban Den cross-section) is mainly agricultural land (for rice cultivation and cash crop) and unused land under the management by the local authorities (mountainous land). Residents scaterredly live along the route, mainly in locations at the start of the route and Ban Den cross road (end of the route).

- **Design scale for the Component 1 –Upgrading of Provincial Route 152**

13. Total length to be upgraded is L = 14.377km, new route is constructed with same class as the old one and with standard scale selected as speed of 30km/h –class V mountainous road. Specifications for the road are as follows:

Table 1: Major designed Specifications for the Component 1

No.	Specifications	Value
1	Class of road	Class V road – mountainous area TCVN 4054 – 2005
2	Calculated velocityVtt, km/h	30
3	Max super elevationIs cmax, %	6
4	minimum horizontal curve radius Rmin, m	30
5	Maximum longitudinal gradient(%)	9 (11)
6	Bridges designed with live load	HL93
7	Sewers signed withlive load	H30 -XB80
8	Designed frequency	
-	Roadbase, sewers, Low bridges	4%
-	Medium and large bridges	1%
9	Required strength of road surface (MPa)	140

14. Scope of Cross section

- Section 1(Branch): Muong Hoa section, this section goes through inner road, it is expanded to ensure the 6m-wide road surface.
- Section 2: Violet road cross road – to Lao Chai (Km0+00 - Km4+520), the section is travelled by a great number of pepestrian as tourists, thus, the roadbase should be expanded with a 2m sidewalks to the right of the road. This section will be divided into 02 segments:
  - Segment 1: Within Sa Pa town (from the beginning of the route to the cross-road through the stone cave). Road surface is expanded towards the positive talus so as to ensure the 7.5 wide road surface (exclusive of the expansion of inside curve).

    $Bn=B_{sidewalk}+B_{surface}+w+B_{vh} = 0.5+7.5+w+2 = 10m+w$
  - Segment 2: beyond Sa Pa town (from the end of segment 1 to Km4+520).

    $Bn=B_{sidewalk}+B_{surface}+w+B_{vh} = 0.5+5.5+w+2 = 8m+w$
- Segment 3: Lao Chai - Ban Dan (Km4+520 - Km13+739)

  $Bn=B_{sidewalk}+B_{surface}+w+B_{sidewalk} = 0.5+5.5+w+0.5 = 6.5m+w$
- Segment 4: The area surrounding Ban Den cross road (Km13+739 - Km14+377) Roadbase and road surface of this segment is remained as its current status. Within the project scope, asphalted road is reinforced as its current status.

15. Accompanied works: Along the Provincial Road 152, 03 show rooms (size 4x30mwith concrete structure) is arranged to sell cultural products and preserve the unique and beautiful cultural traits and generate jobs for local residents as well as create some sightseeing positions along the route). These rooms are at:

- Km 4+510 near the road to Lao Chai.
- Km 6+050 near the yard for sightseeing to the Muong Hoa valley.
- Km12+300 near the cultural house where a large number of residents gather.

16. Specifications related to the longitudinal and horizontal drainage system, safety works, sidewalks, protection works, intersections,etc are designed synchronously to the road improvement.

Sources of construction materials

17. Borrow pits: Soil for filling the roadbase is from the excavated volume, the shortage volume will be taken from the pit (i) Pit 1: Km5+700 to the left of Ly village, Lao Chai commune, (ii) Pit 2: Km11+100 to the left of Su Pan commune.

18. Sand pits

- Sand pit 1 (Bao Nhai sand pit): is located in the beginningof the routeat Km 5+00 Provincial Road 153 to the right towards the Bac Ngam – Bac Ha, Bao Tan 2, Bao Nhai, Bac Ha district. The Sand pit has been licensed and under the exploitation management of Anh Tu Coorperatives. Quality: Coarse sand mixed with gravels, the sand's quality is good and stable. Transporation conditions are convinient.
- Sand pit 2 (Ben Den sand put): is situated in the beginning of the route at 26+600 National Highway 4E at 0.5 km to the left of the route, in Gia Phu commune. Bao Thang district. The Pit is licensed and under the exploitation management of Giao Phu Construction Material Manufacturing and Business Cooperatives. Quality: Coarse sand mixed with gravels, the sand's quality is good and stable. Transporation conditions are convinient.
- Sand pit 3 (Coc San sand pit): is situated in the beginning of the route at Km 133+300 National Highway 4D at 1.3km to the left of the route, along the Road to Coc San Hydropower Plan in Luong Do village, Coc San commune, Bat Xat district. The pit is licensed and under the exploitation management of Coc San commual People's Committee. Quality: Coarse sand mixed with gravels, the sand's quality is relative good and stable. Transporation conditions are convinient.

19. Stone pit at Trung Chai pit is located in the end of the route, to the left of the route at Km 99 + 500 National Highway 4D in group 12 of Sa Pa town, Sapa district. The pit is licensed and under the exploitation management of Kim Tuyen One Member Company Limited. Quality: This is sedimentary bedrock with medium strength; color: gray, blue gray; under the block form. The road to the rock pit is convinient, it takes about 5km to reach the pit from the beginning of the route. Current exploitation capacity is about 1,000m^3/day.

20. Other materials: Wood taken from Sa Pa center, Iron is from Thai Nguyen, Cement is from Lao Cai city center and plastic is from Hai Phong.

Inappropriate construction waste dumping site

21. To ensure the convenience of the work implementation, safety and beautiful landscape preservation without any disturbances on surrounding environment, the Design consultant, the Client and local authorities will coordinate together to select an appropriate construction waste dumping sites as follows:

- Site 1: At Km1+00 to the right of the route.
- Site 2: At Km12+700 Ly Lao Chai village, Lao Chai commune
- Site 3: At Km0 +600 Thanh Kim Ban Phung road, Hoang Lien village, Ban Ho commune.

2. INSTITUTIONAL ARRANGEMENTS AND RESPONSIBILITIES

22. At the feasibility stage, the primary management framework on the implementation of the environmental management plan (EMP) for Sa Pa Subproject is summarized as follows. The Lao Cai Provincial People's Committee (PPC) which is the executing agency (EA) for the project will take overall responsibility for the successful implementation of the EMP. The Lao Cai PMU will liaise with the BacGiang PMU on the submission of consolidated environmental safeguards reports to ADB. The EA will establish a Project Steering Committee (PSC) which, *inter alia*, will provide support for implementation of the EMP.

23. Lao Cai Department of Planning and Investment (DPI) is the implementing Agency, which daily monitors the subproject implementation, including EMP delivery and reports to EA, Bac Giang PMU and ADB. The Project Management Unit (PMU) will be established to support IA. PMU will appoint a Safety Officer (SO) to monitor the EMP implementation. PMU/SO will be charge of tracking the implementation of Construction Environmental Management Plan (CEMP)[1]for Sa Pa Subproject. Specialists from Lao Cai Department of Transport (DOT)/Department of Construction (DOC) will be cross-appointed in PMU if required.

24. Supporting PMU in updating EMP, capacity building and monitoring will be carried out by national and international Environmental Specialists under the Project Implementation Supporting Consultant (LISC) – will be mobilized and recruited in Quarter 2/2017. LISC will prepare a temporary budget to monitor environmental impacts or join in Environmental Monitoring Consultancy for monitoring the environmental impacts (water quality, air quality, noise, etc)according to monitoring plan under this updated EMP. The following is summary of major responsibilities for the uEMP implementation.

25. Responsibilities of EA with supports of PSC:

- Coordinate for implementation and monitoring environmental and social protection measures taken by IA/PMU;
- Work with ADB to keep track on EMP implementation; and
- Coordinate with IA/PMU and ADB to address issues arised in the course of EMP delivery if needed.

26. Responsibilities of Safety Officers under Labo Cai Provincial PMU:

- SupportLISCin updating EMP to meet final detailed design of the subproject;
- Inform IA/EA to confirm the project approval from the Government of Vietnam, and in line with requirements of Law on Environmental Protection (LEP) 2014 stipulated under the Decree No. 18/2015/NĐ-CP and Circular No. 27/2015/TT-BTNMT.
- CEMPin Request of Proposal, uEMP based bid document evaluation;
- Manage daily EMP implementation activities;
- Comply with loan agreement and ensure all components of Sa Pa Subproject, including EMP (Indigenous People Plan (IPP), Gender Action Plan (GAP), Resettlement Ethnic Minorities Development Plan (REMD);
- Chair meetings with relevant affected shareholders;
- Prepare and submit quarterly reports on EMP implementation to PSC;
- Monitor the CEMP implementation of the Contractor;
- Work with ES of LISC for implementing EMP;
- Regularly supervise the construction to ensure the compliance of the Contractor with CEMP;
- Ensure EO/CCW of contractor submits monthly progress reports includingCEMP implementation.

[1]Environmental Management Plan prepared by the contractor is part of the bids document on the basis of updated Environmental Management Plan.

27. The responsibilities of the environment specialists (international and national) of the LISC are detailed in their Terms of Reference for the two positions (as per contract). The consultant's key responsibilities for environmental management are:

- Update the EMP to meet final detailed designs of subprojects;
- Provide technical direction and support to PMU/SO for implementation of EMP; Oversee design and deliver capacity development and training of PMU-SO and EO of contractor(s);
- Conduct environmental effect monitoring in compliance with the monitoring plan defined in the uEMP, or other plan as approved by PMU and ADB. Perform required laboratory analyses for monitoring program detailed in EMP; andprepare and submit quarterly reports to IA/EA on monitoring activities.
- Prepare monthly progress reports of the subproject (submit to Lao Cai Provincial PMU), quarterly progress report (submit to PMU and ADB), and generalbiannual report on safeguard policy (submit to EAs and ADB).
- Review location of any possible contaminated sites near subprojects.

28. The civil works contractor's Chief of Construction (CCW) will be responsible for all construction activities at the construction sites, including compliance with the EMP. The CCW will assign an *Environmental Officer (EO)* to ensure the contractor's responsibilities for the EMP are met.The responsibility of Chief of Construction Work (CCW) of contractor with assistance from Environmental Officer (EO) includes:

- Prepare CEMP and submit to Lao Cai PMU (through the LISC) for approval prior to starting construction works on the site.
- Ensure implementation of the CEMP during the construction phase; and
- Prepare and submit monthly project progress reports on CEMP implementation and environmental issues at construction sites.

29. The implementation of the EMP as part of the overall environmental due diligence (DD) of the subproject is conducted alongside the separate DD of the government. Table 2 reproduces the summary of environmental due diligence from the IEE which shows that the government shall approve the ADB IEE and EMP by formal letter, and that approval of the ADB IEE/EMP is not contingent on compliance with any specific government regulation other than the Project Detailed Outline (PDO) which is required by the Prime Minister.

