Annex 2: List of Products Produced by the Project

No.	Title
2-1	Project Leaflet
2-2	Project Newsletter
2-3	Land use and change for National RREDD+ Strategy
2-4	2nd National Forest Inventory Survey in Lao People's Democratic Republic
2-5	Summary Report Lao PDR NFI DASH
2-6	Development of Lao specific prediction equation of biomass for regenerating vegetation and establishment of a threshold number of years since abandonment, as Regenerating Vegetation, before becoming "forest"
2-7	Forest Type Maps 2000/2005/2010/2015
2-8	Data Preparation and Assessment of Forest Type Maps
2-9	NFMS User Manual
2-10	NFMS Data Installation Manual
2-11	NFMS DB Definition Document
2-12	Proposed national FREL/FRL to the UNFCCC
2-13	Emission Reduction Program Document for Lao PDR
2-14	Activity Data Report (as an attachment to the Emission Reductions Program Document)
2-15	Emission and Removal Factors Report (as an attachment to the Emission Reductions Program Document)
2-16	Luang Prabang Provincial REDD+ Action Plan (English)
2-17	Luang Prabang Provincial REDD+ Action Plan (Lao)
2-18	Survey on Implementation and Potential of Payment for Forest Ecosystem Services (PFES) in Luang Prabang
2-19	Ex-Post Monitoring of Participatory Land and Forest Management Project for Reducing Deforestation and Degradation (PAREDD)

Separate Volume

2-1 Project Leaflet

NFIのパイロット調査の様子

成果3：国レベルのREDD＋支援

REDD+を実施するための国レベルでの戦略や制度を構築し、その管理やコーディネーションに係る能力を強化するコンポーネントです。多様な開発パートナーと連携しながら国家REDD+戦略の形成、国家REDD+タスクフォースや技術作業部会の運営、わが国が提唱する二国間クレジット制度(JCM)の導入等を支援します。これにより、ラオスのREDD+に対する準備および実施、さらにはその成果に対する炭素クレジットの獲得や支払いに向けた前提条件が準備されます。

＜成果3の支援内容＞

- 国レベルのREDD+政策・制度への技術的助言
- MONRE-DFRMとMAF-DOFによる国REDD+調整機能向上
- JCM-REDD+の進展に合わせた、ラオスへの導入

相手国機関の職員とのREDD+政策に関する検討会

成果4：ルアンプラバン県のREDD＋準備支援

ルアンプラバン県はラオス北部の山岳地帯にあり、焼畑耕作やインフラ開発による森林の減少・劣化が深刻です。このような課題に対応するべく、県レベルでのREDD+実施準備を支援するコンポーネントです。REDD+を実施するために必要な体制や森林政策、森林モニタリング等を支援することで、同県がREDD+にいち早く参加できる条件を整えます。また、過去のPAREDDプロジェクトで開発された、住民参加型の森林減少抑制手法(PAREDDアプローチ)の拡大に向けた普及基盤の強化も支援します。

＜成果4の支援内容＞

- 県REDD+実施枠組みの構築
- REDD+に係る優先政策のパイロット
- 県森林モニタリングの構築・実施
- 国レベルと県レベルのREDD+の協調促進
- 「PAREDDアプローチ」の県内他地域への普及基盤の強化

ルアンプラバンの焼畑耕作地

ラオス国
持続可能な森林管理及びREDD+支援プロジェクト

プロジェクトオフィス:
Kouvieng Street, Sisaket Village, Chanthabouli District,
Vientiane Capital, Laos
Tel & Fax: 021(22)2536
プロジェクトウェブサイト:
https://www.jica.go.jp/project/laos/018/index.html

Ministry of Natural Resources and Environment (MONRE)
Ministry of Agriculture and Forestry (MAF)
Japan International Cooperation Agency (JICA)

1. プロジェクトの背景・目的

1940年代には70%以上あったラオス国の森林率は水力発電、鉱山開発、プランテーション開発等の産業開発や人口増加・経済発展に伴う農地拡大等による土地利用変化によって2010年には40%まで低下しました。この急速な森林率の減少を受けて、ラオス政府は森林率70%の回復を目標とした「森林戦略2020」を策定するとともに、REDD+を有効な手段として捉え、2011年に国家REDD+タスクフォースを設置するなど、森林の保全と回復に取り組んでいます。

一方で、2011年の省庁再編に伴い、保護林・保全林の管理は天然資源環境省、生産林は農林省に所掌が分割された結果、両省庁間の所掌業務の混乱や人材配置のアンバランスの問題が指摘されています。また、県・郡レベルにおける森林管理能力の強化も急務となっています。

