

Environment Monitoring Report

Project Number: 38628-022
Semi-Annual Report
August 2019

Lao PDR: GMS Northern Power Transmission Project

Prepared by the Project Coordination Unit of the Electricite Du Laos (Department of Transmission Line and Substation Development) for the Lao Peoples' Democratic and the Asian Development Bank.

This Environment 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.

LAO PEOPLE'S DEMOCRATIC REPUBLIC
PEACE INDEPENDENCE DEMOCRACY UNITY PROSPERITY

Ministry of Energy and Mines
Electricite du Laos



No. 0713 /EDL
Vientiane Capital, Date 06 AUG 2019

To: ASIAN DEVELOPMENT BANK
Corner of lanxang Avenue and
Samsenthai Road
P.O Box 9742, Vientiane, Lao PDR

Attn: Yasushi Negishi
ADB Country Director LRM

Subject: Submission Report SEMR Jul-Dec 2018 and SEMR Jan-Jun 2019,
Ref: Grant 0195LAO: GMS Northern Power Transmission Project.

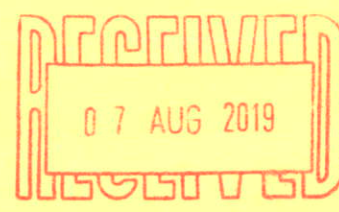
Dear Sir,

In accordance with the Grant agreement, we are hereby submitting the Semi-Annual Environmental Monitoring Report July-December 2018 and Semi-Annual Environmental Management Monitoring Report January to June 2019, of the Greater Mekong Sub-Region Northern Power Transmission Project for period of 01 July– 30 September 2018, one hard copy attached herewith.

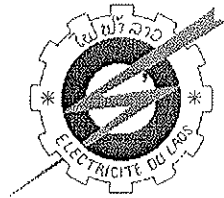
Sincerely Yours



Bounoum SYVANPHENG
Managing Director



Electricite du Laos



**Department of Transmission Line and Substation
Development**

**Greater Mekong Sub-region Northern Power Transmission
Project**

ADB - Grant No. 0195-Lao (SF) and EDCF Loan No. LAO-5

**Semi-Annual Environmental Management Monitoring
Report
January to June 2019**

NOTE

- (i) In this report, "\$" refers to US dollars.

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ABBREVIATIONS

ADB	Asian Development Bank
AHH	Affected household
AP(s)	Affected Person(s)
DAFO	District Agriculture and Forestry Office
DEPP	Department of Energy Policy and Planning
DPF(s)	District Protection Forest(s)
EDL/EdL	Electricité du Laos
FCC	Forest Clearing Committee
EMP	Environment management plan
EMU	Environmental Management Unit
EO EDL's	Environmental Office
FCC	Forest Clearing Committee
FM's	Families
GOL/GoL	Government of Lao PDR
GWh	Gigawatt hour
GMSNPTP	Greater Mekong Subregion Northern Power Transmission Project
HHs	Households
IEE	Initial Environmental Examination
IPP	Independent Power Plants
KEXIM	Korean EXIM Bank
Km	Kilometer
kV	Kilovolt
Lao PDR	Lao People's Democratic Republic
MAF	Ministry of Agriculture and Forestry
MEM	Ministry of Energy and Mines
MW	Megawatt
MONRE	Ministry of Natural Resources and Environment
MVA	Megavolt Amperes
NBCA(s)	National Biodiversity Conservation Area(s)
PAFO	Provincial Agriculture and Forestry Office
PC	Public Consultation
PEMC	Project Environmental Management Committee
PIC	Project Implementation Consultant
PMU	Project Management Unit
RAP	Resettlement Action Plan
RoW	Right-of-Way
SCDT	Single Circuit on Double Tower
SCST	Single Circuit on Single Tower
SLI SNC	Lavalin International
TL(s)	Transmission Line(s)

USD	United States Dollars
UXO	Unexploded Ordnance
WREA	Water Resources and Environment Administration

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I. EXECUTIVE SUMMARY

Towers and Location at TL1 (Bounneua-Bountai Transmission Lines)

1 Bounneua substation including technical staff dormitory, power control houses and switch yards been completed and well environmentally complied. None of any issues to be addressed as issues because labour camp has been entirely closed up and the area is then used for town roads; towers and location have been completed; clearance by every tower spacing are safety complied, and absolutely none environmental complaints been addressed for stringing activities and ROW clearing.