Table 2: Summary of Environmental Due Diligence (DD) during project implementation

Design and Implementation	**Environmental DD and Approvals**			**Milestones & Notes**
	ADB/PPTA	**Vietnam**	**LISC/Contractor**	
Feasibility design				
Initial stakeholder disclosure & consultation	PPTA	EA assistance		
Draft IEEs and EMPs	PPTA			Draft IEEs & EMPs completed
Preparation of Project Detailed Outline (PDO)		EA		Approval by Prime Minister
IEE and EMP completion	ADB review & approval on IEE/EMPs			ADB approved IEE/ EMPs as per SPS (2009)
		EA reviews and approves IEE/EMPs		EA approved IEE/ EMPs with formal letter only.*Compliance with specific GOV / EA regulations is not required*
Loan documents(PAM/	Document preparation	Review & approval of PAM		Loan approval

Design and Implementation	Environmental DD and Approvals			Milestones & Notes
	ADB/PPTA	Vietnam	LISC/Contractor	
RRP)	, approval by ADB			
Initiation of Viet Nam environmental DD		EA leads with oversight from DONRE		MONRE or DONRE approved IEE or EIA follows independently after VIE DD starts
Detailed engineering design				
Continued stakeholder disclosure & consultation		IA/PMU lead	ES support to LISC	As per PCP (2012)stakeholder disclosure and consultations continue throughout construction phase coincident with initiation of GRM *Also satisfies consultation requirement of GOV.*
Update EMPs		Support to ES	Lead by ES	Approval of updated EMP by EA and ADB
Tendering / contract award				
EMPs included in tender documents		Lead by EA/PMU	Support by ES	
Preparation off tenders letter and bids prepared		Lead by EA	Contractor drafts CEMP	CEMPs prepared and included in contractor bids
Construction packages	Input from ADB		CEMPs reviewed by ES/LISC	Construction package awards
Construction & supervision				
Implementation of mitigation and monitoring plans		Support from IU/PMU	By contractor with support from ES	CEMP implemented by contractor, other aspects of EMP overseen by ES
Continued stakeholder disclosure and consultation		IA/PMU lead	Support from ES	As part of GRM
Monitoring report	To ADB	IA/PMU lead preparation of regular reports to ADB	Support from ES	Reports provide input for review missions

30. Lao Cai Department of Natural Resources and Environment (DONRE) oversee the environmental management of Lao Cai province. DONRE will work with officers of Sa Pa town to provide direction and support for environmental protection-related matters including application of the Law on Environmental Protection (2014) as implemented by Decree 18/2015/ND-CP, and Circular 27/2015/TT-BTNMT, and national environmental standards and criteria. The environmental standards and criteria for Viet Nam are listed in Appendix B. See updated IEE for complete legal and regulatory framework for environmental management in Viet Nam.

31. The ADB provides guidance to the EA and Lao Cai PMU with any issues related to EMP, and reviews biannual reports on EMP activities compiled and submitted by the BacGiang PMU (consolidating inputs from all 3 PMUs) which are disclosed on ADB website pursuant to ADB Policy on Public Communication (2011).

32. The Ministry, and counterpart provincial Department of Labour, Invalids and Social Assistance (DoLISA) prescribes regulations and guidelines governing worker and public

safety in the workplace. The directives of M/DoLISA must be followed throughout the construction and operational phases of the subprojects. To supplement the M/DoLISA the IFC/World Bank Environment, Health, and Safety Guidelines (2007) should be consulted when necessary.

3. SUMMARY OF POTENTIAL IMPACTS

33. The potential impacts of the project implementation, construction and operation of the **Sa Pa** Subproject's component 1 from the IEE which are summarized in Table 3 arise primarily during the construction phase. The short-term construction disturbances concern noise, dust, reduced access, increased traffic and risk of traffic accidents, worker and public safety, and local soil erosion, landslide, and solid waste, and waste water. These short-term impacts can be managed and mitigated with Mitigation Plan provided below.

Table3: Summary of potential impacts of Sa Pa Subproject Component 1

Phase	Activities	Potential impacts	Level of impacts	The affected
Pre-construction phase	- Land acquisition, compensation, support for affected households; - Site clearance; - Material collection, worker camp, worker gathering	Land occupancy and affected households: Occupy 64,206 m2 of 440 households, including: + 2,851 m2 residential land from 41 households, + 7,058 m2 paddy field from 102 households, + 44,304 m2 of land with annual tree from 210 households, + 0,533 m2 of land with perennial trees from 87 households. Effects on land- associated assets and trees Impacts on the recoverability of livelihoods for affected households	- Large and long-term. But can be controlled through RAP and mitigation measures. - Please see updated RAP of the Subproject for more details about compensation, support for affected households	- 440 households in 6 communes/town have land and land-associated assets affected
		Impacts caused by dust, noise from demolishing machines, tree cutting tools for site clearance.	- Low, local and controllable through mitigation measures (the number of trees to be cut along the route is not much)	- Vegetation in the project area - Air environment - Households living along the route + The beginning of the branch route in group 4 of Sapa town + Ly Lao Chai Village, Lao Chai commune

Phase	Activities	Potential impacts	Level of impacts	The affected
				+ The cross-road to Lao Chai People's Committee + The cross-road to Ta Van village, Ta Van commune + The boundary between Hau Thao commune and Su Pan commune + The end point is at the Ban Den cross-road
		Impacts from domestic wastes and wastewater flowed from worker camps	- Low, local and controllable through mitigation measures (at the first phase, the number of workers gathering at the site is very few)	- It is expected to have 05 worker camps for construction packages: + Team for construction of road surface. + Team for construction of sewers. + Team for construction of embankment and retaining wall. + Team for construction of ditches and safety system along the route. + Team for construction of large box culverts.
Construction phase	- Gathering of construction workers and machines and tools - Transportation of construction materials and residual soils and stones - Construction activities: + Ground leveling + Construction of roadbase + Construction of drainage system, sewer system + Construction of embankments and retaining	***Waste-related activities:*** - Dust from the excavation, ground leveling	- Low, short-term and mitigable (taken place on entire the route, but the successive construction method can cause local impacts at the leveling positions in each period and during the construction stage)	- Vegetation in project area - Air environment - Households living along the route: + The beginning of the branch route in group 4 of Sapa town. + Ly Lao Chai Village, Lao Chai commune + The cross-road to Lao Chai People's Committee + The cross-road to Ta Van village, Ta Van commune + The boundary between Hau Thao commune and Su Pan commune. + The end point is at the Ban Den cross-road - Potential risks cause surface water pollution in streams in Ban Pho village, Hau Thao commune.
		- Impacts caused by dust and emission gases from material transportation vehicles	- Medium, short-term and mitigable (only taken place in the construction phase)	
		- Impacts from dust and gases emitted from construction machines and equipment	- Low, short-term and mitigable (locally taken place in construction positions and only in construction phase)	
		- Wastewater from the construction period	- Low, short-term and mitigable(mainly the water washing construction tools and devices, the water volume is local and few)	- Locally affect the quality of the soil. - Potential risks cause surface water pollution in streams in Ban Pho village, Hau Thao commune
		- Solid wastes from the construction period	- Low, short-term and mitigable(mainly the residual solid things from the construction and are transported to the dumping site)	- Soil pollution at the temporary storage yards at the site - Debeautify the landscape
		- Waste oil from the	- Low, short-term and mitigable(locally	- Locally soil pollution at the site

Phase	Activities	Potential impacts	Level of impacts	The affected
	walls + Construction of safety system + Construction of show rooms	maintenance of vehicles, construction machines.	and infrequently)	- Underground water pollution
		- Activities of workers: + Domestic wastewater + Domestic wastes	- Low, short-term and mitigable(locally taken place at the worker camp and during the construction phase)	- Potential risks cause surface water pollution in streams in Ban Pho village, Hau Thao commune. - Prone to soil pollution - Affect air environment and generate epidemic diseases - Debeautify the local landscape
		Waste-unrelated impacts: - Noise, vibrant from construction machines and tools.	- Medium, short-term and mitigable (taken place on entire the route, but the successive construction method can cause local impacts at the leveling positions in each period and during the construction stage)	- Households along the route: + The beginning of the branch route in group 4 of Sapa town. + Ly Lao Chai Village, Lao Chai commune + The cross-road to Lao Chai People's Committee + The cross-road to Ta Van village, Ta Van commune + The boundary between Hau Thao commune and Su Pan commune. + The end point is at the Ban Den cross-road, Ban Ho commune
		- Disturbances to the local communities because of the concentration of workers at the site	- Low, short-term and mitigable (because of small and dispersed amount of workers at the camp area in the course of construction of various packages and dispersed local people along the route)	
		- Impacts on the way to school of local students.	- Medium, short-term and mitigable (taken place only in the construction period thanks to successive method).	- Impacts on the way to school of students at: + Lao Chai Primary and Secondary School + Hau Thao Primary and Secondary School + Hoa Su Pan 1 Primary School and Su Phan Secondary school + Hoa Lien Boarding Primary School + Sa Pa 2 Primary School
		- Impacts on agricultural production activities of households who have agricultural land fund along the route	- Low, short-term and mitigable(taken place only in the construction period thanks to successive method).	- Households who have arable land along PR 152
		- Impacts on business activities - Impacts on tourism activities of tourists	- Medium, short-term and mitigable (taken place only in the construction period thanks to successive method).	- Business activities of some households living along Muong Hoa route and the end of Ban Den route - Visits of tourists to: + Hoa Hong valley (ATI destination), Muong Hoa road, Sa Pa town; + Muong Hoa valley, Hau Thao commune;

Phase	Activities	Potential impacts	Level of impacts	The affected
				+ Ancient rock field, Hau Thao commune; + Lao Chai village, Lao Chai commune; + Ta Van village, Ta Van commune; + May bridge, Ta Van commune.
		- Impacts on local infrastructures because of material transportation	- Low, short-term and mitigable (use 7-10 ton trucks to transport construction materials with not very long distance of transportation)	- Branches connecting the PR152 to communes such as Ta Van, Hau Thao, Su Pan and Ban Den roads.
		-. Impacts on people's and workers' heallth	- Low, short-term and mitigable (taken place only in the construction period thanks to successive method).	- Households along the route: + The beginning of the branch route in group 4 of Sapa town. + Ly Lao Chai Village, Lao Chai commune + The cross-road to Lao Chai People's Committee + The cross-road to Ta Van village, Ta Van commune + The boundary between Hau Thao commune and Su Pan commune. + The end point is at the Ban Den cross-road, Ban Ho commune
		Risks arisen during the construction period - Traffic and labor accidents	- Low, short-term and mitigable (because of the failure in the implementation of safety plan and training manners for workers)	- Along the PR 152 and branches where material transportation trucks go through
		- Land slide and subsidence during the construction period	- Low, short-term and mitigable (impacts is local and only taken place in construction phase thanks to successive construction method)	- Sliding point is at Ban Pho village, Hau Thao communes, it is about 500m away from Ta Van commune
		- Risks from local flooding	- Low, short-term and mitigable (Because the project area is slope and uses successive construction method, these risks are local and hardly possible)	- At construction site along the PR 152
Operation phase	- Operation and maintenance of the route	- Increase in noise and air pollution because of growing traffics;	- Medium, short-term and mitigable (because of improved road, the traffic flow increases, leading to air and noise pollution)	-: Major impacts on residential areas along the route + The beginning of the branch route in group 4 of Sapa town. + Ly Lao Chai Village, Lao Chai commune

Phase	Activities	Potential impacts	Level of impacts	The affected
				+ The cross-road to Lao Chai People's Committee + The cross-road to Ta Van village, Ta Van commune + The boundary between Hau Thao commune and Su Pan commune. + The end point is at the Ban Den cross-road, Ban Ho commune
		- Increase in traffic accidents because of growing density and velocity of means of transportation	- Medium, short-term and mitigable (traffic density and velocity is increased, leading to potential traffic accidents)	- Along the PR 152, but it should pay much attention to positions where workers concentratedly live, bends in the road and intersections: + Muong Hoa segment in group 4, Sa Pa town. + The section in Ly Lao Chai, Lao Chai commune (border Sa Pa town and Hau Thao commune). + PR 152 segment in the end of Hau Thao commune, border Su Pan. + The section in Van Den Su 1 village, Su Pan commune. + Dense population area: the beginning of the branch in Ly Lao Chai village, cross-road to Ta Van, T-junction to Lao Chai Commune People's Committee, boundary between Hau Thao and Su Pan communes, Ban Den cross-road.
		- Impact on socio-economic conditions, mechanical migration	- Low, short-term and mitigable (improvement of travelling condition may form a mechanical migration along the route for economic development)	- Impacts along the improved PR 152 and dense population area: the beginning of the branch in Ly Lao Chai village, cross-road to Ta Van, cross-road to Lao Chai commune, boundary between Hau Thao and Su Pan communes, Ban De cross-road.