さらに、REDD+実施のために必要な衛星画像解析等に基づく精度の高い森林資源情報の整備が不可欠であるものの、ラオス政府の森林資源情報は森林政策やREDD+に的確に利用するためにはさらなる改善が必要な他、それら情報を集積・分析する人材が不足しているという課題もあります。

こうした背景を受け、当プロジェクトはラオスの森林セクターにおける政策改善とREDD+活用戦略の明確化を中央及びパイロット県での取り組みを通じて進めると同時に、それらに必要な森林資源情報の一層の充実を図ることを目的としています。それによりラオスの持続可能な森林管理の促進が期待されます。

REDD+ (Reducing Emissions from Deforestation and Forest Degradation, Conservation of Forest Carbon Stocks, Sustainable Management of Forest, Enhancement of Forest Carbon Stocks in Developing Countries) とは途上国での森林減少・劣化による温室効果ガスの排出を緩和することに対する経済的なインセンティブを国際社会が提供する仕組みのことです。

2. プロジェクトの概要

プロジェクト期間：
2015年11月～2020年10月

相手国機関：
天然資源環境省森林資源管理局
(MONRE-DFRM)
農林省森林局（MAF-DOF）

プロジェクトサイト：
首都ヴィエンチャン
ルアンプラバン県

3. プロジェクト目標と4つの成果

プロジェクト目標

ラオスの森林セクターにおけるREDD+活用戦略の明確化と、森林資源情報の一層の充実を図ることによって、ラオスの中央および地方政府においてREDD+を担当する機関及び人材の持続的可能な森林経営に係る能力の強化を図る。

成果1：中央政府の森林セクター支援

中央政府の森林セクターの政策策定や実施、コーディネーションの促進を支援するコンポーネントです。「森林戦略2020」は今後における中長期的な戦略として、現状に即した改定の必要性が指摘されています。他にも森林法改定などが議論の最中です。成果1では中央政府のカウンターパートのこれら政策に関する能力向上を図るとともに、セクターのコーディネーション促進を通じて、それら政策の実現を支援します。これにより、持続的な森林経営に必要な基盤が強化されます。

＜成果1の支援内容＞
- ラオスの森林政策や目標を定めた「森林戦略2020」の改定および他の重要政策の形成
- 森林政策策定の能力を向上させるための研修の実施や国際会議等への参加
- 森林セクターのコーディネーション

ルアンプラバン県で没収された違法伐採材

成果2：REDD+実施による排出削減・吸収増加量の測定支援

国家森林モニタリングシステム(NFMS)を中核とした森林資源情報整備を通じて、REDD+実施の結果である温室効果ガスの排出削減・吸収増加量の結果を把握するコンポーネントです。成果2では気候変動枠組条約(UNFCCC)をはじめとする国際的なREDD+の要求事項を満たす形でNFI、FREL/FRL、MRV、NFMSの技術および制度の構築を支援します。また、同分野におけるわが国の過去の協力及び成果のさらなる活用も目指します。これらを通じて得られる結果は、ラオスが国際社会にREDD+の実施状況および結果を報告するための基本情報となります。

＜成果2の支援内容＞
- 森林区分図2015および2018作成
- 全国レベルの森林調査である国家森林インベントリ(NFI)の実施
- 森林からの温室効果ガス排出・吸収量を予測した森林参照排出レベル/森林参照レベル(FREL/FRL)の設定
- 排出削減成果を測定、報告、検証するための仕組みであるMRVの構築
- 国家森林モニタリングシステム(NFMS)の構築および運用

F-REDD Project

NFI pilot survey

Output 3: Support to the national REDD+

This component supports development of national strategies and institutions for REDD+, and also strengthens the capacity of the government to manage and coordinate REDD+ at the national level. In coordination with other development partners, formulation of national REDD+ strategy, steering of NRTF and the six Technical Working Groups, and realization of Joint Crediting Mechanism (JCM) (a bilateral mechanism advocated by Japan aimed at supporting low carbon development), are the areas to be supported. Through these support, Lao PDR will be able to advance in its REDD+ readiness, implementation, and meet the requirements for receiving and distributing carbon benefits.

<Activities supported in Output 3 >

- Technical inputs to the national REDD+ policies and institutions.
- Support to the coordination role of DFRM and DOF in national REDD+.
- Indirect support to the introduction of JCM-REDD+ in line with its progress.