Towers and Location at TL2 (Xayabury-Paklay Transmission Line)

2 Similar to the TL2, none of any labour camps existed. Paklay substation including technical staff dormitory, power control houses and switch yards been completed and well environmentally complied; the previous issues of the tower 230 at the bank of Nam Pou River has now completely rehabilitated and satisfactorily complied, riprap was constructed, concrete drains constructed from the foot of the tower to the road, and larger pipe drain was installed across the road draining storm water down to the river,

3 None of any additional complaint been addressed for the relocation of towers at the military shooting practice area and other towers. The Tower No. 317 located on a very dangerous slope of two sides, which two tower feet were likely to be fallen off the hill, have now been protected with ripraps.

4 The clearance between the following towers No. T8-T9, T17-T18, T23-T24, T25-T26-T17, T31-T32, T54-T55, T111A-T112, T222-T223, T232-T233, T234-T233; and T297A-T297A were not yet complied with safety standard in February 2019, but have now been solved satisfactorily by the excavation of the high elevated earth, clearing bush and undergrowth along the conductor ROW.

Towers and Location at TL3 (Paklay-Kenthao Transmission Line)

5 Paklay-Thai connection has not yet been made but none of any environmental issues are foreseen because technical-environmental issues have been definitely complied.

6 The relocation of following towers No. 7, 11, 14, 16, 21, 24, 27, 31, 39, and 93 during caused some disturbance with villagers' lands and crop February 2019, and now the affected lands and crops have already been compensated by the contractor.

Power Grid Line 22 Kv and 0.4 kv

7 The 0.4 Kv Power grid line in TL1, TL2 and TL3 are observed no issues in terms of environmental safety and land acquisition impact as they are located right at the age of road ROW and closed to the individual residences.

Power to the poor (P2P) Connection

8 The EDL P2P approach has brought up great benefit to the poor and vulnerable groups characterized (as officially reported to the mission) that households' school children study better, household have use electric pumps to pump water for washing and sanitation, households have increased a few diversified livelihoods which can be done with good lights in the evening or which need to be supported by electric appliances.

Outstanding Issues

9 Almost all electric of Kv22 power grid line electric poles and transmission lines have caused neither environmental nor resettlement impact.

10 However, in terms of resettlement issue, there are very few electric poles of 22 Kv power grid lines need to be identified and may be even compensated as they are located inside individual lands, which is quite distance from ROW of the existing road.

II. PROJECT OVERVIEW, GENERAL SAFEGUARD MATTERS

1. Project Overview

1. The Government of Laos (GoL) envisioned providing 90% of the country's entire households with electricity by 2020 on top of exporting it to neighboring countries as source of national revenue. The Greater Mekong Sub Region Northern Power Transmission Project (GMS NPTP) is a prime mover of this undertaking with EDL as the Executing Agency as well as the Project Owner.

2. The project was designed to extend EDL's Transmission and Distribution (T&D) system. The T&D network will link with the Electricity Generating Authority of Thailand (EGAT) and will provide electricity on sustainable and efficient manner. There will be increased access to mainline power source for the 18,800 rural households and newly established business enterprises in remote areas. Rural electrification rate in the main project area (Phongsaly and Xayabury Provinces) will be increased from 39% (2009) to 79% by 2020.

3. The Project is located in Northern Lao PDR in the provinces of Vientiane, covering Sanakham and Mune districts; Xayaboury province, covering Kenthao, Paklay, Phiang and Xayabury districts, and Phongsaly, covering BounNeua, and Boun Tai districts.

