

Environmental and Social Monitoring Report

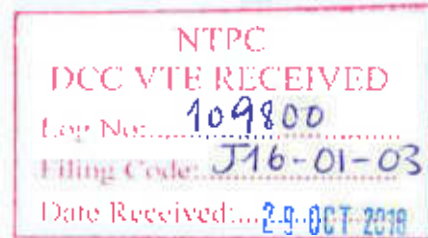
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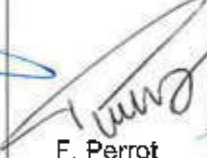

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NAM THEUN 2 POWER COMPANY LTD

ENVIRONMENT AND SOCIAL SEMI-ANNUAL PROGRESS REPORT 2018

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Table of Contents

ACRONYMS	iii
GENERAL INTRODUCTION	1
PART 1: SOCIAL PART	2
1. INTRODUCTION	2
2. FINALIZATION OF THE LOA	2
2.1. IMA Report and Addendum to LOA (2017)	3
2.2. Update of the LOA: Removal of 2 Actions and Deferment of 9 Actions to 2018 (December 2017)	3
2.3. Compliance of the LOA with IFIs' E&S Safeguards.....	3
3. RECOMMENDATION OF LTA#38 AND POE#27 MISSIONS.....	4
3.1. LTA#38	4
3.2. POE#27	5
4. SUSTAINED INCOME REPORTED BY LSMS#8	6
5. COMPLETION OF LOA ACTIONS (30 JUNE 2018).....	6
5.1. Agriculture, Livestock, Land and Irrigation	6
5.2. Forestry.....	7
5.3. Off-Farm	12
5.4. Gender	14
5.5. Ethnic Groups	15
5.6. Poor and Vulnerable.....	15
6. COMPLETION OF ADDENDUM ACTIONS	17
6.1. Addendum completion status (30th June 2018)	17
6.2. Addendum actions to complete	17
7. HAND-OVER PROCESS.....	17
7.1. Tasks enabling handing-over process.....	17
7.2. Resettlement Office Hand-Over	17
8. VILLAGE DEVELOPMENT PLANNING FINALIZATION	18
9. NAM THEUN 2 DEVELOPMENT FUND	18
9.1. Background.....	18
9.2. NT2DF Cooperation Agreement	18
9.3. Principles and conditions of the NT2DF	18
9.4. NT2DF Steering Committee	19
9.4.1. Categories of projects.....	19
9.4.2. Conditions precedents.....	19
9.5. Establishment of NT2DF Steering Committee and staffing of NT2DF Support Team	19
9.5.1. Establishment of NT2DF Steering Committee	19
9.5.2. Staffing of NT2DF Support Team	20
9.6. NT2DF Steering Committee Meeting #1.....	20
9.6.1. Development of the NT2DF Manual by the Support Team	21
9.6.2. Endorsement of the NT2DF Strategic orientations for the pilot phase 2018 - 2023	21
9.7. Next steps.....	21
10. DESIGN OF A MONITORING TOOL TO ASSESS THE SOCIO-ECONOMIC STATUS OF NAKAI AFTER RIP	22
11. FINALISATION OF COMMITMENT ON SUBSEQUENT GROWTH HOUSEHOLDS (G2)	24
11.1. Commitment.....	24
11.2. Principles for entitlements	24
11.3. Actions completed.....	24
11.4. Action for 2018.....	25
12. MISSION OF LTA#40 AND POE#28	26
12.1. LTA#40	26
12.2. POE#28	26

PART 2: ENVIRONMENTAL PART	27
1. INTRODUCTION.....	27
2. CURRENT ORGANIZATION AND RESPONSIBILITIES	27
3. ENVIRONMENT PROGRAMS STATUS AS PER JUNE 2018.....	28
3.1 The Aquatic Environment Laboratory (AE Lab)	28
3.1.1 Obligations.....	28
3.1.2 Main outputs until June 2018	29
3.2 Water quality monitoring	29
3.2.1 Obligations	29
3.2.2 Main outputs until June 2018	29
3.3 Hydrobiology monitoring	33
3.3.1 Obligations.....	33
3.3.2 Main outputs until June 2018	33
3.4 Biodiversity Program	38
3.4.1 Obligations.....	38
3.4.2 Main outputs until June 2018	38
3.5 Environment Compliance Program	41
3.5.1 Obligations.....	41
3.5.2 Main outputs until June 2018	41
3.6 Erosion Monitoring Program	50
3.6.1 Obligations.....	50
3.6.2 Main outputs until June 2018	50
3.7 Implementation of the Environmental Management System.....	51
3.7.1 Obligations.....	51
3.7.2 Main outputs until June 2018	51
4. VISITS AND CONSULTANCIES	51
5. COMMUNICATION	52
ANNEXES	55

ACRONYMS

ADB	Asian Development Bank
AIP	Annual Implementation Plan
BOOT	Build-Own-Operate Transfer
CA	Concession Agreement
CAP	Comprehensive Action Plan
CIA	Cumulative Impact Assessment
CLT	Community Land Titling
CLWP	Community Living Well Program
COD	Commercial Operations Date
CTA	Common Terms Agreement
DAFO	District Agriculture and Forestry Office
DEB	Department of Energy Business (Ministry of Energy & Mines)
DHO	District Health Office
DOE	Department of Education
DOI	Lao Department of Irrigation Analytical Chemistry Laboratory
DONRE	District Of Natural Resource and Environment
DRWG	District Resettlement Working Group
E&S	Environmental and Social
EAMP	Environmental Assessment and Management Plan
EDF	Electricité de France
EDFI	Electricité de France International
EGAT	Electricity Generating Authority of Thailand
EGCO	Electricity Generating Public Company Limited
EMDP	Ethnic Minority Development Plan
EMMP	Environmental Monitoring and Management Plan
ESMP	Environmental and Social Management Plan
FCMS	Food Consumption Monitoring Survey
GMS	Greater Mekong Sub-region
GoL	Government of Lao PDR
GOLE	Engineer of the GoL
HH	Household
HSE	Health Safety and Environment
IFI	International Financial Institutions means WB, ADB, EIB and AFD.
IMA	Independent Monitoring Agency
IWMP	Integrated Waste Management Program
JWG	Joint Working Group
LOA	List Of Actions
LSMS	Living Standard Measurement Survey
LTA	Lenders Technical Advisor
MONRE	Ministry Of Natural Resource and Environment
MRC	Mekong River Commission
MTDP	Medium Term Development Plan
NBCA	National Biodiversity Conservation Area
NGO	Non-Government Organisation
NPA	National Protected Area
NP-FMP	Nakai Plateau Forest Management Plan
NPFVA	Nakai Plateau Village Forestry Association
NRO	Nakai Resettlement Office (formerly known as Resettlement Monitoring Office)
NT2	Nam Theun 2 Project
NTFP	Non Timber Forest Products
NTPC	Nam Theun 2 Power Company Limited
QSEM	Quarterly Socio Economic Monitoring
PAFO	Provincial Agriculture and Forestry Office

PAP	Project Affected People
PCPD	Public Consultation, Participation and Disclosure
PCR	Physical Cultural Resources
PDO	Project Development Objectives
PIM	Preliminary Information Memorandum
PIP	Project Implementation Plan
PLUP	Participatory Land Use Planning
PM	Prime Minister
PMO	Prime Minister Office
POE	Panel of Experts
PONRE	Province Of Natural Resource and Environment
PRA	Participatory Resource Assessment
ROP	Resettlement Objectives and Provisions
RC	Resettlement Committee
RFA	Reservoir Fisheries Association
RMU	Resettlement Management Unit
RNT	Residence Nam Theun
SDP	Social Development Plan
SEMFOF	Social and Environment Management Framework and First Operational Plan
SERF	Social and Environment Remediation Fund
THB	Thai Baht
USD	US Dollar
UXO	Unexploded Ordnance
VFA	Village Forest Association
VFG	Village Fisheries Group
VDC	Village Development Committee
VDP	Village Development Plan
VIRF	Village Investment and Restoration Fund
VLMC	Village Land Management Committee
VRC	Village Resettlement Committee
WB	World Bank
WCD	World Commission on Dams
WCS	Wildlife Conservation Society
WMPA	Watershed Management & Protection Authority
WMPP	Wildlife Management and Protection Program
WQMAP	Water Quality Monitoring and Assessment Program
WQB	Water Quality and Biodiversity Department
XBF	Xe Bangfai.

GENERAL INTRODUCTION

NTPC is subject to two E&S obligations under the CA: social obligations which end with the RIP closure (Part 1) and environmental obligations until the end of the CA Period (Part 2). It should be reminded that NTPC remains subject to the obligation to fund E&S agencies (SERF and WMPA) until end of the CA Period.

The E&S semi-annual progress report follows the AIP 2018 v2 NTPC-S-B1002-0014.

This progress report consists in two parts:

- **Part 1:** Social Activities
- **Part 2:** Environmental Activities

PART 1: SOCIAL PART

1. INTRODUCTION

This Semi-Annual E&S report provides the status of the implementation of the AIP 2018 v.2 finalised on 9th April 2018 and distributed to the ICA. This report is dedicated to the end of the Resettlement Implementation Period (RIP) Closure with sections based on the Comprehensive Action Plan (CAP) and remaining ROP. Full scope of the CAP is detailed in NTPC E&S Annual progress report 2017 (NTPC-S-J160103-0021 Ver.2) and in the AIP 2018 v2 NTPC-S-B1002-0014.

This semi-annual report 2018 follows the AIP 2018 that recalled NTPC's obligations under the CA that are (i) the social obligations, (ii) the environmental obligations, and (iii) the funding obligations. Whereas the funding obligations and some environmental obligations will be implemented until the end of the CA Period, the social obligations end when the RIP is closed.

Under CA-Schedule 4-Part 1-Clause 2, the Resettlement Implementation Period (RIP) closes when the POE considers that the Resettlement Objectives and Provisions (ROP) have been achieved. In its Report 24 dated 23 October 2015, the POE considered that the ROP were not achieved and recommended postponement of the RIP by two years. In its most recent Report 27 from May 2018, *"the POE has reviewed achievement of the ROPs based on the Independent Monitoring Authority (IMA) audit of compliance with the CA and Joint Working Group (JWG) agreement on actions required because of that audit"*. This review underlined 6 ROP to be achieved for NTPC and 2 ROP for the GoL. This semi-annual E&S progress report includes a dedicated section on the remaining ROP achievement.

2. FINALIZATION OF THE LOA

All steps of elaboration of the LOA as part of the Comprehensive Action Plan are detailed in the NTPC E&S Annual progress report 2017 (NTPC-S-J160103-0021 Ver.2).

REMINDER: THE JWG MADE THE LOA WITH THE INPUTS FROM POE & LTA.

Please refer to the **2017 AIP** for the details regarding the genesis of the JWG.

Currently, the JWG comprises:

- Representatives of GoL (Nakai District, RMU, DEB and representatives from MAF (since 26 September 2016), led by Representative of Department of Energy and Business who is the chairman of the JWG;
- Representatives of World Bank,
- Representatives of ADB,
- Representatives of AFD,
- Representatives of NTPC.

It should be reminded that the LOA covers both the actions to be completed under NTPC responsibility (NTPC LOA), and the actions to be completed under GOL responsibility (GOL LOA). The reason is that WB and ADB understand that achievement of the ROP also imply obligations for GOL under the CA.

The first draft of the LOA (2016) evolved to take into account the comments made by the POE, the LTA, the MAF and the results from the village consultations. The final matrix is available in the AIP 2017 and 2018.

The LOA was finalized in January 2017 and its implementation has slightly evolved since, as provided below.

2.1. IMA Report and Addendum to LOA (2017)

As a reminder, the IFIs estimated that it was necessary to obtain an independent opinion on the fulfilment of the social obligations under the CA. Accordingly, the IMA carried out its 8th Mission in March 2016 to verify due completion of each clause of the CA, which was formalized into a matrix. After considering some issues with respect to contents and methodology, the JWG requested IMA to review their draft report, which was finally issued on 16 February 2017.

After discussions between the JWG Members, it was agreed to identify the material non-compliances by reference to the safeguards of WB and ADB and GOL approval. These non-compliances of the IMA's Report were then categorized and formalized into 17 remedial actions which were inserted into the LOA under the form of an "Addendum" (see AIP 2018 v2 NTPC-S-B1002-0014).

2.2. Update of the LOA: Removal of 2 Actions and Deferment of 9 Actions to 2018 (December 2017)

At the end of 2017, the JWG has reconsidered the 118 actions of the LOA and decided to remove 2 actions and to defer 9 actions to 2018. It should be noted that the 2 actions removed and 9 actions deferred to 2018 (hypothetically after RIP Closure) are actions with a completion level that satisfies the ROP requirements for the purpose of RIP closure but still need several months for completion. Details are provided in the Annex 2 of the NTPC E&S Annual progress report 2017 (NTPC-S-J160103-0021 Ver.2).

2.3. Compliance of the LOA with IFIs' E&S Safeguards

1. The IFIs conducted a mission in Lao PDR on the NT2 Project from **30 January to 9 February 2017**. The scope of this covered all aspects of the NT2 Project, with a focus on (i) NT2 revenue Management Program (RMP), (ii) Compensatory Forest, (iii) Nakai Plateau Resettlement Program, (iv) Downstream Livelihoods Restoration, (v) Operation and Finance and (vi) Safeguards Compliance. The Aide Memoire of this mission indicates that, related to resettlement, one safeguard was partially compliant with while and additional one was non-compliant with the E&S Safeguards and Policies of the IFIs. The Aide Memoire also noted that "overall, there is ample evidence that implementation is underway ["medium risk"], with two areas considered "high risk" for completion under LoA: "Forestry" and "Integrating actions".
2. A subsequent mission of ADB and World Bank in **September 2017** revised the assessment (based on additional actions completed), noting that only one safeguard remained at risk, and that, with persistent effort, it was on the trajectory to be compliant by end of December 2017. Overall, the mission concluded that there had been significant progress in meeting the LoA.
3. The IFIs final assessment was done on the **27-29 November 2017** on the completion status of the LOA followed by a visit of the Vice-President of Sustainable Development at the World Bank.
4. On **30 January 2018**, a statement on the Closure of the World Bank-funded Nam Theun 2 Social and Environment Project (Development Grant Agreement) was publicly disclosed (<http://www.worldbank.org/en/news/press-release/2018/01/30/statement-on-the-closure-of-the-world-bank-funded-nam-theun-2-social-and-environment-project>).

Ahead of RIP closure, this statement acknowledged achievements of the overall NT2 project with the respect of the WB safeguards.

3. RECOMMENDATION OF LTA#38 AND POE#27 MISSIONS

3.1. LTA#38

This 38th of the LTA mission occurred from 30 October – 2 November 2017. LTA provided their draft report on 9 November 2017 and final version was received on 14 December 2018. In the 38th report, LTA did not take position in RIP closure. It recommended that, by the end of 2017, “items are advanced or in the process of being finalized. This includes (i) establishing clear strategies or mechanisms that can be implemented for any unresolved or key outstanding issues”, especially on the field of forage (ensure sufficient fodder and forage for large livestock herds), (ii) strategy for Forest Management Plans, (iii) agreement on southern road rehabilitation, (iv) NT2DF framework and manual, resolution of remaining land conflicts, complete all actions related to safeguards (CAP and IMA).

LTA recommendations marked “priorities” have been addressed during the first semester 2018 in E&S activities, as summarized in the following Table:

Priorities defined in LTA #38	NTPC/GOL Progress
Measures to ensure sufficient fodder and forage for large livestock herds, presently exceeding the carrying capacity on the Nakai Plateau, or through emergency plans	Hand-over of pasture development activities (long term activities) to the GoL with a technical support of the NPLAF Project Included in the 5 years plan activities.
Agreement on a clear strategy and village plans for the management of the Nakai Forestry resources that will provide income for resettlers and a stream of revenue to support district operations through taxation	This recommendation is addressed by the ongoing following plan, as part of LOA implementation: 16 Hamlet FMP by the end of March which will include mechanisms for forest protection (patrolling organization and financing, etc.), agro-forestry systems and grazing ground, NTFPs value-chains, plantations, assisted natural regeneration, eco-tourism, etc. In the meantime, action is taken to initiate plans for the implementation of some of these activities e.g. NTFPs value chains Work in liaison with ADB & GoL regarding the forest offset Work on community forest conducted with full involvement of villagers, DoF, PAFO and DAFO
Agreement on repairs and rehabilitation on the Southern Resettlement Road	SERF committee and Nakai district governor has proposed to RC for consider to approval about rehabilitate southern road (Some budget is from GoL and some from SERF because this road is under GoL part not SERF)
Completion of the NT2DF Framework and Manual	See chapter on NT2DF

Resolution of all remaining land conflicts and complete the issuing of land documents before uplifting the ban on the sale of property and assets (extension of the current ban of the selling and buying of resettlement properties).	147 land cases were officially registered. 133 cases were solved and 14 pending cases were handed over to the district Justice Office for further solving by using law enforcement. Land Title (for housing land of the subsequent growth households) and land use certificate (for agricultural land of the subsequent growth households) are being issued by DoNRE. 127 out of 413 land titles were completed. 273 out of 364 land use certificates were issued. The process is expected to be completed by June 2018.
Complete of all remaining actions related to Safeguards (CAP and IMA activities).	See Chapter on IMA activities

3.2. POE#27

In its report POE#26 dated 11 June 2017, the POE welcomes the initiative of the LOA and the efforts made by NTPC and the GOL. The POE, however, reserves its right to assess achievement of the ROP based on the CA. NTPC noted that during its mission #26, the POE provided feedback and advice with reference to the LOA.

The POE conducted a second mission from 18 November to 3 December 2017. The “interim” report said that RIP should not be closed on 31 December 2017 and necessary conditions to satisfy if GOL decided to close RIP. The JWG made comments on these conditions (those necessary for RIP closure and commitment for post-RIP actions). The final report POE#27 was communicated in May 2018. This report listed positive findings in the Report and the POE considers that the few remaining concerns do not allow closure of the RIP.

These remaining concerns are a total of **6 ROP for NTPC and 2 ROP for the GOL** to be achieved before end of June 2018 or with an agreement for December 2018. The ROP are listed below and were addressed in E&S activities during the first semester 2018.

Forestry
7/27 Complete the formulation of Hamlet Forest Management Plans (HFMPs) with full participation of hamlet dwellers and coordinate the development of HFMPs with the VDPs. Completion date 30 June 2018.
8/27 Based on the HFMPs and consultations with all stakeholders and hamlets, formulate an overarching strategy and incorporate this in CFPs, VDPs and a revised Forest Management Plan. Completion date 30 June 2018.
9/27 Formulate a revised FMP, approved at all levels of the GoL, for the management of the Nakai Plateau Community Forests. Completion date 30 June 2018.
10/27 Finalize the development of HFMPs for all hamlets with full participation of hamlet dwellers. Completion date 31 August 2018.
Livestock
20/27 Review and, by the end of 2018 , revise the livestock development plan, including a reassessment of the carrying capacity of the plateau and development of an emergency plan for managing large livestock feed and numbers in the event of a significant drought and for effective responses in the event of a disease epidemic.
Infrastructure and other asset provision
39/27 NTPC and GoL should confirm CA infrastructural requirements included in the LoA and a Handover Agreement.

4. SUSTAINED INCOME REPORTED BY LSMS#8

The 8th round of Living Standard Measurement Survey (LSMS) was conducted during the 1st Quarter of 2017. The results show that: (i) 97% of the HH meet the HH Income Target (est. 221,351 LAK/person/month), consistent with the results of the LSMS of 2014, (ii) compared to pre-project data, the median per capita income has more than doubled (for all detailed results please refer to “Nakai Socio Economic Survey Round March 2017” – Ref: NTPC-S-K0802-0001).

Programs exist which target the remaining 3% of the population who fall below the Household Income Target. This includes a Social Safety Net which provides special livelihood support to those people who are classified as “Vulnerable” in so far as they have limited capacity to earn income (e.g. very old people). The Social Safety Net will continue until 2035. Moreover, under the RIP, a Special Program has been implemented which provides individual livelihood development support to “High Risk” and “Poor” Households (classified as economically disadvantaged, but with the capacity to earn income).

5. COMPLETION OF LOA ACTIONS (30 JUNE 2018)

As per end of June 2018, all 116 LoA actions were completed. A total of 9 actions were deferred to 2018 and already completed.

The table below summarizes the evolution of the LOA and the current status.

EVOLUTION, CATEGORIES AND NUMBER OF ACTIONS IN THE LOA	
No. of Actions in the Initial LOA	118
No. of Actions removed from the LOA	2
No. of Actions in the Final LOA	116
Actions deferred to 2018	9
Actions completed in 2017	107
Actions completed until Jun 2018	116
Completion reports available until Jun 2018	116

5.1. Agriculture, Livestock, Land and Irrigation

The 2 actions LOA remaining from 2017 were completed during the first quarter 2018 as following:

- **AL.1.2.5 (delayed from 2017 – completed April 2018):** Disseminate information on the preliminary strategy of the AFD/NTPC/GOL project so resettlers are aware of on-going support.

To avoid a fatigue of consultation, it was agreed between NTPC, GoL and NPLAF project team to realize the dissemination during the VDP process. Based on this strategy, 4 villages (Thalang, Nongbouakham, Phonsavang, Sophene) were completed in November 2017.

The objective of the first quarter 2018 is to complete the VDP in remaining 12 hamlets with the dissemination of the NPLAF project. Planning is to perform Sopma, Sophia, Namnian, Nakai Tai, Nakai Neua and Oudoumsouk from the 18-28 February 2018 and Phonphanpaek, Nongboua, Bouama, Sapon, Done and Khonkene from the 12-20 March 2018.

- **AL.2.2.5 (deferred – completed June 2018 – NTPC-S-K0903-0036):** Review and refine processes for land allocation and land disputes resolution based on lessons learned.

In 2014, after the completion of Participatory Land Use Planning, additional agricultural land allocations for eligible household were conducted by DAFO following Community Land Title regulation. The eligible households are the household who meet the criteria set in the CLT regulation.

As soon as the list of subsequent growth households was approved by the Provincial Governor in 2015, both housing and agricultural land were allocated to those approved SG households by both DoNRE and DAFO.

In 2016, data on land conflicts were collected based on the request and reports from the villagers. The appointed persons in the agreement of Nakai District Governor carried out land dispute resolutions including DAFO, DoNRE, Justice Office, Security Office, Lao Front for Construction.

Before land allocation of both eligible and SG households, the processes were developed by relevant stakeholders. As same as land dispute, its process was also set up by all relevant stakeholders.

Since 2014, there were no update and no revision on both land allocation and land dispute processes. In order to ensure the effectiveness in implementing the related works in the future, those processes therefore need to be reviewed and refined according to the lesson learned from the implementation of related works in the past.

Lesson learned on land allocation and land disputes were obtained from the results of the stakeholder organized on the 20/03/2018. Advisory committee, district technical team, village authorities, and land management committee were invited to the workshop. A total of 27 persons participated to the workshop. During the workshop, all participants shared lesson learned. This aimed to review the existing processes by integrating feedbacks and found lesson learned from the implementation at the village levels and to make sure that the updated processes are fit with the reality and conditions of the village in this area.

5.2. Forestry

Four actions of the Forestry Action Plan concurring to the main objective “**Consensus Building and Strategic Planning for Re-engagement in the Forest Livelihood Pillar**” and to the sub-objective “**Develop a consensus strategy for Forest Management, ensuring commitment and participatory planning**”. All are actions to be taken to close the Resettlement Implementation Phase (RIP), establish the basis for sustainable livelihoods, fulfil CA obligations and, as such, are referred to as part of the List of Actions (LoA).

Three actions of the Forestry Action Plan were deferred to be completed within Q2 2018. The following figure shows how these deferred LOA fit in the Forestry Action Plan.

All information are available in presentation made to the POE mission 28, see **Annex 1.2**.



- **FO.1.1.5 (deferred – completed in June 2018):** Strategy for Forest Management decided by Government and villagers.

This LOA is a milestone that marks the completion of the approach used for updating the Nakai Plateau Forest Management Plan (NP-FMP) with the full participation of all stakeholders, and the end of the participatory of formulation, presentation, review, discussion and agreement on the NP-FMP:

1. Presentation of possible options to the Government (FO 1.1.2) for review, discussion and agreement;
2. Presentation of possible options to the 16 Hamlets (FO 1.1.3) for review, discussion and agreement;
3. Development/formulation of a strategy (FO 1.1.4); and
4. Decision making by stakeholders to reach a consensus on this strategy (FO 1.1.5).

The process ended with the agreement of all stakeholders on a strategy for the NP-FMP (key performance indicator). Consultations have been conducted all along the process of revision and re-formulation of the Strategy and of the Forest Management Plan to reach a consensus through an iterative process supported by technical surveys.

The strategy was discussed, reformulated and endorsed during a stakeholders' meeting held in Thakhek on the 11th of June 2018. **The outputs of action FO 1.1.5** - results, key points of discussions, agreements, findings and conclusions- are documented in Minutes of Meetings. **The concrete outcome** is the updated Nakai Plateau Forest Management Plan which consists in three parts: 16 hamlets Community Forest Management Plans (CFMP) or Village Forest Management Plans (VFMP), 1 common implementation plan and 1 strategy.

- **FO.2.2.2 (deferred – completed early April 2018):** Prepare inventory design

The Forestry Action Plan includes two inter-related technical studies: the preparation of inventory design (FO 2.2.2) and the mapping stratification and change detection (FO 2.2.1); the latter being a preliminary to a potential management inventory of the Nakai Plateau community forest.

Terms of Reference (ToR) were developed covering the two actions:

- Part A **“Analysis of existing information and stratification of existing imagery”** (FO 2.2.1) and
- Part B **Design and selection of an approach to conduct the forest management inventory** (FO 2.2.2).

On this basis, a call for quotations was launched to recruit a service provider. The mapping stratification and change detection (FO 2.2.1) technical study was conducted in October 2017; a report and an updated land cover map based on the interpretation of recent freely available satellite imagery were produced.

Action FO 2.2.2 consisted in the preparation of the inventory design. This was done through the development of ToR. The need to conduct an inventory and the type of inventory needed will depend on the content of the Nakai Plateau Forest Management Plan (NP-FMP) being updated in 2017-2018. The ToR (part B) are ready to be used for the recruitment of a service provider if an inventory is needed for the implementation of the Nakai Plateau Forest Management Plan (FMP).

The key performance indicator shared by both actions, “technical studies complete and provide clear recommendations for next steps”, has been fulfilled with the preparation of the Terms of Reference (ToR) for the two technical studies and the completion of the technical study and corresponding report on mapping stratification.

- **FO.3.1.1 (deferred – completed in June 2018):** Update Forestry Management Plan

The update of the Forest Management Plan is the core action of the Forestry Action Plan and the achievement of a process which, from March 2017 to June 2018. It mobilised the villagers with the technical support of the Forestry Sections of the Nakai District Agriculture and Forestry Office (DAFO) and the Khammouane Provincial Agriculture and Forestry Office (PAFO) guided by a team from the Department of Forestry (DoF) from the Ministry of agriculture, a number of subject-matter specialist and the team of the Environment and Social Division of the Nam Theun 2 Power Company (NTPC). The objective to “Revise the Forest Management Plan” is fully achieved with the formulation, approval and endorsement by all stakeholders of **the revised Nakai Plateau Forest Management Plan (NP-FMP)** providing improved guidance for forest use and meeting government and International Financing Institutions (IFI) standards; and developed with the full participation of all stakeholders.

The new NP-FMP consists of:

- 16 hamlet Community Forest Management Plans (CFMP);
- 1 common implementation plan; and
- 1 common strategy.

The strategy is a consensus among stakeholders resulting from the wishes of the villagers, the assessment of the forest resources, the policies of the Government of Laos (GoL), the assessment of the feasibility and economic viability of options, and finally decisions made during the whole process of updating the FMP. It is a short document in which the stakeholders state their vision, their ambition and their engagement for the NP-FMP as well as the six expected results.

Sixteen Community Forest Management Plans have been developed, one for each community – hamlet or village (in case the village is a single hamlet) - in line with the national policy and guidelines. Each plan covers the Community Forest Collective Land as defined through the Participatory Land Use Planning (PLUP) and for which the village/hamlet population has a Collective Land Title (CLT) ruled by the “Regulation on CLT”. Each plan is fundamentally based on the wishes of the population, on the present health status of forest resources and on their utilisation. Each plan has been developed through a series of consultations, surveys, feed-back, information, and discussions, combining the opinion of the villagers, technical assessments and taking into account the political and legal framework. The example of the CFMP of Khonkene village is summarised in the below figure 2.

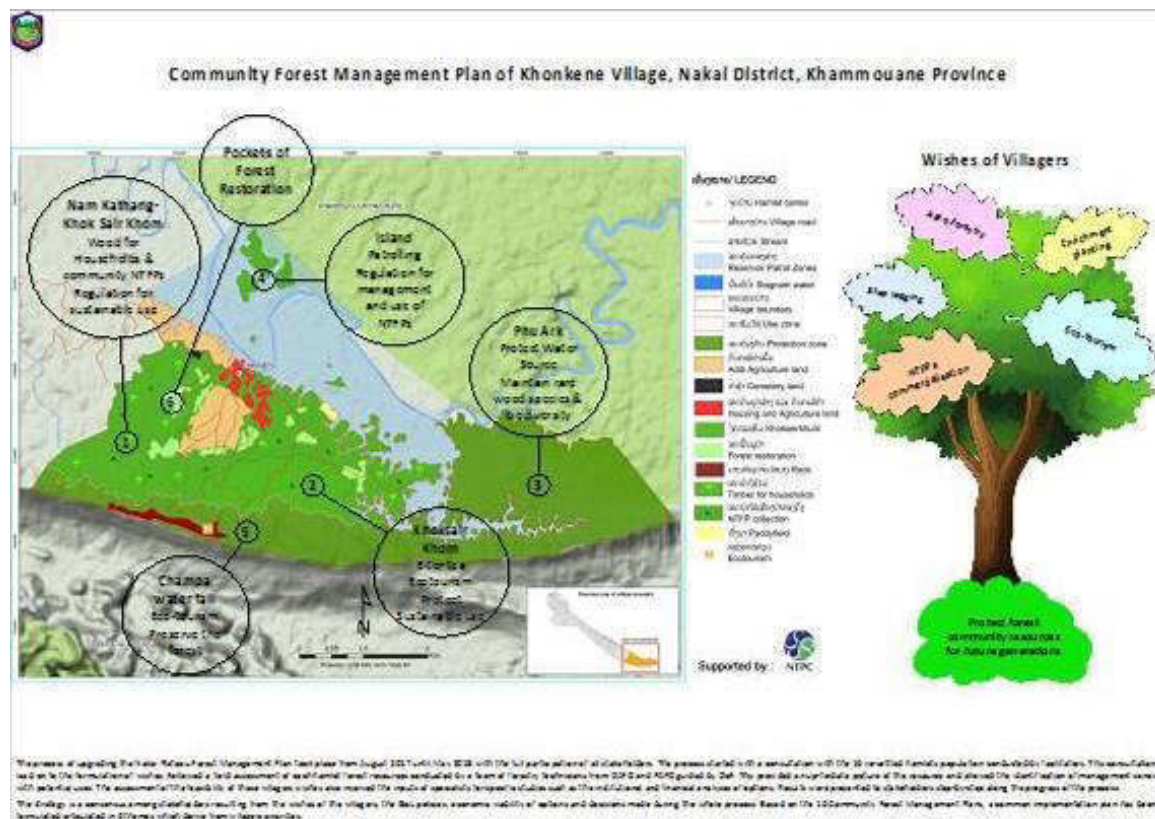


Figure 2: CFMP of Khonkene village with Forest Management Units and villagers wishes

The **common implementation plan** consolidates the 16 CFMP for concrete action. The purpose of the common implementation plan is four-fold: 1) to harmonise and coordinate the implementation of the 16 CFMP, ensuring the sustainable management of the whole plateau community forest resources; 2) to join forces, create synergies and hence achieving better efficiency; 3) Ensure solidarity and equity regarding the utilisation of forest resources by the 16 hamlets; and 4) facilitate implementation, the provision of technical services and the access to funds.

The common implementation plan defines 6 expected results covering all activities proposed in each of the 16 CFMPs: 1) Institutions strengthened; 2) Forest protection system in place; 3) Forest resources management operational; 4) NTFP commercialization improved; 4) Agroforestry and livestock systems in the forest established; and 6) Eco-tourism network in place. To achieve each of the six expected results, activities have been formulated which will be further detailed for the formulation of proposals for request of funds.

The first expected result – “institutions are strengthened” is fundamental and stands as a pre-condition for the achievement of the five other results. Community institutions as well as government institutions are in immediate need capacity building, improved organisation (charter for the VFU, re-organisation of the VFA if deemed necessary, etc.) and technical training for a proper implementation of the FMP.

Well-embedded in national policies and provincial strategies; and in line with world-wide concern for biodiversity conservation and sustainable and inclusive development, the **NP-FMP will benefit from the support** of various organisations and projects such as the AFD-funded NP-Livestock Agriculture Fisheries project, the Nam Theun 2 Development Fund (NT2DF), national plantation programmes or external sources.

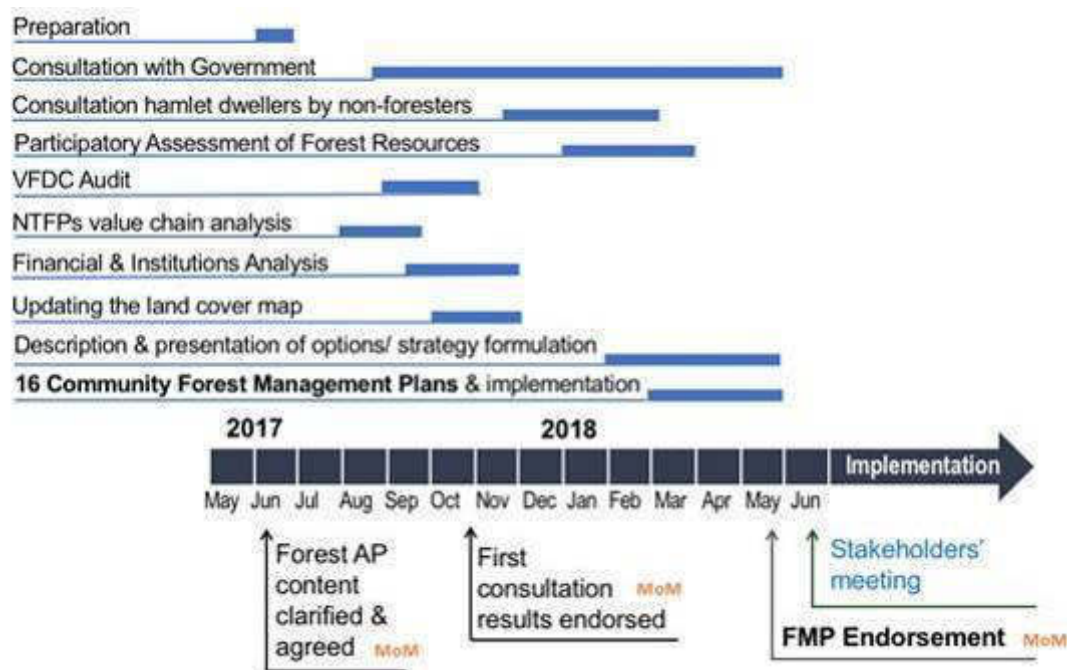


Figure 3: Chronology of the FMP development process

5.3. Off-Farm

- **OF.3.2.2. (Completed – Action Completion Report NTPC-S-K0902-0017):** Establish Resource Centre to accommodate start-up venture program and function as communal hub for Off-Farm programs.

The Resource Centre is expected to play a leading role in business development and capacity building after RIP closure. Its main objectives are (1) to provide support to business development for Small and Medium Enterprises (SMEs) in Nakai Resettlement Area, (2) to be a focal point for training in Nakai, and (3) to promote business development through events, testing of innovative technics, etc.

In 2017 and 2018, District Authority and RO team have worked together to define a legal structure ensuring the sustainable development and operations of the Resource Centre. Its establishment has been thought in a sounded way, building on the current strengths and assets available in Nakai Resettlement Area.

In December 2017, agreement for the establishment of the Resource Centre has been signed by Nakai District Governor. Two locations have been selected: the two former agriculture extension facilities of Nongbouakham and Phonsavang. Lands have been declared as community lands to put communities as owners of the Resource Centre. Buildings were also declared as community assets. Finally, a steering committee and a joint working group were established to support and follow up the establishment.