Meeting on REDD+ policies with the implementing agency staff

Output 4: Support REDD+ readiness in Luang Prabang Province

Luang Prabang Province is located in the northern mountainous region and affected by serious deforestation and forest degradation mainly caused by slash and burn agriculture and infrastructure development. In order to address such issues, Output 4 supports the province to be able to implement REDD+. For example, institutional structure, provincial REDD+ strategy, forestry policies and forest monitoring will be the main issues to be supported, so that the province can become 'REDD+ ready'. The foundation to expand PAREDD Approach - a participatory land and forest management approach developed by PAREDD Project as a measure to mitigate deforestation - will be also strengthened.

< Activities supported in Output 4 >

- Establishment of institutional framework for implementing REDD+ in the province.
- Piloting of priority forestry policies related to REDD+.
- Development and operationalization of forest monitoring in the province.
- Enhancement of cooperation on REDD+ between the central level and provincial level.
- Strengthening of the foundation to expand PAREDD Approach to other areas in the province.

Land under slash and burn agriculture in Luang Prabang

Project Offic:
Kouvieng Street, Sisaket Village, Chanthabouli District, Vientiane Capital, Laos
Tel & Fax: 021(22)2536
Project Website:
https://www.jica.go.jp/project/english/laos/018/index.html

Lao PDR Sustainable Forest Management and REDD+ Support Project

Ministry of Natural Resources and Environment (MONRE)
Ministry of Agriculture and Forestry (MAF)
Japan International Cooperation Agency (JICA)

1. Background of the Project

The forest cover rate in Laos, which was more than 70% in 1940's, dropped to 40% in 2010 due to infrastructure development, such as hydropower, mining, and road, and conversion to agricultural land attributable to population increase and expansion of commercial crop production. In response to such serious deforestation and degradation of forests, the Government of Lao PDR (GoL) formulated the "Forestry Strategy to the year 2020" (FS2020) with the goal of restoring the forest cover rate to 70% by 2020. In addition, recognizing REDD+ as an opportunity for forest conservation and generation of benefits for local people, the GoL established the National REDD+ Task Force (NRTF) and has been working on various elements of REDD+.

Meanwhile, the institutional reform in 2011 saw the Department of Forest Resource Management (DFRM) of the Ministry of Natural Resources and Environment (MONRE) adopting the administration of Protection Forests and Conservation Forests, while the Department of Forestry (DOF) of the Ministry of Agriculture and Forestry (MAF) continues to administer the Production Forests and other forests. In one way, this institutional reform responded to the developing needs of forestry sector, but it also caused some challenges, such as unclarity over division of forest management responsibilities, and an imbalance in the number of personnel in the respective authorities. Furthermore, capacity building of forest management of local level agencies is also in urgent need.

While REDD+ requires accurate information of forest resources, for example through use of satellite imagery, GoL is still limited in its capacity to gather, analyze and adequately use such data for REDD+. This is another area which the country needs further improvement.

Against such background, the purpose of the Sustainable Forest Management and REDD+ Support Project (F-REDD), is to strengthen the capacity of forestry sector through strengthening policies, effective incorporation of REDD+, and improvement of forest resource information as the foundation of sustainable forest management (SFM) in both central and provincial level (Luang Prabang as the pilot province).

2. Project summary

Project Term:
Nov 2015 - Oct 2020

Implementing Agency:
MONRE-DFRM, MAF-DOF

Project Site:
Vientiane Capital,
Luang Prabang Province

3. Project objective and the four outputs

Project objective

The objective of the project is to strengthen the capacity for sustainable forest management through incorporation of REDD+ into the sector strategy and improvement of forest resource information.

Output 1: Support the forestry sector at the central level

This component supports formulation and implementation of forestry policies, as well as promotion of sector coordination at the central level. The “FS2020”, is expected to be revised by reflecting the changing environment of the sector and to become a new mid-to-long-term sector strategy. The revision of Forest Law is currently under debate. Through series of technical support and capacity development activities, the implementing agencies at the central level will be enhanced in their ability to formulate and implement forestry policies. At the same time, support will be provided to promote sector coordination. Thereby, the basis for sustainable forest management will be strengthened.