Project Map

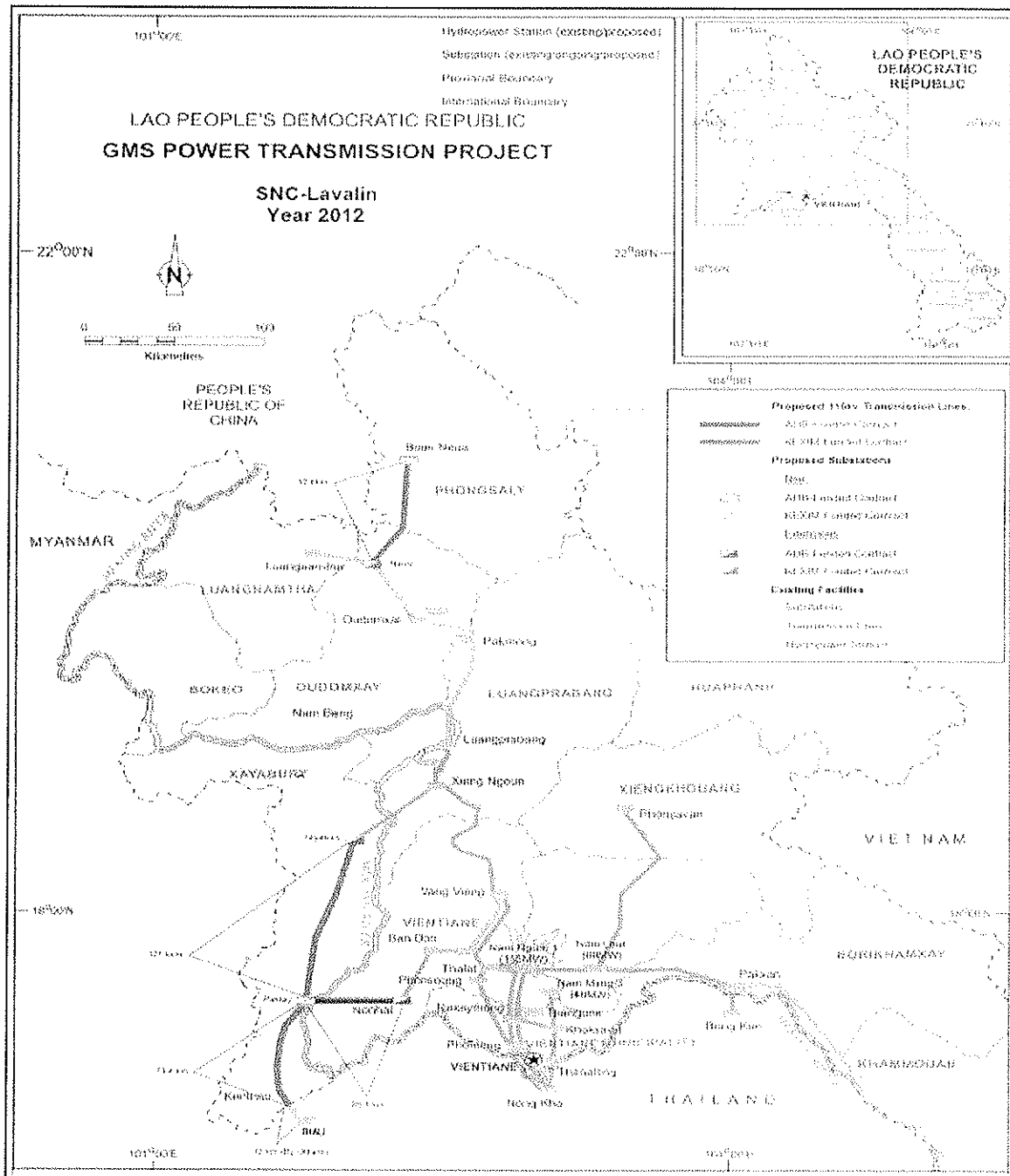


Figure 1: Location of the Grater Mekong Sub region Northern Power Transmission Project (GMS NPTP)

Project Description

4. The project will construct 375.5 km of 115 kV line, 645.13 km of medium and low voltage distribution line, 2 new substations (Paklay substation and BounNeua substation) and 2 existing switching station extensions (Nonhai substation, and Xayabury substation). The project takes place in 3 provinces, namely: Vientiane, Xayabury, Phongsaly, and 8 districts: Xanakham, Meun (Vientiane Province), Kenthao, Paklay, Phieng, Xayabury (Xayabury Province), BounNeua and Boun Tai (Phongsaly Province).

Project objective

5. The project has the following objectives:

- Extend the T&D system of Electricité du Laos (EDL) to Phongsaly and Xayabury provinces and the western part of Vientiane province;
- Reduce reliance on high-cost, off-grid power supplies for consumers that currently do not have access to electricity through an efficient and reliable connection with the EGAT (Thailand) system;
- Directly contribute and increase electrification to rural household (HH) in the main Project area from 39% to 79% by 2020.

Scope of the Project

6. The Project consists of Transmission Lines, Substations and Distribution Components (Module 1, 2 and 3). There are two Banks financing the Project: (Contract 1- by ADB, and Contract 2-by KEXIM).

Contract 1 - ADB (Module 1: Xayabury Province)

Module 1

- 115 kV Transmission (89.9 km):
 - 89.9 km single circuit on double circuit towers between Nonhai and Paklay
- 115/22 kV Substations:
 - a 30 megavolt ampere (MVA) new substation in Paklay
 - the extension of 2 existing 115/22kV substations in Nonhai and Xayabury

Contract 2 - KEXIM (Module 2 and Module 3: Vientiane, Xayabury and Phongsaly Provinces)

TL 3 and TL2

- 115 kV Transmission (193 km):
 - Module 2(A): 71.42 km single circuit on single circuit tower between Paklay and Lao-Thai border near Kenthao for connection with the Thali substation located in Thailand.
 - Module 2(B): 121.58 km single circuit on double circuit towers between Paklay and Xayabury.
- Distribution line (385.08 km):
 - 69.7 km 22kV from Paklay
 - 43.9 km 22kV, 3.4 km 0.4 kV distribution line from Nonhai