In the first half of 2018, District and RO team have worked on the management and operation model of the Resource Centre. For that purpose, Happy Nakai Cooperative has been set up to run the operations of the Resource Centre. The cooperative, regrouping eight production groups of Nakai has been established with the support of the Ministry of Agriculture and Forestry (MAF), under the supervision of the District Agriculture and Forestry Office (DAFO). A total of 8 villagers including 6 women joined the cooperative as representatives of 75 members from production groups.

A communal body was also created to supervise and guide the operations of the Resource Centre. A Board of Director, representing villagers from the 16 hamlets, was elected in May 2018.

Both Happy Nakai cooperative and the Resource Centre are now ready to support business development and Off Farm activities after RIP closure.

- **OF.3.4.1 (completed – Action Completion Report NTPC-S-0902-0018)**

The two actions (i) OF 3.4.1 “Implement monitoring of (1) new established businesses (2) income for new and previously existing businesses (3) range of sectors covered by resettler businesses”, and (ii) and OF 3.4.2 “Implement monitoring of (1) number of resettlers employed following capacity building programs (2) income of off-farm employed resettlers (3) range of sectors in which resettlers are employed” were done together, following the same methodology.

Monitoring of business and employment was organized to provide further information on the effects of Off-Farm programs (support to business, trainings and education) over resettlers sources of income.

The monitoring was done in way to empower the youth of the 16 hamlets, as a basis for community monitoring. Both business and employment data were collected and log by 6 youth fellows from the Youth Leadership Programs and 32 youth volunteers (2 persons per hamlet) under the supervision of staffs from District Labor and Social Welfare Office, District Commerce and Industry Office, Youth Office and RO staffs. Before data collection, trainings on survey forms, data collection and data entry were organized. Data collection for both employment and business in the 16 hamlets was completed in 5 days, from 25–29 April 2018. The monitoring is planned to be conducted 2 times per year. The first round is completed and the second one will be organized by the end of October 2018.

In the 16 Hamlets of Nakai Resettlement Area, 251 persons, including 70% of women, are involved in small business activities (222 resettlers and 29 non-resettlers). Among them, 144 businesses were created since 2016. 369 people were employed within and outside the resettlement area (314 were resettlers and 55 non-resettlers), including 42% of women. 169 found employment over the last two years.

Businesses were classified in 5 main categories: food service, general service, middle men/women, handicraft, and retailing. There were 6 categories of employment: government officials, industry, food service, general service, construction works, and volunteers. Average income from business (Business income) ranges from 360,000 LAK to 2,200,000 LAK per month/business, while income from employment (Per capita income) was from 600,000 LAK to 2,300,000 LAK per month/person.

Beside this, monitoring of resettlers who joined vocational training supported by NTPC was also realized. A total of 62 people attended the course from 2015 until 2018 among which 34 found a job with an income from 700,000 to 1,400,000 LAK per month/person. Among these 34 people, 62% could find job that associate with their training topic and 59% have job on Nakai plateau

- **OF.3.4.2 (completed– Action Completion Report OF NTPC-S-0902-0018)**

Implement monitoring of (i) number of resettlers employed following capacity building programs (ii) income of off-farm employed resettlers (iii) range of sectors in which resettlers are employed

This action was done with the action OF 3.4.1 on monitoring of businesses. Please refer to action OF 3.4.1 described above.

5.4. Gender

- **GE.1.1.2 (delayed – completed in April 2018):** Operationalize and monitor gender equality programming across Action Plans

The gender action plan included the design of methodology and guidance materials resulting into the application of gender markers to actions of the CAP. The CAP listed 161 actions. Out of these actions, 31 were assigned a gender marker 1, 112 were assigned a gender marker 2, 3 were assigned a gender marker 3.

The first version of the completion report GE.1.1.2 was prepared at the beginning of December 2017 including an analysis of 30 completion reports. Results suggested that in 80% of the total actions the original gender coding was maintained as either G2 or G3. For preparation of the second version of the GE 1.1.2 report more action completion reports were included.

This second version of the GE 1.1.2 completion report describes results of the gender monitoring across all action plans with reports available up to April 2018.

The application of gender markers (GM) was a useful tool during the design stage. Yet, while focus was given on the marker (either G1, 2 or 3) at the beginning, monitoring the gender markers across sector was challenging. This is related to the fact that the gender markers did not include an outcome indicator, just a gender objective. An agreement on specific gender objectives and gender outcome indicators per sector would have been more useful than the introduction of a “general marker” per each activity.

In order to fill this gap, during implementation the CLWP team developed a set of gender outcome indicators per sector. This set includes gender disaggregated outcomes on health, nutrition, and education, as well as on asset sharing, participation in livelihood activities, income generation, and representation at village and district institutions. The aim was to achieve outcomes which are above rural average in Lao PDR (with road), the trends of which are presented in this report.

Key findings from the outcome monitoring include:

- The health and nutrition status of mothers and children in the resettlement area is above rural average and many indicators exceed GOL's 2025 targets – demonstrating women empowerment (e.g. high rates of family planning among all ethnic groups).
- Gender parity in primary education enrollment rates has increased, drop-outs have decreased over time and more girls pass exam than boys.
- Majority of house, land and boat titles issued in both husbands and wives name.
- Economic opportunities are equal for women and men.
- Women are particularly active in certain fields, e.g. fish processing, handicraft (Happy Nakai), small businesses and small animal raising.
- Compared to the past, women have stronger voice and roles in district and village government demonstrated by the positions they hold, yet challenges remain.

The company and the GOL maintained its commitment to ensure that 60 percent of the assigned G2/3 markers were maintained. This report shows that in 77 percent of action completion reports reviewed the coding of G2&G3 of maintained. This analysis included a review of 75 reports of which in 58 cases the coding maintained.

5.5. Ethnic Groups

- **E.G.4.2.1 (delayed – completed in January 2018):** Provide refresher ethnic sensitivity training for all relevant RO and GoL staff.

The target of this action is to conduct refresh training on ethnic sensitivity for all related staff in both RO and district which required >85% of target participation. “Sensitivity” was extended to all kinds of disadvantaged groups such as illiterate, poor (versus wealthy), small hamlets merged with big ones, etc. Under the advice of RO Social Safeguards Senior Coordinator, the refreshment workshop was conducted more as an exchange of experiences rather than a training. Workshop on refreshment on ethnic sensitivity was conducted for RO on 08/12/2017 and 11/01/2018 for district staff. The same approach is used in both cases.

Participants were divided into 4 groups and provided with different propositions for each group to make a work plan with vulnerable sensitivity in the plan. Each group presented their plans and the others provided comment on where sensitivity shall be seen and why. The participants were also explained on what called special measures by using photo and raised the situation that happened during the workshop.

Participation of all staff of RO who is working on 7 pillars was strongly required. Total of 27 out of 28 persons participated, e.g. 96% compared to the target of participant. The workshop for district staff is expected to involve about 50 staff from 10 concerned departments in: Lao Women Union, Social Welfare, Agriculture and Forestry, Lao Front National Construction, Information Cultural and Tourist, District Justice Office, District Industrial and Commerce, Education, District Health and Health Centres and Natural Resources and Environment office. This action was completed mid-January 2018 and the report was issued (NTPC-S-K0907-0010).

5.6. Poor and Vulnerable

- **PV.1.1.2 (completed in March 2018):** Confirm that Community Based Health Insurance (CBHI) system is fully functioning in Nakai District.

Under the CA, the households identified as vulnerable has right to receive free health care until the end of the Resettlement Implementation period (RIP). This health support has been organized within the framework of a wider system, the Social Safety Net (SSN) that includes other measures regarding food support, kinship and Vulnerable monitoring. Since the start of the project, GoL and NTPC have been fulfilling the CA by providing free health care services for them.

Beyond CA requirements, NTPC has committed to continue to implement and support SSN through the NT2DF beyond the RIP closure until the end of the Concession Period. NTPC, in agreement with the GOL and the IFIs, has been looking at decreasing, in the future, its daily role (although not touching the quality and quantity of the support) by anchoring the SSN in the national and local institutional life as much as possible.

Using institutionalized insurance scheme participates to that move and the CBHI (Community Based Health Insurance) had been considered as a potential tool to be used by the SSN. The purpose of this action was to check if CBHI was present in Nakai and functioning properly so that it could be considered for use by the SSN.

However, in the meantime, CBHI has been discontinued and replaced by a new scheme, the NHI (National Health Insurance) that was launched in Khammouane province, including Nakai, on 1st of October 2017. It was thus decided to shift the study from CBHI to NHI.

NTPC thus conducted meetings with Local Authorities to discuss NHI status and its operations. NTPC conducted also a Gap analysis to understand the difference in the advantages provided by the NHI and the current health support of the SSN.

It has been noted that NHI was providing less advantages than the SSN and that should NHI be used by SSN, a number of health care issues should still be covered by the SSN independently of NHI. It was also found that there were still challenges in the implementation of NHI and there is no guarantee if and when the situation may improve.

Therefore, it can be concluded that utilization of the NHI by the SSN would be a too early move at this moment. It seems wise to wait until NHI operations can be confirmed to be sustainable and delivering health care of reliable quality.

The completion report was issued under reference NTPC-S-K0906-0012.

- **PV.3.1.2 (deferred – completed in March 2018):** Support vulnerable households under the kinship system.

Beside the supports provided by NTPC it is considered that it is desirable to anchor support to the Vulnerable within the existing communities and familial traditional social networks by mobilizing relatives, neighbours and village authorities in a structured agreement providing increased assistance and safety to the Vulnerable.

The kinship is an optional assistance system complementary to the nutrition and health support provided by NTPC. It applies only for Vulnerable households, not for Vulnerable individuals. As such the SSN Committee through the District Labour and Social Welfare and NTPC staff make endeavours setting up kinship contract for each Vulnerable household.

The support is provided according to the three following principles:

- On a voluntary basis.
- By mutual understanding and willingness of both parties without influence from outside.
- With acknowledgement by village authorities.

The completion of this action was referring first to the kinship contracts made for the 2009 vulnerable list. Kinship contracts were finalized by the end of 2015 for 13 Vulnerable households. Two households have no kinship contracts. One case passed away before documenting record of the reason and a document was compiled to record the reason for this for the other cases.

In September 2017 the list of vulnerable was updated with the inclusion of 18 new Vulnerable HHs. The kinship option being still part of the updated SSN, new vulnerable in the updated list of September 2017 will be supported on making kinship contract following the above mentioned principles but this process (that has started) was not possible to be conducted in such a short period before end 2017. Deadline for this action was thus deferred, with completion in March 2018.

Of the 24 HHs, 6 HHs part of the first list had already a kinship contract. Kinship contract implementation was completed for 17 HHs and remains 1 HH without kinship contract as the HH does not have relative or volunteer to take care of them. A memorandum of understanding (MoU) with village authority was further issued.

The completion report was issued under reference NTPC-S-K0906-0013.

6. COMPLETION OF ADDENDUM ACTIONS

6.1. Addendum completion status (30th June 2018)

As of 30th June, 14 of the 17 actions are completed.

6.2. Addendum actions to complete

As on 30th June, 14 of the 17 actions have been completed (**see Annex 1.1**). The progress on the remaining 3 actions is ongoing. A dedicated team is working to close these actions.

A significant achievement for this period was the completion of construction of all infrastructures under addendum actions (see presentation made to POE#28 in **Annex 1.2**). This includes the construction of toilets in Nongbouakham market, extension of village meeting hall at Nakai Tai, construction additional blocks of classroom including toilets and teacher's house in 3 villages. There is a slight delay in furnishing of the constructed classrooms and electrification of the constructed facility including teacher's house. However, the expected completion date of the same is by end of July 2018. The purchase orders for procurement of furniture and electrification of the facilities (classrooms, toilets and teacher's house) including connection to the grid has already been signed and the work already started by the contractors for the delivery of the services.

It remains to the GOL to finalize the appointment of 3 additional teachers, one for each school.

Progress on construction of waste management (originally made of 2 actions) is also ongoing with awareness events and progress on construction of landfill (see overall planning in Environment part chapter 3.5). A single contract for construction of the new site and closing of the existing one has been signed with the contractor, with the kick-off meeting already organised. In the first phase of construction, installation of a transformer along with electrical lines to the site is ongoing with the UXO clearance of the site already completed. The district line agencies are closely involved and updated.

7. HAND-OVER PROCESS

7.1. Tasks enabling handing-over process

The handover process of the Nakai livelihood program to District authorities in the frame of the RIP closure will ensure its full ownership of activities in terms of **procedures, databases, relevant documents and training** of GoL staff by the District authorities. To achieve an effective hand-over by due date, each team of RO have been instructed to (i) identify the relevant document for key activities, (ii) identify the necessary equipment for the GoL or Villager counterpart to perform these activities.

This process is conducted by the GoL and NTPC. It is expected to be completed early Q3 2018

An agreement of hand-over activities was signed between NP-LAF team and NTPC. These activities (long term activities) were further addressed in the 5 years plan of the NP-LAF project. The Hand-Over agreement is presented in **Annex 1.3**.

7.2. Resettlement Office Hand-Over

The resettlement office building will be handed over by the end of 2018. The renting contract was extended until December 2018 to allow teams to perform the remaining actions and tasks until the end of the RIP. The recruited NT2DF team will be based at the Residence Nam Theun (RNT) where an office has been booked. Here are the key tasks identified to allow the RO facilities Hand-Over:

Task Name	2018											
	01	02	03	04	05	06	07	08	09	10	11	12
Identification of a transition storage for all social documentation												
MoU for handing over with District Authorities												
Move documentation to RNT transition storage												
Hand-Over of RO												

8. VILLAGE DEVELOPMENT PLANNING FINALIZATION

As a key activity of the Comprehensive Action Plan (action named under “integrating actions”), preliminary Village Development Plan were developed for the 16 hamlets in November 2017 following the PRF methodology. However, these first phase VDP results were mixed as the VDPs included a long list of priorities brought forward by the villagers. It was thus decided by the District and NTPC to organize a second VDP development phase for reviewing and structuring the priorities to make them more actionable. The second phase started with an “eye-opener” tour to Thailand that aimed to share experiences of farmers and economic activities developed by groups at Phou Phan livelihood Center (Sakon Nakhon, Thailand) in October 2017, February and March 2018. This visit included villagers and district officers. A final village-based session was organized in each hamlet in March 2018 led by the District and NTPC, the results of which were approved by the District authorities in May 2018 and endorsed by Nakai’s Governor in early June 2018.

The final VDP products will be the main input to define the strategy of the NT2DF, including NP-LAF.

9. NAM THEUN 2 DEVELOPMENT FUND

9.1. Background

The NT2DF is not a CA requirement. After the RIP closure, NTPC’s ongoing commitment to further the development of the 16 resettlement hamlets of the Nakai plateau – as a type of benefit-sharing – will be carried forward through a long-term development fund, the so-called “Nam Theun 2 Development Fund” (NT2DF). In 2015, NTPC’s Board of Directors approved the establishment of the NT2DF through an allocation of LAK 1,000/MWh of electricity generated (currently estimated at a value of USD 750,000 per year). It is planned that the fund will be made available on an annual basis until the end of the concession period in 2035.

In this way, NTPC will not be an implementing agency anymore, but will step back and be a coordinator and donor for certain aspects of the Nakai District’s development under the umbrella of NTPC’s Corporate Social Responsibility (CSR) programs.

9.2. NT2DF Cooperation Agreement

On 6 June 2018, the NT2DF was launched with the signature of the Cooperation Agreement between Khammouane Province and NTPC. The Cooperation Agreement defines the key design elements of the NT2DF, including the NT2DF principles and eligibility criteria, and the establishment of the NT2DF Steering Committee.

9.3. Principles and conditions of the NT2DF

The NT2DF is based on 2 principles: (i) integrity and transparency, (ii) no corruption.

The NT2DF defined 7 conditions that funding requests have to satisfy:

- Purposes: livelihood, education, health, poverty alleviation, youth empowerment, equal opportunities for women and men of all ethnic groups, institutional strengthening and emergency response to natural disasters.
- Applicants: (i) Village Development Committees, (ii) Private organizations (Lao or foreign) which respond to thematic “call for proposals” made by the SC and are duly registered in Lao PDR.
- Beneficiaries: for the five first years, benefits only to (i) the Nakai District residents and (ii) the Nakai District or the Villages but only with respect to capacity building/institutional strengthening.
- Consultation/participatory approach.
- No double funding for the same Project.
- Shared contribution.
- Sustainability.

These principles and conditions will guide the NT2DF project design and implementation. It is the responsibility of the NT2DF Steering Committee to ensure their enforcement.

9.4. NT2DF Steering Committee

The Steering Committee is established to supervise the fund, approve projects and provide general guidance to the NT2DF Support Team. The Steering Committee is composed of representatives from GoL (5 members) and from NTPC (4 members). The Committee is co-chaired by Khammouane Province Governor and the CEO of NTPC.

Steering Committee decision must be unanimous.

9.4.1. Categories of projects

The categories of Eligible Projects are as follows:

- Thematic Projects, i.e. some actions initiated during the RIP (e.g. social safety net for the vulnerable with health care, food supplements, and scholarships).
- Technical Projects, i.e. specific know-how brought to the communities, such as new agricultural techniques, teaching methods, entrepreneur initiatives.
- Community Projects, comprising of activities identified in – but not limited to - the VDPs.
- Projects in response to Emergency Situations: funds provided to support the Nakai District Residents in case of natural disaster.

9.4.2. Conditions precedents

There are two conditions precedent for the Cooperation Agreement to be effective:

- Closure of the Resettlement Implementation Period (RIP).
- The appointment of the Steering Committee members

Operation Manual shall be written to complement the Cooperation Agreement.

9.5. Establishment of NT2DF Steering Committee and staffing of NT2DF Support Team

9.5.1. Establishment of NT2DF Steering Committee

The NT2DF Steering Committee was established and its members were appointed. The main responsibility of the Steering Committee is to supervise the NT2DF and ensure its compliance with the NT2DF agreement, to approve projects and to provide guidance to the NT2DF Support Team. The NT2DF Steering Committee is composed of representatives from GoL (Province, District, Villagers) and NTPC.

Members from GoL (Province, District, Village) were appointed on the 25th June 2018:

- Nakai District Deputy Governor,
- Head of Investment Section, Planning and Investment Department, Khammouane Province,
- Deputy Head of Sop Kham Village, Representative of villagers, North cluster,
- Head of Oudomsouk Village, Representative of villagers, Central cluster,
- Head of Bouama Village, Representative of villagers, South cluster.

Members from NTPC were appointed on the 23rd June, 2018:

- NTPC Chief Executive Officer
- NTPC Chief Finance Officer
- NTPC Environment and Social Unit Director
- NTPC Environment and Social Unit Deputy Director

9.5.2. Staffing of NT2DF Support Team

The NT2DF Support Team is composed of staff from both District and NTPC. The NT2DF Support team is in charge of the management and administration of the NT2DF. It supports the development of strategic orientations from consultations, the setting up and implementation of NT2DF funded projects. It ensures budget control and implements monitoring and evaluation. The Team submits all key orientations to the Steering Committee for endorsement.

Members from the NT2DF Support team were selected for both NTPC and District.

Nakai District Officers (GoL)	CSR Team in charge of NT2DF (NTPC)
Head of District Office	Manager
Head of planning and investment Office	Coordinator
Head of Lao Front for National Construction Office	Project Coordinator
Head of Lao Women Union	Project Coordinator: recruitment in progress
Planning and Investment Office staff	Project Coordinator: recruitment in progress
Finance Office staff	Monitoring Officer
Agriculture and Forest Office staff	Budget /Admin Officer

The final team is expected to be completed by the end of July 2018.

9.6. NT2DF Steering Committee Meeting #1

The First NT2DF Steering Committee Meeting was organized on the June 28th 2018. The meeting was prepared by the NT2DF Support Team members on the June 18th and 19th 2018.

The main objectives of the meeting were: (i) to review the current progress towards the NT2DF operationalization as described above (Cooperation Agreement, NT2DF Steering Committee, NT2DF Support Team) and (ii) to discuss and take decisions on the next steps for the set up: the development of the NT2DF Manual and the endorsement of the NT2DF Strategic orientations for the pilot phase 2018 – 2023.

Two decisions were taken unanimously by the Steering Committee during the meeting:

- **Decision SC#01/1: Development of NT2DF Manual by the Support Team**

- **Decision SC#01/2: Endorsement of the NT2DF strategic orientations for the pilot phase 2018 – 2023**

9.6.1. Development of the NT2DF Manual by the Support Team

The development of the NT2DF Manual is a requirement for the operationalization of the NT2DF. The Manual will be the main resource to guide NT2DF daily operations. It will describe the processes and procedures for the design, approval and implementation of projects, for monitoring and for financial management. The Manual will ensure the compliance of NT2DF implementation with the key principles described in the NT2DF Agreement.

Key design elements of the manual shall include (i) structure and responsibilities of each institution, (ii) project selection and implementation process, (iii) monitoring system, (iv) financial management and procurement procedures, (v) procedures for the recruitment of external assistance, (vi) operational costs, and (vii) tools, forms and templates for daily management.

The NT2DF Steering Committee appointed the NT2DF Support Team to develop the NT2DF Manual and submit it to the SC by the end of 2018.

9.6.2. Endorsement of the NT2DF Strategic orientations for the pilot phase 2018 - 2023

The NT2DF Support Team developed strategic orientations in four programs to guide the actions of the NT2DF during its pilot phase 2018 – 2023. These orientations are a key element to organize funding after RIP closure and to build coordination between all stakeholders involved. This will enable the NT2DF Support Team to design the first projects together with their beneficiaries.

Key programs (orientations) proposed for the pilot phase:

- **Program 1:** Agriculture and livestock (including access to Land) and fishery;
- **Program 2:** Support to the sustainable use of forestry resources;
- **Program 3:** Support livelihood development in a business-oriented way;
- **Program 4:** Institutional Strengthening and Community empowerment.
- **Additional orientations:** Long Term Scholarship and Social Safety Net are not included within the four programs but are already agreed for funding and have their own procedures. Emergency grants will be available in case of natural disaster, for which specific conditions and procedure will be described in the NT2DF Manual.

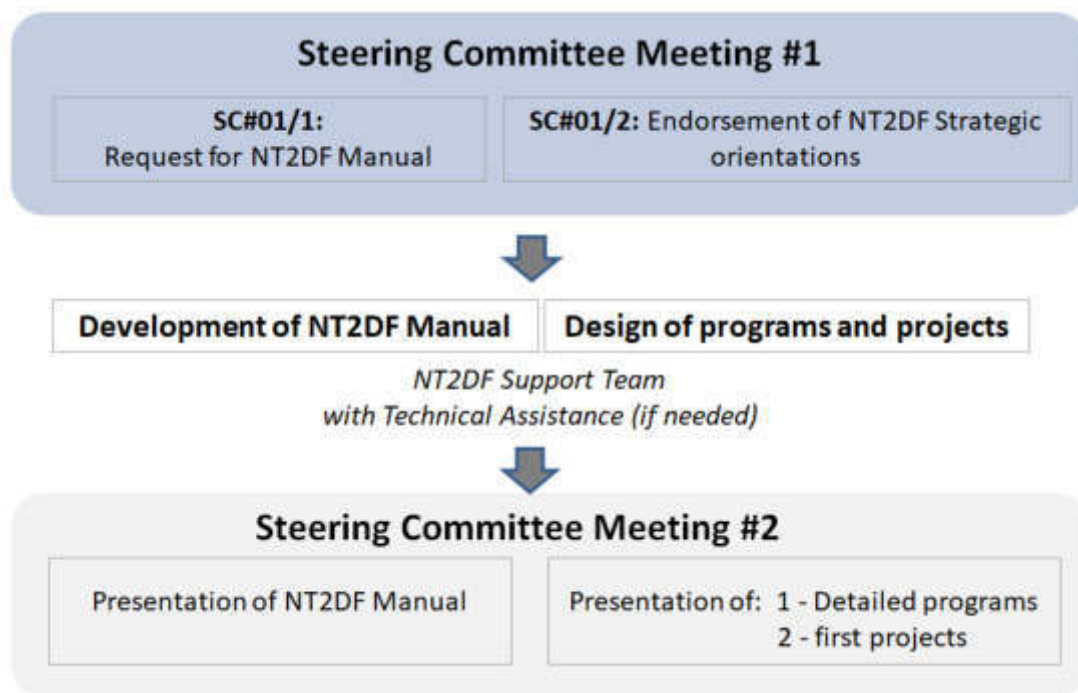
The four programs were identified by putting together the results of the Village Development Plans (VDP), the Community Forest Management Plans (CFMP) and the District Socio Economic Development Plan (DSEDP). They also take into consideration the Medium-Term Development Plan (MTDP) and the POE recommendations from POE Report #27. Each program is composed of main objectives, as well as expected results.

The NT2DF Steering Committee endorsed the proposed NT2DF strategic orientations for the pilot phase 2018 – 2023.

9.7. Next steps

Based on the NT2DF Steering Committee decisions SC#1/1 and SC#1/2, the NT2DF Support Team will work on (i) the development of the NT2DF Manual and (ii) the design of programs and first projects, to be presented to the NT2DF Steering Committee for approval by the end of 2018.

Steps for NT2DF operationalization



10. DESIGN OF A MONITORING TOOL TO ASSESS THE SOCIO-ECONOMIC STATUS OF NAKAI AFTER RIP

The overall objective of the Resettlement Program is to improve and consolidate the living standards of resettlers in a sustainable way, and to ensure that poor and vulnerable households remain above the national rural poverty line. During the resettlement implementation period, the LSMS was used to monitor the progressive achievement of this overall objective.

After RIP closure, monitoring will be mainly conducted through the NT2DF. The NT2DF will have its own monitoring system, collecting and analysing data at the project level and focusing on activities, outputs and outcomes. The overall mechanism will also be assessed on a yearly basis by the Independent Monitoring Advisor (IMA). Other actions put in place by GoL and IFIs may also have their own monitoring framework.

However, as they focus on specific projects, the NT2DF monitoring system as well as other punctual monitoring efforts will not be able to determine if the overall objective of the Resettlement Program continues to be met. Therefore, NTPC commits to monitor the living standards of the Nakai Resettlement Communities by using a new tool, the Nakai Expenditure and Consumption Survey (NECS).

The objective of the NECS is to assess the living standards of Nakai Village residents. It will monitor economic and non-economic indicators of living standards under 7 modules including (i) education and employment, (ii) dwelling and services, (iii) consumption, (iv) savings and assets, (v) income ranking, (vi) debt, and (vii) food security.

The NECS will include the following features:

- Target population of resident households in Resettled villages (including subsequent growth).

- Indicators will be disaggregated by hamlet, gender and ethnicity where appropriate.
- The NECS will use the LSMS 2017 as a baseline and will use the existing LSMS survey instruments, but adjusted and reduced in scope to reflect the revised objectives of the survey as described in the table below:

List of modules: LSMS / NECS

#	LSMS 2017	#	Nakai Expenditure & Consumption Survey NECS
1	Roster	1	Roster including Education Employment
2	Education & expenditure		
3	Employment & income		
4	Dwelling and Services	2	Dwelling and Services
5	Consumption Food Consumption Consumables Durables	3	Consumption Food Consumption Consumables Durables
6	Savings & Assets	4	Savings & Assets (including livestock)
7	Agricultural Plots		
8	Net Agricultural Income Wet season Dry season Costs of production	5	Income ranking / livelihood activities Employment – percent & income Business – percent & profit Remittance. – percent & amount
9	Forest Incomes Hunting Timber NTFP		
10	Livestock		
11	Fishing		
12	Business Income		
13	Other Income		
14	Debt	6	Debt – percent, amount, difficulty
15	Resettlement – satisfaction and issues	7	Food security
16	Wellbeing		
17	Food Security		

The NECS will be undertaken on a five years basis. The LSMS#8 was undertaken in 2017. Then, the NECS surveys should be undertaken in 2022, 2027 and 2032. The collection and analysis of data will be outsourced to an independent company. The NECS will use a database managed by the NT2DF Support Team, and shared with all agents, with a unique numbering system for each household.

The NECS will be a key element of the monitoring system after RIP closure as it fills the following objectives:

1. Provide stakeholders with some (additional) certainty that the resettlers will continue to meet the targets set in the CA agreement.
2. Provide a tool and incentive to NTPC and the NT2DF to better target and design funded projects.
3. Provide evidence that under appropriate conditions resettlement programs can be undertaken effectively and that they do not necessarily increase poverty, ill-health, social disarticulation, landlessness, joblessness and limit educational opportunities of the resettlers.

Finally, it is important to note that the project overall objective (resettler living standards sustainable improvement) depends on a number of factors that cannot be influenced by development programs (e.g. commodity prices, agro-climatic conditions...). Consequently, any change (degradation or improvement) observed in living standards of resettlers cannot be directly or entirely attributed to post-RIP development programs.

A post-RIP monitoring presentation done during the POE mission #28 is included in the Annex 1.2.

11. FINALISATION OF COMMITMENT ON SUBSEQUENT GROWTH HOUSEHOLDS (G2)

11.1. Commitment

The NTPC Commitment regarding Subsequent Growth Households is based on:

- The official list of 413 HHs issued by the GOL.
- The benefits that GOL, NTPC and the POE have agreed upon in April 2015 (Section 7.1.2 page 49), specified in the GOL/NTPC discussions and the GOL decrees related to SG HHs (G2).
- Discussions with ADB in mid-2017 regarding the necessity of organizing UXO clearance for both types of land (housing & agricultural) allocated to SG HHs.
- The NTPC Board of Directors resolutions: NTPC BoD agreed to fund (with a capped budget) the 12 entitlements agreed upon with the POE and the IFIs in a Resolution of its Board Meeting No 56 and to fund (with a capped budget) the UXO clearance of the lands allocated to the Subsequent Growth households in a Resolution by circulation on 19 July 2017.

11.2. Principles for entitlements

- Only the 413 HHs of the official list are eligible at the condition they are really the ones on the ground who claim for the entitlements.
- Exact entitlements to be provided regarding water access, electricity access, road access still to be formally defined as well as the level of participation by the HHs (as in case of the toilets).
- NTPC does not reimburse SG HHs for past expenses regarding entitlements agreed to be provided by NTPC (building toilets, connecting to electricity grid, etc.).

11.3. Actions completed

A number of actions have already been completed and reported (for some) as per the following table:

	Benefit for SG HHs	Action status	Report
1	Ownership of 0.66 Ha & 0.22 Ha plots and room for a household garden	Ongoing	-
2	Access to and preferably ownership of additional land	Completed	In preparation
3	A house plot provided and owned by the G2 resettler	Ongoing	-
4	Ready access to electricity	Not yet started.	-
5	Ready access to clean water supplies	Not yet started.	-
6	Sealed Toilets	In progress.	

	Benefit for SG HHs	Action status	Report
7	Eligibility for access to a community and farmer assets-seed processing and fertilizer factories, seedling nurseries, and cattle crushes, for example - and services including agricultural and livestock extension services and micro-finance services within the resettlement area	Completed. Provided through all CAP actions.	In preparation
8	Eligibility for other livelihood support in relation to livelihood choices made e.g. SERF	Completed	In preparation
9	Access to reservoir fisheries	Completed	Issued (NTPC-S-K0908-0009)
10	Entitlements to a share of VFDC dividends, and to employment in reforestation and other VFDC programs.	Completed	In preparation
11	Access to health centre services	Completed	In preparation
12	Eligibility to attend NTPC training courses	Completed. Provided through all CAP actions.	In preparation
13	UXO clearance of all allocated plots	Procurement conducted.	

11.4. Action for 2018

1. Field survey for verifying:

- The adequacy of the names in the official list of 413 HHs with the ones claiming on the ground
- The HH entitlement status regarding access to water, connection to electricity, access road toilets, UXO clearance
- Households composition with regard to access to SSN

The action was prepared in April and early May with the elaboration of a specific survey questionnaire, and the preparation of all logistics. The action, expected to be complete early June was delayed by insufficient staff (GOL and/or NTPC) availability and difficulties to meet households. A few HHs had still not been surveyed at the end of June.

2. UXO clearance:

- Archives were consulted to define the additional lands to be cleared.
- Procurement of a UXO clearance provider was conducted (framework contract until end 2019).
- First Call of Order is expected at the end of the rainy season (late September).

3. A set of three actions that were already in progress in 2017 and are being continued:

- Allocate Land Title for housing plots as per District Land Policy #298 dated 2/10/2015.
- Allocate Land Use Certificate (LUC) for Agricultural Land as per District Land Policy #298 dated 2/10/2015. By decision of the local government, Phonphanpek and Oudomsouk are part of the sub-urban area. Then, a total of 49 SG in these 2 villages won't have access to agricultural land.
- Construction of remaining toilets (previously identified) was completed. More may have to come following additional land allocation.
- Other actions are scheduled to start in the second half of the year after discussion and adoption of the policies on access to water and connection to electricity, and access road if required.

The timetable of all activities is as follows

Tasks	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Preparation of survey												
Survey for eligible Subsequent Growth HHs & entitlements status												
Finalize list and remaining entitlements with GOL												
Disseminate information to all hamlets												
Issue land use certificates to Subsequent Growth Households for agricultural land												
Issue Land Titles to Subsequent Growth Households for housing plot												
Provide access to electricity												
Provide access to water												
Access road (if required)												
Construction of remaining toilets												
UXO Clearance												

12. MISSION OF LTA#40 AND POE#28

12.1. LTA#40

This LTA mission (only focuses on social aspects) occurred from 2nd of May to 7th of May 2018. LTA provided their report on the 7th of June 2018.

In this report, LTA recommended that *“the RIP be closed as proposed by the end of June 2018, and all remaining actions for achieving the basis of sustainability and eventually confirmation of sustainability to be included within framework of the NT2DF and NPLAF mechanisms and GoL Programs”*.

12.2. POE#28

The mission 28 started on the 29th of June and planned to end on the 10th of July 2018. The mission included a set of presentation with progress on the main recommendation of the POE#27 (See **Annex 1.2.**).

Final decision and POE recommendations will be provided in the next E and S report.

PART 2: ENVIRONMENTAL PART

1. INTRODUCTION

This E&S Semi Annual report is based on the 2018 Annual Implementation Plan (AIP) for the Nam Theun 2 Environmental programs which was developed in line with recommendations by various monitoring agencies; internal adaptive management, a consultation and planning process with stakeholders within the **Environment Department** as well as the Concession Agreement are among the reference documents for this AIP.

The Environment Management Office was divided into two separate departments in 2010. The role of ensuring compliance with NTPC's environmental commitments was transferred to the Health, Safety and Environment Department and is under NTPC's Integrated Management System Division. In June 2015 this unit has been renamed Risk & Strategy Unit, along with this organisational change, all tasks related to biodiversity monitoring and management; water quality monitoring and analysis (chemistry, hydrobiology); and erosion monitoring have been maintained within E&S Division's Water Quality and Biodiversity Department. Since January 2016, the Environment Compliance team under the Risk & Strategy Unit was transferred to Water Quality and Biodiversity Department and the name of department has been changed to Environment Department since August 2016.

The Forth Service Agreement between EDF and NTPC to support the Laboratory started in May 2017 and will last till April 2023.