Public Consultation

34. The stakeholder consultation program that was developed for Initial Environmental Examination (IEE) report and Environmental Management Plan (EMP) of the subproject has been performing in the phase of updating this EMP. A stakeholder consultation was carried out in December 2016 with the aim of disseminating implementation plans, changes in the course of designing the Subproject's Component 1.

35. The stakeholder consultation program will be continued with the start of the pre-construction phase of the Sa Pa Subproject's Component 1 – Upgrading of the Provincial Road 152 (expected to implement in 5/2017). The first step will be to disclose this updated IMP to affected shareholders that we consulted to obtain their review and comments.

Follow-up consultation

36. As indicated by IEE, a concern of the public and stakeholders of the subproject were disturbances to movement along the Provincial Route 152 during the upgrading progress, access adjacent agricultural area, effects on transport and traffic accidents during the upgrading of Provincial Road 152. These matters in combination with other issues will be reviewed in the course of follow-up consultation through pre-construction, construction and operation of the component 1 of Sapa Subproject.

37. Lao Cai PMU shall be responsible for the public consultation during Sapa Subproject implementation, but will be supported by LISC. Affected communities will be involved and consulted through site visits, investigations into sensitive areas, interviews and public consultation. The budget for public consultation is estimated about 10,000 USD.

Table 4: Public Consultation Plan

Organizer	Format	Frequency	Subject	Attendees
Construction stage				
Contractor	Public meetings	Prior to start of construction works; quarterly thereafter	Presentation of planned activities and schedule; anticipated impacts and mitigation measures; grievance redress mechanism (GRM)	Potentially affected households, ward PC representatives
PMU, LISC	Public meetings & site visits and informal interviews	Once before construction commences (public meetings) and semi-annually thereafter during construction (site visits and informal interviews)	Presentation of planned activities and schedule; anticipated impacts and mitigation measures; GRM	Potentially affected households, ward PC representatives
PMU, LISC	Expert workshop	As needed, based on public consultation	Comments and suggestions on mitigation measures, public opinion	Experts of various sectors
LISC	Public opinion survey	Once at MTR stage	Public satisfaction with EMP implementation	Potentially affected households, ward PC representatives
Operation stage				
PMU, LISC	Public consultation and site visits	Once at the first year	Efficiency of impact mitigation measure during the operation stage, comments and suggestions	Potentially affected households and representatives of local authorities
LISC, PMU	Public	Once at PCR stage	Public satisfaction with	Potentially

Organizer	Format	Frequency	Subject	Attendees
	satisfaction survey		EMP implementation Comments and suggestions	affected households, ward PC representatives

4. IMPACT MITIGATION PLAN

38. The impact mitigation measures of the Environmental management Plan are presented in a comprehensive mitigation plan for the Subproject inTable5below. Similar to IEE, the mitigation plan is structured by three development phases of the subproject defined by pre-construction, construction and operational phases. The mitigation plan will address environmental issues and concerns raised at the shareholders meetings.

Table5: Environmental Impact Mitigation Plan

Component 1 Activity of Sa Pa Subproject	Potential Environmental Impacts	Proposed Mitigation Measures	Location	Timing	Activity Reporting	Estimated Cost[2] (USD)	Responsibility	
							Supervision	Implementation
Pre-Construction, Detailed Design Phase of Sa Pa Subproject (Upgrading of provincial route 152)								
Confirmation of required resettlement, relocations, & compensation	No negative environmental impacts	1. Affected persons informed well ahead of Component 1 implementation	All affected persons by Component 1 implementation	Before project implemented	See updated resettlement and ethnic minority development plans	See updated resettlement and ethnic minority development plans	EA/IA	Sa Pa District LFDC
Disclosure, & engagement of community	No community impacts	2. Initiate Information Disclosure and Grievance process of IEE	For all construction sites.	Beginning of project	Quarterly	No marginal cost[3]	PMU	PMU
GoV approvals	No negative impact	3. EIA report (in compliance with GoV's regulations) of Sa Pa subproject was approved in 2015. 4. For Component 1, construction contractor prepares EMP in line with GoV's regulations prior to construction.	Component 1	Before construction	As required	Within cost of contractor	PMU/DoNRE	PMU/Contractor
Detailed designs of Component 1	Minimize negative environmental impacts	5. Work with LISC to complete detailed designs of Component 1. Ensure the following measures are included a) Location with landslide risk: Landslide location is at Ban Pho village, Hau Thao commune, away from 500m access road to Ta Van commune; Reinforcement method was prepared. b) no disturbance or damage to culture property and values; c) Limit cutting trees at the lowest level, only cutting trees down at location with land acquisition under Component 1. d) No impacts on water supply and utility service. e) No impacts on traveling of local people on the provincial road 152 (during the implementation process, arrangement of staff to regulate	Final siting	Before construction initiated	Once with detailed designs documents	Within of cost of detailed design consultant	LISC/IA	PMU

[2]Costs need to be updated during detailed design phase
[3]No marginal cost indicates that costs to implement mitigation are to be built into cost estimates of bids of contractors

Component 1 Activity of Sa Pa Subproject	Potential Environmental Impacts	Proposed Mitigation Measures	Location	Timing	Activity Reporting	Estimated Cost[2] (USD)	Responsibility	
							Supervision	Implementation
		transport without congestion). f) Arrangement of signs, construction schedule on construction site.						
Update EMP	No adverse impact	6. Lao Cai PPC worked with DoNRE on determination of issues related to rare animals and plants: As Document No.1662/STNMT – CCBVMT dated September 16th 2016; Lao CaiDoRNE confirmed that SaPa Subproject Component 1 has no impacts on any endemic species. 7. Updated details of potential impacts of Subcomponent 1- SaPa Subproject in this uEDP. 8. Identified disposal locations of solid waste dumping site under Component 1, including: + Site 1: At Km1+00 to the right of the road, Lao Chai commune. + Site 2: At Km12, Ly Lao Chai village, Lao Chai commune + Site 3: Km0+600 of Thanh Kim Ban Phung road, Hoang Lien village, Ban Ho commune. 9. Updated mitigation measures equivalent to potential impacts in the updated EMP. 10. Sending uEMP along with updated potential impacts to ADB for evaluation.	All sites with special reference to upgrading of the provincial route 152	Before construction initiated	Once with detailed designs documents		LISC	PMU/PMU
Update EMP	No adverse impact	11. Baseline quality should be monitored prior to construction of the provincial road 152	At locations adjacent to residential site on the provincial route 152	Before construction initiated	Once with updated EMP	See Monitoring Plan below	LISC/PMU	LISC/SO
Confirm GoV approved construction waste disposal sites	No negative impact	12. Ensure landfills will be approved before starting construction of Component 1. The landfills of Component 1 were surveyed to meet the terrain conditions, the project construction. Then, waste is collected and treated as prescribed by SaPa urban environment enterprises which signed contract with the Contract Client.	Component 1 of the project – The provincial route 152	Before construction	As required	No marginal cost	PMU/DoRNE	PMU

Component 1 Activity of Sa Pa Subproject	Potential Environmental Impacts	Proposed Mitigation Measures	Location	Timing	Activity Reporting	Estimated Cost[2] (USD)	Responsibility	
							Supervision	Implementation
UXO survey, & removal	Injured worker or public	13. Mines and UXO clearance for the PR 152 will be carried out by a specialized military unit. Lao Cai PMU shall ensure that the contractor only starts the construction when all mines and UXO are cleared and the certificate of confirmation for safety site without UXO is issued.	Component 1 of the project – The provincial route 152	Beginning of subproject	Once	See Monitoring Plan below	PMU/PMU	GoV military
Develop bid documents	No negative environmental impact	14. Ensure updated EMP is included in contractor tender documents, and that tender documents specify requirements of EMP must be budgeted. 15. Specify in bid documents that contractor must have experience with implementing EMPs, or provide staff with the experience. 16. The Bid documents of the CEMP contractor will include separate plans for issues: (i) drainage of water from construction activities; (ii) land erosion (iii) Noise and dust; (iv) waste treatment; (v) liquid and solid waste treatment; (vi) traffic jam; (vii) electricity supply interruption; and (xi) chances to find out physical cultural resources.	Component 1 of the project – The provincial route 152	Before construction begins	Once for all tenders	No marginal cost	LISC	PMU
Create awareness of physical cultural resources in area	No negative environmental impact	17. Physical cultural resources presented in Figure 4**Error! Reference source not found.** below, consists of 03 locations near the project area: + Hoa Hong valley (ATI tourism area), Muong Hoa road, Sapa town; + Muong Hoa valley, Hau Thao commune; + Ancient Stone, Hau Thao commune	Component 1 of the project – The provincial route 152	Before construction begins	Once	No marginal cost	DCST	DCST
Obtain & activate permits and licenses	Prevent or minimize impacts	18. Prior to construction, Contractors to comply with all statutory requirements set out by GoV for use of construction equipment, and concrete batching (if any).	Component 1 of the project – The provincial route 152	Beginning of construction	Once	No marginal cost	LISC	Contractor
Capacity development	No negative environmental impact	19. Develop and schedule training plan for PMU/SO/EO to be able to fully implement EMP, and to manage implementation of mitigation measures by contractors. 20. Create awareness and training plan for contractors (EO) who will implement mitigation measures.	Component 1 of the project – The provincial route 152	Before construction begins	Initially, refresher later if needed	No marginal cost	PMU	LISC

Component 1 Activity of Sa Pa Subproject	Potential Environmental Impacts	Proposed Mitigation Measures	Location	Timing	Activity Reporting	Estimated Cost[2] (USD)	Responsibility	
							Supervision	Implementation
Recruitment of workers	Spread of sexually transmitted disease	21. Use local workers as much as possible thereby reducing #s of migrant worker	All work forces.	Throughout construction phase	Worker hiring stages	No marginal cost	EA/PMU	Contractor's bid documents
The provincial road 152 Upgrading Construction Phase								
Initiate EMP & sub-plans	Prevent or minimize impacts	22. The pre-mobilization meeting with contractors and Lao Cai PMU and LISC, underscore the need for contractors to understand and adhere to uEMP. 23. Prepare and secure approval of CEMP including individual management sub-plans for different potential impact areas that are completed in pre-construction phase	For all construction sites of the provincial route 152	Beginning of construction	Once	No marginal cost	LISC	PMU & Contractor
Training & capacity	Prevent of impacts through education	24. Contractor to commit and retain dedicated staff for project duration to oversee EMP and CEMP implementation 25. Implement training and awareness plan for PMU/SO/EO and contractors.	PMU office, construction sites	Beginning of civil work and through construction phase	After each event	No marginal cost	LISC	LISC/PMU
Worker camps	Pollution and social problems	26. Locate worker camps away from human settlements and water bodies. The camps of subproject will be located along the road with open spaces, away from intersection points with the local roads, business areas of local people. 27. Ensure adequate housing and waste disposal facilities including pit latrines and garbage cans. At worker camps, mobile toilets will be arranged to collect domestic wastewater. 28. A solid waste collection program must be established and implemented that maintains a clean worker camps. 29. Locate separate pit latrines for male and female workers away from worker living and eating areas. 30. A clean-out or infill schedule for pit latrines must be established and implemented to ensure working latrines are available at all times. 31. Worker camps must have adequate drainage. 32. Local food should be provided to worker camps.	All worker camps	Throughout construction phase	Monthly	No marginal cost	LISC/ PMU	Contractor