- 219 km 22kV, 49.08 km 0.4 kV distribution line from Xayabury.
- Connection to households (4, 312 HHs):
 - from the Nonhai substation to 230 households
 - from the Xayabury substation to 1, 795 households
 - from the Paklay substation to 2,287 households

TL1

- 115 kV Transmission:
 - 27.6 km single circuit on double circuit towers between existing Boun Tai and new BounNeua substations
- 115/22 kV Substations:
- 30 megavolt ampere (MVA) new substation (transformer feeder) in BounNeua:
 - 219.98 km 22 kV and 40.07 km 0.4 kV distribution lines (260.05 km) in Bun Neua
- Connection to households:
 - from BounNeua substation to 2,313 households

2. Project Progress

Institutional arrangement

- The contractor has one subcontractor, carrying out power grid lines in all TLs: TL1, TL2 and TL3.
- Technical supervision officers are of Provincial EDL Branch in each project province: Phongsaly, Sayabury and Vientiane.
- Two Project Managers: the Manager and the Deputy Manager, assisted by one supervision technicians
- One intermittent International Project Manager Advisor
- One intermittent International Line Transmission and Substation Specialist
- One Intermittent international Social Safeguards Specialist is periodically on board
- One Intermittent National environmental monitoring specialist is periodical on board

Substation

7. The substation construction progress as per the latest report at the end of June 2019 is indicated as follows:

- The extension of Non-Hai substation is 100% completed
- The transmission line from Nonhai to Paklay is 100% completed
- The new substation in Paklay is 100% completed
- The extension of Sayabury substation is 100% completed
- The implementation of P2P in three provinces of Vientiane, Sayabury and Phongsaly is on-going.

The KEXIM Bank Financing Project

- BounNeua-Boun Tai (TL1) Power Transmission line is 99.99% completed,
- Sayabury-Paklay (TL2) Power transmission line is 99.99% completed,
- Paklay-Kenthao (TL3) Power Transmission Line is 99.93% completed,

- The construction of the new substation in BounNeua is (TL1) is 99.98% completed
- Overall progress, both power transmission line and substation is 99.96%% completed

Table 1: Overall Project Progress (Jan-Jun 21018)

TL Component Activity	TL1 (BounNeua to Boun Tai)		TL2 (Paklay to Xayabury)		TL3 (Paklay to Kenthao)	
	Total	Completed %	Total	Completed %	Total	Completed %
Position identification	86	100%	398	100%	215	100%
Foundation Casting	86	100%	398	100%	215	100%
Tower Erection	86	100%	398	100%	215	100%
String conductor	27.6	45%	121.58	31%	71.4	100%
Land restoration	86	100%	398	100%	215	100%
Grievance/complaints	None		None		None	
Final tree cutting		100%		100%		100%

Table 2: Completion of Components by Transmission Line(Jan-Jun 21019)

Components	Length (km)	From Substation To Substation	Plan (# TL)	Actual TL (#)	Completed TL (#)	Overall Completion %
Module1	89.9	Paklay-Nonhai	262	275	275	100%
TL3	71.42	Paklay-Kenthao	226	215	215	100%
TL2	121.58	Paklay-Xayabury	398	398	398	100%
TL1	27.6	BounNeua - Boun Tai	301	84	84	100%
Total	310.5	Total	1,178	1,001		100%
Substations		Non-hai Substation				100%
		Paklay Substation				100%
		Xayabury Substation				100%
		BounNeua Substation				100%

Table 3: Project Overview, Snapshot of Project Progress(Jan-Jun 21019)

Project Number and Title:	ADB - Grant No. 0195-Lao (SF) and EDCF Loan No. LAO-5	
Safeguards Category	Environment	B
	Indigenous Peoples	B
	Involuntary Resettlement	B
Reporting period:	1 st January to 30 th June 2019	
Last report date:	February 2019	
Key sub-project activities since last report:	<ul style="list-style-type: none"> • Transmission line tower construction • Substation construction • On-going conductor stringing • Tree cutting survey in clearance ROW and cost estimation • Compensation payment of land acquisition and other related property impacts as per tower foundation 	

Report prepared by:

The national environmental monitoring specialist in conjunction with EDL environmental and social officers and with supports of EDL field engineers from whom updated information been regularly obtained.

3. Environmental Plans Implementation Arrangements

Project Management Unit (PMU)

8. PMU has been established right after the project was commenced and has overall and direct responsibilities for project management oversight for implementing all aspects pertaining to the project works, including planning, programming, budgeting, design, implementation, monitoring, evaluation, ensuring overall project's coordination and supervision of resettlement activities and coordination/liaison with the donors.