< Activities supported in Output 1 >

- Revision of the FS2020 which defines the forestry policy and goal.
- Development of other key regulations and policies of the sector.
- Capacity building (e.g. trainings) on forestry policies/ REDD+, participation in international conferences.
- Support to sector coordination.

illegal logging confiscated in Luang Prabang Province

Output 2: Support the measurement of emission reductions and/or removals as a result of REDD+ implementation

This component supports measurement of reduced emissions and/or enhanced removals of forest-related greenhouse gases, through the improvement of forest resource information and by using the National Forest Monitoring System (NFMS). Technical and institutional aspects of NFI, FREL/FRL, MRV and NFMS will be developed in line with the international REDD+ requirements, such as those of the United Nations Framework Convention on Climate Change (UNNFCCC). The outputs from the past cooperation by Japan and other development partners will be further utilized. The results from this output will be used as the foundation for Lao PDR to report the progress and results of REDD+ implementation to the international community.

< Activities supported in Output 2 >

- Development of forest type maps for 2015 and 2018.
- Implementation of the 2nd National Forest Inventory (NFI) as the nationwide forest survey.
- Development of Forest Reference Emission Level/Forest Reference Level (FREL/FRL) which estimates the amount of future emissions and removals of forest-related greenhouse gases.
- Development of Measurement, Reporting and Verification (MRV) system to assess the results of REDD+ activities against FREL/FRL.
- Development and operationalization of the National Forest Monitoring System (NFMS).

REDD+ (Reducing Emissions from Deforestation and forest Degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries) is a mechanism whereby the developed countries provides economic incentives to developing countries for the mitigation of greenhouse gas emissions adopted in the 2015 Paris Agreement under UNFCCC.

ໂຄງການ F-REDD

ການສຳຫລວດປ່າໄມ້ແຫ່ງຊາດ (NFI)

ຜົນໄດ້ຮັບທີ່ 3: ການສະໜັບສະໜູນວຽກງານ REDD+ ໃນລະດັບຊາດ

ອົງປະກອບນີ້ແມ່ນສະໜັບສະໜູນການພັດທະນາຍຸດທະສາດ ແລະ ສະຖາບັນສຳລັບ REDD+ ໃນລະດັບຊາດ ພ້ອມທັງສ້າງຂີດຄວາມສາມາດໃຫ້ອົງການຈັດຕັ້ງຂອງລັດ ເພື່ອບໍລິຫານຈັດການ ແລະ ປະສານງານກ່ຽວກັບວຽກງານ REDD+ ໃນລະດັບຊາດ ໂດຍຊຸກຍູ້ການປະສານງານກັບຄູ່ຮ່ວມພັດທະນາອື່ນໆ ໃນການກຳນົດຍຸດທະສາດ REDD+ ແຫ່ງຊາດ, ການສ້າງຕັ້ງຄະນະດຳເນີນງານສະເພາະກິດວຽກງານ REDD+ ຂັ້ນສູນກາງ ແລະ 6 ຄະນະທີມງານວິຊາການ, ການພັກດັນກົນໄກການສ້າງສິນເຊື່ອຮ່ວມ (JCM) (ກົນໄກຂອງສອງຝ່າຍທີ່ສະໜັບສະໜູນໂດຍ ປະເທດຍີ່ປຸ່ນ ຊຶ່ງມີຈຸດປະສົງສະໜັບສະໜູນການພັດທະນາການອນຕ່ຳ). ຜ່ານການສະໜັບສະໜູນວຽກງານດັ່ງກ່າວນີ້, ສປປ ລາວ ຈະສາມາດກຽມຄວາມພ້ອມ , ຈັດຕັ້ງປະຕິບັດວຽກງານ REDD+ ແລະ ສາມາດປະຕິບັດຕາມເງື່ອນໄຂ ເພື່ອໄດ້ຮັບ ແລະ ແບ່ງປັນຜົນປະ�โยດຈາກສິນເຊື່ອການອນ.

<ກິດຈະກຳທີ່ໄດ້ຮັບການສະໜັບສະໜູນໃນຜົນໄດ້ຮັບທີ່ 3 >

- ສະໜອງຂໍ້ມູນດ້ານວິຊາການໃຫ້ແກ່ນະໂຍບາຍແລະສະຖາບັນ REDD+ ຢູ່ ຂັ້ນສູນກາງ
- ສະໜັບສະໜູນບົດບາດການປະສານງານຂອງກົມຄຸ້ມຄອງຊັບພະຍາກອນ ປ່າໄມ້ ແລະ ກົມປ່າໄມ້ທາງດ້ານວຽກງານ REDD+ ຢູ່ຂັ້ນສູນກາງ
- ສະໜັບສະໜູນທາງອ້ອມໃນການແນະນຳກ່ຽວກັບ JCM-REDD+ ໃຫ້ແທດເໝາະກັບຄວາມຄືບໜ້າຂອງວຽກງານດັ່ງກ່າວໃນແຕ່ລະໄລຍະ