Component 1 Activity of Sa Pa Subproject	Potential Environmental Impacts	Proposed Mitigation Measures	Location	Timing	Activity Reporting	Estimated Cost[2] (USD)	Responsibility	
							Supervision	Implementation
		Guns and weapons not allowed in camps. 33. Hazardous solid waste including waste oil, oily and greasy rag is collected into separate casks (each construction site/ workers camp is arranged 02 casks for storage) 34. Transient workers should not be allowed to interact with the local community. HIV Aids education should be given to workers. 35. Camp areas must be restored to original condition after construction completed.						
Implement Construction materials acquisition, transport, and storage sub-plan	Pollution, injury, increased construction traffic congestion	36. For Component 1 arranged favorable landfill locations for construction under Component 1, including: + Landfill No.1: At Km1+00 to the right of the road, Lao Chai commune. + Landfill No.2: At Km12, Ly Lao Chai village, Lao Chai commune + Landfill No.3: Km0+600 of Thanh Kim Ban Phung road, Hoang Lien village, Ban Ho commune. 37. Volume balance of excavated soil was calculated suitably. Volume of additional backfilled soil is limited at the lowest level. 38. Priority of using pits and quarries which are licensed and list of pits and quarries, materials is described in the first part of this EMP report. 39. Pits and quarries should not be located near surface waters, houses, or cultural property or values and should have a fence perimeter with signage to keep public away 40. All topsoil and overburden removed should be stockpiled for later restoration. 41. After use pits and quarries should be dewatered and permanent fences installed with signage to keep public out, and restored as much as possible using original overburden and topsoil. 42. Unstable slope conditions in/adjacent to the quarry or pit caused by the extractions should be	For all construction areas of the provincial route 152.	Throughout construction phase	Monthly	No marginal cost	LISC/PMU	Contractor

Component 1 Activity of Sa Pa Subproject	Potential Environmental Impacts	Proposed Mitigation Measures	Location	Timing	Activity Reporting	Estimated Cost[2] (USD)	Responsibility	
							Supervision	Implementation
		rectified with tree planting. 43. Trucks carrying construction material are covered. All trucks used should have well fitted bodies and not be overtopped in loading to avoid soil scattering. 44. Temporary storage areas on the site need to be away from water bodies and households; 45. Cover the material storage, setting up appropriate of mobilize material to the site to ensure that material will not obstruct at the site.						
DBST (pavement) production, and application	Air pollution, land and water contamination, and traffic & access problems	46. Piles of aggregates at sites should be used/or removed promptly, or covered and placed in non- traffic areas 47. Stored DBST materials well away from all human activity and settlements, and cultural (e.g., schools, hospitals), and ecological receptors. Bitumen production and handling areas should be isolated. 48. Contractors must be well trained and experienced with the production, handling, and application of bitumen. 49. All spills should be cleaned immediately and handled as per hazardous waste management plan, and according to GoV regulations. 50. Bitumen should only be spread on designated road beds, not on other land, near or in any surface waters, or near any human activities. 51. Bitumen should not be used as a fuel	For all construction areas.	Throughout construction phase	Monthly	No marginal cost	LISC & PMU	Contractor
Implement Spoil management sub-plan	Contamination of land and surface waters from excavated spoil, and construction waste	52. Uncontaminated soil and stone is transported and disposed at landfill sites (was mentioned in this uEMP report) 53. Spoil must not be disposed of on sloped land, near cultural property or values, ecologically important areas, or on/near any other culturally or ecologically sensitive feature. Excavated soil which should be reused at other construction locations need to be added (if any). 54. A record of type, estimated volume, and source of disposed spoil must be recorded.	All excavation areas of the provincial route 152	Throughout construction phase	Monthly	See Monitoring Plan for contaminated soil analyses	LISC & PMU &DoNRE	Contractor

Component 1 Activity of Sa Pa Subproject	Potential Environmental Impacts	Proposed Mitigation Measures	Location	Timing	Activity Reporting	Estimated Cost[2] (USD)	Responsibility	
							Supervision	Implementation
		55. Suspected contaminated soil must be tested, and disposed of in designated sites identified as per Decision No.38/2015/NĐ-CP and Circular No.36/2015/TT-BTNMT. Before treatment or disposal contaminated spoil must be covered with plastic and isolated from all human activity.						
Implement Solid and liquid construction waste sub-plan	Contamination of land and surface waters from construction waste	56. Management of general solid and liquid waste of construction will follow GoV regulations, and will cover, collection, handling, transport, recycling, and disposal of waste created from construction activities and worker force. 57. Areas of disposal of solid and liquid waste to be mentioned in contents of uEMP report. 58. Provide adequate garbage bins at the construction sites. 59. The placement of washing instruments/vehicles next to the water body will not be allowed to avoid the leaching of waste, sludge, soil and oil contaminated water and maintenance activities will be banned on the sites, 60. Disposal of solid wastes into canals, stream, other watercourses, agricultural fields and public areas shall be prohibited; 61. Burning of construction and domestic wastes shall be prohibited 62. A schedule of solid and liquid waste pickup and disposal must be established and followed that ensures construction sites are as clean as possible. 63. Solid waste should be separated and recyclables sold to buyers in community. 64. Excavation activities must be scheduled to avoid rainy to reduce suspended maters in runoff water entering the surrounding water bodies **Hazardous Waste** 65. Collection, storage, transport, and disposal of hazardous waste such as used oils, gasoline, paint, and other toxics must follow Circular no 36/2015/TT-BTNMT on management of	All construction sites and worker camps	Throughout construction phase	Monthly	No marginal cost	LISC & PMU &DoNRE	Contractor

Component 1 Activity of Sa Pa Subproject	Potential Environmental Impacts	Proposed Mitigation Measures	Location	Timing	Activity Reporting	Estimated Cost[2] (USD)	Responsibility	
							Supervision	Implementation
		hazardous waste. 66. Wastes should be separated (e.g., hydrocarbons, batteries, paints, organic solvents) 67. Wastes must be stored above ground in closed, well labeled, ventilated plastic bins in good condition well away from construction activity areas, all surface water, water supplies, and cultural and ecological sensitive receptors. 68. All spills must be cleaned up completely with all contaminated soil removed and handled with by contaminated spoil sub-plan. 69. Maintain daily records on use of hazardous substance and waste generation						
Implement Noise and dust sub-plan	Dust Noise	70. On hot and dry days, regularly watering on the transportation routes and on the construction site 2 times per day to reduce dust especially the populated areas. 71. Cover or keep moist all stockpiles of construction aggregates, and all truckloads of aggregates. 72. Minimize time that excavations and exposed soil are left open/exposed. Backfill immediately after work completed. 73. As much as possible restrict working time between 17:00 and 7:00. In particular are activities such as pile driving. 74. Maintain equipment in proper working order 75. Replace unnecessarily noisy vehicles and machinery. 76. Vehicles and machinery to be turned off when not in use. 77. Construct temporary noise barriers around excessively noisy activity areas where possible.	All construction sites of the provincial route 152.	Fulltime	Monthly	No marginal cost	LISC & PMU	Contractor
Implement Utility and power disruption sub-plan	Loss or disruption of utilities and services such as water supply and electricity	78. Develop carefully a plan of days and locations where outages in utilities and services will occur, or are expected. 79. Obtain the agreement with local authorities in using the transport routes and other public facilities; 80. Contact local utilities and services with schedule,	All construction sites.	Fulltime	Monthly	No marginal cost	LISC & PMU&Utility company	Contractor

Component 1 Activity of Sa Pa Subproject	Potential Environmental Impacts	Proposed Mitigation Measures	Location	Timing	Activity Reporting	Estimated Cost[2] (USD)	Responsibility	
							Supervision	Implementation
		and identify possible contingency back-up plans for outages. 81. Record the status of the existing roads and facilities before construction and make proper compensation for damages if any. 82. Contact affected community to inform them of planned outages. 83. Try to schedule all outages during low use time such between 24:00 and 06:00. 84. All public facilities shall be fully re-established to pre-construction status after completion of construction works						
Implement Tree and vegetation removal, and site restoration sub-plan	Main damage is shrubs and some bamboo, some timbers, these trees have no ecological value	85. Only removal of trees within site clearance scope. Restrict tree and vegetation removal 86. Prevent tree removals, and install protective physical barriers around trees that do not need to be removed. 87. All areas to be re-vegetated and landscaped after construction completed	All construction sites.	Beginning and end of subproject	Monthly	No marginal cost	LISC & PMU	Contractor
Implement Soil Erosion and land slide control sub-plan	Unstable slopes, increase water pollution, localized flooding, high risks for local people	88. Berms, and plastic sheet fencing should be placed around all excavations and earthwork areas. 89. Landslide location at Ban Pho, Hau Thao commune, away from access road to Ta Van commune about 500m, is reinforced by cement concrete to limit landslide risk. 90. Earthworks should be conducted during dry periods. 91. Maintain a stockpile of topsoil for immediate site restoration following backfilling. 92. Protect exposed or cut slopes with planted vegetation, and have a slope stabilization protocol ready. 93. Re-vegetate all soil exposure areas immediately after work completed.	All construction sites	Throughout construction phase	Monthly	No marginal cost	LISC & PMU	Contractor
Implement worker and public safety sub-plan	Public and worker injury, and health	94. Proper fencing, protective barriers should be provided around all construction sites. 95. Sufficient signage and information disclosure,	All construction sites.	Fulltime	Monthly	No marginal cost	LISC & PMU	Contractor

Component 1 Activity of Sa Pa Subproject	Potential Environmental Impacts	Proposed Mitigation Measures	Location	Timing	Activity Reporting	Estimated Cost[2] (USD)	Responsibility	
							Supervision	Implementation
		and site supervisors and night guards should be placed at all sites. 96. Worker and public safety guidelines GoV should be followed (DoLISA regulations & guidelines). 97. Speed limits suitable for the size and type of construction vehicles, and current traffic patterns should be developed, posted, and enforced on all roads used by construction vehicles. 98. Standing water suitable for disease vector breeding should be filled in. Vertical and longitudinal drainage culverts will be designed to drainage for the road 99. Worker education and awareness seminars for construction hazards should be given at beginning of construction phase, and at ideal frequency of monthly. A construction site safety program should be developed and distributed to workers. 100. Appropriate safety clothing and footwear should be mandatory for all construction workers. 101. Adequate medical services must be on site or nearby all construction sites. 102. Drinking water must be provided at all construction sites. 103. Sufficient lighting is used during necessary night work. 104. All construction sites should be examined daily to ensure unsafe conditions are removed. 105. Report any construction accident or near miss to the PMU, LISC within 24h. Report serious accidents involving hospitalization or death of workers or residents to DOLISA and ADB within 24h						