9. Beside technical aspects, the PMU also mediates the coordination between the contractor and the EDL Environmental Office (EO)

Contractor

10. The Contractor's overall responsibility is to ensure that the work adheres to GoL guidelines and standards, ADB safeguards, the IEE and the EMP prior to construction start.

11. Specifically, the contractor has two (2) full time Site Managers: one in TL1 (BounNeua-Boun Tai), and the other in Paklay for TL2 (Paklay-Xayabury), and for TL3 (Paklay-Kenthao). Each site manager performs as an environmental safety and health officer (ESHO), conducting supervising day to day EMP and CEMP implementation at its own TL including Switching Yard, and related TL component construction activities.

12. Monthly environment management implementation report is submitted to the Contractor's Head Office and to the EDL Environment Monitoring Field Officer for Transmission Line in the area they are working.

13. During the construction work the contractor always undertakes the following:

- Develop CEMP consistent with the requirements established in the EMP.
- Develop an access plan for the project which minimizes the environmental impacts of access required for clearing the transmission line corridor based on the preliminary line design.
- Verify that field crews and sub-contractors are aware of the environmental requirement of the work and are trained and competent to implement them.
- Conduct environmental monitoring to ensure that mitigation measures be strictly complied with as per EMP and CEMP.

Role and Responsibilities for Monitoring of EMP Implementation

EDL Environmental Management and Social Safeguards Unit

14. EDL Environmental Management and Social Safeguards Unit (E/SSMU) has been set up within the EDL, responsible for supervision on environmental management and for environmental monitoring. The major responsibilities of the E/SSMU is to ensure that:

- Providing environmental training to the site staff in environmental protection laws and regulations, environmental management for erosion control, fuel handling and spill clean-up, waste disposal, health and safety;

- Carrying out regular monitoring of the contractor construction activities to ensure that work is carried out in compliance with the CEMPs provision set out in the construction contracts.
- Following up the grievance amongst villagers towards project construction practices, contractor activities, impairment of livelihood due to damage to or loss of crops as a result of construction activities;
- Holding monthly on-site meeting with the contractors to review work performance relative to mitigation of environmental and social impacts, identify areas of satisfaction and shortcomings in the contractor's work and providing guidance to resolve related issues.

National Environmental Monitoring Specialist

The National Environment Monitoring Specialist is to assist the EDL Environmental Management Unit (EMU) to:

- Prepare and submit the Semi-Annual Environmental Monitoring Report to PMU with a copy to the Int'l PM. Structure of this report is received clarified from ADB through the Int'l PM. Time to submit: 15th July 2019.
- Prepare a simple and short field notes and submit to the PMU and Int'l PM after each field trip including but not limited to the key points: (i) key findings; (ii) Issues/ problems and (iii) recommendations for actions;

15. For writing a semi-annual report, the NEMS conducts environmental monitoring and data collection together with the EDL environmental management and social safeguards unit in the fields; sometimes obtains information through EDL Field Officers.

EDL field engineering Supervisors

16. EDL field engineering Supervision Teams are also acting Environment Monitoring Field Officer. At the moment, there is one teamstations in Paklay for TL3 conducting environmental monitoring in Paklay-Kenthao and PaklaySayabury.

17. In conjunction with technical inspection, the EDL Field Officers are to strictly inspect day to day environmental issues at every single construction site, and making sure the contractor has strictly complied with the CEMP mitigation measures according to ADB safeguards policy.

18. The collected environmental/technical information and related highlighted environmental issues are put together as a form of either a weekly and monthly report and submitted to PMU. The EDL environment monitoring field officers very frequently send various field messages in forms of either wordings or photos to PMU and GMS Lao Team by personal WhatsApp. In order to avoid delay, the field officers also provide contractor site manager the advice or/and recommendation by the PMU or Local Authorities (provincial, district, village) when necessary in order to timely undertake action and solutions.

Grievance Redress Mechanism (GRM)