2. CURRENT ORGANIZATION AND RESPONSIBILITIES

The department is organized as below:

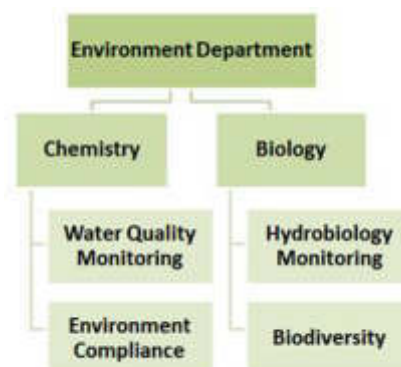


Figure 4 – Environment Department Organization

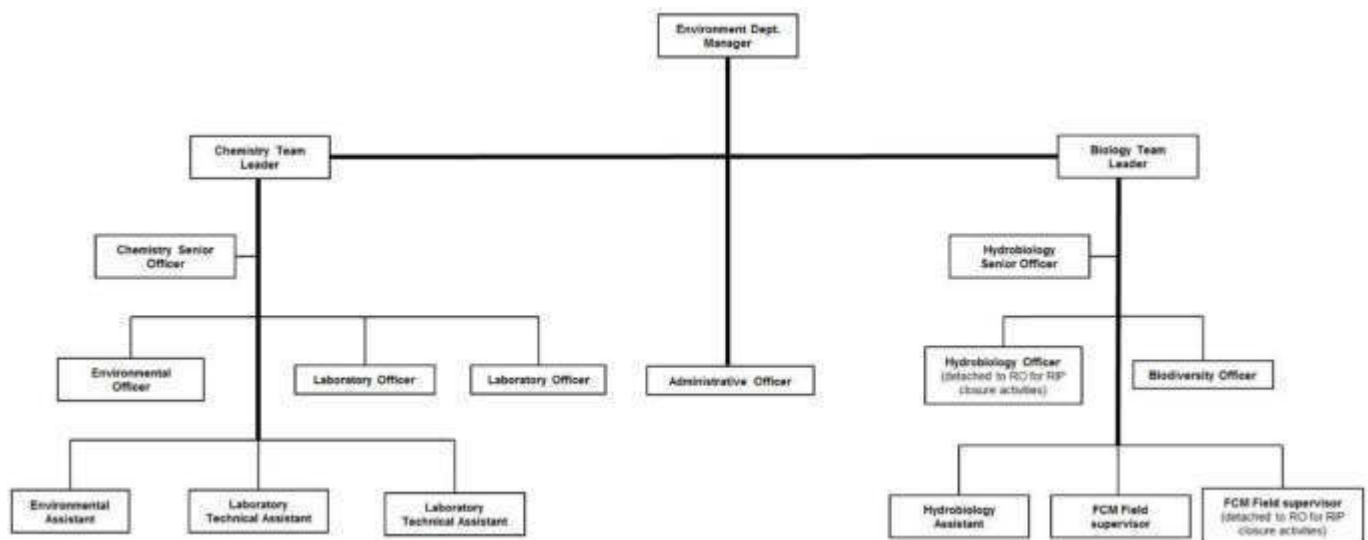


Figure 5 – Detailed Organization Chart of the Environment Department

The Environment Department is in charge of design, implementation and monitoring of activities and achievement of objectives of Environmental (including all water quality and biodiversity) contractual obligations of NTPC during the Operational Phase.

The Aquatic Environment Laboratory (AE Lab), within the Environment Department to monitors water quality, hydrobiology and greenhouse gas emissions in the reservoir, upstream and downstream areas under funding agreement between NTPC and EDF starting from April 2011 for 3 years period and is extended to April 2017. Another 6 years (May 2017 to April 2023) of funding agreement with a lightened scope of monitoring is accepted by EDF. The team also conducts the riverbank erosion monitoring along the Xe Bangfai. Furthermore, a fish catch monitoring in the Nakai Reservoir will end when the RIP will be closed (end of CA obligations). However, a handing over to the Nakai District was realized to ensure their capacity to perform the monitoring upon the needs and important information and document were shared with the NPLAF team.

The environment compliance team monitors, inspects and manages all environmental internal issues and supports the solid waste management in the 2 local districts (Gnommalath and Nakai). The mission ensures that there is no negative impact by the project to the local environment in a short term and on a long run. The corrective and preventive actions are taken for any environment incident and follow up by the team.

The elephant program, the invasive species program and swamp cypress program are under the biodiversity section of the Environment Department.

3. ENVIRONMENT PROGRAMS STATUS AS PER JUNE 2018

3.1 The Aquatic Environment Laboratory (AE Lab)

3.1.1 Obligations

Reference related to the 3rd Service Agreement between NTPC and EDF for the period of May 2014 to April 2017 and the 4th Service Agreement for the period of May 2017 to April 2023.

3.1.2 Main outputs until June 2018

After eight years of operation of NT2 Aquatic Environment Laboratory (AE Lab), the *Service Agreement* between NTPC and EDF for water quality will end as of April 30, 2023. Since 2008 four contracts were signed with EDF-CIH.

The AEL was set up in order to develop two kinds of in-house capacities:

- Perform the analysis of most water quality parameters to be monitored by NTPC to fulfil its obligations under the **Concession Agreement** (only analysis such as oil and grease are still being sent for analysis to UAE, a Thai laboratory based in Bangkok).
- Support various **research programs**: Greenhouse Gas (GHG) emissions measurements and related studies, Dynamic of Mercury content in fish flesh, Fish stock assessment in the reservoir, and Effects of a reservoir on fish composition using a tropic approach.

As of June 2018, there are 25 scientific articles relating to Nam Theun 2 Project have been published in peer reviewed journals and accessible online.

3.2 Water quality monitoring

3.2.1 Obligations

References related to CA Obligations - Volume 2A, Schedule 4, Part 2, Subject 9: 1 to 4, 31.

The Concession Agreement (Volume 2A, Schedule 4, Part 2) details the obligations of NTPC in regard to water quality monitoring during the whole Concession Period. In the CA, it is specified that NTPC has to provide a detailed program to cover the three different phases to check that the Project meets environmental standards (i) prior to inundation, (ii) during the reservoir impounding throughout the construction period and (iii) during operation. A Water Quality monitoring program has to ensure an accurate assessment of water quality and biological parameters relating to the Project (rivers, domestic water supply, groundwater in the Project Land, effluent discharge, livestock drinking and irrigation water). Monitoring of variations and trends exceeding specified trigger levels are as well clearly specified. The water quality monitoring program has to be regularly reviewed and evaluated to assess its effectiveness.

Reference related to the Service Agreement between NTPC and EDF (the 3rd for the period of May 2014 to April 2017 and the 4th for the period of May 2017 to April 2023). The maps of the monitoring stations for the 3rd and the 4th Service Agreement are presented in Annexes 2.1, 2.2, and 2.3.

3.2.2 Main outputs until June 2018

Reservoir and Downstream Water Quality

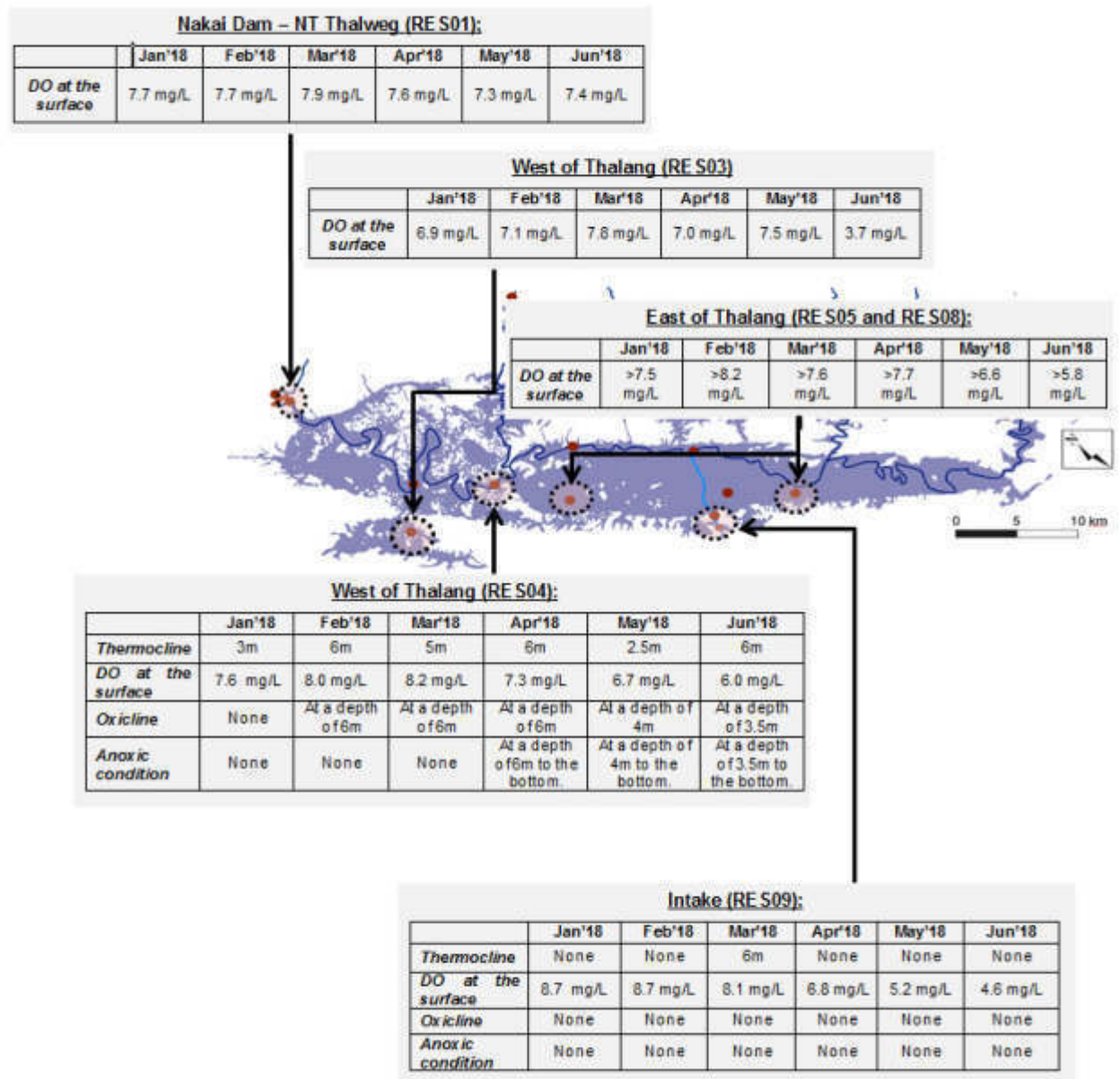
The frequency of the monitoring programme is based on monthly basis for the 4th Cooperation Agreement.

Reservoir

- NT2 reservoir still showed clear thermal stratification cycles following natural seasons (December to January: mixing stage, March to July: stable stratification, August to October: weak stratification due to the disturbance of water current from the rainy runoff). Influence of stratification sequences remains the key driving factor for reservoir chemistry: (i) maximum of nutrients/gas release was recorded at the end of the stratified period, (ii) nutrients/dissolved gas decrease from annual flooded and reached minimum consecutive to the mixing event.

Dissolved oxygen (DO) value is globally increased over the years. DO at the bottom level tend to increase during mixing period. When the stratification appeared, the anoxic condition was observed at RES04 from April to June and low DO at the surface level was observed at RES03

and RES09 in June, it may induced from high oxidation in that area when the atmospheric temperature was high. The water quality at Intake station was well homogenized during the whole semester.



- There was no issue with water quality discharged from Power House.
- Dissolved oxygen still remained above the guideline for Nam Theun, Nam Kathang and Xe Bangfai at downstream of the project discharged confluence stations.

Rivers

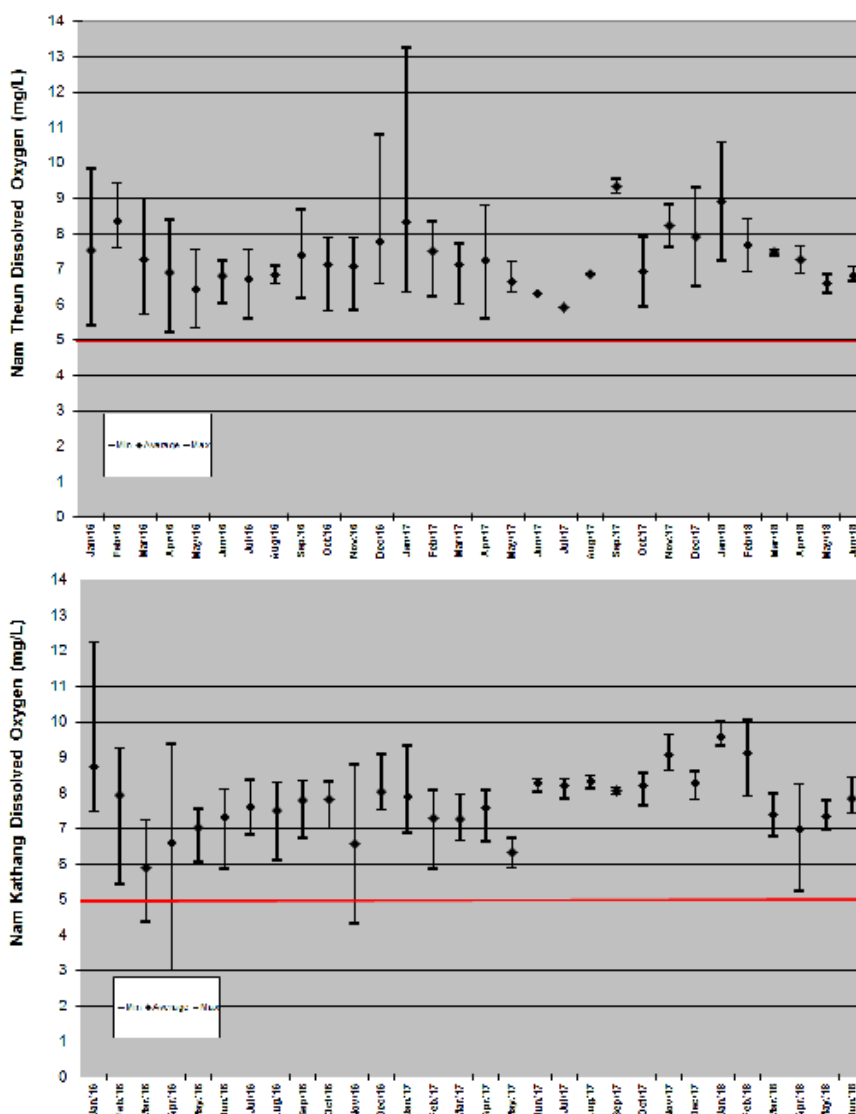
Key WQ results related to Project releases during the January to June 2018:

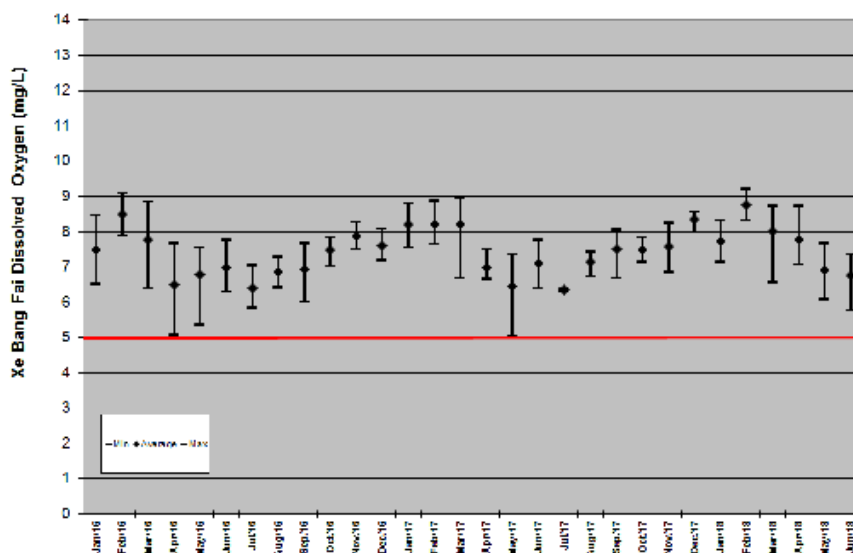
- **Dissolved Oxygen (DO)** remained above the Guideline for Nam Theun, Nam Kathang and Xe Bangfai Rivers throughout the 6 months.
- **Biological Oxygen Demand (BOD)**, all of the measured values in the surface water meet the guideline.
- **Chemical Oxygen Demand (COD)** slightly exceeded the guideline for few months in Xe Bangfai downstream of the downstream channel (DSC) confluence, in Nam Kathang downstream of the

Regulating Dam and in Nam Theun downstream of Nakai Dam (If the uncertainty of measurement is taken into account on the reported results, values may remain under the guideline or slightly exceed the guideline).

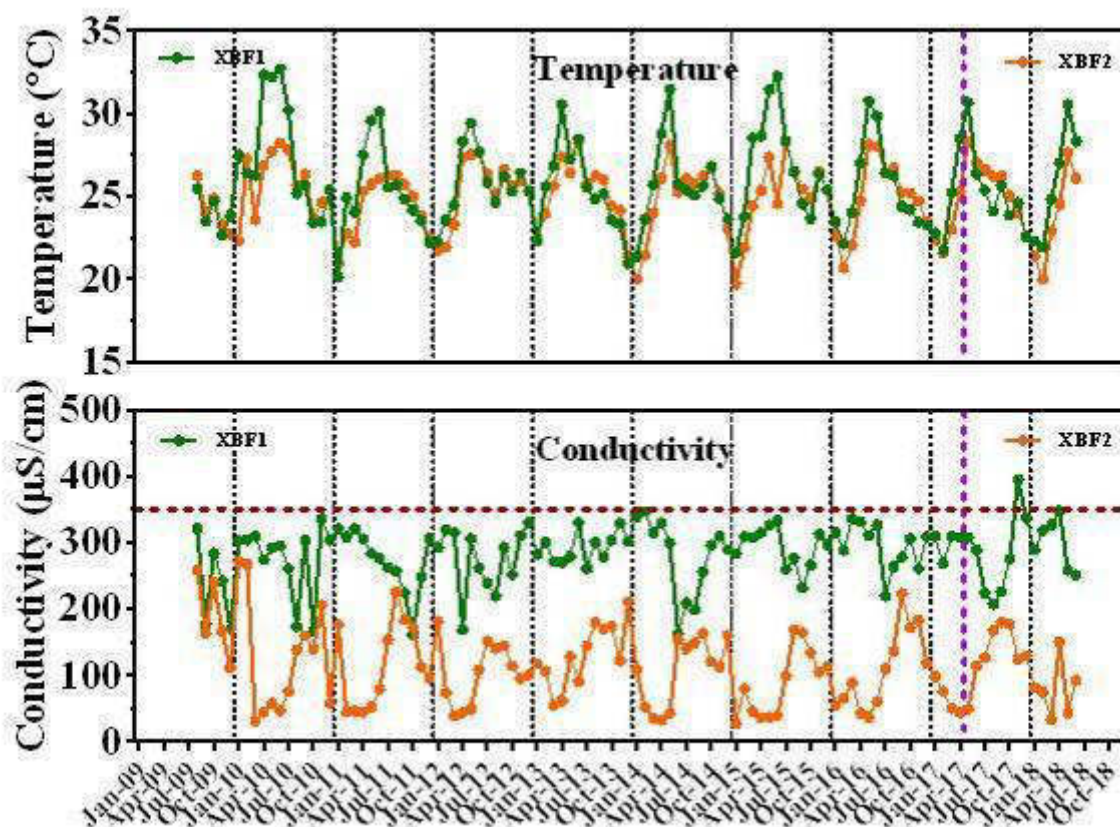
- **Total Phosphorus** slightly exceeded the guideline in Nam Theun downstream of Nakai Dam in June.
- **Total Suspended Solids (TSS)** exceeded the guideline in June in Xe Bangfai downstream of DSC confluence.

The exceedances observed for Total Suspended Solids and Total Phosphorus are not deemed to be project related but come from sediment laden consecutive to the increase of rainfall in June.





- The water discharged to Xe Bangfai still show seasonal effects on temperature and conductivity parameters due to the cooler water and low conductivity of water from the reservoir.



Greenhouse Gas (GHG) Monitoring

GHG emission monitoring still continue in routinely basis in reservoir, tributaries, downstream rivers and civil work area, the monitoring frequency is set as same as Reservoir and Downstream Water Quality Monitoring. Four scientific articles relating to GHG emission in NT2 project are published:

- Deshmukh et al. **Physical controls on CH₄ emissions from a newly flooded subtropical freshwater hydroelectric reservoir: Nam Theun 2**, Biogeosciences;

- ii. Deshmukh, C., Guérin, F., Labat, D., Pighini, S., Vongkhamsoo, A., Guédant, P., Rode, W., Godon, A., Chanudet, V., Descloux, S., and Serça, D.: **Low methane (CH₄) emissions downstream of a monomictic subtropical hydroelectric reservoir (Nam Theun 2, Lao PDR)**, Biogeosciences;
- iii. D. Serça et al. **Nam Theun 2 Reservoir four years after commissioning: significance of drawdown methane emissions and other pathways**, Hydroécol. Appl; and
- iv. F. Guérin et al., **Effect of sporadic destratification, seasonal overturn and artificial mixing on CH₄ emissions at the surface of a subtropical hydroelectric reservoir (Nam Theun 2 Reservoir, Lao PDR)**, Biogeosciences.

Village Water Supply and Water Quality

New cycle of borehole monitoring started from January up to June 2018. A total of 172 of 827 borehole (20.8%) of total in-use boreholes installed by NTPC since construction period are monitored. Monitoring results of groundwater for Village Water Supply in 2018 are:

- i) Q1_2018: 77 boreholes were monitored, 68BH in Nakai Resettlement area and 9BH in Downstream Program area. The guideline exceedance was observed for Nitrate parameters in 1 borehole at Nongbok District (*NBK05911*). The official notification letter was sent to Nam Saat of concern district for communicating to local consumers regarding the recommendation of this exceedance.
- ii) Q2_2018: 95 boreholes were monitored, 60BH in Nakai Resettlement area and 35BH in Downstream Program area.

Laboratory QA/QC for Water Quality Testing

To maintain the quality of laboratory and staff, AE Lab continued to conduct the QA/QC plan for internal QA/QC (method blank analysis, blinded samples analysis, Quality Control Chart and method comparison) and external QA/QC laboratory.

From January to June 2018, AE Lab staff participated to the blinded samples analysis for Dissolved Iron, Total Suspended Solid and Total Phosphorus. All testing results were in the acceptance range.

3.3 Hydrobiology monitoring

3.3.1 Obligations

References related to CA Obligations - Volume 2A, Schedule 4, Part 2, Subject 9: 1, 7, 13.

Reference related to the Service Agreement between NTPC and EDF (the 3rd for the period of May 2014 to April 2017 and the 4th for the period of May 2017 to April 2023).

Monitoring include the biological production parameters for the reservoir (chlorophyll a and fish) and rivers (aquatic invertebrates and fish).

3.3.2 Main outputs until June 2018

In addition of the routine monitoring conducted according to the CA and in the framework of the 2014-2017 Service Agreement with EDF and the 4th for the period of May 2017 to April 2023, the hydrobiology programme were realized in 2018 as following:

- (i) Fish population Monitoring (FPM) was conducted by season for all sites (Upstream of NT2 reservoir and downstream of Nakai Dam and Xe Bangfai downstream of Xe Bangfai confluence).

- (ii) Continued the Fish Catch Monitoring in Nakai Reservoir (Fish catch Assessment and Fish Landing).
- (iii) Continued a routine monitoring of main Aquatic Group (Chlorophyll a, aquatic invertebrate in the upstream of the rivers and downstream of the reservoir).

Finally, in the preparation of the RIP closure, the team conducted a training on Nakai household Fish Catch Assessment and Fish Landed to DAFO and RFA personals.

Fish Population Monitoring

Nam Theun Downstream of Nakai Dam

Fish catch monitoring in the downstream river ended in April 2015 as mentioned in the CA. The fish population continues to be monitored on seasonally basis with an experimental fishing. Result of the monitoring shows (Figure 6):

- Fish population follows a seasonal dynamic with an increase in abundances and taxonomic richness mainly at the end of the dry and warm season until June 2018.
- Biological indices fluctuate in a same range since 2013 to mid 2018.
- Low catch in term of biomass in April 2015 and April 2016 with high abundance are linked to a large catch of small individuals (average size of the catch <70mm).
- Since 2011, the biomass fluctuates around 2Kg per catch.
- Taxonomic richness remain stable since 2011 (around 10 species recorded).

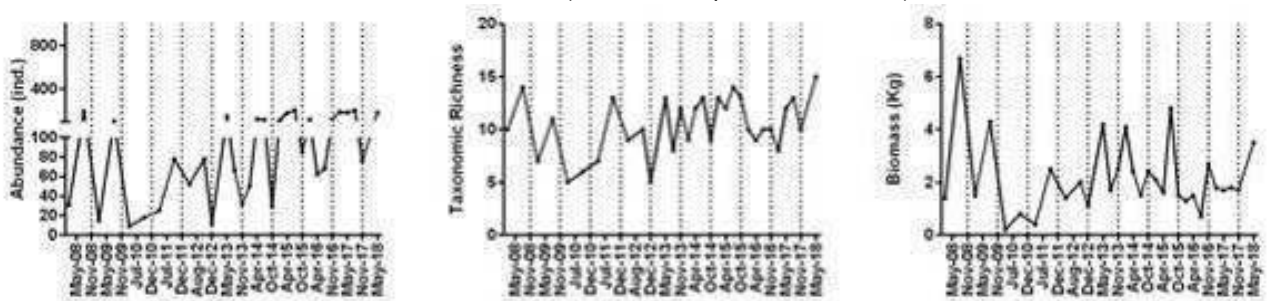


Figure 6 - Fish population parameters (Abundance, biomass & taxonomic) at NTH6

Fish Population in the Xe Bangfai

The results of the fish population monitoring at Ban Mahaxai (XBF2, downstream of the downstream channel confluence with the River) showed (Figure 7):

- A trend of an increase in abundance, biomass and taxonomic richness since the COD for a same fishing effort and same station.
- Biomass and taxonomic richness showed seasonal peak that are at the end of the dry season and at the end of the rainy season.

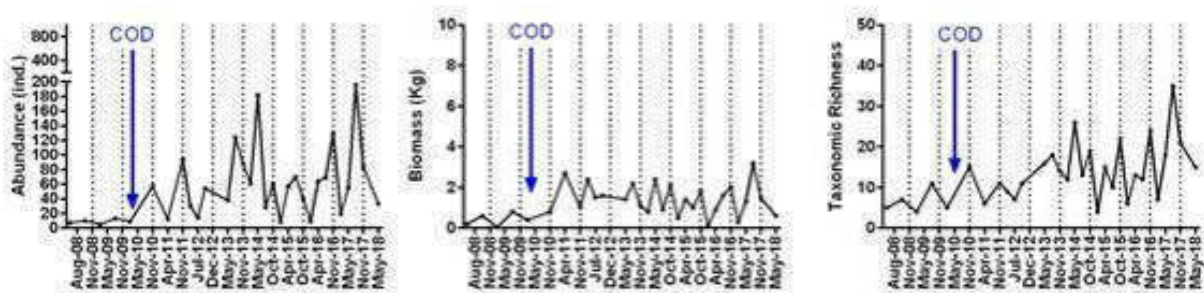


Figure 7 – Fish population parameters (abundance, biomass & taxonomic) at Ban Mahaxai

Fish Catch Monitoring

Fish Catch Assessment

The fisheries monitoring in NT2 Reservoir is based on a daily catch logbook of a 3-5 recall survey from 98 sample households (HH) in 16 resettler villages along the Reservoir.

The monitoring results showed in (Figure 8) and (Figure 9)

- Seasonality of the fisheries are more pronounced after 2012 with a peak in the middle of the dry season and during the wet season (July-August). The low catch periods coincide with other activities of HH such as preparing fields or harvesting.
- The fish catch increase observed since the end of 2014 was suspected to the increase of fishing in area such as transition zone, North of Thalang Bridge and WMPA (rivers and transtion areas). However, the fish location mapping 2016¹ underlined that: (i) the main shift is an increase the importance of the lowest daily catches for near-shaore and mid-reservoir areas and (ii) a despite reporting the lowest daily catches for near-shore and mid-reservoir areas and (ii) a decline for fishing North of Thalang Bridge and in the Nam Yalong-Malou area is observed whereas the importance of the far-shore and WMPA areas remains at the same levels as during 2012.
- The values observed during the first semester of 2018 (Median of the daily catch) is higher than the same period in 2017. However, the catch is considered as fluctuating in a same range overall since 2016.
- Values of the total catch are in the same range of the windfall period (2008) just after the impoundment.
- Increase of the daily HH catch from 2-3 kg/HH/day for 2012-2013 to 6 kg/HH/day in 2016 and then the daily catch is constant until first semester of 2018.

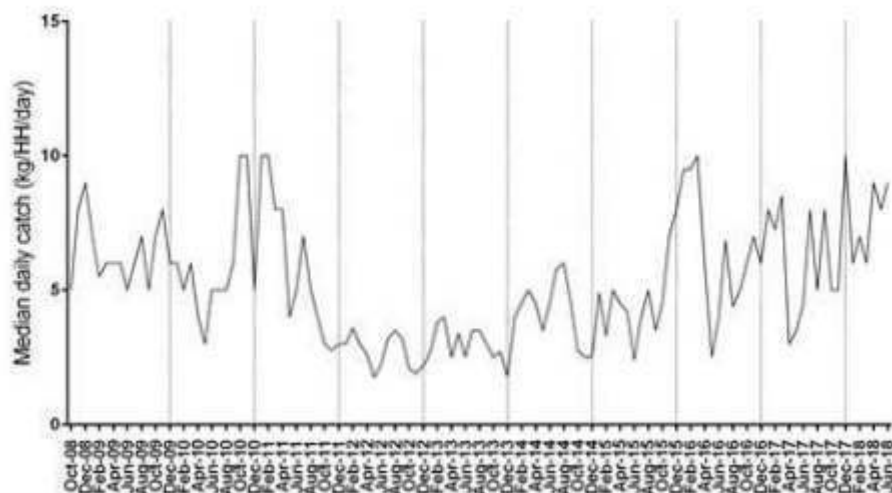


Figure 8 – Monthly daily median household catch (Kg/HH/day)

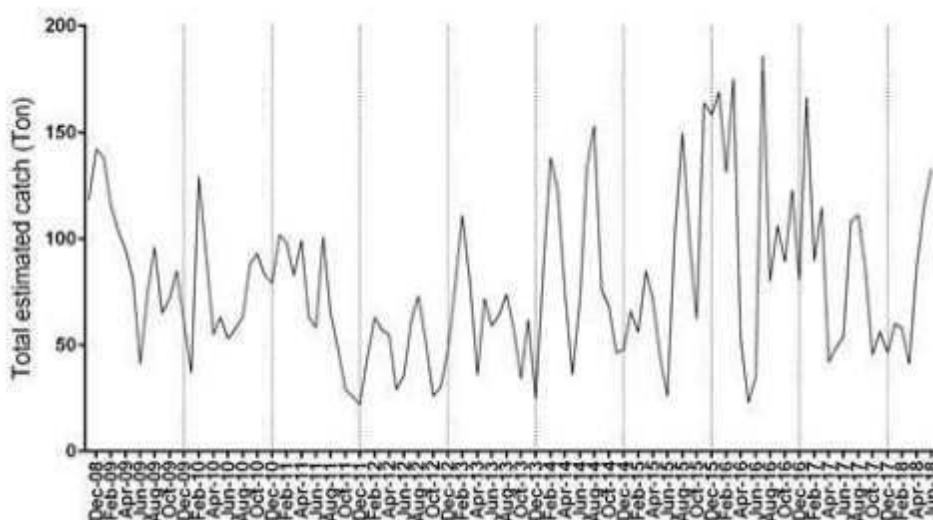


Figure 9 – Total monthly estimated catch reported by household (Tons)

Fish Landed

The survey has been conducted in all 16 resettlement villages since 2010. Two fish landing sites at Ban Thalang and Ban Oudomsouk are more frequently used. However, in 2015, a fish landing site was operating all the year at Ban Nongbouakham. The data collection is based on the information collected by Village Fisheries Group (VFG).

Results are presented in (Figure 10):

- High fish landing during the mid-dry season and during the WW which is in line with the catch from households (see previous section).
- Increasing trend since the end of 2014 to early 2018 with a higher peak in January 2018.

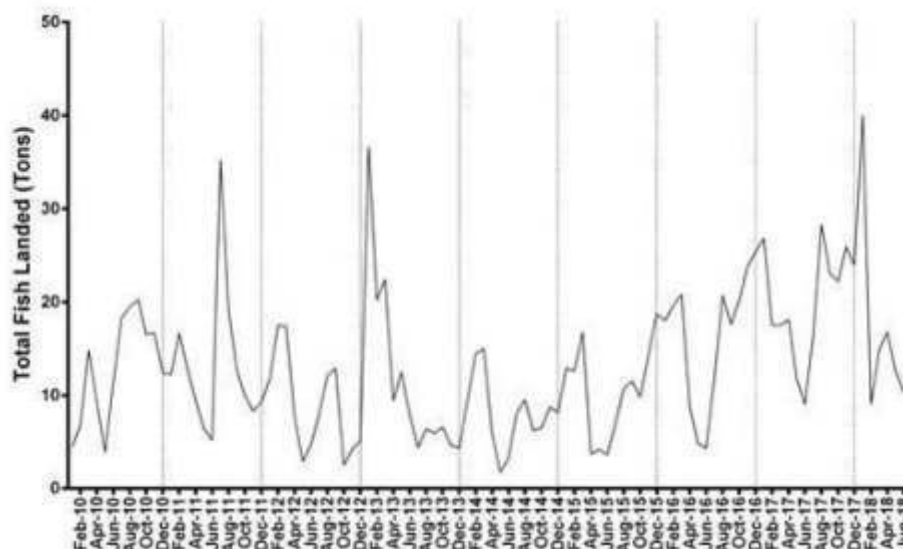


Figure 10 – Total monthly fish weight landed for all active fish landing sites combined (Tons)

Chlorophyll a [Chl a]

Chlorophyll a concentrations showed the same pattern since 2011. After a higher production period in 2010 (trophic upsurge), concentration decreased to reach a stable level in 2011. Concentrations showed an annual production peak observed at the end of the warm dry (WD) season. A second weaker peak occurred at the end of the wet season (October). In general, the low concentration of Chlorophyll a (with other production parameters e.g. nutrients) underlined an oligo-mesotrophic level of NT2 Reservoir. A higher value occurred in June 2016 when compared to the peak in 2011 could be linked to first rain in May 2016 that could increase the nutrient and after that the peak in June of 2017 and 2018 are in the same level of the previous year.

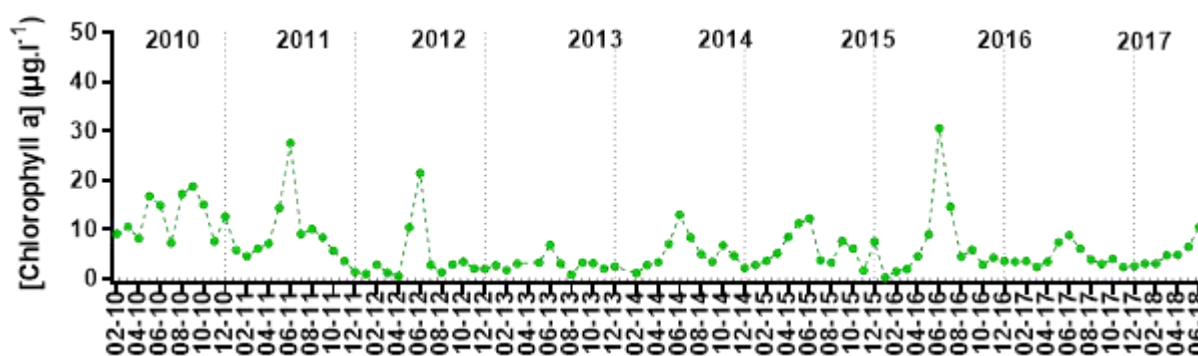


Figure 11 – Monthly averages (of all stations) of [Chl a] ($\mu\text{g.L}^{-1}$) in NT2 reservoir from 2010 to June 2018

Aquatic Macro-invertebrate Monitoring

The field sampling was completed between in May 2018. 72 samples of aquatic macro-invertebrate were collected in the rivers of the Nam Theun and Xe Bangfai Watersheds. In June 2018, samples are under analysis. Only data related to the main characteristics of the station are presented.

Nam Theun Area

Mostly the substrates of stations in this area (NTH1 and NTH6) are sand and silts with big rock of size higher than 250 mm and bed rock. The water velocity for both stations was almost higher than 150 cm/s.

Nam Kathang/Gnom Area

Most of the substrates on the stations in Nam Kathang (NTK1, NKT2 & NKT5) and Nam Gnom (NGM1) area characterized by fine sediments, mud, and mineral of medium to big size (2.5 – 250 mm). The water velocity in these stations ranged between 5 – 150 cm/s with a dominant velocity of 25 – 150 cm/s.

Xe Bangfai Area

The substrates of stations (XBF0, XBF1 & XBF2) are characterized by mineral sediments of medium size (2.5 – 25 mm), coarse dead and alive elements (branches & roots). The water velocity is almost higher than 150 cm/s in the main course of the River. Samples were collected in station where the water velocity ranged between 5 – 150 cm/s.

Training of Fish Catch Monitoring to Nakai District Authorities

Nakai DAFO and RFA received a training on Fish Catch Monitoring and Fish Landing. The training was conducted from January to April 2018. The training included (1) the use for field data record form for both “Nakai Household Fish Catch Monitoring Form” and “Fish Landing Data Record Form”, (2) the data entry and data analysis and finally (3) Fisheries Report.

After the training, the empty database and field record form of both Fish Catch Monitoring and Fish Landing were given to Nakai DAFO and RFA. The list of 98 sample households was also given to Nakai DAFO.