Component 1 Activity of Sa Pa Subproject	Potential Environmental Impacts	Proposed Mitigation Measures	Location	Timing	Activity Reporting	Estimated Cost[2] (USD)	Responsibility	
							Supervision	Implementation
Civil works	Potential risk on water surface contamination at streams in Ban Pho village, Hau Thao commune	106. Earthworks should be conducted during dry periods. 107. 99.111. All construction fluids such as oils, and fuels should be stored and handled well away from streams in Ban Pho village, Hau Thao commune. 108. No waste of any kind is to be thrown into streams 109. No washing or repair of machinery near surface waters.	All construction sites	Throughout construction phase	Monthly	No marginal cost	LISC & PMU	Contractor
Implement Construction and urban traffic sub-plan	Traffic disruption, accidents, public injury	110. Schedule construction vehicle activity during light traffic periods. Create adequate traffic detours, and sufficient signage & warning lights. 111. Post speed limits, and create dedicated construction vehicle roads or lanes. 112. Inform community of location of construction traffic areas, and provide them with directions on how to best co-exist with construction vehicles on their roads. 113. Demarcate additional locations where pedestrians can develop road crossings away from construction areas. 114. Provide construction road and walkway lighting.	All construction sites	Fulltime	Monthly	No marginal cost	LISC & PMU	Contractor
Implementation of transport and safety management plan for school attendance of loca students	Access interruption for school activities of local students	115. Specific and detailed construction schedule should be informed of to local community. Arrangement of construction schedule, construction time is carried out at all construction locations. 116. There should be coordination with local authorities for transport management, raising awareness of participating transport of local people. 117. Arrangement of appropriate bypass at construction locations. 118. Keep the construction road dry for being more convenient traveling. 119. Regularly clean construction materials on construction site, avoid transport congestion. 120. Avoid construction at time before and after school of local students.	All construction locations	Full time	Monthly	No marginal cost	LISC & PMU	Contractor

Component 1 Activity of Sa Pa Subproject	Potential Environmental Impacts	Proposed Mitigation Measures	Location	Timing	Activity Reporting	Estimated Cost[2] (USD)	Responsibility	
							Supervision	Implementation
Implement Construction Drainage sub-plan	Local flood in construction areas	121. Provide adequate short-term drainage away from construction sites to prevent ponding and flooding. 122. Install temporary storm drains or ditches for construction sites 123. Frequently clear the flow at the construction site to limit blockage capacity. 124. Clean construction material at the site, cover materials that are easily dissipated by the wind in so that they are not swept away with the water flow, causing water flow block and flooding at the site	stream at Ban Pho village, Hau Thao commune	Design & construction phases	Monthly	No marginal cost	LISC & PMU	Contractor
Implementation of mitigation plans for sensitive works	Damage, interruption and reducing of sensitive works value	125. Arrangement of fences for covering, prohibition signs aims to limit construction activities for protection of sensitive works. 126. Avoid carrying out site leveling, backfilling and excavating and occupying of sensitive works scope 127. Keep materials wet during the construction process to limit dust affecting sensitive works. 128. Avoid temporarily keeping materials, non-agreement of worker camps at sensitive locations. Arrangement of workers to clean waste regularly at this location. 129. Fast construction and limit construction at tourism time	Hoa Hong valley (ATI tourism area), Muong Hoa road, Sa Pa town; Muong Hoa valley, Hau Thao commune, ancient stonefill, Hau Thao commune	Fulltime	Monthly	No marginal cost	LISC & PMU	Contractor
Civil works & Chance finds sub-plan	Damage to cultural property or values, and chance finds	130. According to detailed design, Ancient Stone in Hau Thao commune needs to be protected by covering, fencing in the course of construction of PR 152 131. Chance finds of valued relics and cultural values should be anticipated by contractors. Site supervisors should be on the watch for finds. 132. Upon a chance find all work to stop immediately, find left untouched, and PMU notified to determine if find is valuable. Culture section of Lao CAI DCST notified by telephone if valuable.	All construction sites	At the start , and throughout construction	Monthly	No marginal cost	LISC & PMU	Contractor

Component 1 Activity of Sa Pa Subproject	Potential Environmental Impacts	Proposed Mitigation Measures	Location	Timing	Activity Reporting	Estimated Cost[2] (USD)	Responsibility	
							Supervision	Implementation
		133. Work at find site will remain stopped until DCST allows work to continue.		phase				
Operation of the provincial road 152								
Operation of the provincial road 152	Increase the risks of traffic accidents due to increased numbers of vehicles on the new road	134. Arrangement of warning signs, instruction signs at intersection locations. 135. Limit speed when crossing residential sites. 136. Arrangement of transport staff for regular investigation of the roads for exceeding-permitted speed cases and non- compliance cases of traffic regulations	Along the provincial road 152	Full time	Annually	O&M	Lao Cai Operation unit Public Transport Department	
	Dust, emission, noise of traffic vehicles on the road	137. Sufficient annual O&M budget must be provided to ensure all equipment stays in good working condition. 138. Regular sanitation on the route 139. Planting trees along 02 the routes and median strips.		Full time			Lao Cai Operation unit Public Transport Department	

Figure 4: Map of Sensitive Sites along the PR 152 – Sa Pa Subproject

5. MONITORING PLAN

39. The Monitoring Plan for the u-EMP of the PR 152 is provided in the following table. The Plan takes focus on 03 phases (preparation, construction and operation) for the subproject and covers environmental indicators, samplings, locations & frequencies, data collection methods, responsible shareholders and estimated cost. The Plan is carried out to figure out the efficiency of environmental mitigation measures and record positive impacts and unforeseen negative effects of the Component 1.

- **Environmental Quality Standard and Impact Monitoring for the Component 1 (PR 152)**

40. Standards and Regulations on environmental quality in Vietnam are listed in Appendix B. Environmental standards provided in accordance with IFC/WB Environment, Health, and Safety Guidelines (2007) should be consulted with in order to add standards and regulations of the Government of Vietnam.

41. LISC shall be responsible for implementation of environmental impacts monitoring under the monitoring plan. For these objectives, LISC may decide to contract an Independent Environmental Monitoring Consultant (EMC) under the supervision and coordination of the LISC and the PMU. Either LISC or LISC's EMC is charge of the sampling of environmental parameters to be analyzed in the labs.

42. After completing the work and the PR 152 is put into operation, air quality will be frequently checked by the exploitation and operation unit or by DONRE. Monitoring of the success of any minor compensation will be undertaken part of the REMDP which is separately prepared for the subproject. Table 5 summarizes monitoring responsibilities during the construction and implementation of the subproject.

- **Performance Monitoring**

43. Performance Monitoring is required assess the overall performance of EMP. A performance monitoring shall be developed by LISC (coordination with Lao Cai PMU) for the Component of Sa Pa subproject. Selected indicators of the environment that will be affected primarily by the construction phase are drawn from the mitigation and monitoring plans and summarized in Table 6.

- **Reporting**

44. Regular reporting on the implementation of mitigation measures, and monitoring activities during construction phase of the subproject is required. Reporting is the responsibility of PMU, and should be conducted in conjunction with regular meetings with stakeholders as part of the continuation of stakeholder communications.**Error! Reference source not found.**lists environmental monitoring reporting requirements, responsibilities and timing. Appendix C provides a monitoring report template for the PMU that the PMU with assistance from and the LISC must complete and attach as part of regular PMU reporting to the BacGiang PMU, who will compile a consolidated project-level integrated safeguards monitoring report to ADB.

45. A report on environmental monitoring and implementation of EMP for the subproject component sites will be prepared semi-annually for the EA/PSC by the PMU. The PMU report will compile monthly reports provided by the EO of contractor, the reports of the LISC/EMC on effect monitoring, and input from the ES of the LISC. The PMUreport will also be sent to the DoNRE. The semi-annually reports of Lao Cai PMU will be consolidated with 02 reports of the other two PMUs by the BacGiang PMU and submitted to ADB. The reports will table all indicators measured with the monitoring plan of EMP including performance

monitoring indicators, and will reference relevant GoV environmental quality standards.

Table6: Environmental Reporting Plan

Environmental indicators	Location	Means of monitoring	Frequency	Reporting	Responsibility		Estimated cost (USD)
					Supervision	Implementation	
Pre-construction Phase – Update Environmental Baseline Conditions							
Initial assessment on sensitive positions (stated sensitive positions on the map) Impacts from the implementation of the Component 1 on natural habitat (rare animals and plants)	+ Hoa Hong valley (ATI tourism area), Muong Hoa road, Sa Pa Town; + Muong Hoa valley, Hau Thao commune; + Ancient Stone, Hau Thao commune; + Lao Chai village, Lao Chai commune; + Ta Van village, Ta Van commune; + Cau May, Ta Van commune.	Consultation with the community and DONRE and Director of Hoang Lien National Park (the contents were implemented consultation documents are attached in the appendices)	Once	Once	PMU	LISC/ EMC	$1,200
Update current status of air quality: micro-climate, dust, noise, vibration, CO, SO2, NOx	+ The beginning of the branch route in group 4 of Sapa town. + Ly Lao Chai Village, Lao Chai commune + The cross-road to Lao Chai People's Committee + The cross-road to Ta Van village, Ta Van commune + The boundary between Hau Thao commune and Su Pan commune. + The end point is at the Ban Den cross-road, Ban Ho commune	Use methods of monitoring, sampling collection and analysis in accordance with current standard and regulations of the GoV	Once before construction	One report supplemented before construction	PMU	LISC/ EMC	$416
Update current status of surface water (pH, TSS,DO, BOD5, COD, Ammonium, Chlorine, Nitrite, Nitrate, Phosphate, grease, Coliform)	Surface water in streams in Ban Pho village, Hau Thao commune or neighboring water areas.	Use methods of monitoring, sampling collection and analysis in accordance with current standard and regulations of the GoV.	Once before construction	One report supplemented before construction	PMU	LISC/ EMC	$263
Update quality of soil environment (ensure that unpolluted soil will be reused or disposed at landfills. Contaminated soil will be transported and treated by local competent authorities under regulations.	Along PR 152 (Possible contaminated lands at all excavation sites)	Use methods of monitoring, sampling collection and analysis in accordance with current standard and regulations of the GoV.	Once before construction	One report supplemented before construction	PMU	LISC/ EMC	$603
Construction Phase of Component 1 under the Subproject							
Periodically monitor air quality: air environment: micro-climate,	+ The beginning of the branch route in group 4 of Sapa town.	Use methods of monitoring, sampling collection and	Monthly	Monthly	PMU	LISC/ EMC	$3,325

Environmental indicators	Location	Means of monitoring	Frequency	Reporting	Responsibility		Estimated cost (USD)
					Supervision	Implementation	
dust, noise, vibrant, CO, SO2, NOx	+ Ly Lao Chai Village, Lao Chai commune + The cross-road to Lao Chai People's Committee + The cross-road to Ta Van village, Ta Van commune + The boundary between Hau Thao commune and Su Pan commune. + The end point is at the Ban Den cross-road, Ban Ho commune	analysis in accordance with current standard and regulations of the GoV.					
Periodically monitor air quality: surface water environment: (pH, TSS,DO, BOD5, COD, Ammonium, Chlorine, Nitrite, Nitrate, Phosphate, grease, Coliform)	Surface water in streams in Ban Pho village, Hau Thao commune or neighboring water areas.	Use methods of monitoring, sampling collection and analysis in accordance with current standard and regulations of the GoV.	Quarterly	Quarterly	PMU	LISC/ EMC	$2,102
Construction waste and domestic waste (of worker) in and outside the site, including worker camps	All construction sites and worker camps	Observation	Monthly	Monthly	PMU	LISC/ EMC	No marginal cost
Comments and Complaints of local people	Use hot line number at the construction site	Information will be informed through hotline at construction site	During construction period	Monthly	PMU	Contractor	$2,000
Accidents of workers or accidents/injuries of local people	All construction site	Regular reports of Contractor/PMU	During construction period	Monthly	PMU	Contractor	No marginal cost
Operation of upgraded PR 152							
Incidence of road accidents	Along PR 152	Regular reporting of police	Annually	Annually	PPC/DOT		included in annual operation cost of Lao Cai DOT
Current status of air environment	Along PR 152	Use methods of monitoring, sampling collection and analysis in accordance with current standard and regulations of the GoV.	Annually	Annually	DONRE		included in annual operation cost of Lao Cai DOT