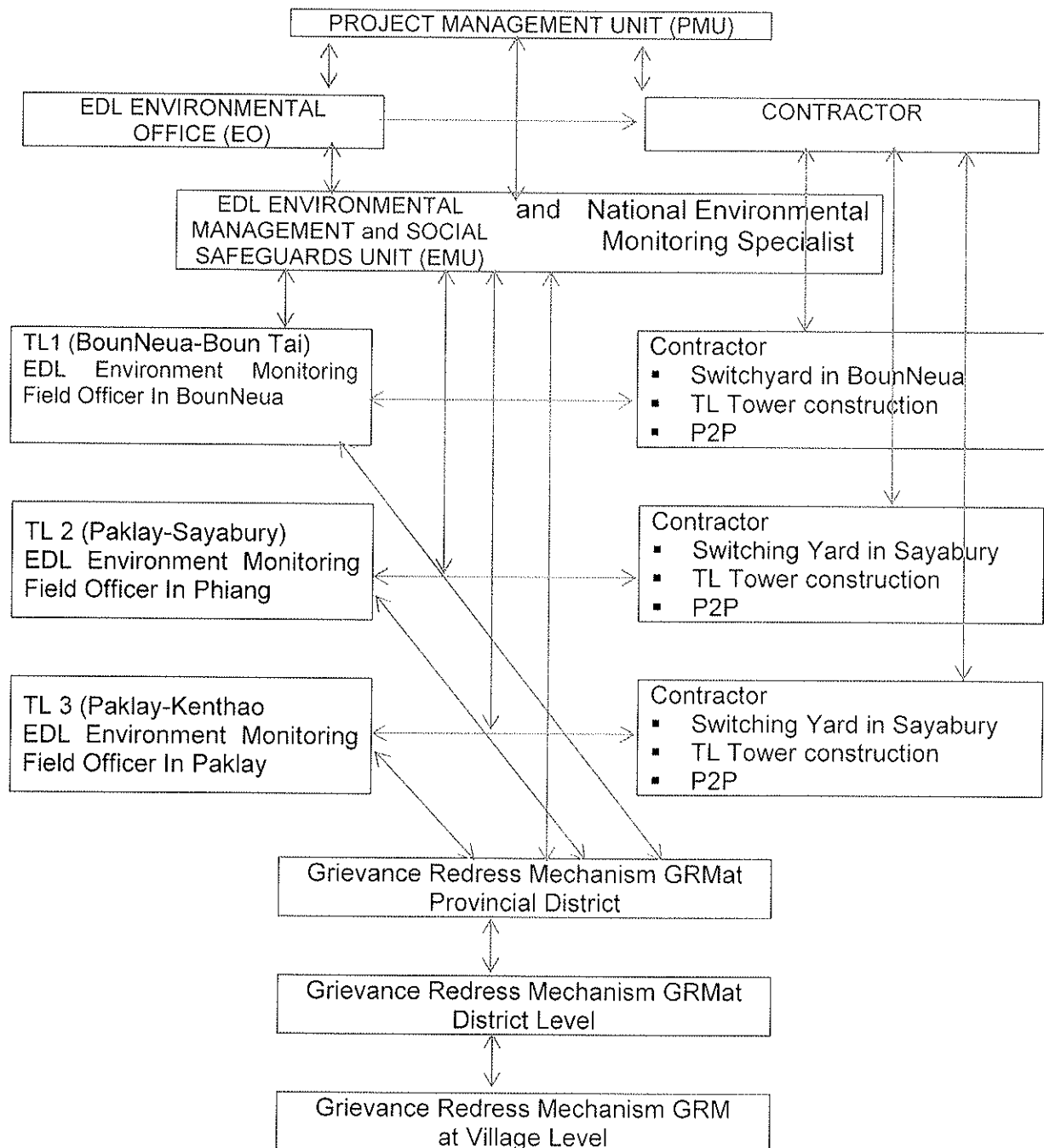
19. The grievance redress mechanism (GRM) is established in and for every TL, and the grievance redresses box is located in either at a village or district office. The purpose of the GRM has been disseminated to villagers in every TL involved village.

20. So far, there have been a few AP have been redressing their complaints in a written form and put in the box. The affected villagers mostly directly orally communicate with EDL field officers at affected construction site. An EDL field officer then acts as a grievance minute author who makes the AP, the concerned village leader and other witnesses sign their names and

thump stamp, and continually take the AP to go on with grievance to higher levels steps by steps until the complaint is satisfactorily solved.

21. The chart below shows how the information flows

Environmental management Information Flow Chart



4. Updated EMPs, Incorporation of Environmental Requirements into Project Contractual Arrangements

A CEMP was developed by the contractor and approved by the GMS Northern Power Transmission Project Manager on 6th September 2018.

III. ENVIRONMENTAL PERFORMANCE MONITORING

1. Status of EMP implementation (Mitigation Measures)

22. The contractor continues to implement the mitigation measures provided in the EMP and monitoring of the EMP implementation has been carried out regularly since January 2018 until June 2019 as ADB requirements. The EMR has been prepared and submitted to ADB on semi-annual basis. The EMR reports submitted to ADB are indicated in the table below:

Table 2: EMR reports submitted to ADB July 2019

Report No.	EMR Period of	Date submitted to ADB
1	July-December 2017	February 2018
2	Annual Jan-December 2017	March 2018
3	Semi-Annual Jan-Jun 2018	September 2018 (not approved)
4	Semi-Annual Jan-Jun 2018	October 2018
5	Semi-Annual Jul-Dec 2018	February 2019
6	Semi-Annual Jan-Jun 2019	July 2019

EMP/CEMP Requirements/Compliance

Hiring local workers

23. Almost all workers are local employees who are capable at handling tower foundation construction, erection, conductor stringing, bush clearing and masonry works.