3.4 Biodiversity Program**3.4.1 Obligations**

References related to CA Obligations - Volume 2A, Schedule 4, Part 2, Subject 9: 4, 9, 12, 14, 15, 16, 18, 19, 20.

3.4.2 Main outputs until June 2018**Elephant Program*****Human Elephant Conflict (HEC) Monitoring and Mitigation***

31 HEC incidents occurred during January to June 2018. 27 incidents related to the Group of Three in Vilabouly District, Savannakhet Province and 4 incidents related to Thongkong Group.

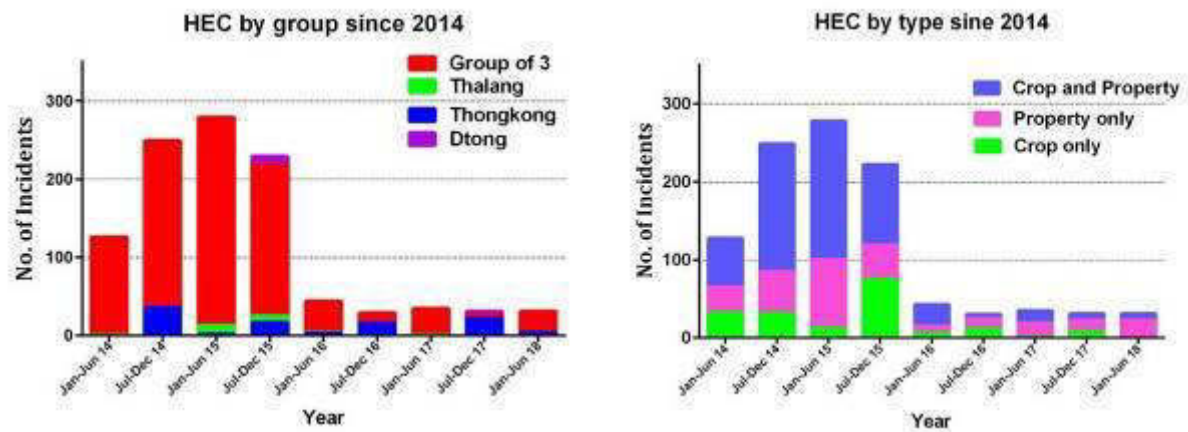


Figure 12 – Human Elephant Conflict monitoring results

Artificial Mineral Licks (AML) Replenishment and Camera Trap Monitoring

Artificial Mineral Licks replenishment and monitoring have been regularly conducted. The AML replenishment for Dry Season was completed in February 2018. There were 1,578 kgs of mineral salts (902 kgs of NaCl, 458 kgs of H_2NaPO_4 , 153 kgs of $CaCO_3$ and 64 kgs of KCl) were refilled to all 8 AML sites.

The monitoring of wildlife visitation at the AMLs has been conducted for both methods (observation and camera trap monitoring) as scheduled. The results showed the elephant and other wild ungulates' visitation of AMLs in all 3 zones. In addition, human act evident was found in all AML sites and the cattle found using AML in zone II and III.





Figure 13 – Evident of animals' visitation and human activities at the AMLs

Solutions for the Group of Three

Fitting GPS collars on the Group of Three was implemented in January 2018, in Vilabouly District, Savannakhet Province. One sub-adult female elephant was collared on. However, the collared elephant is not a member of the Group of Three but they are travelling in the same herd. In consequences, two unused collars were de-activated to save battery life and kept to replace/install to suspected elephant in the future. The collar fitted on the sub-adult female elephant need to be removed in 18 months since the collar is getting tighter as elephant growing.

Invasive Species Program

The survey and destruction of *Mimosa pigra* was conducted 2 rounds in the first semester (March and June). During the mission, there were approximately of 4,185 adult trees and 1,194,400 seedlings were found and destroyed. The survey and destruction area still focused on resettlement villages and agriculture area.

Chinese Swamp Cypress Seedling Germination

In collaboration with University of San Francisco, National University of Laos, WMPA and Nakai DAFO, a Chinese Swamp Cypress seed germination trail was conducted November 2017 in the nursery located at WMPA office. The corns and seeds were collected from 7 individual trees from 3 different sites. Up to date, there are more than 1,300 seedlings germinated. Currently, these seedlings are on transplanting into the pots, in order to increase a growth rate of the tree and ensure that the seedlings are strong enough to be planted in the forest.



Figure 14 – Chinese Swamp Cypress (*Glyptostrobus pensilis*) seedlings from Khoun Houy Heo 2 and Phonsa-Ad 1

3.5 Environment Compliance Program

3.5.1 Obligations

References related to CA Obligations - Volume 2A, Schedule 4, Part 2, Subject 9: 35, 39 and Volume 2A, Schedule 4, Part 1, 15.1(b): (i), 2.2.

3.5.2 Main outputs until June 2018

- ***NTPC Waste management facility***

Since January 2018, The NTPC solid waste facility in Gnommalath District is performed by a new sub-contractor (PKC Co., Ltd) under a strictly management by NTPC. The solids wastes are still well-separated at source into the 4 separated bins (general waste, composite waste, recyclable waste and hazardous waste). The solid wastes from all NTPC working/accommodation areas (RNT, Powerhouse, NRC, WGH, Nongboua boat camp and Dam Site) were then transported to landfill for the further process. The recyclable wastes are sold to the local traders. The food wastes are used for fertilizer and it is on trial process. The hazardous wastes are well stored in the close building where the access is restricted, and the general wastes go into the waste cell. Currently, NTPC stopped sharing the use of waste cell with the Gnommalath local community, as of June 2018, the 6th NTPC waste cell is fully filled. All coming waste is dumped in the 7th waste cell which was completely constructed since February. The closure of the 6th cell is expected to be completed by August 2018.

Finally, installation of the gate to the main entrance and 2 access ways to the groundwater monitoring borehole were completed.

- ***Landfill observation borewell***

Groundwater quality monitoring in the 9 monitoring wells (5 of the existing ones and 4 of the new installation) around the NTPC landfill is performed on monthly basis. Guideline exceedances in some parameters (pH, BOD, COD and Lead) are still observed some time. In 2018, no contamination of Lead was revealed at those 9 wells. However, the monitoring is still continued to follow up the variation of this critical parameter over years.

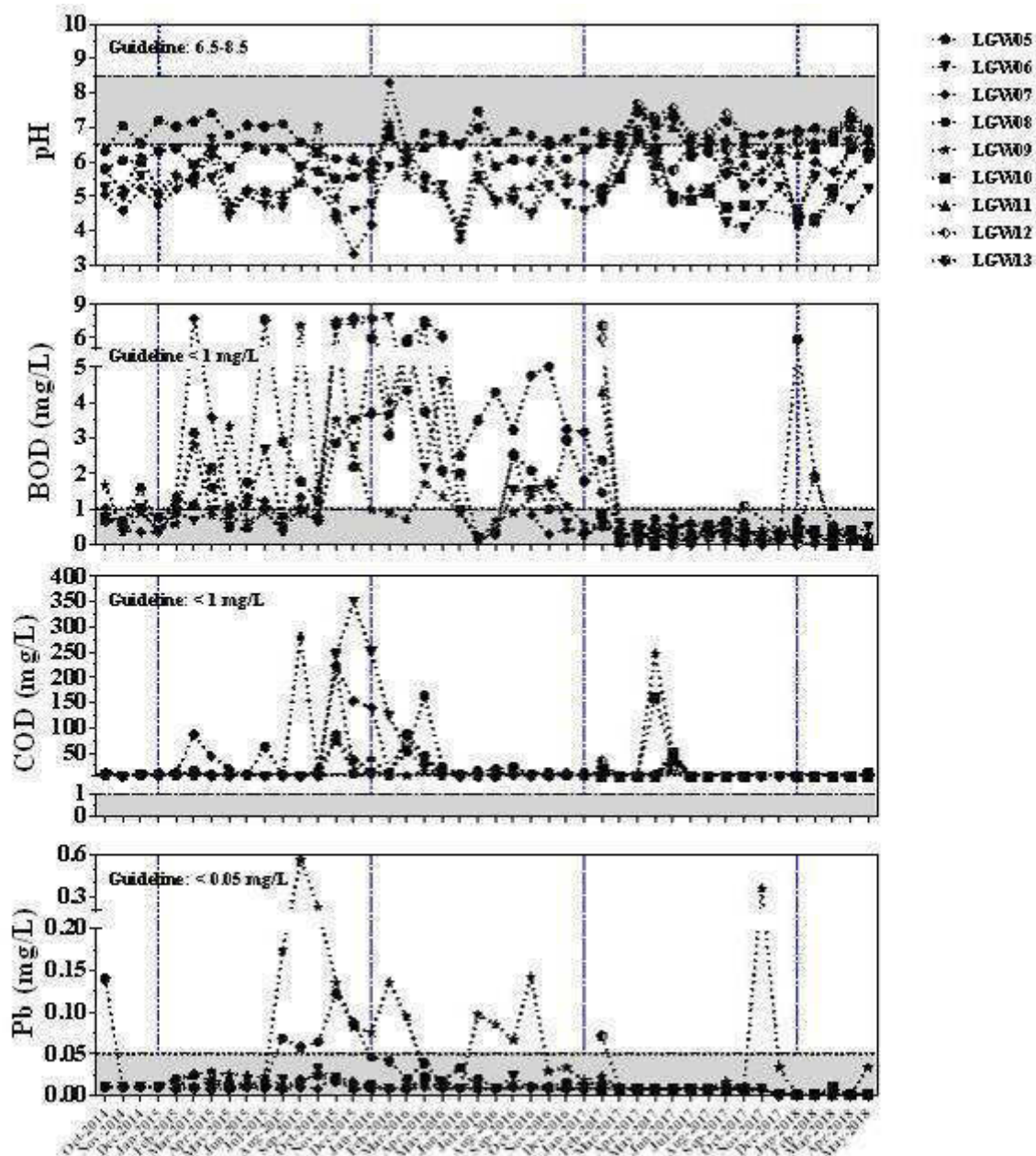


Figure 15 – Landfill observation borewell testing result

- **NTPC Wastewater Treatment Management (Black and Grey Wastewater)**

Effluent from all 5 wastewater treatment plants (2 Black wastewater treatment at RNT and Powerhouse and 3 Grey wastewater treatments at NRC, Wooden Guesthouse and Nongboua) are routinely monitored in monthly basis. The effluent guideline exceedances have been observed some time in some parameters (BOD, COD, TSS and Faecal Coliform Bacteria).

The NTPC wastewater treatment facilities monitoring results are summarized below:

Parameter	Guideline values	Exceedance revealed (at least a month) from January to June 2018				
		RNT	Powerhouse (PWH)	Nakai Residence Complex (NRC)	Wooden Guesthouse (WGH)	Nongboua Boathouse
Biological Oxygen Demand (BOD)	<30mg/L	X			X	X
Chemical Oxygen Demand (COD)	<120 mg/L	X	X		X	X
Total Suspended Solids (TSS)	<40mg/L	X	X			
Thermotolerant (Faecal) Coliform	<1000 CFU/100mL	X	X			

Note: No effluent discharged at RNT during the sampling day in March, at PWH in June, at NRC in April, at WGH in February to May and at Nongboua in April.

BOD and COD values of effluents from NTPC wastewater treatment plants are shown in (Figure 16) and (Figure 17)

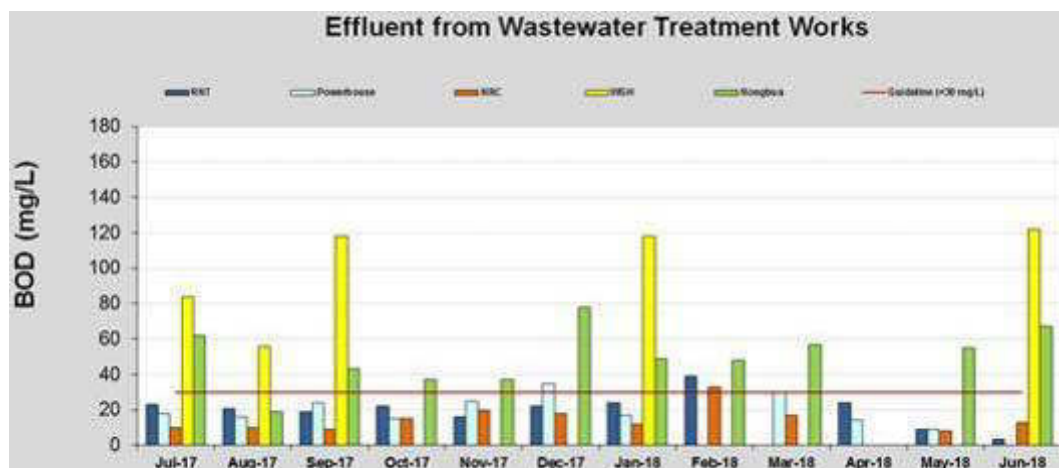


Figure 16 - BOD results from wastewater treatment works (during July 2017 to June 2018)

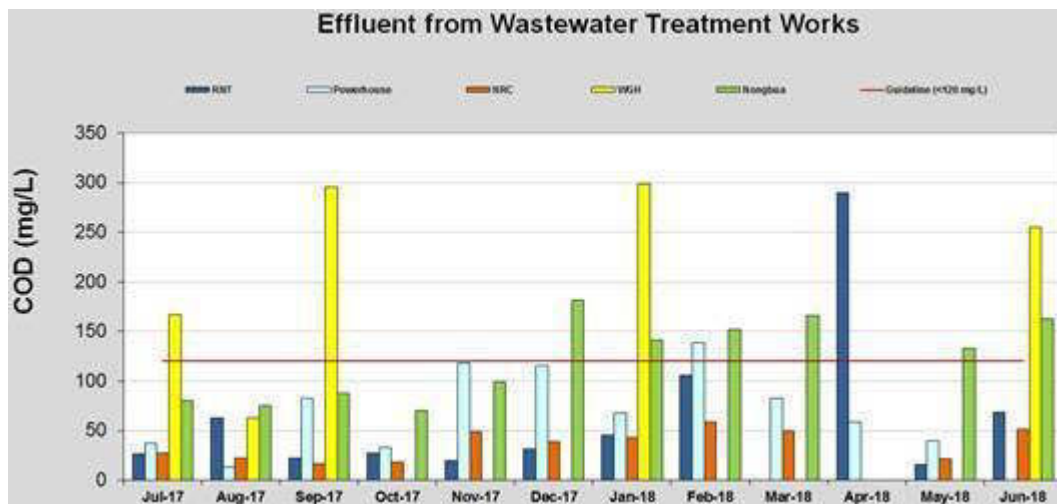


Figure 17 - COD results from wastewater treatment works (during July 2017 to June 2018)

- Environment site inspections and monitoring**

The Environmental Compliance Team, as part of Environment Department still continues to fulfil its role of undertaking the audits, inspections and monitoring of all facilities to ensure compliance with NTPC environmental guidelines and Lao PDR law.

Table 1: Environmental inspection number in 2018 (all NTPC sites)

NTPC sites	Number of Inspection
	January to June
Nakai Dam Site	5
Wooden Guesthouse	18
PWH & Switchyard	5
RNT Complex	9
NRC	16
Gnommalath Landfill	28
Surge Shaft/Access Adit	5
Intake and Headrace Channel and Tunnel	5
Nong Boua Boat area	18
Regulating Dam	5
Total	114

The number of environmental inspection for a specific purpose from January to June 2018 is 31 missions.

- Environment incident management**

There are 8 Environmental incidents were reported during January to June 2017 as shown in Figure 18 by level classifying:

- Level 1 – Minor Environmental Pollution
- Level 2 – Significant Environmental Pollution
- Level 3 – Serious Environmental Pollution
- Level 4 – Major Environmental Pollution
- Level 5 – Catastrophic Environmental Pollution

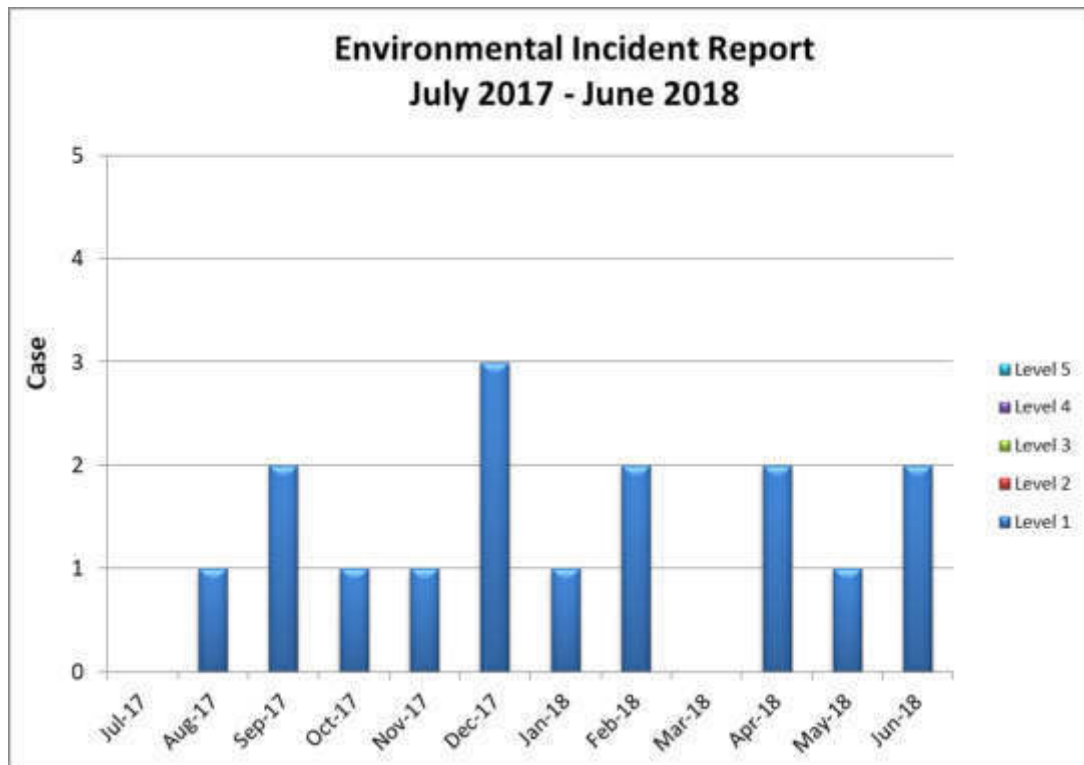


Figure 18 - Environment Incident Reports during July 2017 to June 2018

Corrective and preventive actions for the reported environment incidents are clarified in the table below:

No	Incident Date	Level	Description of Incident	Corrective Action Plan	Status	ID Ref.
01	1/19/2018	I	During the cleaning external oil cooler of Francis unit 101 by EGAT-Maintenance Team, they drained oil to the tray and opened the cover of heat exchanger at the same time then water flew out and mixed with oil in the same tray.	EGAT-Maintenance used pump to drain water mix with oil to gutter of the 4 th floor.	CAP Follow up	1174
02	13/2/2018	I	It is found the gray water treatment system not activated, no influent and effluent and the pump is stop working at RNT wastewater treatment system.	Finding and investigating the root cause	CAP Follow Up	1242
03	23/2/2018	I	It found the oil leakage from some part of fire truck to concrete floor at Fire station.	Cleaning of leakage oil and removing the contaminated waste to NTPC Landfill and repairing the truck to fix root cause.	Closed	1303

No	Incident Date	Level	Description of Incident	Corrective Action Plan	Status	ID Ref.
04	09/4/2018	1	The Environmental inspector the constructor's staffs (BK) consumed a wildlife (squirrels). According to the company's Biodiversity management plan (NTPC-M-B150304-0017 Ver.1)" All NTPC Staff; Consultants and contractors are prohibited the consumption , possession, or trading of wildlife.	TB-ED Issued the first warning official letter to this company head office and E&S-Environment team should conduct the re-training of Environment awareness to the staff of this contractor.	Closed	1517
05	19/4/2018	1	During the mission of installation the Danger sign, it' wasfound the garbages were thrown around the 500kV Transmission line between Tower# 130/1–130/2.	The Environment team have to coordinate with Local Authority officer and Local people to cleaning the waste with support by NTPC and disseminate the Environment information to the District and villagers during hydro safety event.	CAP Follow Up	1523
06	7/5/2018	1	NEWREST staffs distributed the plastic bag to customer for carrying the stuffs from RNT-Minimart	Site-Management team discussed with Newrest for stop to distributed the plastic bag and communicated to all staff about bringing their own bags when shopping.	Closed	1562
07	7/6/2018	1	The environment inspector founds the drainage is blocked and released waste water over flow of untreated water that contaminates with oil and grease cover the ground near the plant	The block drainage by cut grasses were cleaned.	Closed	1630
08	22/6/2018	1	On 30 April 2018, Whessoe team prepared the hose of oil to refill the oil into HPU tank of Spillway Gate 743 VEC (Regulating Dam) , during the transfer, the end of hose cover was loosen so the oil spilled down to the stilling basin and on the floor of HPU about 1.5 Liter.	Whessoe team and TB-QHSE cleaned the area and remove the oil from the basin with proper spill kits then all contaminated stuff was disposed to NTPC landfill.	CAP required	1648

- **Environment awareness programs**

Awareness training

The environmental training was conducted for both NTPC staff and contractor from January - June 2018.

- NTPC Staff

Environmental awareness orientations were conducted to 42 persons and refresh training to 10 persons.

No.	Description of group	#Trained Persons	Remarks
1	NTPC new staff	6	
2	NTPC new interns	25	
3	Others (Consultants and students)	11	
4	Housewives of NTPC staff	10	Refresh training

- NTPC's Contractor

Environmental awareness orientations were conducted to 261 persons and refresh training to 73 persons:

No.	Company name of contractors/providers	#Trained Persons	Remarks
1	PKC	10	
2	PPC	11	
3	Lao TOYOTA	4	
4	Newrest	17	
5	MCM	5	
6	ABC	47	
7	KSV	4	
8	KSSSE	32	
9	ISUZU	2	
10	BK	50	
11	TTS	10	
12	CES	9	
13	KGS	5	
14	DSV	36	
15	Payoung Air Condition	7	
16	SCC	6	
17	AUSLAO	6	
18	CES	30	Refresh training
19	KGS	43	Refresh training

Environment awareness program - Polystyrene foam usage reduction

After several years of follow up since 2013, the program was stopped because the new service provider, NEWREST, replaced the use of polystyrene foam box by biodegradable foam box which is more eco-friendly since July 2017.

Environment awareness program - Plastic bag usage reduction

The yearly reduction percentage of 2018 was set at 15% and below are the current situation of the program:

- **RNT:** The total consumption is increased compared to the previous year (1,209 packs in January to May 2017 (data of June was not available due to the change of service provider then the record was discontinued during this month) and 1,802 packs in January to June 2018). The trend of changes are shown in **Figure 19**.

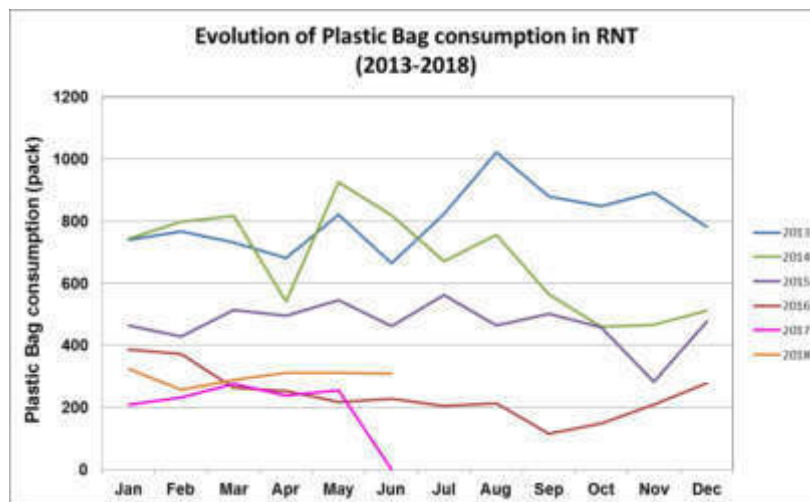


Figure 19 – Monthly Plastic Bag consumption in RNT (2013-2018)

- **RO:** the consumption is also increase in January to June 2018 comparing to that of 2017 (1105 pack vs 855 pack). The trend of changes are shown in **Figure 20**.

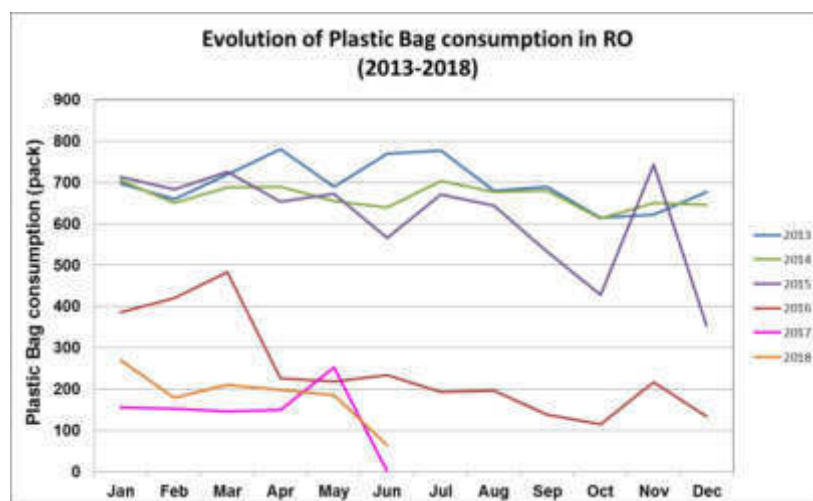


Figure 20 – Monthly Plastic Bag consumption in RO (2013-2018)

Environment awareness program - Paper usage reduction

In 2018, the target of paper usage reduction is set at 25% compared to year 2017. Based on the data collected, the paper usage depends on the needs of users and only the A4 type was used regularly and easy make comparison each period. The graph below shows the evolution of A4, the most common paper type regularly used. The usage trends for each offices (VTE, RNT, RO and Powerhouse) shows the same range of consumption during these 2 years (Figure 21)

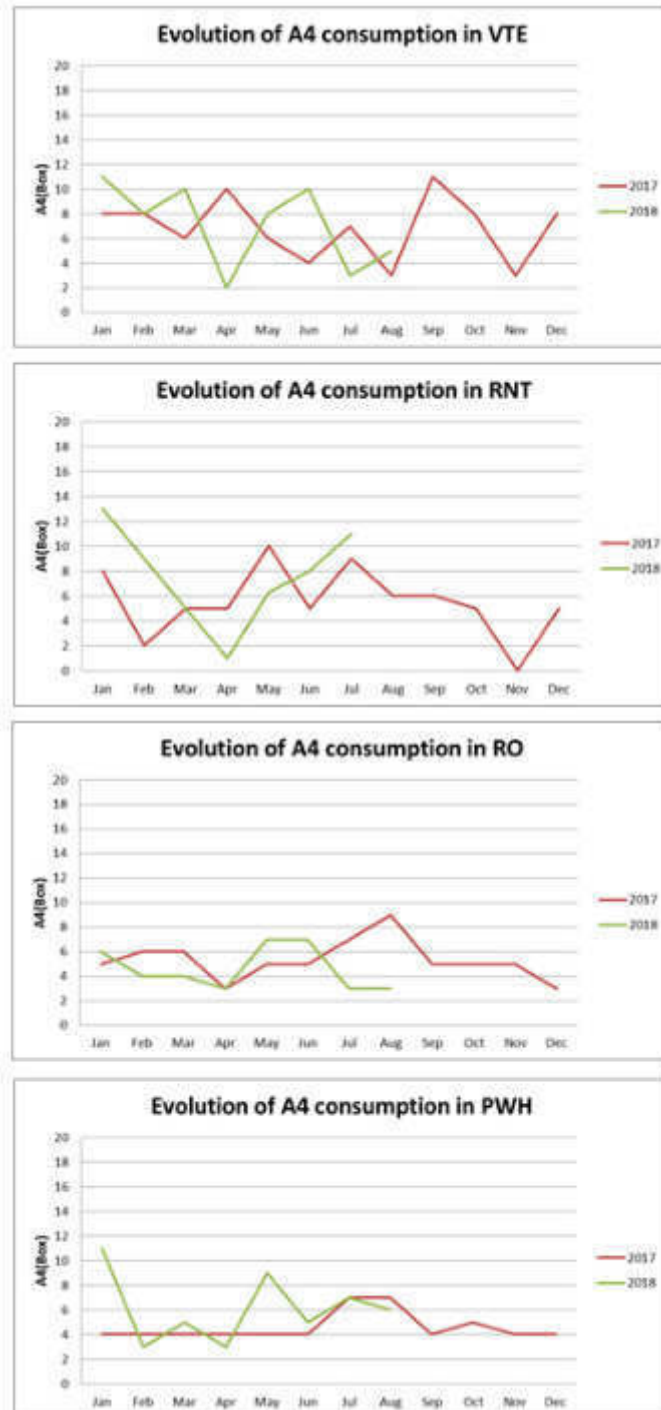


Figure 21 – The evolution of A4 paper usage at 4 offices

- **Supporting of Gnommalath District Solid Waste Management**

In January, Environment Compliance team participated to the “Waste management regulation awareness” conference organized by Gnommalath DoNRE. During the day, Environment team disseminated the knowledge of NTPC’s waste management practice to the participants, in order to increase the awareness of local people on waste management.

Regarding the implementation of district waste collection service and landfill management project, Panidtha Import-Export and Development Environment Sole Co., Ltd was selected to undertake and provide the full service of waste management in Gnommalath municipal area. Currently, it is on process of contract signing between Gnommalath DoNRE and Panidtha.

- **Supporting of Nakai District Solid Waste Management**

In the CA Obligations, Volume 2A, Schedule 4 – Part1: NTPC committed to participate in regular education programs regarding waste management plans and service in Nakai Resettlement villages.

The project of new Nakai Landfill construction was postponed from 2017. In May 2018, all the necessary supported documents are approved. Phetsomphou Construction Company (PPC) was selected as contractor for construction work under the technical consultancy by Lao Consulting Group (LCG). The construction schedule was set in two periods before and after rainy season; up to date, the UXO clearance was completed and the remaining works will be executed after the rainy season (September). The project is expected to be completed in December.

NTPC has been also working with Nakai DoNRE for the Environment Awareness Campaign in 16 resettlement villages (the target groups are: villagers, business owners and students). The 1st meeting was held in February between all involved parties (Environment Team, Nakai Youth program and Nakai DoNRE) to discuss, make a plan and assigned tasks/responsibilities. The 1st event is expected to be conducted within Q3 2018.

3.6 Erosion Monitoring Program

3.6.1 Obligations

References related NTPC Obligations - Volume 2A, Schedule 4, Part 2, clause 9, Item 11_(e)).

3.6.2 Main outputs until June 2018

Photograph survey is still being conducted, as part of on-going erosion monitoring in the Xe Bangfai (including Total Suspended Solids measurements and Cross Section Survey). This survey also gathers data on erosions in sensitive areas (i.e. temples).

In early 2009, prior to NT2 commencing discharge to the Xe Bangfai, a contractor was engaged to take photographs of all riverbank gardens from the confluence of the Nam Gnom and the Xe Bangfai to the confluence of the Xe Bangfai with the Mekong River. These photographs were used to finalize registration of riverbank gardens and were not specifically collected to document **erosion of riverbanks**. However, the photographs document, in high resolution, pre-NT2 riverbank conditions for sections of riverbank immediately adjacent to all villages along the Xe Bangfai.

During the photograph survey, the Environment team maintains awareness and collects data of potential impacts on highly sensitive areas, such as temples (e.g. historic temple at Navangneua Village in Nongbok District) and develop preliminary strategy for action if major issue arises.

Whilst it must be noted that photographs cannot assist with quantification of erosion and consequently any change in erosion rate caused by NT2 cannot be quantified using photographs, information from

the photographs can assist to confirm whether or not erosion has occurred within a specific time frame and provide some indication of severity.

Since early 2010, the NTPC Downstream Program has periodically travelled along the Xe Bangfai by boat to identify and document riverbank areas which appear to have recently eroded. With the missions organised in 2017, this activity has been completed twenty-three (23) times since the start of electricity production in March 2010.

The latest Xe Bangfai riverbank survey (the 24th mission) was conducted by the Environment team on 26th and 27th April 2018. 674 locations including 27 indicator sites were monitored, 4 non-indicator sites (at Ban Kengsavang, Ban Thahad, Ban Natai and Ban Natai (old)) showed a slight erosion expansion comparing to the mission of May 2017. The indicator sites were where (i) erosion has been significant; (ii) the site has potential for further erosion; and (iii) the site is located near infrastructure such as bridges, houses, temples or pumps.

No Cross-Section Survey was implemented in the 1st semester 2018.

3.7 Implementation of the Environmental Management System

3.7.1 Obligations

Referred to the HSE Legal and Other - Requirements Register (Ref: NTPC M B15 0302) in the Company's Environmental Management and Monitoring Plan (CEMMP – Annex 2.5).

3.7.2 Main outputs until June 2018

NTPC has been certified on Environmental Management System (ISO 14001:2004) since 28 March 2014 by SGS (Thailand) as Certifying Body under UKAS. A re-certification of ISO14001 was performed in February-March 2017 with no non-compliance issue. The version of ISO 14001 was upgraded from version 2004 to version 2015 since 4 April 2017. In March 2018, the 1st surveillance audit of ISO14001:2015 was conducted by SGS (Thailand). Further, the report did not mentioned issues linked to environment activities.

4. VISITS AND CONSULTANCIES

During the 1st semester of 2018, there were main activities of visits, audits and consultancies as follows:

- **Environment Management system** – Environment department participated to Surveillance Audit for ISO14001:2015 and OHSAS18001:2007 and accredating for ISO9001:2015 on 27th – 30th March. All the activities of the AE lab, as well as Environment department routine work were audited.
- **Lender Technical Advisor (LTA) visit** – end of February, the updated information covering on all Environment activities have been presented.
- **Site visit by Faculty of Environment, NUOL** - in January, ~70 students and teachers from Faculty of Environmental Science and Enviornment Management (NUOL) on 26 January visited AE Lab. All activities related to Environment Department were briefly presented. The visitors are interested in waste management process at Landfill and analytical activities at the AE Laboratory.
- **University of Science and Technology of Hanoi (USTH) mission** - participation of Chemistry team in the field and laboratory work with students and teachers on 26 February to 8 March, the staff participated on:
 - Demonstrating water sampling and profile measurement on reservoir;
 - Demonstrating laboratory analysis work; and

- Students practiced of GHG analysis by using Gas Chromatography for dissolved and ebullition samples.
- **Lab visit** by new NTPC's CEO and NTPC Board director in June. All the works belong to the Environment department, including the study of GHG were presented.
- **Meetings**
 - (i) Meeting with the Nakai District (Vice Governor and Head of Nakai District of Agriculture and Forestry-DAFO) to finalize the contract of Human Elephant Conflict (HEC) Monitoring in April. The discussion was focused on hand over the responsibility to the Nakai-DAFO and to develop a long-term management plan for work implementing.
 - (ii) Staff of Environment department attended the yearly meeting of the Nam Theun-Nam Kading basin committee. It was held on 17th May 2018 in Pakxan, organized by Borlikhamxay's PoNRE. The water monitoring results on the Nam Theun River were presented to other participants.