Table 7: Performance Monitoring Indicators for the Subproject

Major Environmental Component	Key indicator	Performance objective	Data source
Pre-construction			
Public Consultation & Disclosure	Affected public & stakeholders	Meetings with stakeholders contacted during IEE & new stakeholders convened for follow-up consultation & to introduce grievance mechanism	Minutes of meeting, and participants list
EMP	Updated EMP	All stakeholders contacted during IEE re-contacted for follow-up consultation	EMP
Bid Documents	Requirements of EMP (CEMP) Contractor's Environment Management Plan)	EMP appended to bidding documents with clear instructions to bidders for CEMP	Bid documents
Training of PMU	Training course(s) & schedule	By end of P-C phase, required course(s) that will be delivered are designed and scheduled	Course(s) outline, participants, and schedule
Surface water quality in Ban Pho village, Hau Thao commune or neighboring water area	pH, BOD5, COD, DO, TSS, ammonium, nitrate, Pb, Fe, As, grease, coliform	Record basic conditions under the monitoring plan	Survey
Construction			
All subject area	Critical habitat, rare or endangered species if present	All *present* critical habitat and R & E species if unchanged, and unharmed	Monitoring by EMC
Qualitative air quality	Dust, noise, vibration, CO, SO2, NOx	Levels never exceed pre-construction baseline levels	EMC & contractor monitoring reports
Soil & surface quality	pH, TSS, DO, BOD5, COD, Ammonium, Chlorine, Nitrite, Nitrate, Phosphate, grease, Coliform	Rigorous program of procedures & rules to collect and store all waste from construction camps and sites practiced	Contractor and EMC monitoring reports
Hazardous materials & waste	Oil, gasoline, grease, alum, chlorine, soda	Rigorous program of procedures to manage and store all waste from construction camps and sites practiced	Contractor and EMC monitoring reports
Public & worker safety	v	Adherence to GoV OHS regulations/policy to prevent accidents	Contractor reports
Cultural property	Incidence of damage, or complaints	No valued cultural property, or unearthed valuable relic is harmed in any way	Public input, contractor reports, public input, EMC reports
Traffic	Frequency of disruptions & blocked roadways	Disruptions, stoppages, or detours are managed to absolute minimum	Public input, contractor reports, EMC reports
Operation of Upgraded Route 152			
Risk of accidents, noise, dust	Incidence of accidents, and dust & noise levels	Levels never exceed pre-construction baseline levels	DOT/PPC

6. ESTIMATED COST OF ENVIRONMENTAL MANAGEMENT PLAN

46. The marginal costs for implementing the EMP are primarily for environmental monitoring because the costs for implementing impact mitigation measures are included with the construction costs in contractor bid documents. From Table 6 the preliminary costs for the implementation of the EMP for the subproject are summarized in Table 8. These costs include per diem technician fees.

47. An estimated budget of USD $10,000.00 is required for capacity building and training for environmental management in conjunction with other capacity development activities of the project such as occurring as part of overall the capacity development component of the PPTA. The costs to implement the EMP will need to be updated by the LISC in conjunction with the PMU during the pre-construction phase.

Table 8: Estimated Costs for Environmental Monitoring Plan

Activity Type	Estimate cost (USD)
Pre-construction Phase	
Public consultation ($200 x 6 commune x 1 time)	$1,200
Update quality of air environment	$416
Update quality of surface water environment	$263
Update quality of oil environment	$603
Construction phase	
Quality of air environment	$3,325
Quality of water surface	$2,102
Comments and complaints of local people	$2,000
Operation phase	
Environmental quality	Included in cost for monitoring of environmental current status in Lao Cai province.
Community participation	No marginal cost
Traffic safety monitoring	included in operation cost of Lao Cai DOT

Notes: Monitoring costs included in the cost stated in the contract with EMC

7. EMERGENCY RESPONSE PLAN

48. The Contractor must develop emergency or incident response procedures during construction. In the operational phase the operator/civil authorities will have responsibility for any emergencies or serious incidents. The construction phase should ensure:

- Emergency Response Team (ERT) of the Contractor as initial responder;
- the District fire and police departments, emergency medical service, the Department of Health (DPH), collectively referred to as the External Emergency Response Team (EERT), as ultimate responders.

49. The Contractor will provide and sustain the required technical, human and financial resources for quick response during construction.

Table 9: Roles and Responsibilities in Emergency Incident Response

Entity	Responsibilities
Contractor Team (Emergency Response Team (ERT))	Communicates / alerts the EERT. Prepares the emergency site to facilitate the response action of the EERT, e.g., vacating,

Entity	Responsibilities
	clearing, restricting site. When necessary & requested by the EERT, lends support / provides assistance during EERT's response operations.
External Emergency Response Team (EERT)	Solves the emergency/incidents
Contractor Resources	Provide and sustain the people, equipment, tools & funds necessary to ensure Subproject's quick response to emergency situations. Maintain good communication lines with the EERT to ensure prompt help response & adequate protection, by keeping them informed of Subproject progress.

50. The Contractor's Senior Engineer directs emergency response team (appointed by emergency response team leader). First aid staff is trained and security groups are key members of the Emergency Response Team.

51. Contractor ensures that members of Emergency Response Team should meet the physical, technical and psychological requirements to take on the role and responsibility for emergency response.

52. Prior to the construction works mobilization, the Contractor, through Construction Management, the head of the emergency response team, in coordination with the Project Implementation Unit, will meet with the final response organizations to discuss about the overall construction process, including but not limited to:

- The subproject area;
- Time frame and construction phase;
- Any special techniques and equipment to be used; Any toxic substance that will be brought to and stored at the construction facility and the details of the application and treatment / management system;
- Contractor's Emergency Management Plan;
- Name and contact information of Emergency Response Team members

53. Objectives of meetings aim to provide the final response agencies with context in order to:

- Assessment of the relevance of the associated emergency management plan
- Evaluation of the type, level and incidence of estimated potential risks
- Organization of coordination and cooperation.

54. In order to ensure an effective emergency response, prior to construction work mobilization, the Contractor shall:

- Establish an emergency response team;
- Set up support equipment and system in working conditions
- Arrange with the external emergency response team;
- Provide appropriate training for emergency response team members, and encourage and train volunteers from the workforce;
- Provide guidance to all construction workers on emergency procedures and systems, especially evacuation procedures, escape routes, evacuation points, and self- initial response and other issues; and
- Perform practice for different situations that may occur.

55. To maintain effective emergency response during the Subproject implementation, there should provide aquadate budget to maintain capacity and efficiency of emergency response mechanism, equipment, instruments, vehicles and materials for emergency response. Regular use at least every 2 months and remind at least once a month.

7.1. Warning Process

56. The mode of communication, reporting and warning of an emergency situation may be associated with: an audible alarm (siren alarm, bell or gong); ii) visual alarm (strobe light / red light or orange safety flag); iii) telephone (fixed line telephone); iv) mobile phones; v) two-way portable radios; and vi) public broadcasting / loudspeaker systems. Some rules related to communication / alarm include:

- Those who first find out the emergency immediately need:
  - Call the attention of others at the incident scene,
  - The nearest sound alarm, and / or
  - Report / contact with Emergency Response Team on emergency situation.
- Only the emergency response team leader, if the team leader is not present at that case, and emergency response team deputy leader is authorized to contact with the external emergency response team. Exceptions cases to this rule and should be identified in the Incident Management Plan.
- When contacting / reporting an incident to the external Emergency Response Team, there should provide at least: i) the type of emergency; Place of occurrence; (ii) the estimated size of the emergency; iii) individuals expected to be affected; iv) time of occurrence; v) in the event of hazardous substance overflow; and vi) in case of fire and explosion. Details will help the team leader prepare appropriate response plans.

57. For effective reporting / warning on emergencies:

- The name and contact information of the persons and organizations involved should be available or nearby, all types of communications equipment, and posted strategically (with size toeasily read) in all areas and facilities of the subproject:
  - All related construction / operation officers, emergency response team leader, team deputy leader, first aid workers, supervisor engineer and construction site monitoring
  - Organization of external emergency response team
  - Departments of related villages
  - Staff of the project implementation unit, safety officer
- All project areas should have good access systems with sound and visual alarming system, landlines, mobile phones and 2-way radios all the time.
- Contractor's vehicles should be equipped with suitable communication systems.

7.2. Emergency Response Situations

58. The following tables recommend common procedures that are screened in the final Environmental Management Plan during the detailed design process and are described in more detail in the Contractor's Emergency Incident Management Plan .

Table10: Evacuation procedures

Procedures	Note
Relocation as each group as quickly as possible and avoid panic	All staff / workers, subcontractors, field supervisors, when going out, should follow the directions of the emergency response team.
Evacuation according to instructional exits	Safe evacuation is decided by emergency response team leader / team deputy leader and should be promptly notified to team members.
Continue relocation until everyone is safe from the place of the incident and affected	Establish the restricted area outside the incident area; everyone must be away from

Procedures	Note
area	the restricted area.
In case outside, take attendance	The foreman needs to take attendance small groups, the head / deputy head of the incident response team.
Report the absentee immediately to the External Response Team	The head / deputy head is in contact with the external incident response team
Support the injured during the evacuation process and help them with first aid or medical team for external emergency response	The incident response team manages the injured to ensure properly handle
If the injured need special care, DO NOT move them if it is not necessary and without the guidance of the external Response Team.	The team leader / deputy leader contacted the external incident response team for guidance to deal with the injured.

Table11: Procedures for Responding To Emergency Medical Incidents

Procedures	Note
There should provide immediate first aid regardless of severity.	Basic principles for first aid: + Ensure first safety for both rescuers and victims. + Do not move the injured unless the victim is exposed to more dangers by leaving them alone, for example, in the event of a fire or chemical spill. + The external incident response team cannot assist the victim in the event of works collapse. + Follow the directions of the incident response team + First Aid is performed by staff trained in first aid
Call the emergency medical service and / or nearest hospital	Incident response team leader / deputy team leader or in-place incident contact officers are authorized
Facilitate the external response team leader to direct at the incident site.	Team leader/ deputy leader should give guidance: + On-site incident response team members should meet with the team leader to access the strategic road / location. + Arrange orange safety flags to attract attention and direct them in place. + The members of the incident response team need to know the access road to ensure safe traveling for the Team.
Immediate evocation at incident places and affected areas, restricted area, stop construction until announcement	Follow first aid procedure.

Table 12: Process of responding in case of fire

Procedures	Note
Warning of fire and explosion	Explosion detector needs timely: Get people's attention at location of fire and explosion Alarm by sounds at the nearest location, and / or Supervisors or any member of the Incident Response Team, among the small groups, contact with the fire prevention department (in this case, it should be agreed that any member of the Response Team in small group to alert the fire prevention department)

Procedures	Note
	Report/ contact emergency for Team Leader / Deputy leader of Incident Response Team.
Stop activities and evacuate	All workers / staff (not belong to incident response team), subcontractors, site and community supervisors remove to safe place following the evacuation process.
Alarm Response Team for firefighting / fire spread controlling.	According to the training, ERT members are assigned to firefighters will evaluate their own safety situation before attempting to control the fire spreading.
Call the nearest fire station & police station, and emergency medical services	In case alerting, the external incident response team, the team leader should report the location, cause of fire, level of estimated fire warning, any case of injury.
Facilitate directing the external incident response team at the incident site.	Team Leader / Team Deputy Leader should lead: Team members meet the external incident response team at the entrance road or strategic location and lead them to the incident area. The orange safety flag should be raised to attract attention and guide them into the area of the incident. Some team members need to stop transport, and know the access road to facilitate traveling for the External Response Team.
The incident response team should evacuate the incident area as soon as possible to ensure safety	Comply with appropriate evacuation procedures

8. EVALUATION ON CAPACITY, INSITUTION AND DEMANDS

59. At present, there is insufficient experience and capacity for environmental assessment and management among national partners taking responsible for implementation of the EMP, e.g PPC / PMU in Sa Pa. There are no specialized environmental staffs in the PMU. With the support of the designated SO / PMU, LISC will develop and train the PMU staff responsible for implementing the subproject. The purpose of the course is to enhance the capacity of PMU / SO to monitor the EMP implementation by construction contractors and Environmental Monitoring Consultants (EMC).