24. Tower foot identification, forest and bush clearing for tower foundation, for conductors clearance and ROW activities are strictly complied with CEMP, e.g. not to cut trees over than 10 Cm of diameter at breast height level prior to obtaining permission from concerned officials.

Other Related Safety Matter

25. In order to minimize interference with other infrastructure during construction and transportation of *materials*, the practices of posting warning signs and managing traffic to protect the traveling public and its workers are established.

26. In the event that stringing conductor presents a possible risk to traffic on public roads and rivers, bamboo scaffolds were constructed across the roads and rivers to protect pedestrians, vehicles, boats (and the conductor itself) from potential injury/damage during conductor stringing.

27. Health and safety plan are develop with some necessary budget and transport, safety tools such as helmets, working shoes, ear protection, dust filter and others were provided and be required to be used by workers

28. In terms of UXO, risk assessment has been determined in potential areas especially in clearance of transmission line ROW.

29. Location of towers is adjusted to avoid stream and wetlands in order to avoid contamination matters.

Towers and Location at TL1 (Bounneua-Bountai Transmission Lines)

30. Labor camps has been entirely closed up and the previous camp yard is then used for town roads

31. Bounneua substation including technical staff dormitory, power control houses and switch yards been completed and well environmentally complied; towers and location have been completed and absolutely none environmental issues; clearance by every tower spacing are safety complied, and none of any complaints been addressed for stringing activities and ROW clearing.

Towers and Location at TL2 (Xayabury-Paklay Transmission Line)

32. None of any labor camps existed either in Paklay or Kenthao; and Paklay substation including technical staff dormitory, power control houses and switch yards been completed and well environmentally complied

33. The Nam Pou River bank and road which were impacted by the construction of the T230 has now completely rehabilitated and satisfactorily complied: riprap was constructed, concrete drains constructed from the foot of the tower to the road, and larger pipe drain was installed across the road draining storm water down to the river.

34. None of any additional complaint been addressed for the relocation of a tower at the military shooting practice area and other related tower No. 317 located on a very dangerous slope of two sides, which two tower feet were likely to be fallen off the hill, have now been protected with ripraps.

35. The clearance between the following towers T8-T9, T17-T18, T23-T24, T25-T26-T17, T31-T32, T54-T55, T111A-T112, T222-T223, T232-T233, T234-T233; and T297A-T297A were not yet complied with safety standard in February 2019, but have now been solved satisfactorily by the excavation of the high elevated earth, clearing bush and undergrowth along the Conductor ROW.

Towers and Location at TL3 (Paklay-Kenthao Transmission Line)

36. Paklay-Thai connection has not yet been made but none of any environmental issues are foreseen because technical-environmental issues have been definitely complied.

37. The relocation of following towers No. 7, 11, 14, 16, 21, 24, 27, 31, 39, and 93 during February 2019, causing some disturbance with villagers' lands and crop, the affected lands and crops have already been compensated by the contractor.

Power Grid Line 22 Kv and 0.4 kv

38. The 0.4 Kv Power grid line in TL1, TL2 and TL3 are observed no issues in terms of environmental and land acquisition impact as they are located right at the age of road ROW and closed to the individual residences.

A. Outstanding Issues

39. Almost all electric of Kv22 power grid line electric poles and transmission lines have caused neither environmental nor resettlement impact. In terms of resettlement issue, there are very few electric poles of 22 Kv power grid lines need to be identified and may be even

compensated as they are located inside individual lands, which is quite distance from ROW of the existing road.

Power to the poor (P2P) Connection

40. The EDL P2P approach has brought up great benefit to the poor and vulnerable groups characterized (as officially reported to the mission) that households' school children study better, household have use electric pumps to pump water for washing and sanitation, households have increased a few diversified livelihoods which can be done with good lights in the evening or which need to be supported by electric appliances.