ກອງປະຊຸມກ່ຽວກັບນະໂຍບາຍ REDD+ ຮ່ວມກັບ ພະນັກງານພາກສ່ວນຮັບຜິດຊອບວຽກງານດັ່ງກ່າວ

ຜົນໄດ້ຮັບທີ່ 4: ການສະໜັບສະໜູນສ້າງຄວາມພ້ອມສຳລັບ REDD+ ຢູ່ ແຂວງຫລວງພະບາງ

ແຂວງຫລວງພະບາງຕັ້ງຢູ່ພື້ນທີ່ເຂດພູດອຍທາງພາກເໜືອ ແລະ ກຳລັງໄດ້ຮັບຜົນກະທົບຈາກການທຳລາຍປ່າໄມ້ ແລະ ການເສື່ອມໂຊມຂອງປ່າໄມ້ຢ່າງໜັກຊຶ່ງສາເຫດຫລັກແມ່ນມາຈາກການຖາງປ່າເຮັດໄຮ່ແບບເລື່ອນລອຍ ແລະ ການກໍ່ສ້າງພື້ນຖານໂຄງລ່າງ. ເພື່ອແກ້ໄຂບັນຫາດັ່ງກ່າວ, ຜົນໄດ້ຮັບທີ່ 4 ຈຶ່ງໄດ້ສະໜັບສະໜູນໃນການຈັດຕັ້ງປະຕິບັດ REDD+ ເຊັ່ນ: ການສ້າງຍຸດທະສາດ ແລະ ອົງການຈັດຕັ້ງຮັບຜິດຊອບ REDD+ ຂັ້ນແຂວງ, ການທົດລອງປະຕິບັດນະ�โยบายປ່າໄມ້ ແລະ ການຕິດຕາມກວດກາປ່າໄມ້ ຊຶ່ງແມ່ນໜ້າວຽກຫລັກທີ່ຈະໄດ້ຮັບການສະໜັບສະໜູນ ແນໃສ່ເພື່ອເຮັດໃຫ້ແຂວງ'ມີຄວາມພ້ອມດ້ານວຽກງານ REDD+'. ແນວທາງ PAREDD ຊຶ່ງແມ່ນແນວທາງໜຶ່ງໃນການຄຸ້ມຄອງປ່າໄມ້ແບບມີສ່ວນຮ່ວມເພື່ອຫຼຸດຜ່ອນການທຳລາຍປ່າໄມ້ສ້າງຂຶ້ນໂດຍໂຄງການ PAREDD ໃນເມື່ອກ່ອນກໍຈະໄດ້ຮັບການຜັນຂະຫຍາຍອອກສູ່ວົງກ້ວາງເຊັ່ນດຽວກັນ.

< ກິດຈະກຳທີ່ໄດ້ຮັບການສະໜັບສະໜູນໃນຜົນໄດ້ຮັບທີ່ 4 >

- ການສ້າງອົງການຈັດຕັ້ງຮັບຜິດຊອບວຽກງານ REDD+ ຂັ້ນແຂວງ
- ການທົດລອງນະ�โยบายປ່າໄມ້ບຸລິມະສິດທີ່ກ່ຽວຂ້ອງກັບວຽກງານ REDD+.
- ການສ້າງລະບົບຕິດຕາມກວດກາປ່າໄມ້ຂັ້ນແຂວງ
- ການຍົກລະດັບການຮ່ວມມືປະສານງານທາງດ້ານວຽກງານ REDD+ ລະຫວ່າງ ຂັ້ນສູນກາງ ແລະ ແຂວງ
- ການສ້າງຄວາມເຂັ້ມແຂງໃຫ້ພະນັກງານເພື່ອຂະຫຍາຍແນວທາງຂອງໂຄງການ PAREDD ອອກສູ່ພື້ນທີ່ອື່ນໃນທົ່ວແຂວງ

ພື້ນທີ່ການຖາງປ່າເຮັດໄຮ່ແບບເລື່ອນລອຍ ຢູ່ ຫພບ

ສປປ ລາວ

ໂຄງການສະໜັບສະໜູນການຄຸ້ມຄອງ ປ່າໄມ້ແບບຍືນນານ ແລະ REDD+

ຫ້ອງການໂຄງການ
ຖະໜົນ ຄູວົງ, ບ້ານສີສະເກດ, ເມືອງຈັນທະບູລີ,
ນະຄອນຫລວງວຽງຈັນ, ສປປ ລາວ
ໂທ & ແຟັກ: 021(22)2536

ກະຊວງຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ (ກຊສ)
ກະຊວງກະສິກຳ ແລະ ປ່າໄມ້ (ກປ)
ອົງການຮ່ວມມືສາກົນປະເທດຍີ່ປຸ່ນ (JICA)

1. ຄວາມເປັນມາຂອງໂຄງການ

ໃນຊຸມປີ 1940, ເນື້ອທີ່ປົກຫຸ້ມປ່າໄມ້ຂອງປະເທດລາວມີຫຼາຍກ່ວາ 70%. ຕົວເລກດັ່ງກ່າວໄດ້ຫຼຸດລົງຢ່າງໄວວາຄື 40% ໃນປີ 2010 ເນື່ອງມາຈາກການພັດທະນາພື້ນຖານໂຄງລ່າງເຊັ່ນ: ການສ້າງເຂື່ອນໄຟຟ້າ, ການຂຸດຄົ້ນບໍ່ແຮ່, ການສ້າງຖະໜົນຫົນທາງ ແລະ ການຫັນປ່ຽນທີ່ດິນກະສິກຳ ຍ້ອນການເພີ່ມຂຶ້ນຂອງປະຊາກອນ ແລະ ການຂະຫຍາຍເນື້ອທີ່ກະສິກຳເພື່ອຜະລິດເປັນສິນຄ້າ. ເພື່ອແກ້ໄຂບັນຫາການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າເສື່ອມໂຊມ ລັດຖະບານແຫ່ງ ສປປ ລາວ ໄດ້ກຳນົດ "ຍຸດທະສາດປ່າໄມ້ຮອດປີ 2020" ໂດຍມີເປົ້າໝາຍເຮັດໃຫ້ເນື້ອທີ່ປົກຫຸ້ມປ່າໄມ້ເພີ່ມຂຶ້ນເປັນ 70% ໃນປີ 2020. ນອກນັ້ນ, ລັດຖະບານຍັງຖືເອົາວຽກງານ REDD+ ເປັນວຽກງານໜຶ່ງທີ່ສຳຄັນ ເພື່ອສ້າງໂອກາດໃຫ້ວຽກງານຄຸ້ມຄອງປ່າໄມ້ ແລະ ນຳຜົນປະໂຫຍດມາໃຫ້ປະຊາຊົນທ້ອງຖິ່ນ. ດ້ວຍເຫດນັ້ນ, ລັດຖະບານຈຶ່ງໄດ້ສ້າງຕັ້ງໜ່ວຍງານສະເພາະກິດ REDD+ ໃນລະດັບຊາດຂຶ້ນ ເພື່ອຮັບຜິດຊອບໃນການຈັດຕັ້ງປະຕິບັດວຽກງານຕ່າງໆທີ່ກ່ຽວຂ້ອງກັບ REDD+.

ໃນຂະນະດຽວກັນ, ການປັບປຸງການຈັດຕັ້ງໃນປີ 2011 ໄດ້ມອບໝາຍໃຫ້ ກຄປມ, ກຊສ ເປັນຜູ້ຮັບຜິດ ຊອບຄຸ້ມຄອງປ່າປ້ອງກັນ ແລະ ປ່າສະຫງວນ, ສ່ວນ ກປມ, ກປ ແມ່ນສືບຕໍ່ຮັບຜິດຊອບຄຸ້ມຄອງປ່າຜະລິດ ແລະ ປ່າໄມ້ອື່ນໆ. ການປັບປຸງການຈັດຕັ້ງດັ່ງກ່າວດ້ານໜຶ່ງແມ່ນໄດ້ຕອບສະໜອງຕາມຄວາມຮຽກຮ້ອງຕ້ອງ ການຂອງວຽກງານປ່າໄມ້ ແຕ່ກໍຍັງມີສິ່ງທ້າທາຍຫຼາຍຢ່າງເຊັ່ນ: ການແບ່ງຄວາມຮັບຜິດຊອບໃນການຄຸ້ມຄອງປ່າໄມ້ຂອງຂະແໜງການກ່ຽວຂ້ອງ, ຄວາມບໍ່ສົມດຸນທາງດ້ານບຸກຄະລາກອນໃນຂະແໜງການຮັບຜິດຊອບ. ນອກນັ້ນ, ການສ້າງຂີດຄວາມສາມາດເພື່ອຄຸ້ມຄອງປ່າໄມ້ຕາມພາລະບົດບາດຂອງຂະແໜງການກ່ຽວຂ້ອງໃນ ລະດັບທ້ອງຖິ່ນກໍເປັນບັນຫາທີ່ຕ້ອງໄດ້ແກ້ໄຂຢ່າງຮີບດ່ວນ.