60. Safety Officer (SO) is a permanent environmental member of the PMU and environmental officer (EO) of the contractor who needs to attend the training course. Training costs are included in the cost of implementing the EMP.

61. Training of EMP implementation will address two thematic fields. The first field is the principles of environmental management, attaching importance to the potential impact of subproject activities on the natural and social environment. The last one is the ADB and the Government's environmental safety requirements with specific reference to the EMP.

APPENDIX

APPENDIX A: CONSULTATION DOCUMENTS IN THE PROCESS OF THE EMP UPDATING FOR THE COMPONENT 1 – SA PA SUBPROJECT

UBND TỈNH LÀO CAI
VƯỜN QUỐC GIA HOÀNG LIÊN

Số: 215 /VQG -TCHC
V/v xác nhận một số nội dung liên quan đến dự án: Phát triển các đô thị dọc hành lang tiểu vùng sông Mê Kông lần thứ 2 – Tiểu dự án đô thị Sa Pa, tỉnh LC sử dụng vốn ADB

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập – Tự do – Hạnh phúc

Sa Pa, ngày 25 tháng 8 năm 2016

Kính gửi: Sở Kế hoạch và Đầu tư tỉnh Lào Cai

Vườn Quốc gia Hoàng Liên nhận được Văn bản số 1525/SKH-QLDA ngày 22/8/2016 của Sở Kế hoạch và Đầu tư về việc xác nhận một số nội dung về MT, VH-XH liên quan đến dự án: Phát triển các đô thị dọc hành lang tiểu vùng sông Mê Kông (GMS) lần thứ 2 – Tiểu dự án đô thị Sa Pa, tỉnh Lào Cai, sử dụng vốn vay ADB.

Vườn Quốc gia Hoàng Liên xác nhận: 03 hạng mục Dự án phát triển các đô thị dọc hành lang tiểu vùng sông Mê Kông lần thứ 2 – Tiểu dự án đô thị Sa Pa, tỉnh Lào Cai sử dụng vốn vay ADB (Nâng cấp Tỉnh lộ 152; Quản lý hệ thống nước thải Sa Pa; Xây dựng và nâng cấp hạ tầng đô thị Sa Pa) không nằm trong vùng lõi/vùng đệm của Vườn Quốc gia Hoàng Liên.

Vườn Quốc gia Hoàng Liên kính gửi Sở Kế hoạch và Đầu tư tổng hợp báo cáo Ngân hàng Phát triển Châu Á (ADB) theo quy định./.

Nơi nhận:
- Như trên;
- BGĐ VQGHL;
- Lưu VT, Thắm.

GIÁM ĐỐC

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
VƯỜN QUỐC GIA HOÀNG LIÊN
TỈNH LÀO CAI

Nguyễn Quang Vĩnh

UỶ BAN NHÂN DÂN **HUYỆN SA PA**	**CỘNG HOÀ XÃ HỘI CHỦ NGHĨA VIỆT NAM** **Độc lập – Tự do – Hạnh phúc**
Số: 1988/UBND-VHTT V/v xác nhận một số nội dung về MT, VH-XH liên quan đến Dự án: Phát triển các đô thị dọc hành lang tiểu vùng sông Mê kông (GMS) lần thứ 2 – Tiểu dự án đô thị Sa Pa	*Sa Pa, ngày 19 tháng 9 năm 2016*

Kính gửi: Sở Kế hoạch và Đầu tư tỉnh Lào Cai

Ủy ban nhân dân huyện nhận được Văn bản số 1525/SKH-QLDA ngày 22/8/2016 của Sở Kế hoạch và Đầu tư tỉnh Lào Cai về việc xác nhận một số nội dung về MT, VH-XH liên quan đến Dự án: Phát triển các đô thị dọc hành lang tiểu vùng sông Mê kông (GMS) lần thứ 2 – Tiểu dự án đô thị Sa Pa.

Sau khi nghiên cứu, xem xét hồ sơ dự án, đối chiếu thực địa, Ủy ban nhân dân huyên Sa Pa xác nhận việc xây dựng Dự án không ảnh hưởng tới nguồn văn hóa vật thể trên địa bàn huyện

Trên đây là ý kiến tham gia đóng góp của Ủy ban nhân dân huyện Sa Pa gửi Sở Kế hoạch và Đầu tư tỉnh Lào Cai tổng hợp./.

Nơi nhận:
- Như kính gửi;
- TT UBND huyện;
- Lãnh đạo VP, CV Len;
- Lưu: VT.

TM. ỦY BAN NHÂN DÂN
KT. CHỦ TỊCH
PHÓ CHỦ TỊCH

Nguyễn Ngọc Hình

UỶ BAN NHÂN DÂN TỈNH LÀO CAI **SỞ TÀI NGUYÊN VÀ MÔI TRƯỜNG**	**CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM** **Độc lập - Tự do - Hạnh phúc**
Số 1662 /STNMT-CCBVMT V/v xác nhận nội dung liên quan đến đề án Phát triển đô thị dọc hành lang sông Mê Kông lần thứ 2 – tiểu dự án đô thị Sa Pa	*Lào Cai, ngày 16 tháng 9 năm 2016*

Kính gửi: Sở Kế hoạch và Đầu tư;

Sở Tài nguyên và Môi trường nhận được Văn bản số 1525/SKH-QLDA ngày 22/8/2016 của Sở Kế hoạch và Đầu tư về việc xác nhận nội dung liên quan đến đề án Phát triển đô thị dọc hành lang sông Mê Kông lần thứ 2 – tiểu dự án đô thị Sa Pa; Về nội dung xem xét có ảnh hưởng đến chủng loài đặc hữu cần bảo vệ, Sở Tài nguyên và Môi trường có ý kiến như sau:

Hiện nay trên địa bàn tỉnh chưa có đánh giá tổng thể, quy hoạch về đa dạng sinh học, các số liệu loài đặc hữu cần bảo vệ mới chỉ thống kê trong phạm vi Vườn Quốc gia Hoàng Liên và Khu Bảo tồn thiên nhiên Hoàng Liên - Văn Bàn. Tại Văn bản 215/VQG-TCHC ngày 25/8/2016 của Vườn Quốc gia Hoàng Liên về việc xác nhận nội dung liên quan đến đề án Phát triển đô thị dọc hành lang sông Mê Kông lần thứ 2 – tiểu dự án đô thị Sa Pa khẳng định đề án không lấy đất vùng lõi, vùng đệm của Vườn Quốc gia Hoàng Liên do vậy không ảnh hưởng đến các loài đặc hữu cần bảo vệ.

Trên đây là ý kiến của Sở Tài nguyên và Môi trường đề nghị Sở Kế hoạch tổng hợp báo cáo UBND tỉnh; Ngân hàng phát triển Châu Á./.*(Phương)*

Nơi nhận: - Như trên; - Lưu VT-CCBVMT2./.	**KT. GIÁM ĐỐC** CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM SỞ TÀI NGUYÊN VÀ MÔI TRƯỜNG TỈNH LÀO CAI **PHÓ GIÁM ĐỐC** *Lê Ngọc Dương*

APPENDIX B: NATIONAL STANDARD AND SPECIFICATIONS

- **Water quality**

  - QCVN 01:2009/BYT - National technical standards on drinking water quality.
  - QCVN 08-MT:2015/BTNMT - National technical standards on water surface quality.
  - QCVN 09-MT:2015/BTNMT - National technical standards on underground water quality.
  - QCVN 14:2008/BTNMT -National technical standards on domestic waste water quality
  - QCVN 02:2009/BYT - National technical standards on domestic water supply

- **Air quality:**

  - QCVN 05:2013/BTNMT- Air quality - National technical regulation on ambient air quality;
  - QCVN 06:2009/BTNMT - Air quality - Maximum allowable concentration of toxic substances presented in ambient air;
  - National standard TCVN 6438:2005 on Land-road means of transport- Maximum allowable limit of the emission

- **Solid waste management**

  - TCVN 6696:2009 – Solid waste - Hygienic landfill - General requirements on environmental protection.
  - QCVN 07:2009/BTNMT - National standard for hazardous waste thresholds.
  - QCVN 25:2009/BTNMT –National technical regulation on wastewater of solid waste landfill
  - QCVN 15:2008/BTNMT –Soil quality - National standard on pesticide in soil
  - QCVN 03-MT:2015/BTNMT –Soil quality - National standard on the permissible limit of some heavy metals in soil.

- **Vibration and Noise:**

  - QCVN 26:2010/BTNMT: National technical standards on noise
  - QCVN 27:2010/BTNMT-National technical standards on vibration
  - TCVN 6962:2001 on vibration- concussioncaused by construction and industrial production activities - the maximum allowed for environment in public and residential areas

- **International guidance**

  - The World Bank group, 2007. Guidance on environment, health and safety, Wash. DC.
  - A standardized method for assessing and analyzing environmental quality managed by AWWA (American Water Works Association)

Safeguards Monitoring Report

Semiannual Report
xxx {month} 20xx

Viet Nam: xxx {Project name}, xxx {sub-project name, if report covers only one sub-project}

Prepared by the Project Management Unit of {complete name of Implementing Agency} for the {complete name of the borrower} and the Asian Development Bank.

NOTE

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

This safeguards monitoring report is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.

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

Executive Summary

{Read and delete: Provide short summary of the following items:

- Summary of EMP/RP/REMDP Implementation
- Description of monitoring activities carried out (e.g. field visits, environment effect monitoring, survey questionnaire, public consultation meetings, focus group discussions, etc)
- Key issues, any corrective actions already taken, and any grievances
- Key activities planned in the next reporting period
- Recommendations

Use the paragraph numbering format provided below throughout the report}

1. xxx
2. xxx

I. Project Overview, General safeguard matters

1. Project Overview

{Read and delete: Briefly describe project objectives, scope and components – can be taken from PAM or other relevant document}

3. xxx
4. xxx

2. Project Progress

{Read and delete: Using most recent project progress report, describe status of project implementation, including full list of contracts, status of contract awarding and implementation, name of contractor, Engineer, Project Supervision Consultant.}

5. xxx
6. xxx

Table 1: Project Overview, Snapshot of Project Progress

Project Number and Title:		
Safeguards Category	Environment	
	Indigenous Peoples	
	Involuntary Resettlement	
Reporting period:		
Last report date:		
Key sub-project activities since last report:	*{Read and delete: This section should include, among others, the following:}* Contract awarding Progress of Work (% physical completion) Status of Safeguard Approvals / Permits / Consents	
Report prepared by:		

3. Safeguard Plans Implementation Arrangements

{Read and delete: Describe institutional arrangements and responsibilities for EMP and RP/REMDP implementation, internal and external monitoring, and reporting, defining roles of PMU, Construction Supervision Consultant, Loan Implementation Supervision Consultant, Contractors. (Table format as needed)}

7. xxx
8. xxx

4. Updated EMPs and RPs/REMDPs, Incorporation of Safeguards Requirements into Project Contractual Arrangements

{Read and delete: Define manner by which EMP and RP/REMDPs requirements are incorporated into bidding documents, contracts.