5. COMMUNICATION

A total of 29 articles were submitted: 24 articles were published and accessible online and 2 articles were approved and 3 under review, detail are as follows:

Articles	Under review	Approved	Published and online
HYDROECOLOGIE APPLIQUEE – NAM THEUN 2 SPECIAL ISSUE			
Descoux et al. Main features of the Nam Theun 2 hydroelectric project (Lao PDR) and the associated environmental monitoring programme. Hydroeco. appl., 2014			√
Chanudet et al. Evolution of the physico-chemical water quality in the Nam Theun 2 Reservoir for the first 5 years after impoundment. Hydroeco. appl., 2014			√
Chanudet et al. Hydrodynamic and water quality 3D modelling of the Nam Theun 2 Reservoir (Lao PDR): results of simulations of some scenarios. Hydroeco. appl., 2014			√
Martinet et al. Phytoplankton community and trophic status assessment of a newly impounded sub-tropical reservoir: case study of the Nam Theun 2 Reservoir (Lao PDR, Southeast Asia). Hydroeco. appl., 2014			√
Descoux et al. Efficiency of the Nam Theun 2 hydraulic structures on water aeration and degassing. Hydroeco. appl., 2014			√
Cottet et al. Fish Population dynamic in the newly impounded Nam Theun 2 Reservoir (Lao PDR). Hydroeco. appl., 2015			√
Pécastaings et al. Biofilm colonizing the Nam Theun 2 Power Plant Penstock (Lao PDR) - mechanism and potential evolution. Hydroeco. appl., 2014			√
Visser et al. Developing approaches for establishing a fisheries baseline: case-study for Xe Bangfai basin (Lao PDR).			√

Articles	Under review	Approved	Published and online
Hydroeco. appl., 2014			
Attwood & Cottet. Malacological and parasitological surveys along the Xe Bangfai and its tributaries in Khammouane Province, Lao PDR. Hydroeco. appl., 2015			√
Streicher U. The Wildlife Rescue Programme of the Nam Theun 2 Hydropower Project (Lao PDR). Hydroeco. appl., 2014			√
Som & Cottet. Turtle and tortoise rescue and monitoring programme in the Nam Theun 2 Reservoir (Laos). Hydroeco. appl., 2015			√
Kottelat. The fishes of the Nam Theun and Xe Bangfai drainage, Laos. Hydroeco. appl., 2015			√
Clavier et al. Spatial and temporal variation of benthic macroinvertebrates in the Nam Gnom Basin receiving discharged waters from the Nam Theun 2 Reservoir (Laos). Hydroeco. appl., 2015			√
Descoux & Cottet. 5 years of monitoring of zooplankton community dynamics in a newly impounded sub-tropical reservoir in Southeast Asia (Nam Theun 2, Lao PDR). Hydroeco. appl., 2015			√
D. Serça et al. Nam Theun 2 Reservoir four years after commissioning: significance of drawdown methane emissions and other pathways, Hydroécol. Appl., 19, 119-146, 2016.			√
GREENHOUSE GAS			
Deshmukh et al. Physical controls on CH ₄ emissions from a newly flooded subtropical freshwater hydroelectric reservoir: Nam Theun 2 Biogeosciences Discuss., 11, 3271-3317, doi:10.5194/bgd-11-3271-2014, 2014.			√
Deshmukh, C., Guérin, F., Labat, D., Pighini, S., Vongkhamso, A., Guédant, P., Rode, W., Godon, A., Chanudet, V., Descoux, S., and Serça, D.: Low methane (CH ₄) emissions downstream of a monomictic subtropical hydroelectric reservoir (Nam Theun 2, Lao PDR), Biogeosciences, 13, 1919-1932, 2016.			√
F. Guérin et al., Effect of sporadic destratification, seasonal overturn and artificial mixing on CH ₄ emissions at the surface of a subtropical hydroelectric reservoir (Nam Theun 2 Reservoir, Lao PDR). Biogeosciences. 22 June 2016			√
M. Adon, C. Galy-Lacaux, D. Serça, P. Guedant, A. Vongkhamso, W. Rode, Y. Meyerfeld, F. Guérin: First assessment of nitrogen deposition budget following the	√		

Articles	Under review	Approved	Published and online
impoundment of a subtropical hydroelectric reservoir (Nam Theun 2, Lao PDR). Atmospheric Chemistry and Physics			
C. Deshmukh et al., Carbon Dioxide emissions from the bottom and shallow Nam Theun 2 Reservoir: drawdown area as a neglected pathway to the atmosphere. Biogeosciences		√	
LIMNOLOGY			
Martinet et al. Phytoplankton functional groups for ecological assessment in young sub-tropical reservoirs: case study of the Nam-Theun 2 Reservoir, Laos, South-East Asia. Journal of Limnology, doi:10.4081/jlimnol.2014.958, 2014.			√
Pedrono et al. Seasonal algal community succession in epixylic biofilms in a tropical meso-oligotrophic shallow reservoir, Nam Theun 2 (Lao PDR). Journal of Limnological		√	
FISH and FISHERIES			
Cottet et al. Total iron concentrations in waters and fish tissues in the Nam Theun 2 Reservoir area (Lao PDR). Environmental and Monitoring Assessment.			√
Tessier et al. Fish assemblages in large tropical reservoirs: overview of fish population monitoring methods. Journal of Fisheries Sciences and Aquaculture.			√
A. Tessier, J. Guillard, V. Chanudet & M. Cottet: Length-weight relationships of 8 Asian freshwater fish species from Nam Theun 2 Reservoir (Lao PDR)			√
M Cottet & T. Visser: Fish catch and fishing practices in the Nam Theun 2 Reservoir and watershed (Lao PDR)			√
Hughes et al. Combination of direct fishing and indirect e DNA metabarcoding monitoring during a 3 years survey significantly improves the fish biodiversity report around a South East Asian reservoir.	√		
A.Tessier et al., Low input of the pelagic zone of a large tropical neo-reservoir to fisheries	√		
GENERAL ENVIRONMENT			
Descoux et al., 2011: Co-assessment of biomass and soil organic carbon stocks in a future reservoir area located in Southeast Asia. Environmental Monitoring and Assessment			√

ANNEXES

ANNEX 1 – SOCIAL PART

Annex 1.1 – List of LOA and Addendum actions. Progress until 30th June 2018

Annex 1.2 – Presentation for the POE#28 (29th and 30th June 2018)

Annex 1.3 – Agreement Hand-Over Agriculture, Livestock and Fisheries activities to NPLAF Project

ANNEX 2 – ENVIRONMENTAL PART

Annex 2.1 – Water quality monitoring stations from May 2017 to April 2023

Annex 2.2 – Hydrobiology monitoring stations from May 2017 to April 2023

Annex 2.3 – Parameters to be monitored from May 2017 to April 2023

Annex 2.4 – Frequencies and stations of the measurements in May 2017 to April 2023

Annex 2.5 – Reference document in the CEMMP

Annex 1.1 – List of LOA and Addendum actions. Progress until June 2018

Code	Action Name	RIP	Accountability	Action completion status in Jun 2018	Report completion status in Jun 2018
AL.1.1.1	Nabong FA / IRAM /CCL Mission to Nakai for feasibility study	LOA	GOL	Action completed	Report available
AL.1.2.1	Preparation of AFD/NTPC-funded project implementation	LOA	GOL	Action completed	Report available
AL.1.2.2	Conduct study tours to projects funded by AFD/NTPC	LOA	NTPC	Action completed	Report available
AL.1.2.3	Organize workshop on the management of AFD/NTPC funded project	LOA	GOL	Action completed	Report available
AL.1.2.4	Implementation of the project	LOA	GOL	Action completed	Report available
AL.1.2.5	Disseminate information on the preliminary strategy of the AFD/NTPC/GOL project so resettlers are aware of on-going support	LOA	NTPC	Action completed	Report available
AL.2.1.1	Identify pending land cases for subsequent growth (SG) households and known critical issues	LOA	GOL	Action completed	Report available
AL.2.1.2	Solve the cases identified for SG by implementing strategy & procedure at hamlet level	LOA	GOL	Action completed	Report available
AL.2.1.3	Solve the critical cases by implementing strategy & procedure at hamlet level	LOA	GOL	Action completed	Report available
AL.2.1.4	Solve the additional pending cases	LOA	GOL	Action completed	Report available
AL.2.1.5	Escalate unresolved land issues to justice office for resolution	LOA	GOL	Action completed	Report available
AL.2.2.1	Promote awareness on rules and regulations of Community Land Title in each hamlet	LOA	GOL	Action completed	Report available
AL.2.2.2	Recruit and train district staff to work full time on land issues with RO	LOA	NTPC	Action completed	Report available
AL.2.2.3	Provide refresher and on-the-job training to district staff	LOA	NTPC	Action completed	Report available
AL.2.2.4	Training of Land Management Committees (LMC) at hamlet level	LOA	GOL	Action completed	Report available
AL.2.2.5	Review and refine processes for land allocation and land disputes resolution based on lessons learned	LOA	NTPC	Action completed	Report available
AL.2.2.6	Allocate Land Use Certificate (LUC) for Additional Agricultural Land to remaining eligible SG, where possible. By decision of the local govt. PPP and ODS are part of the sub-urban area, 49 SG in these 2 villages won't have access to additional Arg. land.	LOA	GOL	Action completed	Report available
AL.3.1.1	Gully dam survey to assess their capacity for irrigation and maintenance need	LOA	NTPC	Action completed	Report available
AL.3.1.2	Repair relevant gully dams according to effective use by resettlers and needs for maintenance.	LOA	GOL	Action completed	Report available
AL.3.1.3	Comprehensive survey on irrigation: history and actual status of the irrigation schemes and their utilisation. Where possible, formulation of recommendations	LOA	NTPC	Action completed	Report available
AL.3.1.4	Strengthening the Operation and Maintenance (O&M) system of the operating schemes	LOA	NTPC	Action completed	Report available
AL.3.1.5	Ensure sufficient water for vegetable crops (Identification of the plots with vegetable crop production / Water need assessment / Where possible, implementation of remedial measures of to fill the gaps)	LOA	GOL	Action completed	Report available
AL.4.1.1	Provide barbed wire (BW) for 0.66, 0.22 and “additional lands” (only for pasture development) plot fencing: - Revision of BW support policy - Inventory of candidates for BW - Provide BW	LOA	NTPC	Action completed	Report available
AL.4.1.2	Continue support and training as needed for existing agricultural production groups	LOA	NTPC	Action completed	Report available
AL.4.2.1	Support soil fertility improvement by converting allocated plots into « agro-forestry” practice	LOA	NTPC	Action completed	Report available
AL.4.2.2	Improve soil fertility in plots where agroforestry is conducted	LOA	NTPC	Action completed	Report available

Code	Action Name	RIP	Accountability	Action completion status in Jun 2018	Report completion status in Jun 2018
AL.4.2.3	Pursue soil fertility improvement on Paddy rice plots: - Inventory of candidates - Provide SF	LOA	NTPC	Action completed	Report available
AL.4.2.4	Document lessons learned regarding soil fertility improvement	LOA	NTPC	Action completed	Report available
AL.4.3.1	Provide plastic sheet to candidates (on a cost-sharing basis)	LOA	NTPC	Action completed	Report available
AL.4.4.1	Strengthening capacity and equipped Village Veterinarian (VV)	LOA	NTPC	Action completed	Report available
AL.4.4.2	Conduct vaccination campaign	LOA	NTPC	Action completed	Report available
AL.4.5.1	Ruminants: establish grazing pasture, forage plots, fodder garden for large and small ruminants	LOA	NTPC	Action completed	Report available
AL.4.5.2	Chicken: provide support to local chicken raising	LOA	NTPC	Action completed	Report available
AL.4.5.3	Organize pilot large livestock auctions	LOA	NTPC	Action completed	Report available
AL.4.5.4	Compile Lessons learned and assess usefulness of large livestock auctions	LOA	NTPC	Action completed	Report available
EG.1.2.1	Identify and implement necessary, additional measures to bring the project into compliance.	LOA	NTPC	Action completed	Report available
EG.1.2.2	Enhance report specifically on the Ahoe and present data break down by ethnic group where possible (e.g. for the QSEM) as well as by hamlet (where appropriate, e.g. in operational reporting) with a column explaining what the main ethnic in that hamlet are.	LOA	NTPC	Action completed	Report available
EG.2.1.1	Promote meaningful participation of vulnerable groups and smaller hamlets in VDCs and other important committees.	LOA	GOL	Action completed	Report available
EG.3.1.1	Conduct an assessment into the feasibility and desirability of setting up a WMPA office at the old Sop Hia site, including consultation with the Ahoe themselves and the WMPA	LOA	GOL	Action completed	Report available
EG.3.1.2	Hire a local facilitator with relevant experience, and knowledge of not only Lao but also minority languages if possible.	LOA	GOL	Action completed	Report available
EG.3.1.3	Survey the current livelihoods, expectations and problems within ethnic group households	LOA	NTPC	Action completed	Report available
EG.3.1.5	Plan and implement training for committees, institutions, livelihood pillars and receipt of scholarships as per their interests, need and capacity	LOA	NTPC	Action completed	Report available
EG.3.1.6	Develop plans within broader livelihood development programs, tailored to ethnic groups' needs	LOA	GOL	Action completed	Report available
EG.4.1.1	Ethnic groups receive priority and additional support (where feasible and appropriate) to help them to access livelihood activities and support such as training and scholarships.	LOA	NTPC	Action completed	Report available
EG.4.1.2	Ethnic groups are targeted, where interested, for inclusion in adult literacy courses (proposed under the gender action plan, and required as part of special measures under the CA)	LOA	GOL	Action completed	Report available
EG.4.2.1	Provide refresher ethnic sensitivity training for all relevant RO and GOL staff.	LOA	NTPC	Action completed	Report available
FI.1.1.1	Conduct fish biological and ecological study to find out the important spawning areas in the reservoir and its tributaries to determine which areas are truly needed for fish spawning and which could be opened to resettlers fishing	LOA	NTPC	Action completed	Report available
FI.1.3.1	Re-establish the existing checkpoints in the SCZ and enable a regular operation.	LOA	GOL	Action completed	Report available
FI.1.3.3	Improve the existing co-patrolling between WMPA and VFG by developing a working mechanism and update the regulation to be more effective	LOA	GOL	Action completed	Report available
FI.1.4.1	Monitor the evolution of the fish catch on Nakai Plateau	LOA	NTPC	Action completed	Report available

Code	Action Name	RIP	Accountability	Action completion status in Jun 2018	Report completion status in Jun 2018
FI.1.4.2	Support the ongoing fish stock assessment research program by completing the Fish Stock Assessment Research Data Collection	LOA	NTPC	Action completed	Report available
FI.2.1.1	Formal evaluation of the existing Fisheries Co-management (including institutional analysis) with proposal of a better adaptation to the present situation	LOA	NTPC	Action completed	Report available
FI.2.2.2	Training of specific fields are provided to new participants of VFG and RFA	LOA	GOL	Action completed	Report available
FI.2.3.1	Conduct boat registration	LOA	GOL	Action completed	Report available
FI.3.2.1	Support development of fish processing.	LOA	GOL	Action completed	Report available
FI.3.2.2	Identification of the new product and develop appropriate training	LOA	NTPC	Action completed	Report available
FI.3.3.1	Provide the necessary facilities /equipment for fish processing (machine etc...).	LOA	GOL	Action completed	Report available
FO.1.1.1	Prepare economic and feasibility overview of possible forest management options	LOA	NTPC	Action completed	Report available
FO.1.1.2	Present possible options to the government for their review and discussion and agreement	LOA	NTPC	Action completed	Report available
FO.1.1.3	Present possible options to 16 hamlets for their review, discussion and agreement in culturally appropriate ways	LOA	NTPC	Action completed	Report available
FO.1.1.4	Develop a Strategy for Forest Management	LOA	NTPC	Action completed	Report available
FO.1.1.5	Strategy for Forest Management decided by Govt and villagers	LOA	GOL	Action completed	Report available
FO.1.1.6	Make a recommendation to the GOL to enforce a stop on logging until the approval of the forestry management plan	LOA	GOL	Action completed	Report available
FO.1.2.3	Agree on responsibilities and ways of working	LOA	GOL	Action completed	Report available
FO.2.1.1	Undertake financial Review VFDC Audit of VFDC	LOA	GOL	Action completed	Report available
FO.2.2.1	Prepare Mapping Stratification and Change Detection	LOA	GOL	Action completed	Report available
FO.2.2.2	Prepare Inventory Design	LOA	GOL	Action completed	Report available
FO.2.3.1	Document regulatory requirements that apply to the NT2 forestry operation and identify barriers, propose solutions	LOA	GOL	Action completed	Report available
FO.3.1.1	Update Forest Management Plan	LOA	NTPC	Action completed	Report available
GE.1.1.1	Design methodology and guidance materials, and conduct working meeting with management and staff to mainstream gender across action plans using Gender Markers	LOA	NTPC	Action completed	Report available
GE.1.1.2	Operationalize and monitor gender equality programming across Action Plans.	LOA	NTPC	Action completed	Report available
GE.2.1.1	Design and implementation of a multi-staged capacity building program to support District GMT to build skills and become operational.	LOA	NTPC	Action completed	Report available
GE.2.2.1	Skills intensification training for LWU and WAC in line with needs identified in performance reviews -Link to Provincial Strategic Plan on Advancement of Women, Mother and Child 2016-2020 – workplan 2 -Link to National Gender Implementation Plan 2016-2020	LOA	NTPC	Action completed	Report available
GE.3.1.2	Seasonal women's evening literacy/numeracy classes for vulnerable villages (pilot in Phonesavanh, Nongbua, Namnien, Bouama, Sophene)	LOA	NTPC	Action completed	Report available
GE.3.2.1	Conduct awareness raising campaign designed especially for children/youth to encourage progressive gender thinking and understanding of gender equality	LOA	NTPC	Action completed	Report available
GE.3.3.1	Consolidate program for domestic violence against women with case studies (including capacity building at village level, awareness raising, and reporting)-Link to Provincial Strategic Plan on Advancement of Women, Mother and Child 2016-2020 – work plan3	LOA	GOL	Action completed	Report available

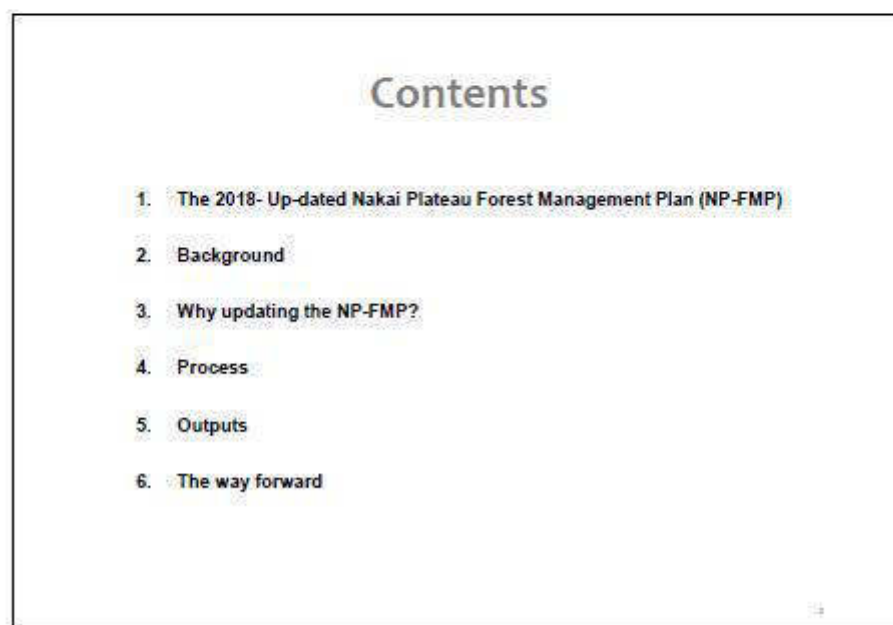
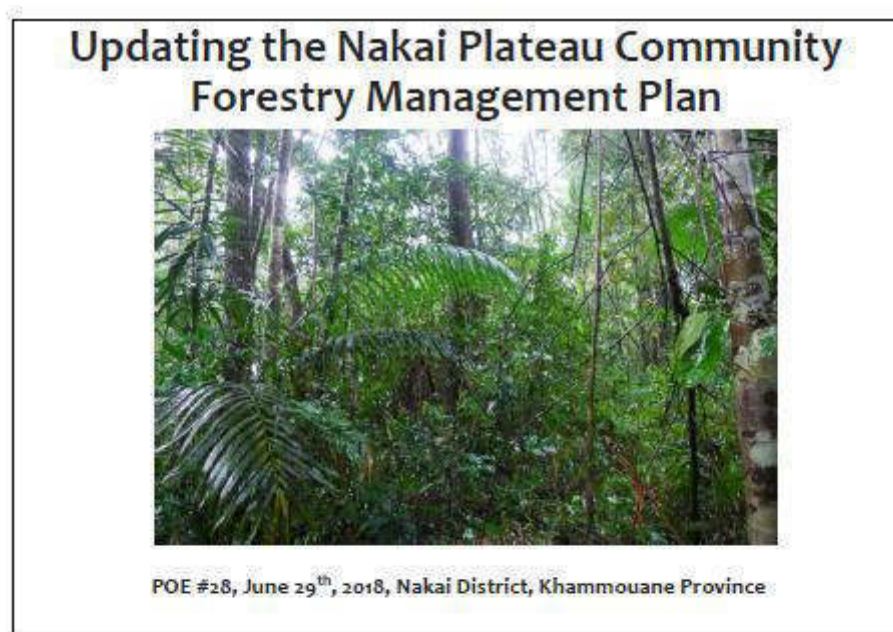
Code	Action Name	RIP	Accountability	Action completion status in Jun 2018	Report completion status in Jun 2018
GE.3.3.2	Review of effectiveness of measures in declared cases of domestic violence	LOA	GOL	Action completed	Report available
OF.1.1.1	Conduct research to identify products and services that hold significant potential benefits for resettlers, according to the specificity of each group (Ethnic Groups, Gender, Poor and Vulnerable)	LOA	NTPC	Action completed	Report available
OF.1.1.2	Conduct value-chain and cost-benefit analysis for identified products and services	LOA	NTPC	Action completed	Report available
OF.1.1.3	Identify priority business opportunities with respect to the goals and aspirations of the resettlers.	LOA	NTPC	Action completed	Report available
OF.1.2.1	Conduct research to identify tourism products and services that hold significant potential benefits for target hamlets	LOA	NTPC	Action completed	Report available
OF.1.2.2	Conduct cost-benefit analysis for identified tourism products and services for target hamlets	LOA	NTPC	Action completed	Report available
OF.1.2.3	Identify priority tourism goods and services with respect to the goals and aspirations of the resettlers.	LOA	NTPC	Action completed	Report available
OF.1.3.1	Conduct market research to identify potential employment opportunities for resettlers on and off the plateau	LOA	NTPC	Action completed	Report available
OF.1.3.2	Evaluate the costs, benefits and suitability of potential employment opportunities for target groups	LOA	NTPC	Action completed	Report available
OF.1.3.3	Identify priority employment opportunities with respect to the goals and aspirations of the resettlers.	LOA	NTPC	Action completed	Report available
OF.1.3.4	Disseminate information about the research, needs assessment and planning stages based on the questions raised in the Village Consultations	LOA	GOL	Action completed	Report available
OF.2.1.1	Conduct research into socio-economic capitals at the household and hamlet level and define target groups	LOA	NTPC	Action completed	Report available
OF.2.1.2	Identify needs of each target group and village institution members to determine the design and/or selection training and capacity building	LOA	NTPC	Action completed	Report available
OF.2.2.1	Outline business development plan with key steps for addressing identified business opportunities in consultation with resettlers target groups.	LOA	NTPC	Action completed	Report available
OF.2.2.2	Outline a roadmap and key steps for developing proposed tourism products and/or services in consultation with resettlers.	LOA	NTPC	Action completed	Report available
OF.2.2.3	Develop a training strategy for employment and non-employment livelihood opportunities in consultation with resettler target groups	LOA	NTPC	Action completed	Report available
OF.2.2.4	Disseminate information about the implementation stages based on the questions raised in the Village Consultations	LOA	GOL	Action completed	Report available
OF.3.1.1	Prepare for gradual hand-over to the District Offices by engaging them in the design, implementation and evaluation of all programs.	LOA	GOL	Action completed	Report available
OF.3.1.2	Establish partnerships with the private and public sector, as well as international organisations for involvement in training and mentoring.	LOA	NTPC	Action completed	Report available
OF.3.1.3	Provide support and capacity building relevant to Off-Farm to institutions at the Hamlet level, particularly but not limited to the VDCs and VDFs.	LOA	GOL	Action completed	Report available
OF.3.2.1	Develop social-enterprise business model handbook in consultation with District authorities	LOA	NTPC	Action completed	Report available

Code	Action Name	RIP	Accountability	Action completion status in Jun 2018	Report completion status in Jun 2018
OF.3.2.2	Establish Resource Centre to accommodate start-up venture program and function as communal hub for Off-Farm programs.	LOA	NTPC	Action completed	Report available
OF.3.2.3	Establish start-up venture program to address business and tourism opportunities identified in the research and planning process	LOA	NTPC	Action completed	Report available
OF.3.3.5	Establish monitoring system to provide on-going mentoring and support of training participants	LOA	NTPC	Action completed	Report available
OF.3.4.1	Implement monitoring of (1) new established businesses (2) income for new and previously existing businesses (3) range of sectors covered by resettler businesses	LOA	GOL	Action completed	Report available
OF.3.4.2	Implement monitoring of (1) number of resettlers employed following capacity building programs (2) income of off-farm employed resettlers (3) range of sectors in which resettlers are employed	LOA	GOL	Action completed	Report available
OF.3.4.3	Explore ways for resettlers to be involved in the monitoring process. Participants to be selected particularly from Youth Leadership Program	LOA	GOL	Action completed	Report available
PV.1.1.1	Confirm source of financial support for social safety net till the end of the CA.	LOA	NTPC	Action completed	Report available
PV.1.1.2	Confirm that Community Based Health Insurance (CBHI) system is fully functioning in Nakai District.	LOA	GOL	Action completed	Report available
PV.1.1.3	Use other sources of support to assist vulnerable households.	LOA	GOL	Action completed	Report available
PV.1.1.4	Confirm source of financial support for special program and cash payments for Poor/High Risk until end of RIP	LOA	NTPC	Action completed	Report available
PV.2.1.1	Update criteria used to identify vulnerable households	LOA	NTPC	Action completed	Report available
PV.2.1.2	Update and confirm list of vulnerable households	LOA	NTPC	Action completed	Report available
PV.2.1.3	Update method (or criteria) used to identify High Risk households	LOA	NTPC	Action completed	Report available
PV.2.1.4	Update and confirm list of High Risk households	LOA	NTPC	Action completed	Report available
PV.2.1.8	Revise the Special Program for Poor/High Risk households	LOA	GOL	Action completed	Report available
PV.3.1.1	Support vulnerable households under the SSN	LOA	NTPC	Action completed	Report available
PV.3.1.2	Support vulnerable households under the kinship system	LOA	GOL	Action completed	Report available
PV.3.1.4	Support Poor/High Risk households under the "Special Program".	LOA	NTPC	Action completed	Report available
PV.3.1.5	Design handover processes between the end of LoA and the post RIP programs under MTDP	LOA	NTPC	Action completed	Report available
AD.1	Re-circulate the land decree in the Resettlement Area and re-affirm the obligation to respect it	Add	GoL	Action completed	Report available
AD.2	Prepare and implement a plan for reshuffling the Grievance Procedure and having it functional with resettlers properly informed	Add	GoL (NTPC support)	Action completed	Report available
AD.3	Make available to the public the E&S reports after receipt of the GoL consent for such disclosure.	Add	NTPC (with GoL consent)	Action completed	Report available
AD.4	Search and provide data on resettlers employed with the company and its sub-contractors during operating phase.	Add	NTPC	Action completed	Report available

Code	Action Name	RIP	Accountability	Action completion status in Jun 2018	Report completion status in Jun 2018
AD.5	Continue to monitor water quality on the same regular basis, with the same existing documentation & reporting. Boreholes to receive an appropriate maintenance	Add	NTPC (water quality check) GoL (maintenance)	Action completed	Report available
AD.6	Feasibility study of small water supply systems for 13 hamlets under PPP model	Add	NTPC (feasibility study) GoL (maintenance)	Action completed	Report available
AD.7	Re-create drains around the community buildings to ensure no water stagnation, with villagers' contribution for labor and other inputs and support provided by district and NTPC.	Add	NTPC (with GoL support & communities participation)	Action completed	Report available
AD.8	Reach an agreement and plan between NTPC, District and MoES on the type and construction of additional class room at Nakai Tai, Sop On and Done (expected: Block of 3+1 rooms for each hamlet), with requisite equipment's support and its teachers' staffing and NTPC awards the contract for the same	Add	NTPC	Action completed	Report available
AD.9	Build toilets at NBK village provided that: (i) Village authorities confirm their wish to organize and be in charge of the maintenance; (ii) Villagers commit to contribute to some aspects of the construction.	Add	NTPC (toilet construction) GoL (Villagers commitment for contribution in the construction & maintenance)	Action completed	Report available
AD.10	Build extension of the roof of the Nakai Tai village hall	Add	NTPC (construction)	Action completed	Report available
AD.11	Build cold storages (preferred to ice plants) as requested by fisheries group if the request is in line with the 3 principles defined between District authorities and NTPC, to foster the ownership of infrastructure from resettlers.	Add	NTPC (for construction of cold storage) with GoL & fishermen groups commitment and participation	Action completed	Report available
AD.12	Look for evidence establishing that disturbance allowance was paid to all the resettlers. If no such evidence, payment of disturbance allowance to households not paid.	Add	NTPC	Action completed	Report available
AD.13	Implement waste management plan as agreed between NTPC, District and SERF- Preparation and construction of Land fill	Add	NTPC/GoL (district and SERF)	In progress	Report pending

Code	Action Name	RIP	Accountability	Action completion status in Jun 2018	Report completion status in Jun 2018
AD.14	Look into documents to support the arguments that ploughing/terracing was piloted with technical reports which say it wasn't productive to do terracing and explain the background. In case such document could not be found: In the Agriculture section of the CAP, there are many development options, including in the medium term with the 5 year project AFD/NTPC (beyond CA) to provide a support to voluntary farmers to develop the potential of their plot. This could be considered as a corrective action to this NC on agriculture.	Add	NTPC	Action completed	Report available
AD.15	Circulate SERF AIP with IFIs.	Add	GoL	Action completed	Report available
AD.16	Construction of additional class rooms at Nakai Tai, Sop On and Done (expected: Block of 3+1 rooms for each hamlet), with requisite equipment's support and teachers' staffing.	Add	NTPC	Action completed	Report pending
AD.17	Implement waste management plan as agreed between NTPC, District and SERF- Implementation of waste collection system for new landfill	Add	NTPC/GoL (district and SERF)	In progress	Report pending

Annex 1.2 – Presentation for the POE mission #28



The 2018- Nakai Plateau FMP

2018- Up-dated Nakai Plateau Forest Management Plan 1/2





Background- NTPC Forestry pillar 1/5

2000

- Determination of the resettlement area **20,800 ha to be given to re-settlers** (PM Decree#193/PM)

2002

- **Allocation of the resettlement and forest area to the local people** or village organizations affected by the NT2 Project for conducting forestry business activities (PM Decree#37/PM)

7

Background- NTPC Forestry pillar 2/5

2005

- **Exclusive harvesting and utilization rights** over all forest resources within the re-settlement area entitled to re-settler households for the period of 70 years

2005

- Creation of the **Village Forest Association (VFA)**
- Contractual agreement between the Khammouane Provincial Agriculture and Forestry Office (PAFO) and the VFA
- Nakai Plateau Community Forest Management Plan (FMP)

8

Background- NTPC Forestry pillar 3/5

2010

- Change of VFA in Village Forest Development Company

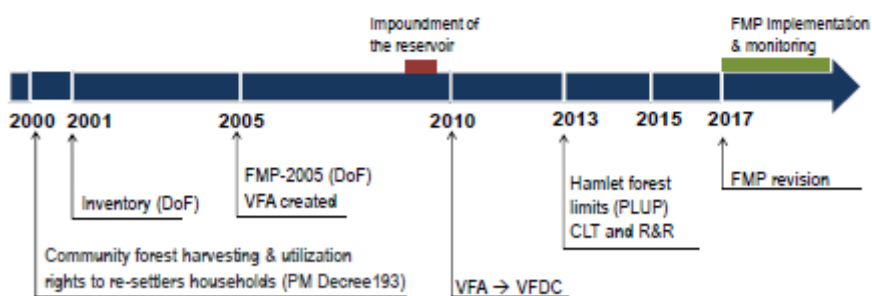
2012-2013

- Participatory Land Use Planning:
 - Agreement on limits of each hamlet forest area
 - Rules & regulations on forest

9

Background- NTPC Forestry pillar 4/5

Chronology



- FMP-2005 prior to PLUP (hamlet forest limits & CLT)
- PLUP result: only production forest in CF

10

Background- NTPC Forestry pillar 5/5

2005-FMP: 4 Objectives

1. Generate income by annual harvesting of timber in well-stocked forests
2. Develop a range of uses such as production forests with local species for timber and non-timber forest products (NTFPs), forest grazing, forage tree and grass, and agroforestry- in degraded forests
3. Ensure self sufficiency of re-settler families in timber, fuel wood and NTFPs; and
4. Protect watersheds, biodiversity and sites of scenic historic and cultural significance.

→ Measures implemented up-to-now concurred to the achievement of objective 1

11

Revising the FMP

3. Why?

12

Main reasons for revising the FMP 1/4

The FMP is "12 year-old":
since 2005 the context has changed

- The plan should be reviewed every 5 years for approval by the GoL
- A revision should be done before the closure of the RIP (Concession Agreement clause 9.6.7)

DoF policy &
Commitment of
NTPC

19

Main reasons for revising the FMP 2/4

- Forest resources neither properly managed nor protected --> risk of depletion
- No medium or long-term plan for management of forest resources, operation of the saw mill or marketing of products
- Harvesting of timber not properly planned, resources are wasted, recovery of timber is low
- Plantations non existent
- Insufficient or no monitoring and information on the state of the forest

Management of
the resource
needs
improvement

10

Main reasons for revising the FMP 3/4

- **Governance** is not in line with agreements: no participation of villagers in decision making
- **Low or no dividends** from forest exploitation distributed to re-settlers:
 - **2011** → 250,000 LAK/person/year
 - **2012** → 250,000 LAK/person/year
 - **2013-15** → 50,000 LAK/person/year
 - **2016** → 0

Expected
benefits for the
villagers
not achieved

13

Main reasons for revising the FMP 4/4

- After deduction of taxes, logging and transportation costs, neither the Lao nor the Thai markets for Pine will lead to profitable activities.

Products: wood products made out of pine, primarily finger jointed mouldings and parquet flooring

Sales: export to a timber wholesale company in Thailand, which would then place the products in "big box" home improvement stores in Thailand, such as Global Home

Income statement

Revenues	\$4.7 million
Cost-of-goods-sold	\$3.5 million
Gross profit	\$1.2 million
Gross margin (gross profit divided by net revenues)	25%
Earnings before interest and depreciation	\$ 1 million
Tax expense	\$ 1.9 million
Net income	\$ - 0.9 million

Sawmill
operations are
not financially
viable

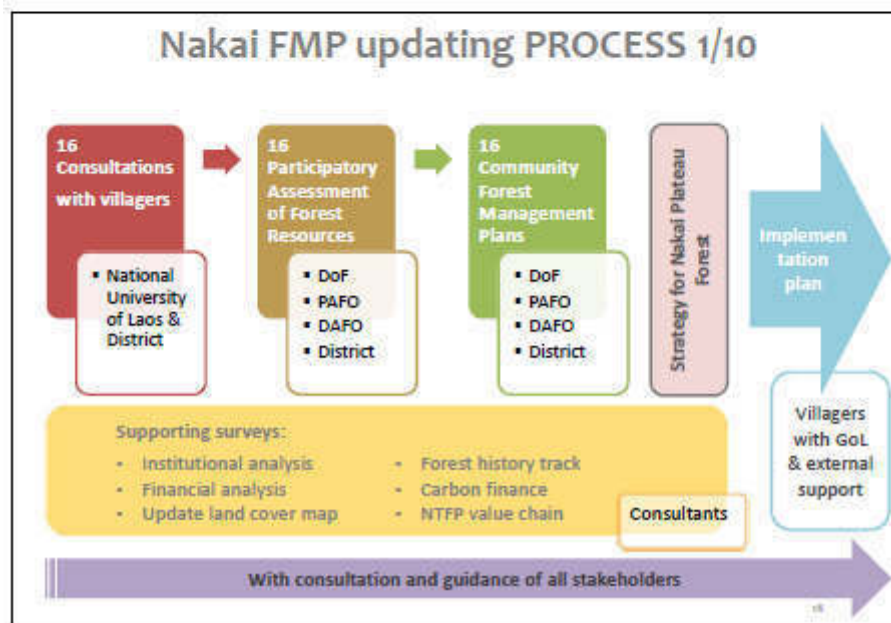
- Higher added-value products exports to Japan could be profitable but are not accessible to the VFDC due to strict standard of the buyers, the low quality of logs processed by the sawmill, lack of qualification of staff and obsolete equipment.