ໃນຂະນະດຽວກັນ, ວຽກງານ REDD+ ແມ່ນວຽກໜຶ່ງທີ່ຕ້ອງມີຂໍ້ມູນຂ່າວສານກ່ຽວກັບຊັບພະຍາກອນປ່າໄມ້ທີ່ຖືກຕ້ອງ ແລະ ຊັດເຈນເຊັ່ນ: ຄວາມຮູ້ຄວາມສາມາດໃນການນຳໃຊ້ພາບຖ່າຍທາງດາວທຽມຂອງອົງການ ຈັດຕັ້ງກ່ຽວຂ້ອງຂອງລັດມີຂໍ້ຈຳກັດໂດຍສະເພາະການເກັບກຳຂໍ້ມູນ, ການ ວິເຄາະ ແລະ ການນຳໃຊ້ຂໍ້ມູນສຳລັບວຽກງານ REDD+ ຊຶ່ງຕ້ອງໄດ້ມີ ການປັບປຸງຍົກລະດັບຕື່ມອີກ.

ອີງໃສ່ປະຫວັດຄວາມເປັນມາດັ່ງກ່າວ, ຈຸດປະສົງຂອງໂຄງການ F-REDD ແມ່ນເພື່ອສ້າງຄວາມເຂັ້ມແຂງໃຫ້ຂະແໜງປ່າໄມ້ໂດຍເພີ່ມທະ ວີຄວາມເຂັ້ມແຂງໃຫ້ນະໂຍບາຍຕ່າງໆດ້ານປ່າໄມ້,ການເຊື່ອມໂຍງວຽກ ງານ REDD+ ຢ່າງມີປະສິດທິພາບ ແລະ ການປັບປຸງຂໍ້ມູນຂ່າວສານ ຊັບພະຍາກອນປ່າໄມ້ເພື່ອເປັນພື້ນຖານໃນການຄຸ້ມຄອງປ່າໄມ້ໃຫ້ມີຄວາມ ຍືນຍົງໃນລະດັບຊາດກໍຄືລະດັບແຂວງ (ຫພບ ແມ່ນເປັນແຂວງທົດລອງ)

2. ສັງລວມໂຄງການ

ໄລຍະເວລາຂອງໂຄງການ:
ພະຈິກ 2015 - ຕຸລາ 2020

ພາກສ່ວນຈັດຕັ້ງປະຕິບັດໂຄງການ :
ກຊສ-ກຄຊປ, ກປ-ກປມ

ທີ່ຕັ້ງຂອງໂຄງການ:
ນະຄອນຫລວງວຽງຈັນ,
ແຂວງຫຼວງພະບາງ

3. ຈຸດປະສົງຂອງໂຄງການ ແລະ 4 ຜົນໄດ້ຮັບ

ຈຸດປະສົງຂອງໂຄງການ

ຈຸດປະສົງຂອງໂຄງການແມ່ນສ້າງຄວາມເຂັ້ມແຂງທາງດ້ານຄວາມອາດ ສາມາດໃນການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນນານໂດຍຜັນເອົາວຽກງານ REDD+ ເຂົ້າສູ່ຍຸດທະສາດຂອງຂະແໜງການ ແລະ ປັບປຸງຂໍ້ມູນຂ່າວສານທາງ ດ້ານຊັບພະຍາກອນປ່າໄມ້.