Indicate when updated EMPs and RPs/REMDPs were submitted for approval to ADB (Table format appropriate).}

9. xxx
10. xxx

II. Environmental Performance Monitoring

1. Status of EMP implementation (Mitigation Measures)

{Read and delete: Summarize main mitigation/protection measures implemented in the reporting period (narrative section). Structure in accordance to phases (detailed design, construction preparation, construction, and operation).}

11. xxx
12. xxx

{Read and delete: Include EMP table or updated EMP table if applicable. Assess compliance of environmental management activities with the original or updated EMP. For that purpose, include additional columns entitled “Compliance Status”, "Comment or Reasons for Non-Compliance", and "Issues for Further Action". Example is provided below.}

Table 2: Compliance with EMP Requirements (Environmental Performance)

EMP Requirements	Compliance Status (Yes, No, Partial)	Comment or Reasons for Non-Compliance	Issues for Further Action
Use environmental impact as main heading and EMP as listing (see example below)	Use EMP list as basis for rating/evaluating compliance (see example below)		
Rise of employment opportunities: Job openings of the project should give priority to local communities. Recruitment of local laborers should be stipulated in the contract for construction	Field inspections and interviews with communities - DONE Note each complaint case in the field – 3 COMPLAINTS RECEIVED Set up grievance centre and report as part of monitoring action plan – NOT DONE		

Table 3: Issues for Further Action

Issue	Required Action	Responsibility and Timing	Resolution
Old Issues from Previous Reports			
List of EMP measures or activities not completed (last column of previous table)			
New Issues from This Report			

2. Health and Safety

{Read and delete: Provide narrative of occupational and community health and safety issues that occurred during the reporting period. Any accident involving injury or death of workers or community members must be reported. Include investigation report of DOLISA as attachment to the report. Provide details in the Table below}.

13. xxx
14. xxx

Table 4: Health and Safety Issues

Issue	Required Action	Responsibility and Timing	Resolution
Old Issues from Previous Reports			
New Issues from This Report			

3. Environment Effect Monitoring

Monitoring plan. xxx {Read and delete: Present the environment effect monitoring plan as defined in the EMP or the updated monitoring plan. Refer to Table 4. Describe monitoring responsibilities}

Monitoring activities in the reporting period. Xxx {Read and delete: Describe the environment effect monitoring activities in the reporting period, including number of

monitoring campaigns, number of samples, etc. Confirm compliance with the monitoring plan, or justify any deviation from the plan}

Table 4: Environment Effect Monitoring Results in the Reporting Period

{Read and delete: Present monitoring result in a Table (see example below, adjust as needed). Any non-compliance should be highlighted for attention and follow-up.}

Location	Parameter	Date	Monitoring value	Relevant government standard, standard value

Assessment. Xxx {Read and delete: Compare monitoring results with baseline conditions (if baseline data is available) and relevant government standards in qualitative terms. Additional explanatory comments should be provided as necessary. Possible reasons for non-compliance should be identified.}

III. Involuntary Resettlement Performance Monitoring

{Read and delete: Provide narrative of status of implementation of the RP(s), including but not limited to: status of RP or Resettlement Framework updating; number of households relocated during the reporting period; outstanding resettlement activities; etc}.

15. xxx
16. xxx

Table 6: Summary of Compliance with RP Requirements

RP Requirements	Compliance status Yes/No/Partial	Comment or Reasons for Compliance, Partial Compliance/Non-Compliance	Issues for Further Action4
Establishment of personnel in PMU		{Read and delete: This section should include, among others, the following:} Identify position and name of Safeguards/Resettlement staff of the PMU	
Public consultation and socialization process		{Read and delete: This section should include, among others, the following:} Provide information on: Public consultation, participation activities carried out Inclusive dates of these activities To be elaborated on in Item 5	
Land area to be acquired is identified and finalized		{Read and delete: This section should include, among others, the following:} Provide information on: Land area (of each parcel to be	

[4] To be elaborated further in table 3.b (Issues for Further Action)

		acquired) Current land use (residential, agri, etc) Current ownership status (private, state) Provide attachments on land titles/user rights certificates,	
Resettlement plan(s) updated after detailed design			
Land acquisition completed			
Establishment of Resettlement Site(s)		Please state: Number of AHs to be relocated as per agreed RP Number of AHs already relocated Number of houses built Status of installation of community facilities to be provided as per agreed RP	
Compensation payments for affected assets is completed		Please state: Total Number of Eligible AHs and APs (as per agreed RP) Number of AHs and APs compensated as of this monitoring period Total Budget allocation as per agreed RP Total budget disbursed to AHs as of this monitoring period	
Transport assistance for relocating affected households		As above	
Additional assistance to vulnerable affected household		Please state: Total Number of vulnerable AHs and APs (as per agreed RP) Agreed forms of assistance as per RP Number of AHs and APs assisted as of this monitoring period	
Income Restoration Program		Please state progress per income restoration feature/activity and actual period of implementation	
Temporary impacts have been addressed (affected properties restored to at least pre-project conditions)		Please state: Total Number of AHs affected by temporary impacts as per agreed RP Actual Number of AHs and total area affected by temporary impacts (if this differs from the projected number, such as in cases of unforeseen project impacts) Status of restoring affected property	
Capacity building activities			

Table 7: Issues for Further Action

Issue	Required Action	Responsibility and Timing	Resolution
Old Issues from Previous Reports			
List of RP activities not completed (last column of previous table)			
New Issues from This Report			

IV. Compliance with safeguards related project covenants

{Read and delete: List all environment and resettlement related loan covenants, and assess project's compliance with the covenants (Table format is appropriate, with concluding statement on compliance, partial compliance or non-compliance, and corrective actions as needed)

Schedule	Para No.	Covenant	Remarks/Issues (Status of Compliance)
Schedule 5	xxx		Complied with / Partially complied with / Not complied with. {Identify reason for partial or non-compliance}

V. Public consultation, Information Disclosure, Capability Building

{Read and delete: Describe public consultation activities during the reporting period. Confirm compliance with consultation plan defined in the IEE/EMP and the RP(s), or justify deviation from these plans. Present planned consultation activities in next reporting period. Use Tables as appropriate.}

- Field Visits (sites visited, dates, persons met)
- Public Consultations and meetings (Date; time; location; agenda; number of participants disaggregated by sex and ethnic group, not including project staff; Issues raised by participants and how these were addressed by the project team)
- Training (Nature of training, number of participants disaggregated by gender and ethnicity, date, location, etc.)
- Press/Media Releases
- Material development/production (e.g., brochure, leaflet, posters)
- Information disclosure

VI. Grievance Redress Mechanism

{Read and delete: Describe mechanisms established to address and redress public complaints and grievances related to social and environment safeguards. Summarize grievances received, if any, and measures implemented to redress them.}

- Number of new grievances, if any, since last monitoring period: ____
- Number of grievances resolved: _____
- Number of outstanding grievances: _____

Type of Grievance	Details (Date, person, address, contact details, etc.)	Required Action, Responsibility and Timing	Resolution
Old Issues from Previous Reports			
New Issues from This Report			

Conclusion

{Read and delete: Highlight important results from the implementation of EMP and RP monitoring; recommendations to improve EMP and RP management, implementation, and monitoring; key activities planned in next reporting period}.

17. xxx
18. xxx

Attachments

- Consents / permits
- Monitoring data (water quality, air quality, etc.)
- Inspection checklists
- Photographs
- Others

APPENDIX D: ESTIMATED COST OF ENVIRONMENTAL MONITORING IMPLEMENTATION IN THE PHASES UNDER COMPONENT 1

Costs for Baseline Environment during Preparation Phase

No.	Parameters	Unit	Quantity	Frequency	Unit price (dong)	Amount (dong)	Conversion (USD)	Legal bases
I	Air samples				1,550,000	9,300,000	416	
1	Temperature, humidity	sample	6	1	100,000	600,000		Circular No. 18/2014 of MONREdated 22/4/2014 promulgating the economic-technical norm for monitoring ambient air environment, surface water, soil and groundwater.
2	Wind speed	sample	6	1	50,000	300,000		
3	TSS	sample	6	1	300,000	1,800,000		
4	NO2	sample	6	1	350,000	2,100,000		
5	SO2	sample	6	1	350,000	2,100,000		
6	CO	sample	6	1	350,000	2,100,000		
7	Noise	sample	6	1	50,000	300,000		
II	Water surface samples				1,960,000	5,880,000	263	
1	pH	sample	3	1	80,000	240,000		
2	TSS	sample	3	1	150,000	450,000		
3	DO	sample	3	1	80,000	240,000		
4	BOD5	sample	3	1	150,000	450,000		
5	COD	sample	3	1	150,000	450,000		
6	NH4+-N	sample	3	1	150,000	450,000		
7	Cl-	sample	3	1	150,000	450,000		
8	NO2--N	sample	3	1	150,000	450,000		
9	NO3--N	sample	3	1	150,000	450,000		
10	PO43--P	sample	3	1	150,000	450,000		
11	mineral grease	sample	3	1	200,000	600,000		
12	Coliform	sample	3	1	200,000	600,000		
III	Soil samples				2,700,000	13,500,000	603	
1	Cd	sample	5	1	450,000	2,250,000		
2	As	sample	5	1	450,000	2,250,000		
3	Zn	sample	5	1	450,000	2,250,000		
4	Pb	sample	5	1	450,000	2,250,000		
5	Cu	sample	5	1	450,000	2,250,000		
6	Cr	sample	5	1	450,000	2,250,000		
	Total					28,680,000	1,282	

Costs for Environmental Monitoring During Construction Phase

No.	Parameters	Unit	Quantity	Frequency	Unit (dong)	Amount (dong)	Conversion (USD)	Legal bases
I	Air samples				1,550,000	74,400,000	3,325	
1	Temperature, humidity	sample	6	8	100,000	4,800,000		Circular No. 18/2014 of MONRE dated 22/4/2014 promulgating the economic-technical norm for monitoring ambient air environment, surface water, soil and groundwater.
2	Wind speed	sample	6	8	50,000	2,400,000		
3	TSS	sample	6	8	300,000	14,400,000		
4	NO2	sample	6	8	350,000	16,800,000		
5	SO2	sample	6	8	350,000	16,800,000		
6	CO	sample	6	8	350,000	16,800,000		
7	Noise	sample	6	8	50,000	2,400,000		
II	Surface water samples				1,960,000	47,040,000	2,102	
1	pH	sample	3	8	80,000	1,920,000		
2	TSS	sample	3	8	150,000	3,600,000		
3	DO	sample	3	8	80,000	1,920,000		
4	BOD5	sample	3	8	150,000	3,600,000		
5	COD	sample	3	8	150,000	3,600,000		
6	NH4+-N	sample	3	8	150,000	3,600,000		
7	Cl-	sample	3	8	150,000	3,600,000		
8	NO2--N	sample	3	8	150,000	3,600,000		
9	NO3--N	sample	3	8	150,000	3,600,000		
10	PO43--P	sample	3	8	150,000	3,600,000		
11	Mineral grease	sample	3	8	200,000	4,800,000		
12	Coliform	sample	3	8	200,000	4,800,000		
						121,440,000	5,427	