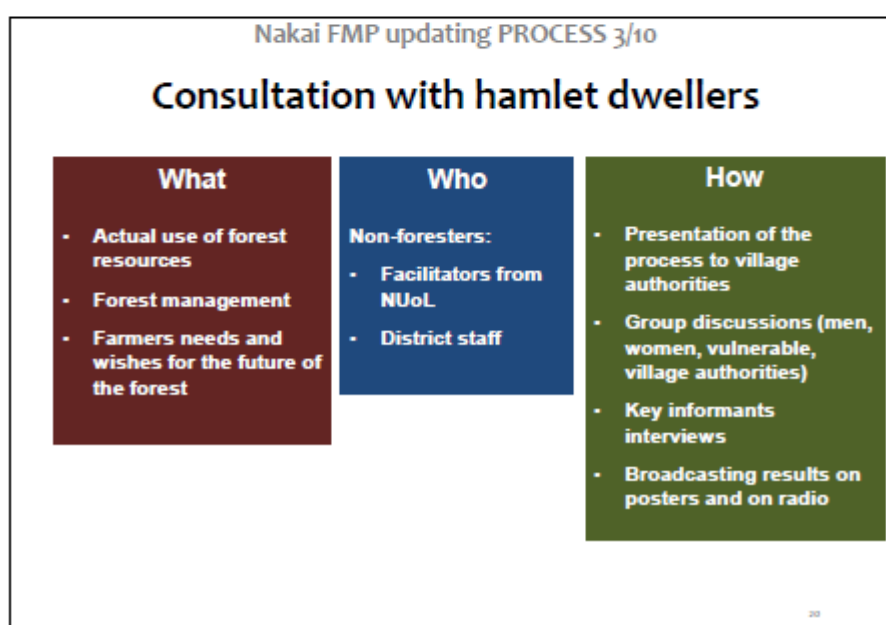
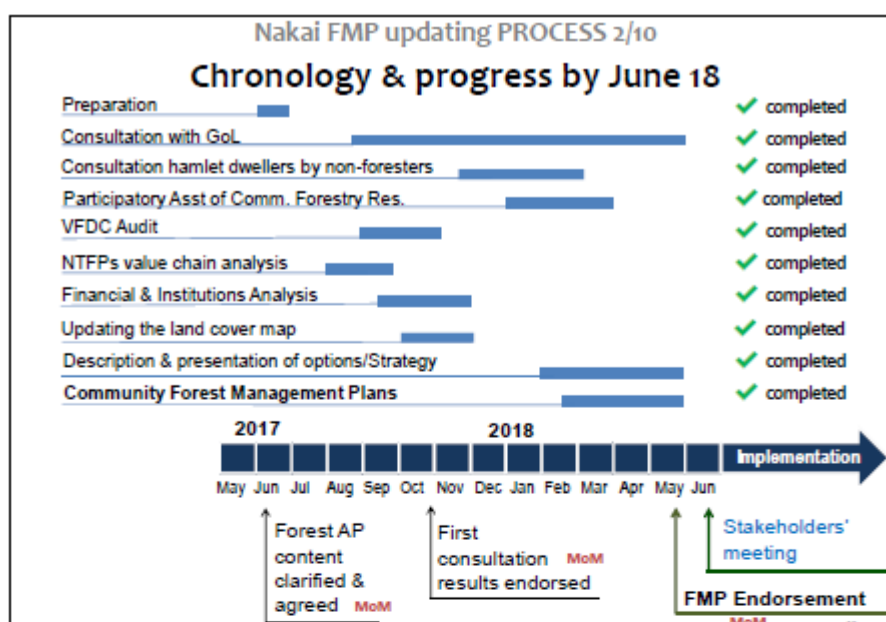
Note: based on the financial analysis of a similar saw mill in Laos with updated equipment and qualified staff. VFDC data not available.

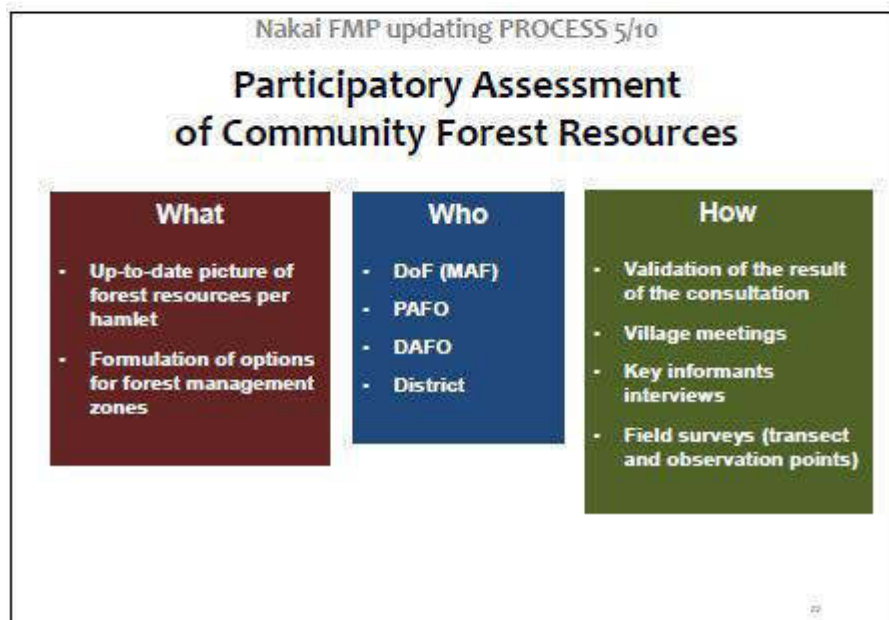
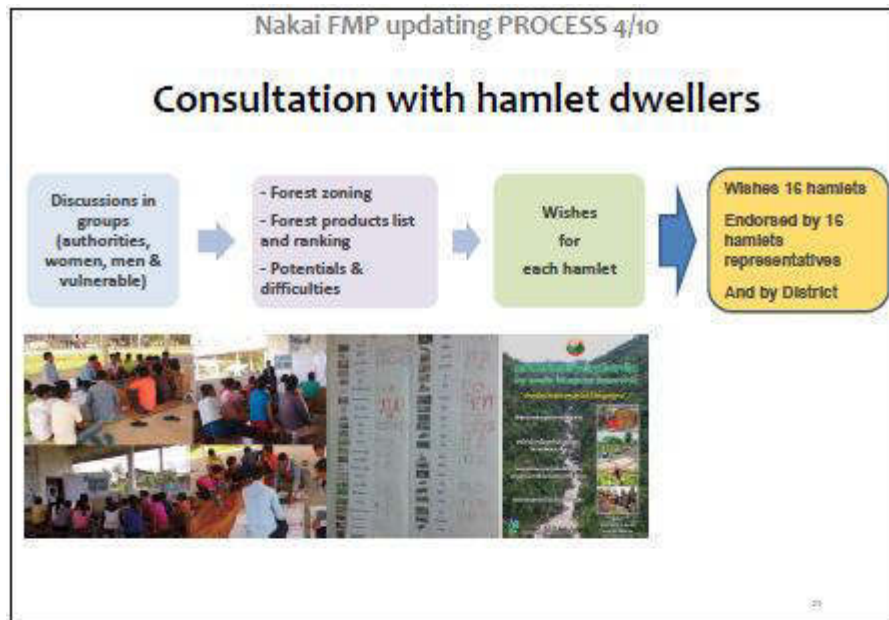
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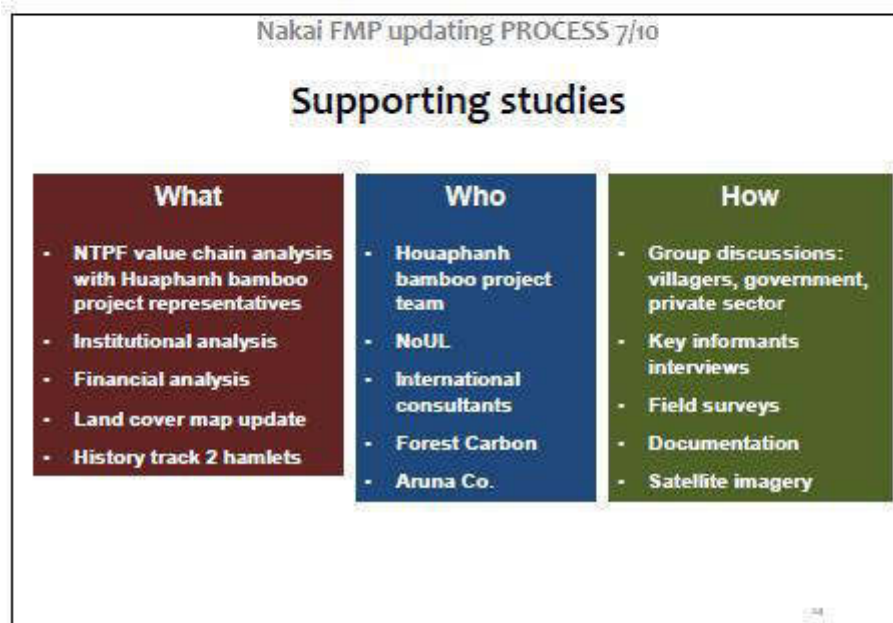
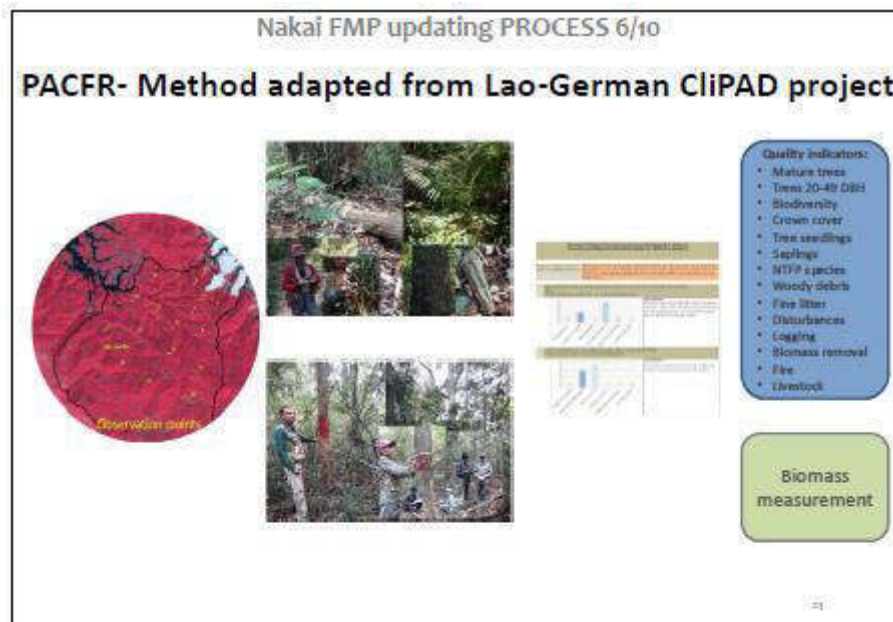
Revising the FMP

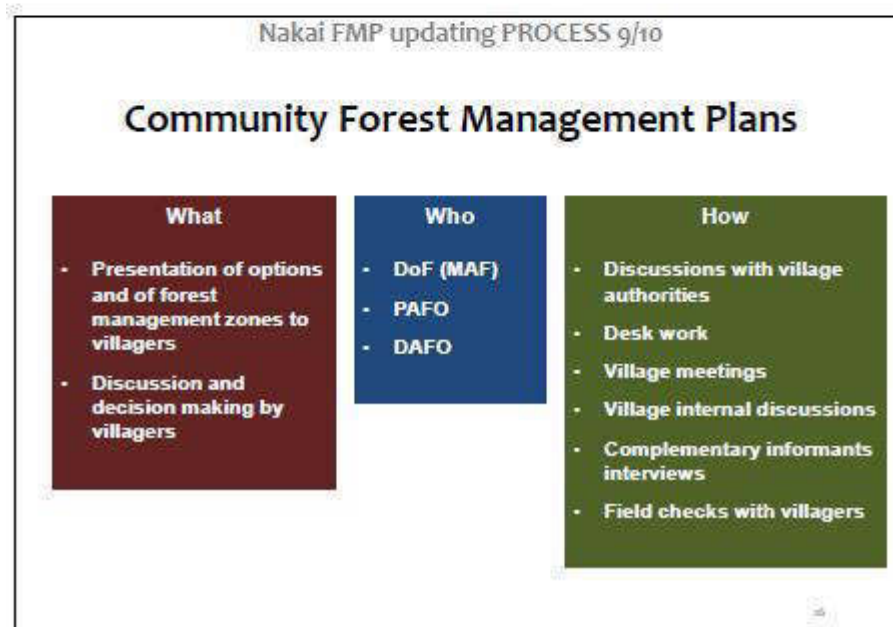
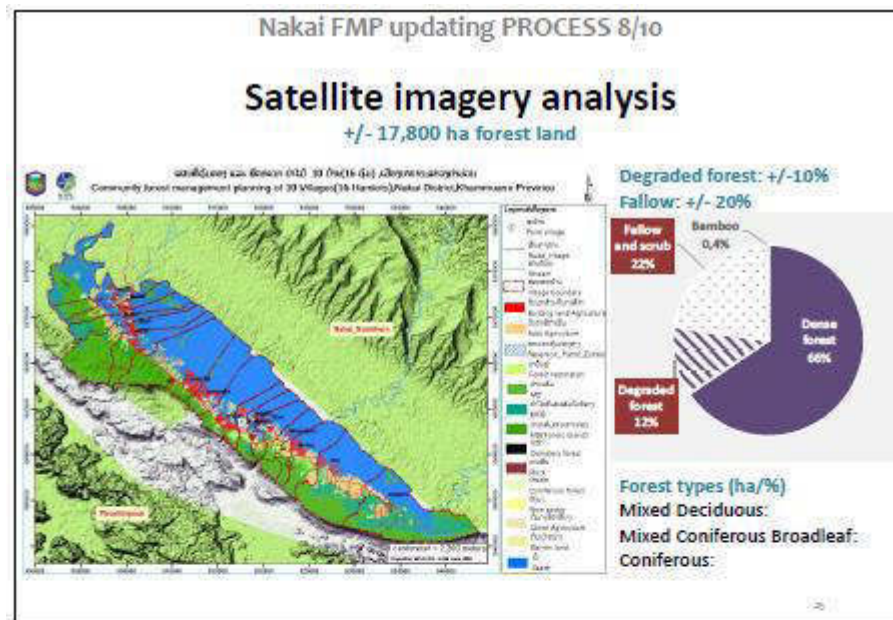
4. PROCESS- What and how?

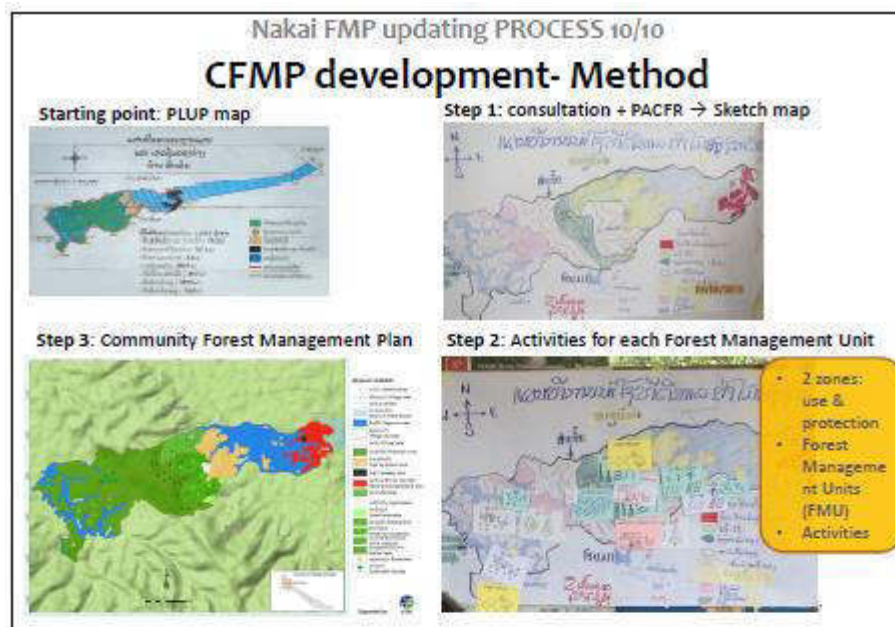






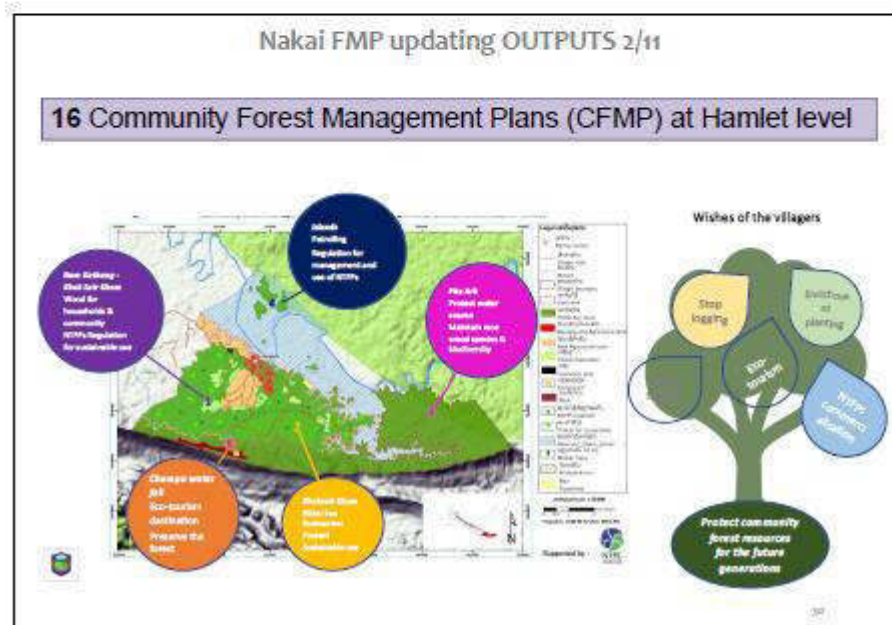
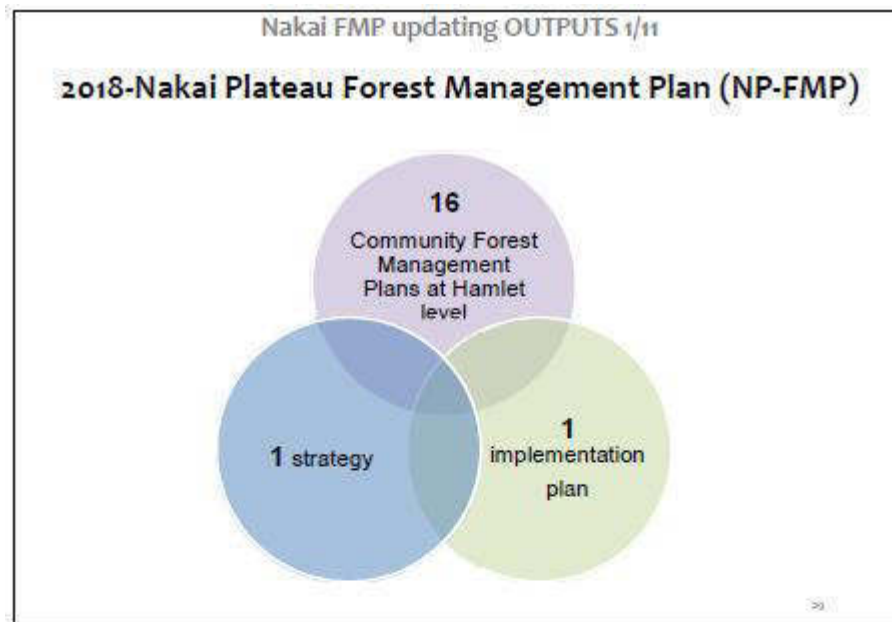




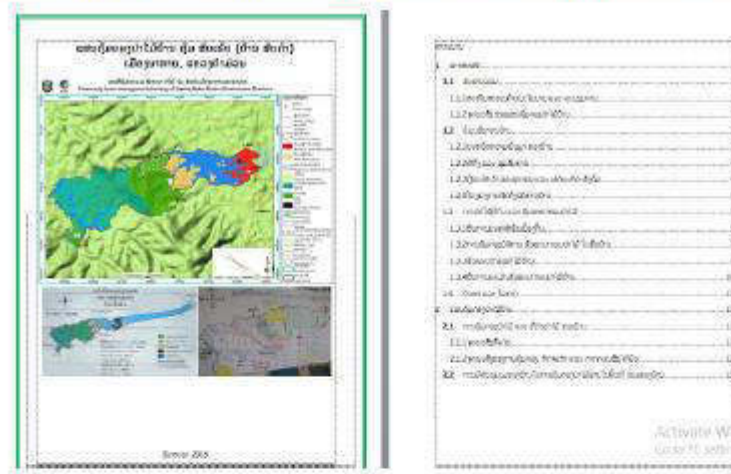


Revising the FMP

5. OUTPUTS

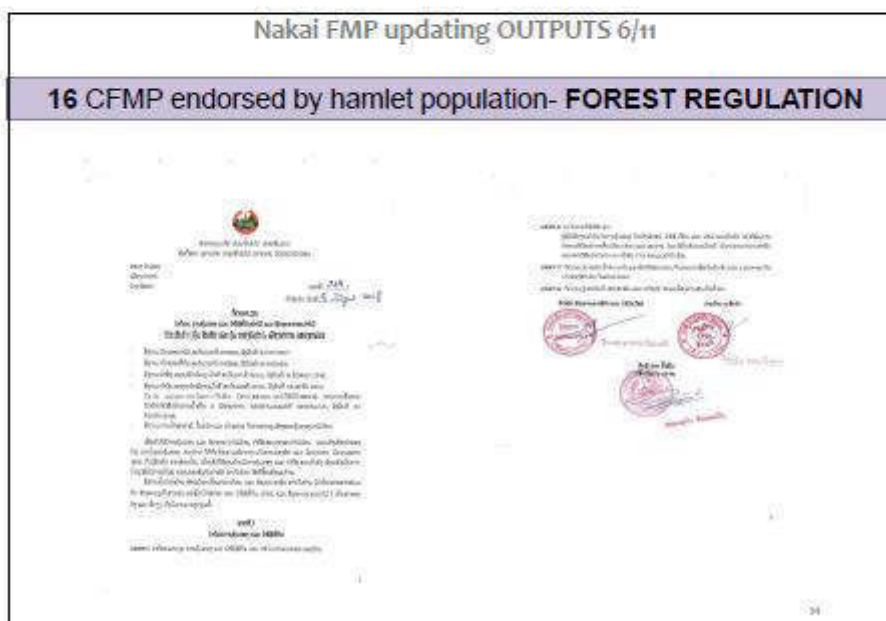
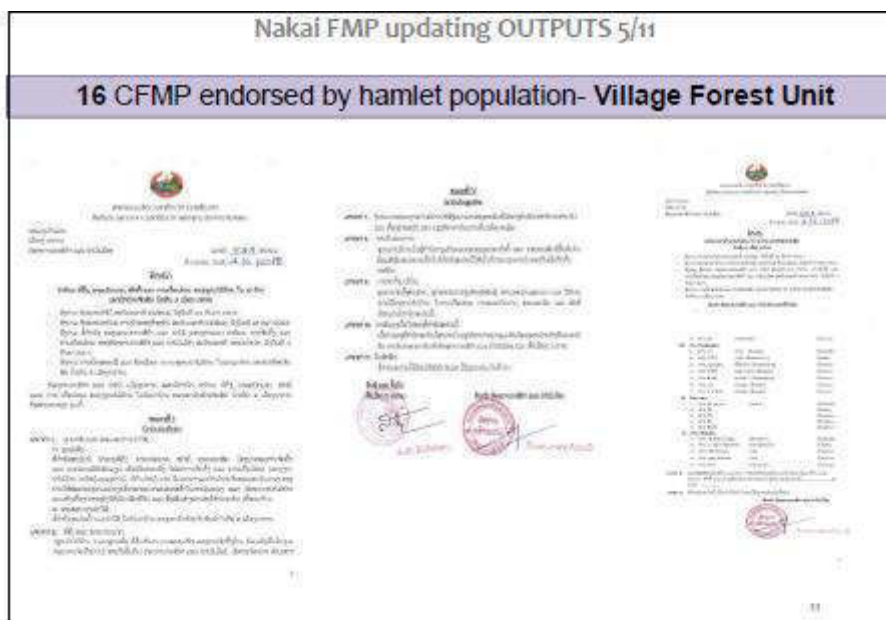


16 Community Forest Management Plans (CFMP) books



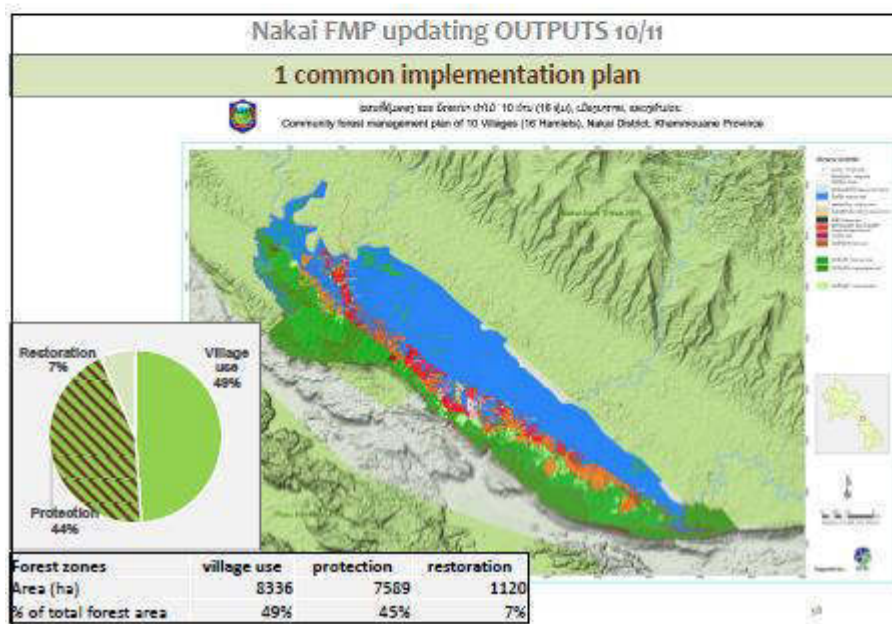
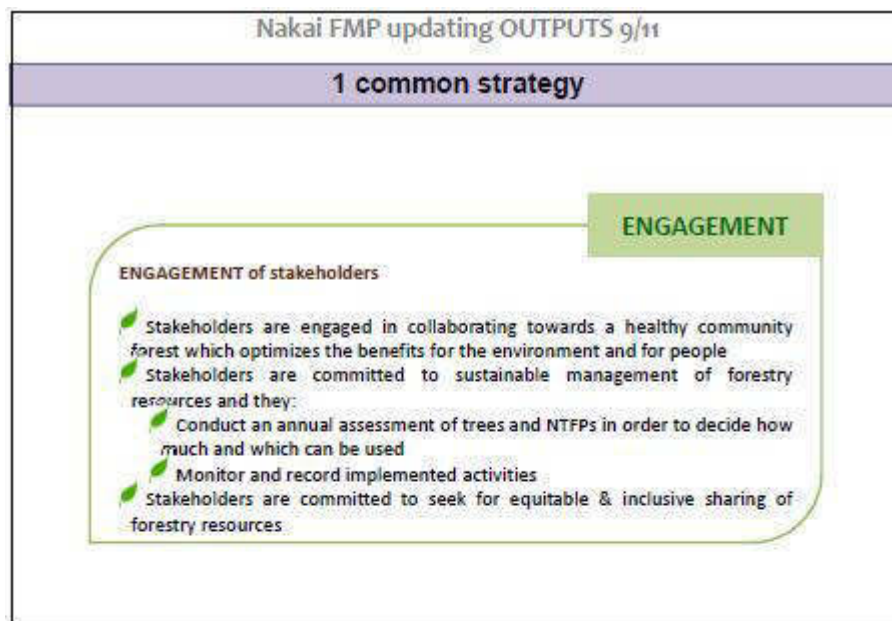
16 CFMP endorsed by hamlet population- MoM

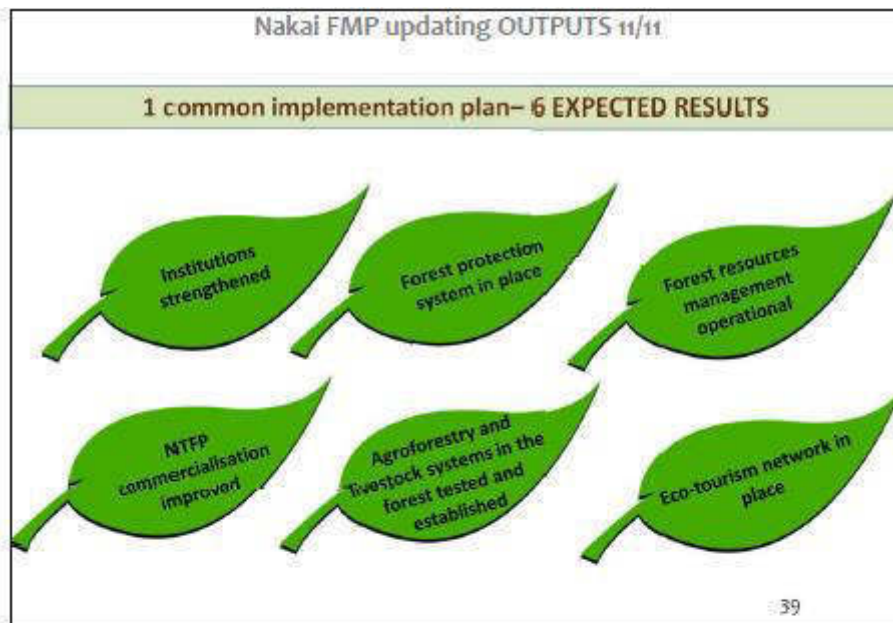
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Nakai FMP updating OUTPUTS 7/11									
16 CFMP endorsed by hamlet population									
no.	id	category	sub-category	description	status	location	date	signature	signature
1	001	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP
2	002	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP
3	003	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP
4	004	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP
5	005	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP
6	006	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP
7	007	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP
8	008	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP
9	009	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP
10	010	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP
11	011	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP
12	012	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP
13	013	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP
14	014	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP
15	015	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP
16	016	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP	CFMP

Nakai FMP updating OUTPUTS 8/11	
1 common strategy	
<p>VISION</p> <p>VISION: how the stakeholders wish the forest to be in the future</p> <p>Nakai Community Forest is a healthy and resilient resource. It contributes to the Nakai's unique culture and identity.</p> <p>It provides essential services for communities' livelihood, generation of cash income and traditional knowledge and handicraft.</p>	
<p>AMBITION</p> <p>Our AMBITION is to preserve the community forest for the use of the present population and the next generations:</p> <ul style="list-style-type: none"> Stop logging by outsiders and without a sustainable management plan Establish an effective hamlet-level CF protection including patrolling and regulations Ensure self-sufficiency in timber, fuel wood & NTFPs for the Nakai communities, especially for vulnerable households Improve NTFP processing & commercialization Plant trees and promote natural regeneration for degraded forest restoration Establish an equitable eco-tourism system Implement appropriate agro-forestry and "under forest" grazing systems Monitor plantations 	





Revising the FMP

6. The way forward

Nakai FMP- The way forward 1/2

1. Stakeholders meeting- 11 June 2018

- From now on, the CFMP endorsed have to be acknowledged and implemented from the National to the local level
- Activities formulated in NP-FMP will be further developed in the form of projects, compliant with the wishes of each village and in line with the Government's Development Guidelines.

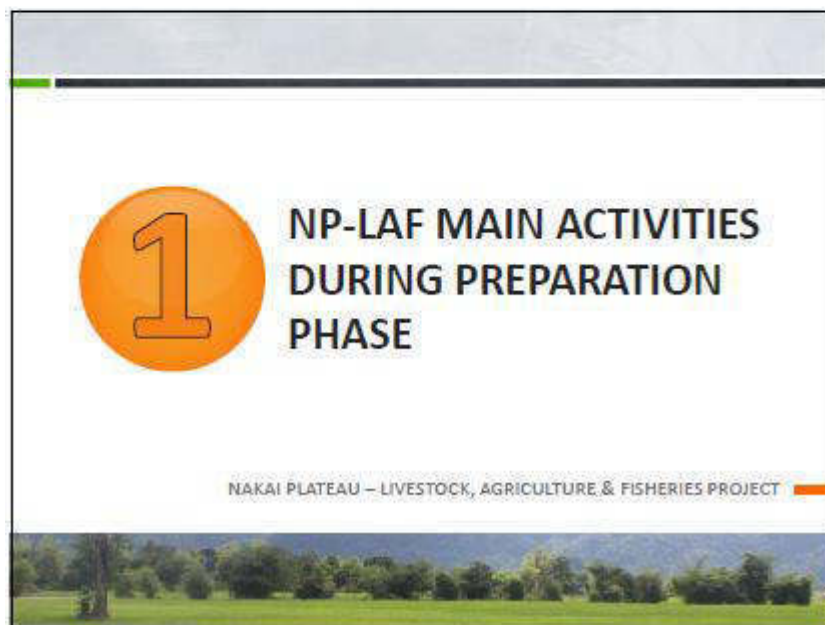
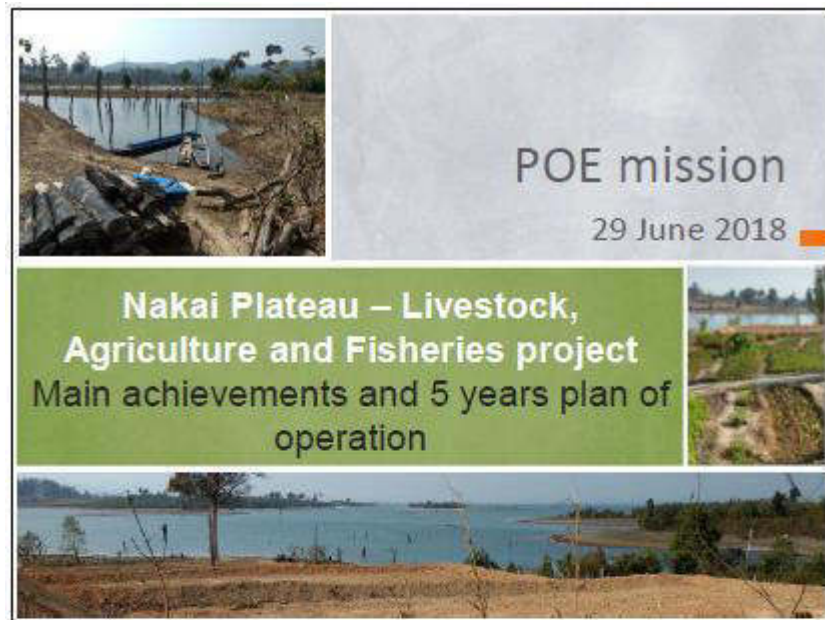


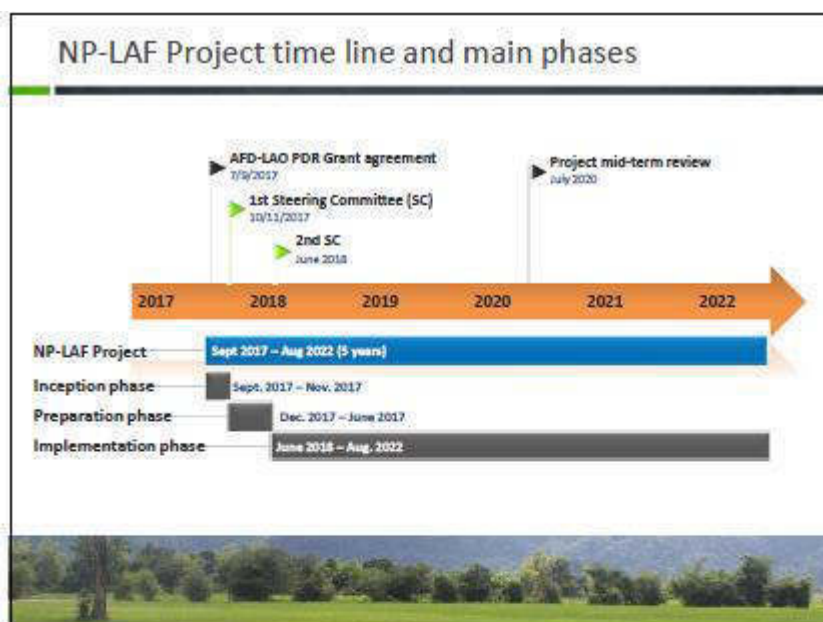
Nakai FMP- The way forward 2/2

2. NT2DF

→ Pre-condition : proposals are in line with the endorsed NP-FMP

3. Request for funds from other sources





Project's launching activities

Nov. 2017:	1st Steering Committee of NP-LAF (co-Chaired by Khammouane Deputy Governor and MAF) which approves the 6 months work plan.
Nov. 2017:	Official Launching of NP-LAF in Vientiane
Feb. 2018:	Formal launching of NP-LAF project at Nakai district with participants from the District working group, NP-LAF team and NTPC staff.
Feb.- March 2018:	NP-LAF presentation in 16 hamlets
June 2018	2 nd Steering committee

Set-up project administrative and financing tools

Dec. 2017:	Agreement between PAFO and Technical assistance is signed
	AFD funds are released
	Project administration Manual (PAM) draft version is ready
	NP-LAF office in Thakhek
	TA selection process is finished
Jan. 2018	NP-LAF office in Nakai District
	PAM 2 nd version is ready (English and Lao)
	PAM is approved by PAFO and DAFO and AFD has no-objection
Feb. 2018	TA team fully on board (2 TA still working for NTPC)
April 2018	Replacement of TA technical coordinator/ TA team complete



Procurement

Dec. 2017:	Furniture for Thakhek office
Jan. 2018	Furniture for Nakai Office
March 2018	Motorbikes for NP-LAF team
April/May	Computer and other IT equipment



Plan of operation and Annual work plan & budget

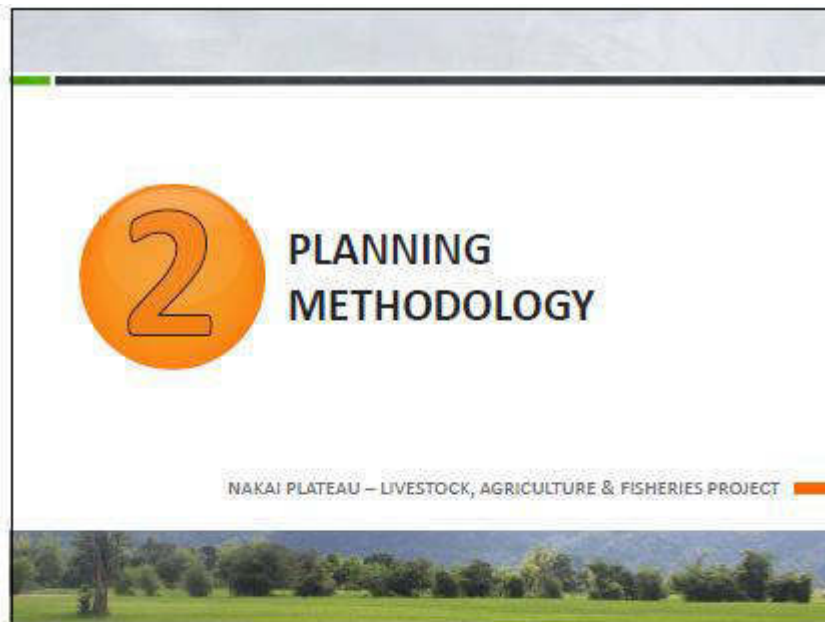
March 2018	Workshop on operational planning methodology. NP-LAF project starts its participatory planning based on the result of the VDP
March-April	Participatory operational planning (5 years plan)
May	Finalize 5 years plan and annual work plan and budget (AWPB)
05 June	Approval by District committee
13 June	Approval by NP-LAF steering committee
June/July	AFD no-objection on AWPB



Activities on technical components

Jan 2018	Workshop was organized between the NP-LAF and RO team. The RO team shared their lessons learned across each pillar and planning until the end of RIP
Feb. 2018	First mission CIRAD to propose the overall methodology of intervention on the land component of the NP-LAF project. The consultants met the institutions and people in charge of land management.
March-Sept 2018	<p>Internship on farming systems . It will contribute to:</p> <ul style="list-style-type: none"> - Identify the main dynamics of each village: agricultural intensification, expansion of paddies, livestock development, etc. - Identify the main types of households and their farming system based on their activities and sources of incomes. - Identify and design the activities to be implemented according to the needs and requirements of each category of households.