Table 3: Compliance with EMP Requirements (Environmental Performance)

EMP Requirements	Compliance Status (Yes, No, Partial)	Comment or Reasons for Non-Compliance	Issues for Further Action
1. Rise of employment opportunities: <ul style="list-style-type: none"> ▪ Job openings of the project should give priority to local communities. ▪ Recruitment of local laborers should be stipulated in the contract for construction 	Yes Partially	Not available	
2. Clearing of forest and bushes along the TL ROW <ul style="list-style-type: none"> ▪ Trees and bushes clearing disposed only to areas permitted by authorities concerned. ▪ No high commercial tree species, however, before ROW clearing, the detail survey by provincial Forestry Section and District Forestry Unit to list and marked big trees or commercial trees separated, 	Partially Yes	None crops should be higher than 3 meters	
<ul style="list-style-type: none"> ▪ Educate the contractor's personnel on basic health care, in particular communicable disease such as HIV/AIDS ▪ Drinking water purchased from cities 	Yes Yes		
2 Disposal of construction debris and waste <ul style="list-style-type: none"> ▪ Debris from ROW clearances; debris are stacked outside area of the ROW ▪ Villagers are permitted to remove vegetation such as bamboo and small trees that have an economic or practical value. ▪ Packaging waste from electrical equipment are recycled wherever possible (making them accessible to villages, otherwise disposed of in local approved landfills). 	Yes Yes Yes		
3 Affected wildlife <ul style="list-style-type: none"> ▪ Strict rules against wildlife hunting, poaching and trading in accordance to Forestry Law No.01-09 (11/10/96) 	Yes		
4 Erosion and Silt Control <ul style="list-style-type: none"> ▪ The towers will be located so that to avoid high slope(>30°) areas 	Yes		

EMP Requirements	Compliance Status (Yes, No, Partial)	Comment or Reasons for Non-Compliance	Issues for Further Action
<ul style="list-style-type: none"> Those cannot be avoided on such slope areas, the legs of the tower are designed to minimize to excavation on slope Construction activities are always preceded during dry condition. 	Yes Partially	Depends	
<p>5 Interference with local villagers activities during construction and transportation of materials</p> <ul style="list-style-type: none"> Constructions are carried out during dry (non-farming) season, approximately from October to May. Temporary access paths are decommissioned once construction is completed; The existing drainage system such as streams are maintained by building appropriate structures such as bridges culverts etc. Transportation of material is allowed only in daytime (from 7:00 AM to 6:00PM) Established practices of posting warning signs and managing traffic to protect the traveling public and its workers. 	Partially Partial Yes Yes Yes		
<p>6 Interference with other infrastructure during construction and transportation of materials</p> <ul style="list-style-type: none"> Established practices of posting warning signs and managing traffic to protect the traveling public and its workers. In the event that stringing conductor presents a possible risk to traffic on public roads and rivers, bamboo scaffolds were constructed across the roads and rivers to protect pedestrians, vehicles, boats (and the conductor itself) from potential injury/damage during conductor stringing. 	Yes Yes		
<p>7 Injury and sickness of workers and members of the public</p> <ul style="list-style-type: none"> Health and safety plan were developed two-week before starting construction work. Necessary safety tools such as helmets, working shoes, ear protection, dust filter and others were provided to the workers 	Yes Yes		
<p>8 Encroachment into areas Contaminated by UXO</p> <ul style="list-style-type: none"> UXO risk assessment to determine potential areas at risk; UXO pathfinder and clearance of transmission line ROW when UXO encountered 	Yes		
<p>9 Contamination of water</p> <ul style="list-style-type: none"> Location of towers will be adjusted to avoid stream and wetlands. 	Yes		

2. Environment Effect Monitoring

41. There is none of any environment effect need to be monitored because such effects are of air temperature (radiant heat, air movement and humidity), cold, minor weather such as thunderstorms, winds, rain, and small floods by storm water. All the said effects are not the major impacts to the construction work and activities.

Table 4: Environment Effect Monitoring Results in the Reporting Period

Location	Parameter	Date	Monitoring value	Relevant government standard, standard value
None				

42. Assessment. The work in the mountains and hilly landscape are temporarily stopped only during the heavy rain period because it causes some difficulty for construction material transport, applying electric devices, and working on tower erection.

Table 7: Issues for Further Action

Issue	Required Action	Responsibility and Timing	Resolution
Old Issues from Previous Reports			
None			
New Issues from This Report			
None			

IV. PUBLIC CONSULTATION, INFORMATION DISCLOSURE, CAPABILITY BUILDING

43. As far as the implementation of the EMP is concerned, there have been constant consultations with the village head and the local council regarding traffic impacts of the on-going transport of materials for tower construction, conductor clearance, tower relocation and other related impacts.

V. GRIEVANCE REDRESS MECHANISM

44. Grievance Redress Mechanism (GRM) is established in subproject districts and villages. However, in environmental case, the complaints are normal raised during the construction activities of the civil works when the contractor 1) has to relocate a tower, and 2) inadvertently damages properties outside of the ROW during the cutting of trees and in the stringing of the power lines. In this case, together with EDL field staff, the contractor always solves the problems directly with the landowners on time.

Table 7: Issues for Further Action

Type of Grievance	Details (Date, person, address, contact)	Required Action, Responsibility and Timing	Resolution
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