Why preparing a plan of operation?

The formulation document of the NP-LAF project defines:

- the specific objectives of the project
- the intervention strategy
- the expected results of the components

But it gives few information about :

- The detailed activities and strategies that are needed to achieve each result
- The duration and resources needed for each activity



NP-LAF principles for planning methodology

- The planning methodology was designed to support DAFO in its role of “implementing agency”
- The priorities defined by the villagers in their recently updated village development plans (VDP) were used as primary source of information for the definition of activities.



Expected results

- DAFO ownership of a planning methodology starting from villagers' priorities
- Coherence between DAFO and NP-LAF planning
- A common understanding within NP-LAF team and DAFO of project's objectives, outcomes and activities.

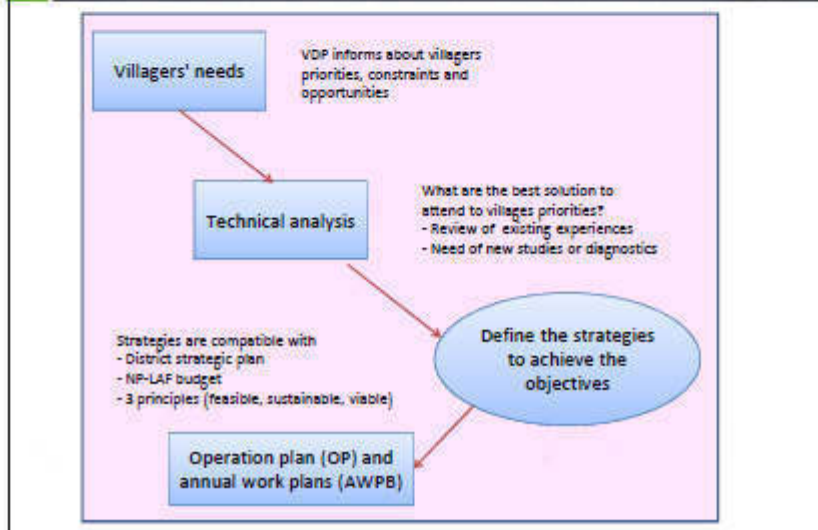


The planning was done...

- In focus groups (for land, agriculture, irrigation, livestock and fisheries), including DAFO experts, TA and resource persons from NTPC resettlement office or other local institution (DONRE, Reservoir fishery association, etc.).
- Starting from the analysis of the issues and priorities raised by the villagers in the VDP, the focus groups tried to identify suitable strategies to tackle issues, taking into account the lessons learnt from past experiences.
- With the participation of NTPC/RO staff, which has permitted to share information and to draw valuable lessons from their experience when analysing the problems or defining the intervention strategies.



Summary of planning methodology



Validation of the planning at district and province level

- District Committee: 05/06/2018



- Province Steering committee: 13/06/2018





NP-LAF PLANNING

NAKAI PLATEAU – LIVESTOCK, AGRICULTURE & FISHERIES PROJECT



Land: main expected outcomes

1. Village land plans are revised in order to optimize the land use according to land potentialities and to favor the development of more intensive and sustainable farming systems
2. Land allocation rules are clarified and all villagers have a fair and not conflictive access to agricultural land
3. Land management committees and village authorities have the capacity and the tools to manage land at village level with the support and tools provided by District institutions



Land: main strategies

- Empowerment of village authorities in land management, through learning by doing processes & comprehensive coaching plan on:
 - Fair and transparent agriculture land allocation;
 - Land conflict prevention and resolution;
 - Land use planning according to land potentialities;
 - Natural resources management on common land (pasture, NTFP)
- Support to District and province staffs to support hamlets with tools and advices and to monitor the land management.



Agriculture: main expected results and strategies (1/2)

1. Improve paddy rice contribution to food security

- NP-LAF will support the extension of paddy fields where the areas are suitable and especially for “high risk households” for which food security is critical
- NP-LAF will revise existing experiences on soil fertility (developed by NTPC and by the farmers without external support) to define a strategy to improve the soil fertility in paddy field.
- NP-LAF will analyse the relevance of disseminating new rice varieties.



Agriculture: main expected results and strategies (2/2)

2. Generate sustainable income

- Analyse the agronomic and economic results of existing agroforestry models and define the condition for their diffusion in allocated plots and home gardens
- Test the agronomic and economic result of cassava fertilization
- Adapt vegetable production to local markets by developing rainy season production and diversifying the products



Livestock : main expected results and strategies (1/3)

1. High risk families increased access to livestock contribute to improve their resilience to adverse events

Analyse the constraints and define strategies to facilitate the access of high risk HH to ruminant livestock

2. Animal marketing is improved

Participatory review of marketing issues and definition of marketing improvement strategy



Livestock: main expected results and strategies (2/3)

3 Prevention of animal disease outbreaks is effective

3.1 The vaccination strategy is revised in order to ensure high vaccination rates and the full replenishment of vaccination fund

- Farmers shall pay for the vaccination and the payment shall cover the cost of the vaccine and the VVW service fees
- Test the effectiveness of large herders vaccinating their own herds

3.2 Ensure national regulations on disease outbreaks are operational at district level



Livestock: main expected results and strategies (3/3)

4. Livestock feed is secured through increased forage production and sustainable management of pasture areas

- Survey of forage availability and of herders strategies to feed their livestock
- Develop a strategy on forage production based on past experiments
- Support the definition and implementation of management rules for collective pasture areas (drawdown zone, forest)
- Analyse the vulnerability to climate hazard and prepare a strategy to cope with it



Irrigation: main expected results and strategies (1/2)

1 Existing schemes are fully used according to their potential

- NP-LAF will support an updated diagnostic of existing irrigation schemes, their actual use and their potential and analyse whether it is possible to increase the irrigated areas by overcoming the constraints which limit their use.
- NP-LAF will also help to make clear for all WUG what is the new procedure for repairing broken systems. The procedure will be reviewed and explained to all villagers. NP-LAF will support DAFO whenever necessary to analyse the requests from WUG before reporting to SERF.



Irrigation: main expected results and strategies (2/2)

2. New irrigation schemes are built and functional

- NP-LAF will draw lessons from the diagnosis of existing irrigated schemes and define criteria for new schemes
- A study will analyse the water potential for new schemes in the 16 villages, with emphasis on the technical solutions that have proved their viability.
- For each new irrigation scheme, a study will analyse :
 - The technical feasibility: quantity of water, area to be irrigated, quality of the soil for irrigation, etc.
 - The social feasibility: farmers organization to manage the system, repair it and share the water;
 - The economic feasibility: cropping systems that can be developed, marketing potential and expected income for farmers
 - The financial feasibility: participation of beneficiaries, sources of funding



Fisheries: main expected results and strategies (1/3)

1. The resource is protected and its use is sustainable

NP-LAF will analyse with the villagers the current fishing regulations as first step for three main activities:

- Revision and simplification of the problematic rules, as far as it is not conflicting with the national regulations nor with the sustainability of the resource;
- Awareness and capacity building on the rules that are widely accepted, but not fully understood;
- Strengthening of the information and signs which make the regulation visible and obvious for villagers and outsider fishermen.

NP-LAF will support the participatory analysis of the constraints to effective patrolling and propose a yearly patrolling plan based on actual patrolling capacity of the VFG, RFA and district institutions.



Fisheries: main expected results and strategies (2/3)

2. Fish added value is increased

For fish marketing, NP-LAF will :

- Gather and analyse existing information on fish prices;
- Carry out a survey with traders to understand the constraints which hamper the fish trading and the opportunities that could be exploited;
- Carry out a market survey to define new market options;
- Support the fish marketing and the revision in trading regulation (if relevant)

For fish processing, NP-LAF will:

- Assess technically and economically the existing fish processing groups
- Support the development of existing and new fish processing groups (new products, new markets, packaging, management capacity...)



Fisheries: main expected results and strategies (3/3)

3. The institutions in charge of reservoir co-management are strengthened

After a participatory review of RFA and VFG situation, NP-LAF will support them in :

- defining a realistic action plan according to their financial capacities;
- proposing a strategy to increase their financial capacity;
- Improving the accountability of VFG and RFA regarding the use of funds
- Analyse the possibility of a simplification of the co-management system



Capacity building: main expected results and strategies (1/3)

1. Province and District authorities are able to support the 4 technical components providing a suitable technical and institutional framework
 - This outcome will be complementary to capacity building included into technical components and focus on other cross-cutting skills like participatory approach, farmers to farmers methods, etc.
 - It will be coordinated with the global NT2DF action on capacity building of District Authorities
 - NP-LAF will assess the existing technical skill within PAFO & DAFO staff and define a training programme accordingly.



Capacity building: main expected results and strategies (2/3)

2. Village authorities, organizations and groups are established, structured, informed and organized, and tend towards autonomy
 - Villagers have increasing responsibilities in managing their own resources and activities (village development committees, village fishery groups, reservoir fishery association, village development funds, land management committees...)
 - NP-LAF will build a capacity building programme for these institutions to be able to develop their activities autonomously and to be sustainable on the long term.



Capacity building: main expected results and strategies (3/3)

3. VDF is open to all villagers and loans for agriculture, livestock and fisheries are increasing

In collaboration with the Lao Microfinance Association, NP-LAF will:

- analyse the actual constraints which may limit the membership of villagers in the VDF;
- support the revision of the VDF existing rules to favour the development of loans for agriculture, livestock and fisheries;
- support the farmers in doing business plan before borrowing;
- strengthen the capacity of VDF committees in doing loans assessment for loans regarding agriculture livestock and fisheries.



About POE recommendations on Livestock

Recommendation 20/27 (ROP for NTPC)

"Review and, by the end of 2018, revise the livestock development plan, including a reassessment of the carrying capacity of the plateau and development of an emergency plan for managing large livestock feed and numbers in the event of a significant drought and for effective responses in the event of a disease epidemic".



About POE recommendations on Livestock

1. NP-LAF will work on carrying capacity with 2 complementary studies :

- Assessment of the forage availability at village level, according to the type of forage, its situation in the landscape (drawdown zone, forestry, agriculture plots) and the period of the year.
- Study of the different herders' strategies to feed their livestock, according to the number of heads, the forage availability and the period of the year. This study will aim to acquire a better understanding of the pasture management systems.



About POE recommendations on Livestock

These surveys will lead on to:

1. the formulation of proposals for improvements of livestock feed management and modalities for the use of collective pastureland, including forest areas earmarked for utilization as pasture.
2. A better understanding of livestock vulnerability to climate hazards and the preparation of adapted strategies to cope with the climate risks.



Infrastructure & other asset provision



POE#28
29th June 2018

Rec. 39/27. NTPC and GoL should confirm CA infrastructural requirements included in the LoA and a Handover Agreement

- The Joint Working Group has identified fourteen (14) remedial actions of which seven (7) are related to Infrastructure, to bring the resettlement program into compliance with Concession Agreement as a part of the RIP closure process. These actions have been included into the CAP Addendum as per the MoM of the Joint Working Group on IMA Compliance Assessment Matrix dated 31st May 2017 and CAP Addendum .
- The seven actions related to Infrastructure are:

7 Infrastructure Remedial Actions					
#	# in CAP Addendum	Content	Owner Ref. (S.No.) [*]	Action	Accountability
1	5	Water issues			
	5.1	Water quality of Water supply	949	Continue to monitor water quality on the same regular basis, with the same existing documentation & reporting. Sonholes to receive an appropriate maintenance	NTPC (water quality check) and Gol (maintenance)
	5.2	Water supply (1 BH per 5 Houses)	949b	Feasibility study of small water supply systems for 13 hamlets under PPP (Public Private Partnership) model	NTPC (feasibility study)
2	6	Drainage related issues	322, 336, 372, 552, 947, 970, 977	Re-locate drains around the community buildings to ensure no water stagnation, with villagers' contribution for labor and other inputs and support provided by district and NTPC.	NTPC (with Gol support & communities participation)
3	7	Sufficient number of classes to accommodate kids of resettlers households	327, 974	Reach an agreement and plan between NTPC, District and MoES on the type and construction of additional schools at Nakai Tai, Sop On and Dene (expected: Block of 3+1 rooms for each hamlet), with requisite equipment's support and its teachers' staffing.	NTPC (construction). Gol (staffing)
4	8	Sewage facility (toilets) around market	375, 1054	Build toilets at Nongboukham village provided that: (i) Village authorities confirm their wish to organize and be in charge of the maintenance; (ii) Villagers commit to contribute to some aspects of the construction.	NTPC (toilet construction) Gol (Villagers commitment for contribution in the construction & maintenance)
5	9	Village Hall (Nakai Tai)	944	Build extension of the roof of the village hall	NTPC (construction)
6	10	Ice Plants	938	Build cold storages (preferred to ice plants) as requested by fisheries group if the request is in line with the 3 principles defined between District authorities and NTPC, to foster the ownership of infrastructure from resettlers.	NTPC (for construction of cold storage) with Gol & Fisheries groups commitment and participation
7	12	Waste management plans and service for resettlement villages	1034	Implement waste management plan as agreed between NTPC, District and SDRF	NTPC/Gol (District and SDRF)

^{*}S.No. is the Serial Number of the row from the IMA CA Compliance Excel Matrix sheet (as referred to in 31/05/17 JWG MOM).

Confirmation of CA infrastructural requirements

- NTPC and the GOL have exchanged letters where GOL confirms that NTPC will have fulfilled all its obligations under the CA regarding the infrastructure works upon completion of the 7 actions dedicated to infrastructure, part of the 14 actions consolidated into the Addendum/LOA.

[illegible][illegible]

Rec. 39/27. NTPC and GoL should confirm CA infrastructural requirements included in the LoA and a Handover Agreement

- For the purpose of clearer implementation and reporting
- the Action #5 on water issues was subdivided into 2 full actions and
- the 2 actions assumed to last beyond 31 December (#7- Classrooms construction, #12 – Waste management) were split for parts assumed to be implemented before and after 31 December 2017.

Infrastructure Remedial Actions: Implementation

#	# in CAP Action -date	Related remedial action for implementation / monitoring	Context	Clause Ref. (S. No.) ^a	Action	Accountability	Status
1	5	AD.5	Water issues Water quality on Water supply	849	Continue to monitor water quality on the same regular basis, with the same existing documentation & reporting. Boreholes to receive an appropriate maintenance	NTPC (water quality check) and GoL (maintenance)	COMPLETED Report issued (NTPC-S-K0911-0005)
	5.1						
2	6	AD.7	Drainage related issues	322, 336, 373, 853, 947, 970, 977	Re-create drains around the community buildings to ensure no water stagnation, with villagers' contribution for labor and other inputs and support provided by district and NTPC.	NTPC (with GoL support & communities participation)	COMPLETED Report issued (NTPC-S-K0911-0006 & NTPC-S-K0911-0016)
	6						
3	7	AD.8 (Pre-31/12/2017)	Sufficient number of classes to accommodate kids of resettlers households	327, 974	Reach an agreement and plan between NTPC, District and MoES on the type and construction of additional schools at Nakai Tai, Sop On and Done (expected: Block of 3+1 rooms for each hamlet), with requisite equipment's support and its teachers' staffing. Construct and equip classrooms and organize staffing	NTPC (construction) GoL (staffing)	AD.8 COMPLETED Report issued (NTPC-S-K0911-0007) AD.16 Contracted and ongoing
		AD.16 (Post-31/12/2017)					

Infrastructure Remedial Actions: Implementation							
#	# in CAP Action plan	Revised numbering for Implementation / monitoring	Context	Change Ref. (S. No.)*	Action	Accountability	Status
4	8	AD.9	Sewage facility (toilets) around market	378, 1054	Build toilets at N8K village provided that: (i) Village authorities confirm their wish to organize and be in charge of the maintenance; (ii) Villagers commit to contribute to some aspects of the construction.	NTPC (toilet construction) Gol (Villagers commitment for contribution in the construction & maintenance)	COMPLETED Report issued (NTPC-S-K0911-0009)
5	9	AD.10	Village Hall (Nakai Tai)	944	Build extension of the roof of the village hall	NTPC (construction)	COMPLETED Report issued (NTPC-S-K0911-0009)
6	10	AD.11	Ice Plants	938	Build cold storages (preferred to ice plants) as requested by fisheries group if the request is in line with the 3 principles defined between District authorities and NTPC, to foster the ownership of infrastructure from resettlers.	NTPC (for construction of cold storage) with Gol, & fishermen groups commitment & participation	COMPLETED Report issued (NTPC-S-K0911-0010)
7	12	AD.13 (Pre-RIP) AD.17 (Post-RIP)	Waste management plans and service for resettlement villages	1034	Implement waste management plan as agreed between NTPC, District and SERF	NTPC/Gol (district and SERF)	AD.13 and AD.17 contracted and ongoing

Detailed status of actions

- Five out of seven actions were already completed:
 - Community consultations done
 - Contractors' work completed
 - Joint GOL-NTPC field check done
 - COC issued where applicable
 - Asset handed over to community where applicable
 - Final completion report issued

No	Description	Status
1	Handover of toilet and water system	Done
2	Handover of toilet and water system	Done
3	Handover of toilet and water system	Done

Detailed status of actions

- Additional classrooms:
 - Classrooms, toilets and teacher's houses constructed
 - Electrical connection ongoing (target: 15 July 18)
 - Furniture construction ongoing (target: 15 July 18)
 - Teachers' appointment being processed
- Waste
 - UXO clearance completed
 - Land clearing completed
 - Water and electricity connection ongoing



Final Handover Agreement

PRELIMINARY STEPS

- NTPC and GOL will proceed with regular joint GOL-NTPC field check of 2 last actions.
- NTPC will hand over assets to schools / district offices.
- NTPC will issue completion reports.

HANDOVER

NTPC will exchange letters with GOL (DEB) for providing all relevant documentation related to the 7 infrastructure actions and confirming that NTPC has fulfilled all its obligations under the CA regarding the infrastructure works.



NT2DF Cooperation Agreement

- **Cooperation Agreement signed on 06/06/2018 by:**
 - Khammouane Province
 - NTPC Shareholders (EDFI, EGCO, LSHE)
 - Nakai District
 - NTPC
 - Villagers (3 representatives from North, Central and South)




NT2DF Cooperation Agreement

- **NT2DF principles**
 - (i) integrity and transparency,
 - (ii) no corruption
- **Conditions for project to be eligible**

Purposes: livelihood, education, health, poverty alleviation, community empowerment, institutional strengthening and natural disasters

Applicants : Village Development Committees and (ii) private organizations

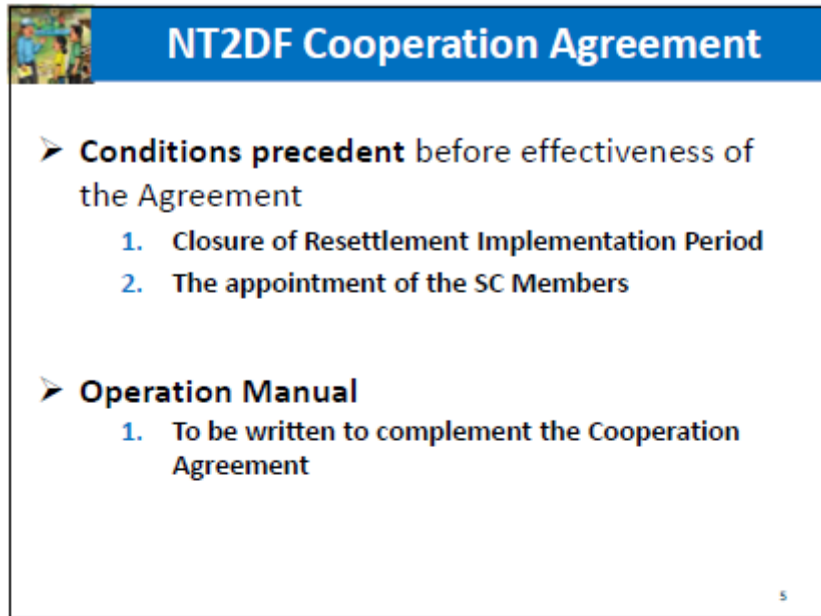
Beneficiaries: (i) the Nakai District residents and (ii) the Nakai District or the Villages but only with respect to capacity building/institutional strengthening

Consultation/participatory approach

No double funding for the same Project

Shared contribution

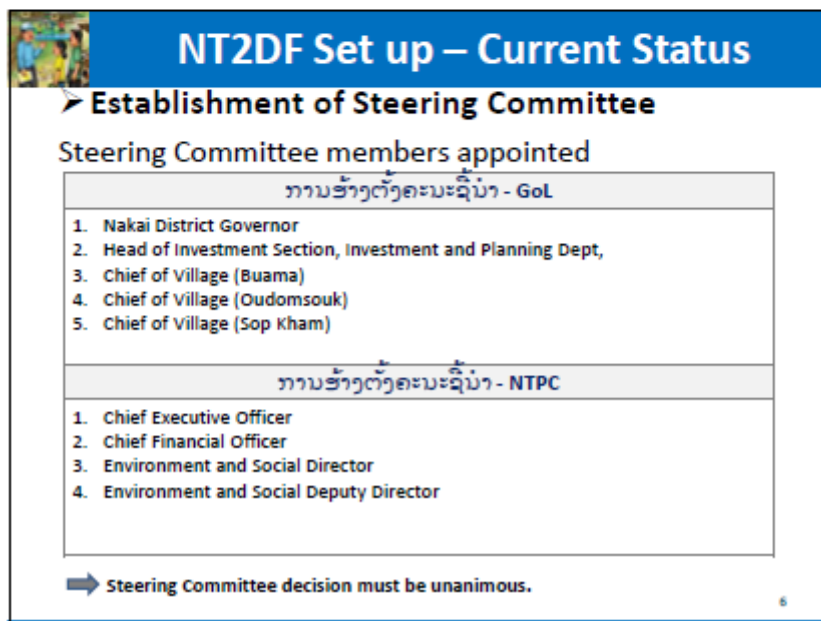
Sustainability



NT2DF Cooperation Agreement

- **Conditions precedent** before effectiveness of the Agreement
 1. Closure of Resettlement Implementation Period
 2. The appointment of the SC Members
- **Operation Manual**
 1. To be written to complement the Cooperation Agreement

5



NT2DF Set up – Current Status

- **Establishment of Steering Committee**

Steering Committee members appointed

ການຮ່າງຕັ້ງຄະນະຊີ້ນຳ - GoL
1. Nakai District Governor
2. Head of Investment Section, Investment and Planning Dept,
3. Chief of Village (Buama)
4. Chief of Village (Oudomsouk)
5. Chief of Village (Sop Kham)

ການຮ່າງຕັ້ງຄະນະຊີ້ນຳ - NTPC
1. Chief Executive Officer
2. Chief Financial Officer
3. Environment and Social Director
4. Environment and Social Deputy Director

➡ Steering Committee decision must be unanimous.

6

NT2DF Set up – Current Status

➤ Staffing of the NT2DF Support Team

Nakai District Officers (GoL)	Key responsibilities
Head of District Office	<ul style="list-style-type: none"> NT2DF Management NT2DF Administration Community Development for NT2DF projects Capacity Building of Village team NT2DF Budget Control NT2DF projects monitoring
Head of planning and investment Office	
Head of Lao Front for National Construction Office	
Head of Lao Women Union	
Planning and Investment Office	
Finance Office	
Agriculture and Forest Office	

CSR Team in charge of NT2DF (NTPC)
Manager
Coordinator
Project Coordinator
Project Coordinator
Project Coordinator
Monitoring Officer
Budget /Admin Officer

➔ With guidance and strategy provided by the Steering Committee

7


NT2DF Steering Committee #1

➤ NT2DF Steering Committee #1 held on June 28th 2018

➤ Key Decisions taken by the SC:

- Request for NT2DF Manual to the NT2DF Support Team
- Endorsement of NT2DF Strategic orientations for the pilot phase 2018 - 2023

8



SC#01/1: Request for development of NT2DF Manual

- **Objectives of the Manual**
 - Guide NT2DF daily operations
 - Ensure respect of NT2DF 2 Principles and 7 Conditions
- **Key elements to be included in the Manual:**
 - Structure and responsibilities of institutions
 - Project selection and implementation procedures
 - Monitoring
 - Financial management and procurement
 - Recruitment of External Assistance procedures
 - Operations costs
 - Forms and templates


9



SC#01/2: Endorsement of the NT2DF strategic orientations 2018 – 2023 (1/10)

- **Objective of strategic orientations**
 - Guide NT2DF Funding over the pilot phase
 - Ensure relevance between projects
 - Ensure Coordination in funding sources
- **NT2DF Workshop: Defining strategic orientations for the pilot phase 2018 – 2023,**
 - June 18th, 19th 2018, Nakhon Phanom, Thailand
 - Participants: Support Team members, RMU, District, NTPC Management

10




SC#01/2: Endorsement of the NT2DF strategic orientations 2018 – 2023 (2/10)

➤ **Main output of the Workshop:**

- **Program 1:** Agriculture and livestock (including access to Land) and fishery.
- **Program 2:** Support to the sustainable use of forestry resources.
- **Program 3:** Support livelihood development in a business oriented way;
- **Program 4:** Institutional Strengthening and Community empowerment
- **Additional:** Social Safety Net and Scholarships (agreed for funding) + Emergency grant (if needed – To be defined in Manual)

11



SC#01/2: Endorsement of the NT2DF strategic orientations 2018 – 2023 (3/10)

➤ **Methodology - Analysis of:**

- **Bottom up Planning:** Village Development Plans, Forest Management Plan
- **GoL Strategy:** District Socio economic development plan
- **Long Term Approach:** Mid Term Development Plan, POE recommendations#27

Bottom up planning
VDF
FMP

GoL Strategy
DSEP

Long Term Approach
MTDP
POE Recommendations#27

NT2DF strategic orientations


Program 1

Program 2

Program 3

Program 4

12



SC#01/2: Endorsement of the NT2DF strategic orientations 2018 – 2023 (4/10)

➤ **Bottom up Planning**

Village Development Plan:

- Focus on livelihood rather than social, especially top 8 priorities from disadvantaged groups
- Agriculture (rice and crops), Fishery, Business Development (vocational training) and land are the main sectors in number of priorities.
- In term of ranking (top 3 and top 8), Livestock, Agriculture, Business and Fisheries come first
- The three clusters propose similar priorities with a relative emphasize on Fishery for the North, access to finance for the central cluster and agriculture for the south.

Forest Management Plan:

Major concerns from villagers are:

- Forest Protection and reforestation
- Improved management of forest through strengthened institutions
- Income generation (Agro forestry, NTFPs, eco tourism)

13



SC#01/2: Endorsement of the NT2DF strategic orientations 2018 – 2023 (5/10)

➤ **GoL Strategy**

District Socio Economic Development Plan (DSEDP):

- Food security and local product promotion,
- Infrastructure and communication,
- Human Resource, Social and culture development,
- Tourism and Service,
- Land management and Forest Protection.

14

SC#01/2: Endorsement of the NT2DF strategic orientations 2018 – 2023 (6/10)			
➤ Long term Approach: MTDP			
Sector	# Total actions	Summary description of actions	Related # actions
FI	14	Assessment and protection of the fishery resources	6
		Strengthen and monitor local fishery institutions, improve co management	2
		Awareness campaign fishing regulations	4
		Improve income generation from fishery, including processing and marketing	2
AL	2	Land assessment with community (current use and potential) and potentials for future allocations	2
OF	12	Ensuring access to finance for entrepreneurial resettlers and strengthening VDF	2
		Youth leadership program	1
		On-site and vocational training, promote internship and employment opportunities, including E&J fair	4
		Expand scholarships	1
		Handicraft production group (Happy Nakei), support for start-up ventures, promote tourism	4

15

SC#01/2: Endorsement of the NT2DF strategic orientations 2018 – 2023 (7/10)			
➤ Long term Approach: MTDP			
Sector	# Total actions	Summary description of actions	Related # actions
FO	7	Forestry regulation and protection, capacity building, income generation (Depends on Forestry Management Plan)	7
GE	7	Gender aspects included in VDF and NT2DF design (selection criteria)	2
		Gender monitoring at mid-term	2
		GOL gender monitoring in health, education, etc	1
		Capacity building for village women, VGC and campaigns	2
EG	3	Inclusiveness criteria included in NT2DF (selection criteria)	1
		Continue EG monitoring in VDC and other important committees	1
		Consultation with EG in less well-off hamlets	1

16

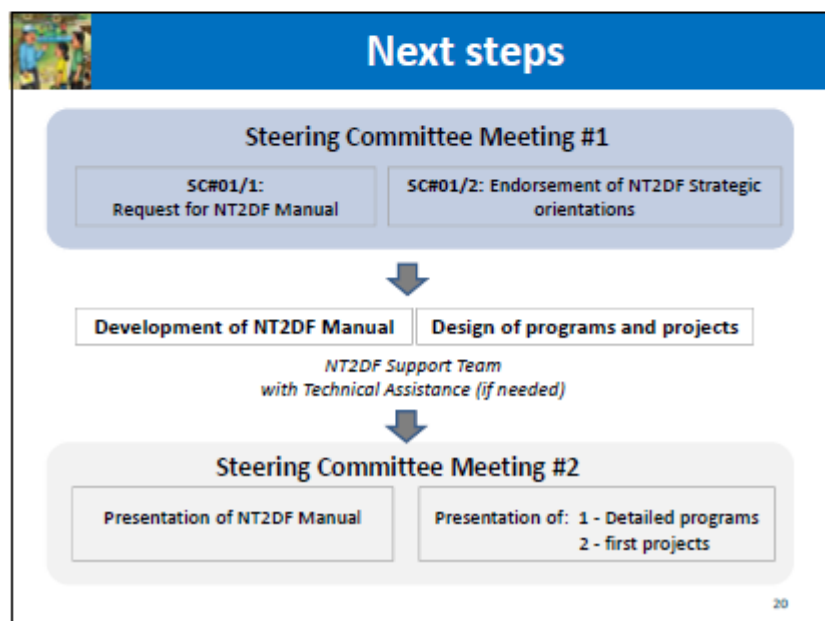
SC#01/2: Endorsement of the NT2DF strategic orientations 2018 – 2023 (8/10)					
➤ Long term Approach: POE#27 Recommendation					
Chapter	For future development as part of a decision to close the RIP	Compliance with ROPs (GOL)	Compliance with ROPs (NTPC)	Other matters for consideration in future development	Key elements
Agricultural Development	2				Long-term plan
Cropping And Irrigation				2	Irrigation and crop production
Ethnic Groups		1		6	Long-term inclusion, support and monitoring Ethnic groups
Fisheries		1		4	Monitoring of fisheries control, Capacity building, marketing and processing
Forestry	1		4	1	Management of resource, Institutional capacity building and NTFP
Land				3	Land management and regulation
Livestock			1	2	Long-term development plan and Business development
Off-Farm	2			8	Access to finance, Tourism and Capacity building
Poor And Vulnerable				2	Long-term inclusion and support Poor, Vulnerable and High Risk households
Grand Total	6	2	6	26	

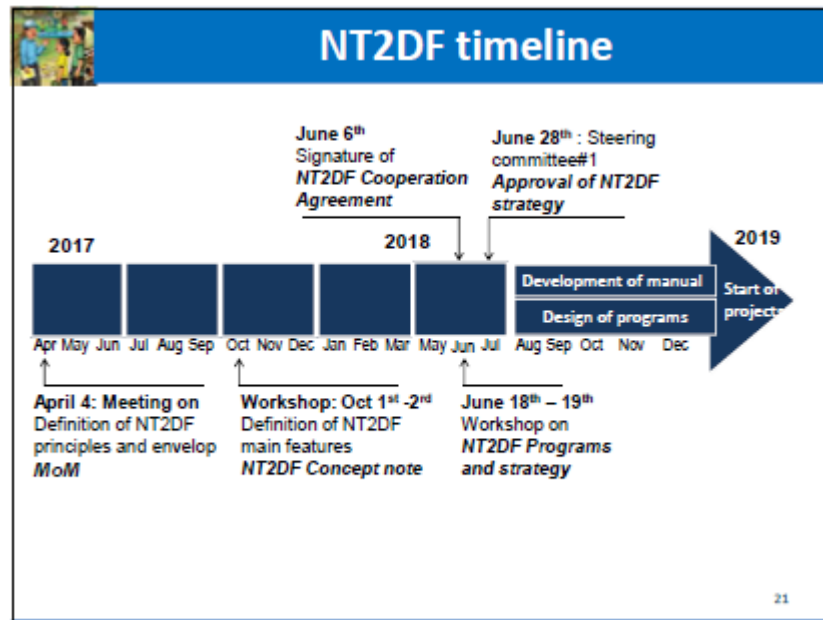
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SC#01/2: Endorsement of the NT2DF strategic orientations 2018 – 2023 (9/10)		
➤ Main output of the Workshop (1/2):		
Program	Main objective	Institution/ project
1 – Agriculture, Livestock, Fishery	1 - Support to the development of agricultural, livestock and fisheries activities by providing technical and institutional assistance to interested producers in order to remove production and marketing constraints; 2- Strengthen the district's staff capacity to support technically and institutionally long-term agricultural and fisheries activities	- DAFO - NPLAF
2 – Forestry	1-Preserve the Community Forest in quantity and quality for the use of villagers through: -Improved management of resource - Sharing benefits	- DAFO, - DOF

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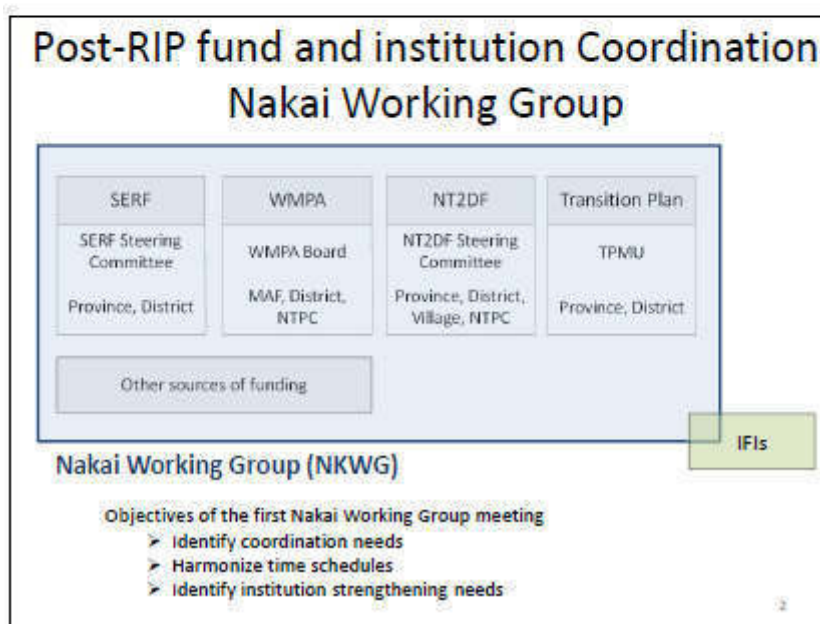
SC#01/2: Endorsement of the NT2DF strategic orientations 2018 – 2023 (10/10)		
➤ Main output of the Workshop (2/2):		
Program	Main objective	Institution/ project
3 – Business Development	1- Improve the value chain of Nakai products from all livelihood sectors 2- Increase the sources of income of Nakai villagers 3 - Upgrade quality and value of products 4 - Promote sustainable and responsible business (Fair, environmentally and socially friendly) 5- Promote employment	- Commerce and Industry Office, - Tourism, culture information Office, - Education Office - Planning and investment Office - Lao Microfinance Association
4- Institutions Strengthening, community empowerment	1 - Promote implementation of 3 Sang by strengthening District and Village institutions 2- Promote the development of accountable and capable local authorities through capacity building programs adapted to each level 3- Empower disadvantage group, ethnic group, women and youth to increase their voice and opportunities. 4- Coordinate all capacity building efforts and ensure knowledge transfer	- Home Affair Office - LWU - Youth Office Lao Front for national construction



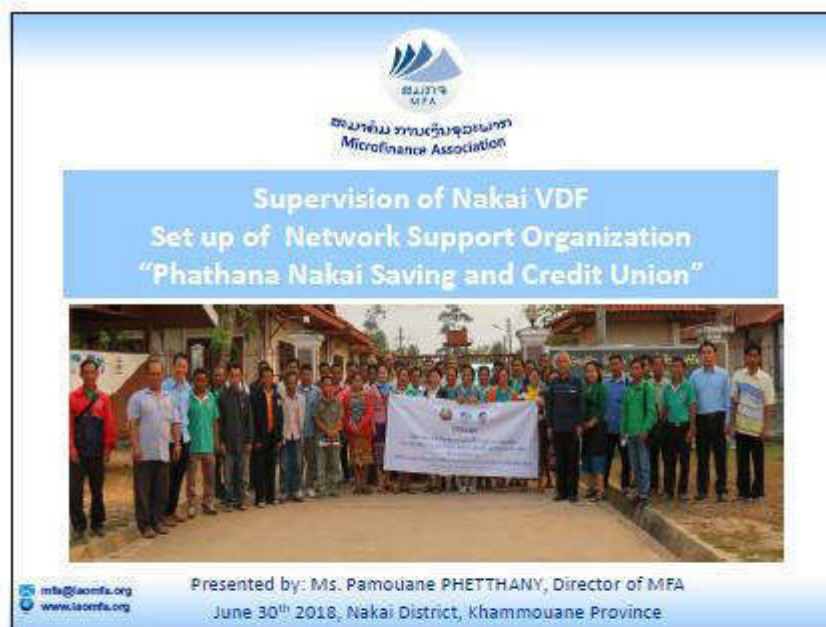


Post RIP Commitments					
Commitment	Funding		Scope (Duration)	Monitoring	
	~ 000\$/yr	Source		Monitor	Expected duration
Transition Plan (implementation)	300	GoL (NT2 revenues)	RIP: Downstream (2018-2020)	Provincial Govt, MEM, World Bank	3 years 1 year
Compensatory Forestry	700	NT2 revenues	National (to 2022)	MEM	To 2022
NP-LAF (AFD)	330	AFD grant (supplemented by NT2DF)	Resettlement (2017-2022)	AFD, NTPC, GoL	3 years
LENS 2	730	WB project	Watershed (2017-2022)	World Bank	4 years
WMPA (CA)	1330*	NTPC	Watershed (to 2035)	IMA; MEM, World Bank (LENS 2)	To 2035 To 2022
SERF (CA)	410*	NTPC	Resettlement (to 2035)	Provincial Govt, MEM	To 2035
NT2DF	730	NTPC	Resettlement (to 2035)	External monitor, Steering committee	To 2035
CA	230	NTPC	Environmental Obligations (to 2035)	LTA, MEM	To loan repayment To 2035

1



2



About Lao MFA: Background

May 2007: Established as Microfinance Working Group (MFWG)

Oct 2013: Obtained temporary license as a Non-Profit Association (NPA)

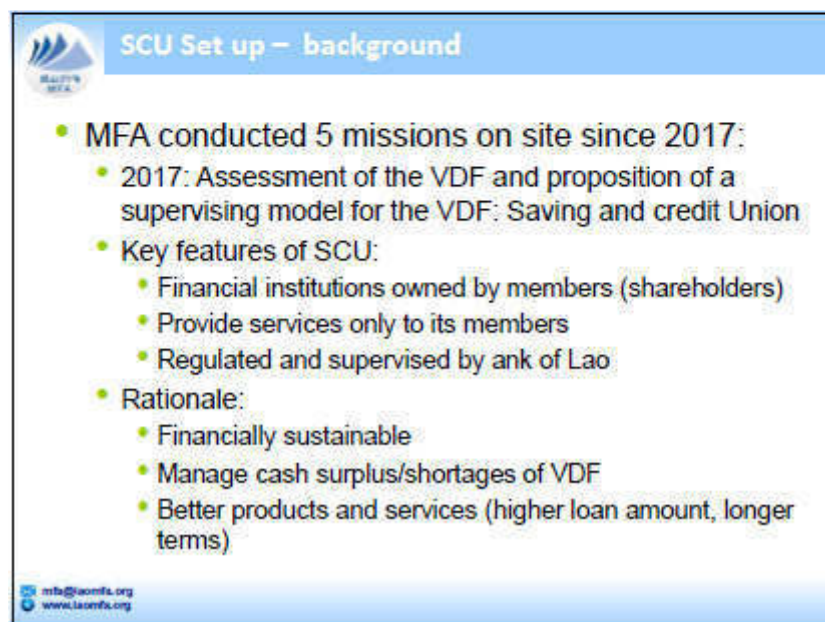
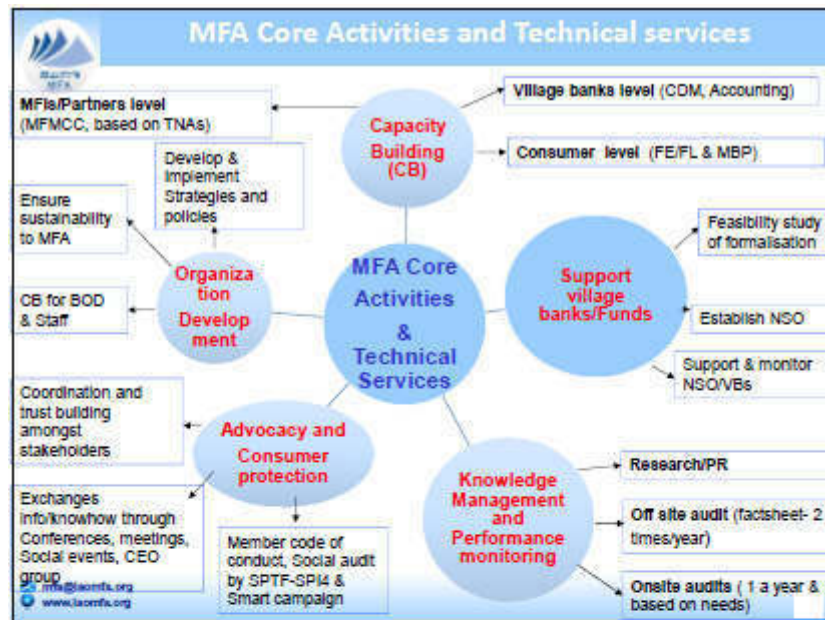
Since Oct 2013: works with 2 Lao Partners (BoL, MoHA)


Jun 2018: 6 staff, 5 BoD members and 3 internal auditors

Jun 2018: 4 Donors (ADA, GIZ, UNCDF, Australian Aid)

Jun 2018: 1 project partner: NTPC II to create NSO- SCU



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 www.laomfa.org






Nakai SCU – Objective, Structure



- **Objective of Nakai SCU:**
 - Provide supervision and support to the 16 VDF
 - Create a new platform for access to financial services in Nakai
- **16 VDF as shareholders of Nakai SCU**
 - VDF will use the money currently in saving accounts
 - Each VDF buys share based on the number of their members (500,000 kip/member),
 - VDF pays yearly fee to SCU (5% of dividends)
- **External individual can be shareholders of the SCU (20% of the total SCU shares max) – each max 5% of 20%**
- **Maximum Loan amount: 50,000,000 LAK – 36 months**

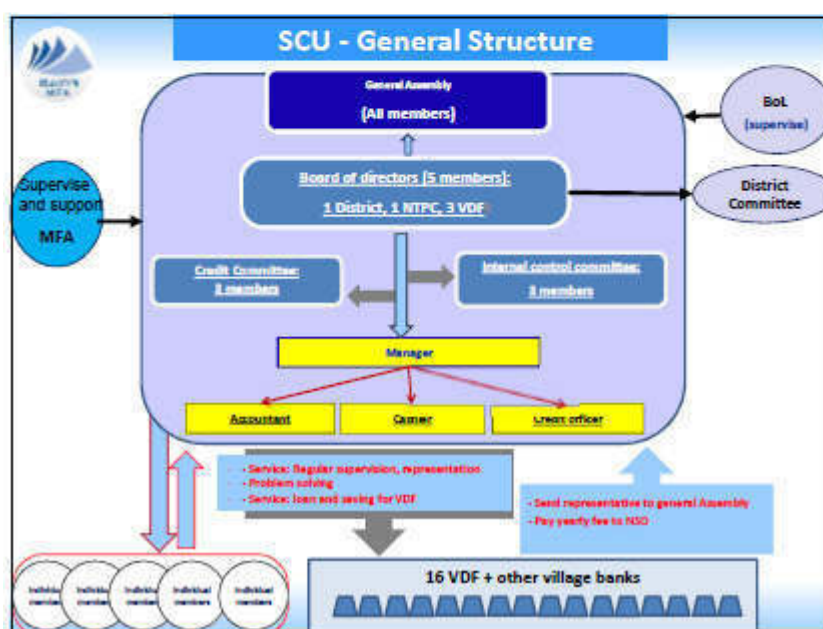
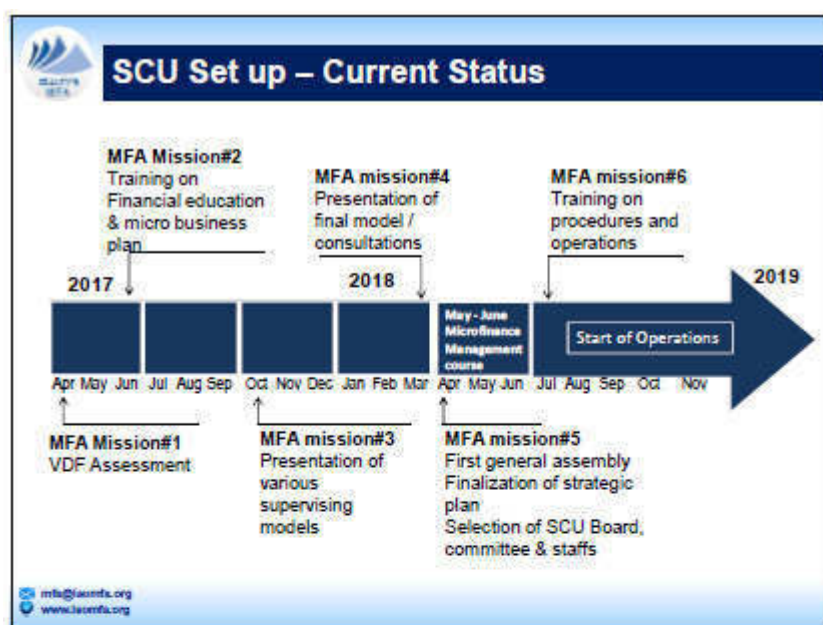
 mta@nampco.org
 www.nampco.org



Overview of Shareholders

No	VDF	Total members	Share	Total share
1	Nongbourkham	63	500,000	31,500,000
2	Nakai Neu	126	500,000	63,000,000
3	Phonsavang	50	500,000	25,000,000
4	Thalang	109	500,000	54,500,000
5	Sopphen	66	500,000	33,000,000
6	Sopma	87	500,000	43,500,000
7	Sophea	57	500,000	28,500,000
8	Oudomsouk	121	500,000	60,500,000
9	Nongbour	56	500,000	28,000,000
10	PhonphanPeak	88	500,000	44,000,000
11	Bouma	85	500,000	42,500,000
12	Sopon	164	500,000	82,000,000
13	Khonkaen	67	500,000	33,500,000
14	Don	213	500,000	106,500,000
15	Nakai tai	259	500,000	129,500,000
16	Namnian	69	500,000	34,500,000
Total		1680		840,000,000
Share of the SCU, carry over of 5% dividend				123,000,000
Other member shareholders				37,000,000
Total				1,000,000,000

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Nakai SCU – Board, committee & Staffing

- 5 Board members, 6 committees, and four staffs from Nakai to run the SCU:
 - Staffs with former experience in VDF (2), Accounting (1), Long Term Scholarship (1)
- Training program:
 - MFA / BoL Microfinance Management Certificate Course (MFMCC): 21 days training in Pakse
 - Internship in Champassak Development Saving and Credit Union for Credit Officer, Accountant and Cashier
 - On site training on Governance, management, procedures, and



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Nakai SCU – Future Support arrangements

- MFA will support the establishment of Nakai SCU until (2020) through the ADA-MFA Project,
 - ADA MFA project: Strengthening of microfinance sector in Laos PDR and formalization of Village banks through Microfinance Association,
 - MFA will support one dedicated staff to support SCU on daily basis
 - MFA Management will conduct regular field monitoring
 - Set up of accounting system: BoL MF software and Excel
- BoL to provide yearly audit
- NTPC/GoL/NT2DF will support costs related to:
 - Buildings and equipment for the establishment
 - Training of the SCU staffs
 - Co fund (ADA-NTPC) MFA dedicated staff salary until December 2018
 - Nakai SCU can be supported through NT2DF

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Post RIP Monitoring

David Fredericks



Outline

- Overall monitoring framework
- Monitoring of projects to be funded by the NT2DF
- Nakai Expenditure and Consumption Survey (NECS)
 - Monitoring tool
 - Survey design
 - Analysis and reporting
- Monitoring framework: examples
- Conclusions

Overall Monitoring Framework

	Target	Indicator	Data Source	Responsible	Frequency
CHANGE*	Improve Living Standards	Expenditure & consumption Poverty (NECS)	Survey	NTPC	4-5 years
Outcomes	Change of behaviour	SMART* indicator	Annual follow-up / survey	Executing Team	Annual
Activities & Outputs	Complete Workplan	Activities Participation	Forms	Executing Team	Quarterly Annual

SMART Indicator

S = Specific
M = Measurable
A = Achievable
R = Relevant
T = Time Bound

*Change indicator is often called an impact indicator but it is acknowledged that the it will not be possible to attribute changes in this indicator to the NT2DF projects because of the importance of extraneous factors such as climate, commodity prices, etc.

Monitoring of projects funded NT2DF

1. Social Protection - SSN
2. Education - Scholarship Program
3. Technical Assistance Project
 - Nakai Plateau Livestock Agriculture & Fisheries Project (NPLAF)
 - Other technical assistance (collaborative)
4. Community Projects (Village Investment Plans)
5. Capacity / Institutional Strengthening

Monitoring of projects funded NT2DF

1. Develop a Monitoring Plan to be included within the NT2DF Operations Manual
 - Define an overall goal consistent with those set out in the CA
 - Plan will use a logframe approach
 - Individual projects will be required to describe the problem, provide detailed objective(s) and describe the activities, outputs to be undertaken and outcomes they hope to achieve.
 - Monitoring and reporting within projects will be limited to outcomes
2. All NT2DF funded projects will use the same monitoring frameworks as defined in the NT2DF operations manual

Monitoring of projects funded by NT2DF

3. The NT2DF Support Team will share the monitoring plan, frameworks and example tools with the NPLAF Team in order to harmonize monitoring, evaluation and reporting
4. The NT2DF Support Team will take a lead role in maintaining a database of the target population and will ensure all parties have access to up-to-date households lists with a unique identifier to ensure compatibility between partners and stakeholders
5. Disaggregate and report monitoring data by ethnicity and gender.

Nakai Expenditure and Consumption Survey (NECS)

OBJECTIVE

- Assess the living standards of Nakai village residents

WHO

- Responsibility of NTPC

WHAT

- Economic Indicators & Non-economic Indicators of Living Standards

RISKS / ISSUES

- Living standards & other impact indicators are affected by a wide range of factors:
 - Agro-climatic conditions
 - Commodity prices
 - Changes to transport links / supply & value chains
- Projects do not address the root cause or all of the underlying causes of poverty

LSMS vs. NECS

#	LSMS 2017	#	Nakai Expenditure & Consumption Survey NECS
1	Roster		Roster including
2	Education & expenditure	1	Education
3	Employment & income		Employment
4	Dwelling and Services	2	Dwelling and Services
	Consumption		Consumption
5	Food Consumption	3	Food Consumption
	Consumables		Consumables
	Durables		Durables
6	Savings & Assets	4	Savings & Assets (including livestock)
7	Agricultural Plots		
	Net Agricultural Income		
8	Wet season		
	Dry season		
	Costs of production		
9	Forest Incomes	5	Income ranking / livelihood activities
	Hunting		Employment – percent & income
	Timber		Business – percent & profit
	NTPC		Remittance – percent & amount
10	Livestock		
11	Fishing		
12	Business Income		
13	Other Income		
14	Debt	6	Debt – percent, amount, difficulty
15	Resettlement – satisfaction and issues		
16	Wellbeing	7	Food security
17	Food Security		

NECS Indicators

Social	Expenditure and Consumption
1. Median age	1. Total per capita expenditure and consumption
2. Declared resettler status	2. A Dietary Diversity Score
3. Mean household size	3. Poverty head count
4. Declared ethnicity	
Education	Savings & Assets
1. Primary Age Enrolment	1. Total monetary savings
2. Secondary Age Enrolment	2. Number of possession owned
3. Adult Literacy	3. Total estimated value of current assets
4. Highest level of education	
Incomes	Debt
1. Percent employment	1. Total value of debts
2. Percent households with business	2. Source of last loan
3. Ranking of income sources	3. Ability to repay debt
Dwellings & Services	Food self sufficiency
1. Housing materials	1. Number of months with sufficient food.
2. Maintenance expenditure	2. Months consuming self-grown rice
3. Use of improved sanitation	
4. Use of improved drinking water source (wet and dry season)	
Livestock	
1. Livestock number and value	

Maximise Compatibility of NECS with LSMS

- LSMS 2017 Baseline
 - Household Characteristics
 - Education – PAE & SAE
 - Employment Income
 - Business Income
 - Expenditure & Consumption
 - Poverty Headcount
 - Durable Possessions
 - Savings
 - Debt
 - Food Security

NECS Survey Design

Target Population

- Households in Resettler Villages

Sample size

- 400-500 random sample + additional sampling of Ahoe

Frequency

- 4 years – first survey in 2021 to provide input to final evaluation of start-up phase

NECS Analysis & Reporting

Maximise compatibility with LSMS & QSEM

- Use 2017 LSMS as a baseline

Disaggregation

- Ethnicity
- Location
- Gender

NECS Survey

- Detection of Change
 - Post resettlement changes likely to occur at slower pace.
 - 4 years sufficient time for change to occur.
 - LECS, census & international LSMS surveys use 5 year intervals.
- Rapid changes in living standards can be detected by “sentinel monitoring” i.e. feedback to GoL, NTPC and independent advisor.
- Data collection & analysis outsourced to independent company.
- LSMS 2017 provides a pre-project baseline

Monitoring Framework - Example - Scholarship

Problem

Nakai youth cannot obtain well paying jobs because of low education levels

Higher education is unavailable because of distance and cost

Objectives of scholarship program

- Expand the opportunities for eligible villagers to undertake further education in order to increase employment & improve living standards family.

	Target	Indicator	Data Source	Responsible	Frequency
CHANGE	<5% below poverty line 2021	Exp & Consumption Poverty # value of possessions	5 year Survey	NT2DF Support Team Outsourced	4 years Final
Outcomes	90% complete 80% employment 70% in study field 1 year after grad 50% remit money	# Graduates # Graduates employed Type of job Location # / amount remittance value of gifts	Annual phone survey	NT2DF scholarship coordinator	Annual Mid-term Final
Activities & Outputs	XX new scholarships / year	# School briefings # scholarship exams	Project records	NT2DF scholarship coordinator	Quarterly/ Annual

Monitoring Framework - Example – Community Projects

Problem – analysis of problem identifying root cause

Objectives of village level program

- Participatory analysis of problems incorporated in VDP
- Definition of objectives of individual project:

Undertake "X" in order to "Y"

Monitoring Framework

Defined by Villagers during development of proposal


	Target	Indicator	Data Source	Responsible	Frequency
Outcomes	Increased NTFP production	# households with NTFP planted and still growing	Follow-up survey	NT2DF Support Team	Mid-term? End of project
Activities & Outputs	# Training programs Seeds/plants available for purchase	# households trained # households purchase NTFP	Project Records	NT2DF Support Team	Quarterly?

Conclusions


Post RIP Monitoring will include

1. Development of a monitoring plan / framework which will include monitoring of activities, outputs and outcomes (change) for individual projects
2. Undertake an Expenditure and Consumption Survey (NECS) every 4-5 year to ensure the original objective of the resettlement program continue to be met.
3. Annual external monitoring & review by independent advisor

Annex 1.3 – Agreement for hand-over activities to NPLAF Project



Lao People's Democratic Republic
Peace Independence Democracy Unity Prosperity



Joint Agreement

Hand-over of NTPC Nakai Livestock Agriculture Fisheries program activities to Nakai District Authorities representative by District Agriculture and Forestry Office supported by NP-LAF Project

Background

The handover process of the Nakai livelihood program to District authorities in the frame of the RIP closure will ensure its full ownership of activities in terms of procedures, databases, relevant documents and training of GoL staff by the District authorities. This process is conducted by NTPC and the GoL and is expected to be completed in May 2018.

The Nakai livelihood program is governed by the Concession Agreement Schedule 4 Part 1, and particularly its clause 9 related to the planning of livelihood development that includes:

- A Livestock Development Program (clause 4.1.9.7)
- An Agricultural Development Program (clause 4.1.9.8)
- A Fisheries Development and Management Program (clause 4.1.9.10)

These clauses are further detailed or expanded in other clauses of the CA (4.1.10 and 4.1.15.1.a.).

The respective clauses (in 4.1.9) of the CA indicate that, in planning and implementing, NTPC is leading (XL) but working together with GOL (X). As such GOL has thus been involved in these programs since Financial Close. It is therefore now a matter, at the closure of the RIP, to ensure that the GOL will take full ownership of the activities that continue on the long term after completion of LoA, in terms of procedures, databases, relevant documents, and training of GoL staff.

The tables of Annex 1 summarize the activities of clause 4.1.9 that are ongoing until the end of the RIP.

In addition Schedule 4 Part 1.3.1, stipulates that:

The parties [NTPC and GOL] agree to take steps to reach the Resettlement Objectives in the course of implementing the Resettlement Process, those objectives being to:

[...]

Page 1 of 3

- f) *apply special measures as required towards ethnic minorities and vulnerable persons to take care of their needs and foster self-reliance and to improve their socio-economic status;*
[...]

Livelihood activities to be handed over

A set of activities implemented by NT2 project as part of the above CA obligations have been identified to be continued after RIP closure under the Nakai MTDP, of which NP-LAF is part, in order to solidify the sustainable basis for the resettlers livelihoods (with special attention to the most at risk) as reached at closure of the RIP.

Before implementation of hand-over is completed by mid of 2018, such key activities agreed to be already handed over to the DAFO and supported by the NPLAF project. The approach of these activities will follow new strategies that will be identified and developed by NPLAF. These key activities are (see Annex 1 for more details):

Regarding Livestock

1. Improving the quality of animal feed through the intensive production of fodder and legume crops on home gardens. This task considered a long term development of pasture.
2. Continue to perform the vaccination of the livestock after the handing over of the activity completed between NTPC and the GoL.
3. Follow-up of the animal statistic on large livestock and management of the buffalo and cattle on the Resettlement area.

Regarding Agriculture

1. Soil fertility improvement through an increase application of organic matters and fertilizers, and the introduction of leguminous crops into the rotation.
2. Cultivation of cash crops such as vegetables and fruits depending on the market demand. Organic vegetable establishment was completed. These long term development activities were agreed to be continued.
3. Institutional support through strengthening government organisations and provision of technical assistance

Regarding Fisheries

1. Organizing marketing of fish and fish product (CA and co-management evaluation recommendation)
2. Follow-up the activities of local institutions (RFA and VFGs) for boat registrations.

Regarding Resettlers at risk

1. Give special consideration to the resettlers included in the High Risk households list established by the District with NTPC support (Nakai Governor Decision 515 dated 7 Nov. 2017) for personalized inclusion in the livelihood activities supported by the NP-LAF.

Representative of NP-LAF :



ឧបនាយករដ្ឋមន្ត្រី
 Khunthou THE PHAKANH

Representative of ESU/NTPC:



Nakai District Agriculture and Forestry Office:

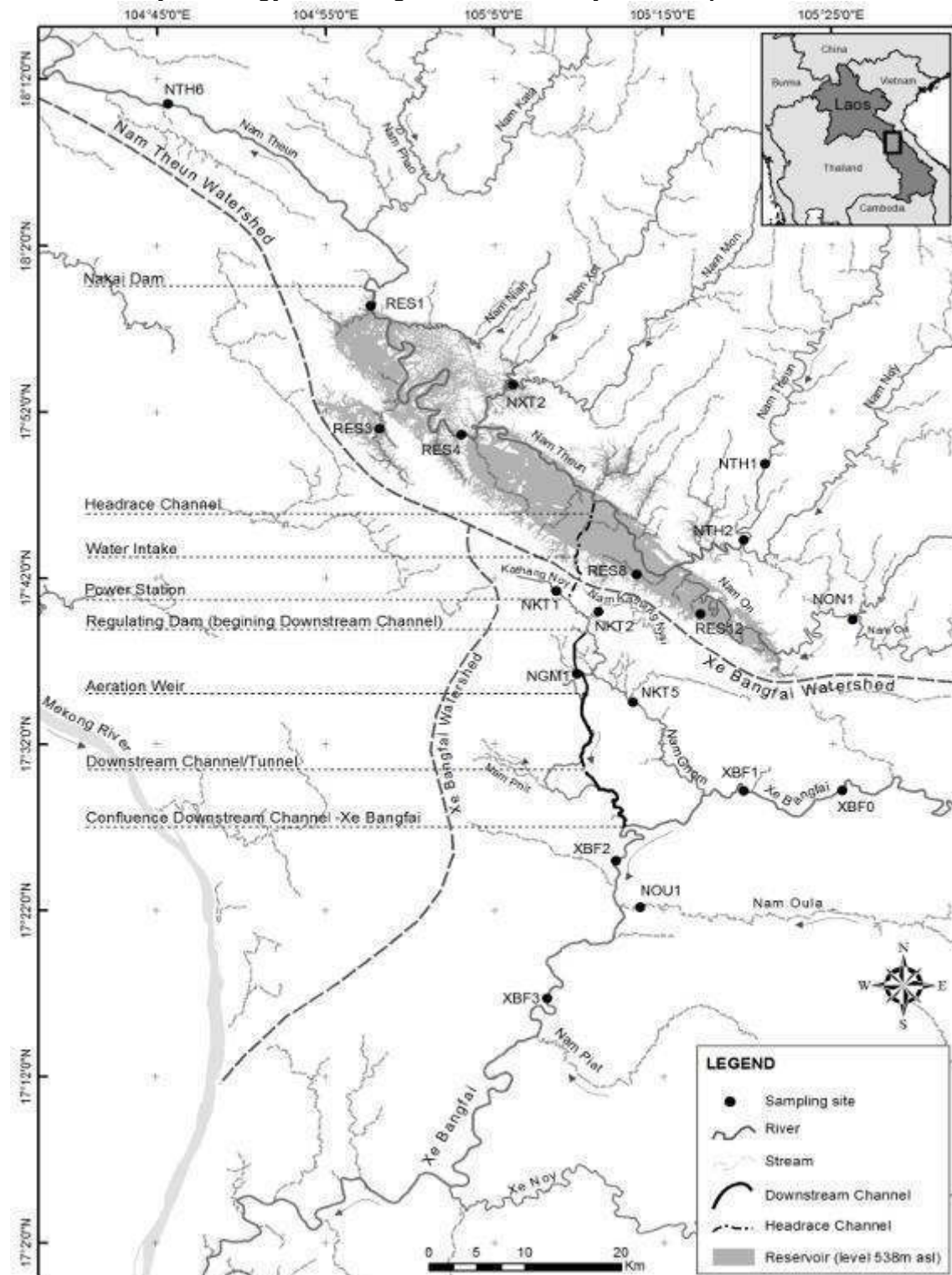



Attachment:

- ANNEX 1 – Livelihood activities under the CA until the end of the RIP
- Translated Lao version

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Annex 2.2 – Hydrobiology monitoring stations from May 2017 to April 2023



Annex 2.3 – Parameters to be monitored from May 2017 to April 2023

Number	Group	Parameters
1	In situ	Total Depth, Temperature, pH, Dissolved Oxygen, Turbidity, Conductivity, Transparency
2	Carbon budget	Dissolved CH ₄ , Dissolved CO ₂ , Total Organic Carbon, Total Carbon, Total Inorganic Carbon (Calculation), Total Alkalinity
3a	Other major parameters	BOD, TSS, Total N, Total P, Fe II, Fe III, Total Dissolved Iron, Dissolved Silica
3b	COD	COD
4	Anions and Cations	Potassium, Sodium, Calcium, Magnesium, Ammonium, Phosphate, Sulfate, Chloride, Nitrite, Nitrate, Fluoride
5	N₂O	Dissolved N ₂ O
6	Gas fluxes (bubbling)	Bubbling CH ₄ , CO ₂
7	Chlorophyll <i>a</i>	Chlorophyll <i>a</i>
8	Benthic macroinvertebrates	Number and identification of specimen per family (per genus or species whenever possible)
9	Fish	Number, identification, size, weight, sex and maturity of specimens per net, species and stomach content
10	Fish flesh for Hg	Mercury (Hg) measurement

Annex 2.4 – Frequencies and stations of the measurements in May 2017 to April 2023

Group of Stations		Frequencies			
		Monthly	By 3 seasons	Biannual	Annual
Nam Theun River and Tributaries	NTH3	1, 2, 3a, 3b, 4, 5	-	-	-
	NTH5	1, 3a, 4	-	-	-
	NTH6	-	9	10	8
	NPH1	1, 3a, 4	-	-	-
	NXT1	1, 2, 3a, 4, 5	-	-	-
	NXT2	-	9	-	-
	NTH2	1, 2, 3a, 4, 5	9	10	-
	NON1	1, 2, 3a, 4, 5	9	10	-
	NTH1	-	9	10	8
Reservoir	RES1 (1)	1, 2, 3a, 3b, 4, 5, 7	9	10	-
	RES3 (1)	1, 2, 3a, 4, 5, 7	9	10	-
	RES4 (6)	1, 2, 3a, 4, 5, 7,	9	10	-
	RES5 (1)	1, 2, 3a, 4, 5	-	-	-
	RES8 (1)	1, 2, 3a, 4, 5, 7,	9	10	-
	RES9 (3)	1, 2, 3a, 3b (3), 4, 5	-	-	-
	RES12	-	9	10	-
	3 bubbling stations	6(6 missions /year)			
Civil Works	TRC1	1, 2, 3a, 4, 5	-	-	-
	REG1 (3)	1, 2, 3a, 3b (1), 4, 5	-	-	-

Group of Stations		Frequencies			
		Monthly	By 3 seasons	Biannual	Annual
	DCH1	1, 2, 3a, 3b, 4, 5	-	-	-
	DCH3	1, 2, 3a, 4, 5	-	-	-
	DCH4	1, 2, 3a, 3b, 4, 5	-	-	-
Nam Kathang	NKT1	1, 2, 3a, 4, 5	-	-	8
	NKT2	1, 2, 3a, 3b, 4, 5	-	-	8
	NKT3	1, 2, 3a, 3b, 4, 5	-	-	-
	NKT5	-	-	-	8
	NGM1	-	-	-	8
Xe Bang Fai	XBF0	-	9	-	8
	XBF1	1, 2, 3a, 3b, 4, 5	9	10	8
	XBF2	1, 2, 3a, 3b, 4, 5	9	10	8
	XBF3	1, 2, 3a, 4, 5	9	-	-
	NOU1	-	9	-	-

Annex 2.5 – Reference document in the CEMMP

- Quality Health Safety and Environment Policy (POLQSE)
- Job Hazard and Environmental aspect Assessment Instruction (PR B15 01)
- Legal and Other Requirements Procedure (PR B15 02)
- HSE Objectives Targets and Programs (PR B15 03)
- NTPC Health, Safety and Environmental Objectives and Targets (NTPC M B 15 0303 17)
- Health, Safety and Environmental Improvement Programs (NTPC M B 15 03 03 0018)
- Waste Management Plan (NTPC M B 15 03 04 0016)
- Hazardous Materials and Contamination Control Management Plan (NTPC M B 15 03 04 0012)
- Water Management Plan (NTPC M B 15 03 04 0015)
- Water Quality Monitoring Plan (NTPC M B 15 05 01 0001)
- Biodiversity Management Plan (NTPC M B 15 03 04 0017)
- Health, Safety and Environmental Training Procedure (PR B15 04)
- Training Procedure (PR 1410)
- NTPC Health, Safety and Environmental Training Needs Matrix
- HSE Communication Participation and Consultation Procedure (PR B15-05)
- Documents and Records Control Procedure (PR B15 06)
- Chemical Management Procedure (PR B14 04)
- Waste Segregation Work Instruction (WI B14 04)
- Waste Management at Gnommalath Landfill Work Instruction (WI B14 07)
- Clinical Waste Management Work Instruction (WI B14 07)
- HSE Specifications for Contracts and Bidding Documents (NTPC M B 15 04 06 0004)
- Crisis and Emergency Management Plan (NTPC M B0501 0001)
- Hydrocarbon and Chemical spill Response Procedure (NTPC O P0602 13 0002)
- OMD-Natural Disaster Management Procedure (NTPC O P1004 17 0001)
- OMD-Emergency Contingency Plan for Powerhouse (NTPC O P10 04 13 0001)
- Emergency and Preparedness and Response Procedure (PR B14 05)
- HSE Performance Monitoring and Measurement Procedure (PR B15-07)
- Reporting and Incident Management Procedure (PR B15 10)
- Nonconformity Corrective and Preventive Action Procedure (PR B15-08)
- Internal Audit Procedure (PRB15 09)
- NTPC Senior Management Review (NTPC M B 15 06 01 0001)