ຜົນໄດ້ຮັບທີ່ 1: ສະໜັບສະໜູນຂະແໜງການປ່າໄມ້ໃນລະດັບສູນ ກາງ

ອົງປະກອບນີ້ແມ່ນສະຫນັບສະຫນູນການສ້າງ ແລະ ການຈັດຕັ້ງປະຕິບັດ ນະໂຍບາຍປ່າໄມ້ ແລະ ການສົ່ງເສີມການປະສານງານຂະແໜງການຂັ້ນສູນ ກາງ. "ຍຸດທະສາດປ່າໄມ້ຮອດປີ 2020" ຄາດວ່າຈະໄດ້ຮັບການປັບປຸງໂດຍ ອີງໃສ່ການປ່ຽນແປງສະພາບແວດລ້ອມຂອງຂະແໜງການ ແລະ ເພື່ອໃຫ້ ກາຍເປັນຍຸດທະສາດໃໝ່ຂອງຂະແໜງການໃນໄລຍະກາງ ຫາ ໄລຍະຍາວ. ປະຈຸບັນ, ການປັບປຸງກົດຫມາຍວ່າດ້ວຍປ່າໄມ້ແມ່ນຢູ່ລະຫວ່າງການຄົ້ນຄ້ວາ ພິຈາລະນາ. ຜ່ານການສະຫນັບສະຫນູນທາງດ້ານວິຊາການ ແລະ ການສ້າງ ຄວາມອາດສາມາດ, ຈະໄດ້ມີການຍົກລະດັບຄວາມອາດສາມາດຂອງພະນັກ ງານຂັ້ນສູນກາງເພື່ອກຳນົດ ແລະ ຈັດຕັ້ງປະຕິບັດນະໂຍບາຍປ່າໄມ້. ໃນຂະ ນະດຽວກັນ, ກໍ່ຈະມີການສະໜັບສະໜູນເພື່ອສົ່ງເສີມການປະສານງານຂອງ ຂະແໜງການ ຊຶ່ງຈະສາມາດສ້າງພື້ນຖານສຳລັບການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນ ນານ.

< ກິດຈະກຳທີ່ໄດ້ຮັບການສະໜູນໃນຜົນໄດ້ຮັບທີ່ 1 >

- ການປັບປຸງຍຸດທະສາດປ່າໄມ້ຮອດປີ 2020, ຊຶ່ງໄດ້ກຳນົດນະໂຍບາຍປ່າ ໄມ້ ແລະ ເປົ້າຫມາຍ.
- ການພັດທະນາລະບຽບການອື່ນໆທີ່ສຳຄັນແລະນະໂຍບາຍຂອງຂະແໜງ ການ.
- ການສ້າງຄວາມອາດສາມາດ (ເຊັ່ນ: ການຝຶກອົບຮົມ) ກ່ຽວກັບນະໂຍບາຍ ປ່າໄມ້/ REDD+, ການມີສ່ວນຮ່ວມໃນກອງປະຊຸມສາກົນ.
- ການສະຫນັບສະຫນູນການປະສານງານຂອງຂະແໜງການ.

ການລັກລອບຕັດໄມ້ ທີ່ຖືກຢຶດໄດ້ຢູ່ ຫພບ

ຜົນໄດ້ຮັບທີ່2: ການສະໜັບສະໜູນການວັດແທກ, ການຫລຸດຜ່ອນ ການປ່ອຍ ແລະ ການກຳຈັດທາດອາຍພິດ,ຊຶ່ງເປັນໝາກຜົນຂອງ ການຈັດຕັ້ງປະຕິບັດວຽກງານ REDD+

ອົງປະກອບນີ້ແມ່ນສະໜັບສະໜູນການວັດແທກ, ການຫລຸດຜ່ອນ ການປ່ອຍ ແລະ ຍົກລະດັບການກຳຈັດທາດອາຍພິດເຮືອນແກ້ວທີ່ ກ່ຽວຂ້ອງກັບປ່າໄມ້ໂດຍຜ່ານການປັບປຸງຂໍ້ມູນຂ່າວສານດ້ານຊັບພະ ຍາກອນປ່າໄມ້ ໂດຍການນຳໃຊ້ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງ ຊາດ. ຂໍ້ມູນດ້ານວິຊາການ ແລະ ການຈັດຕັ້ງ NFI, FREL/FRL, MRV ແລະ NFMS ຈະຕ້ອງປະຕິບັດໃຫ້ຖືກຕ້ອງຕາມມາດຖານ ເງື່ອນໄຂຂອງສາກົນກ່ຽວກັບ REDD+ ເຊັ່ນ: ການປະຕິບັດUN FCCC. ນອກນັ້ນ, ຜົນໄດ້ຮັບໃນໄລຍະຜ່ານມາຈາກການສະໜັບ ສະໜູນຂອງບັນດາໂຄງການຂອງລັດຖະບານຍີ່ປຸ່ນ ແລະ ບັນດາຄູ່ ຮ່ວມພັດທະນາອື່ນໆ ແມ່ນຈະໄດ້ມີການໝູນໃຊ້ໃນຕໍ່ຫນ້າ. ໝາກຜົນ ຂອງຜົນໄດ້ຮັບນີ້ຈະຖືກນຳໃຊ້ເປັນພື້ນຖານສຳລັບ ສປປ ລາວ ເພື່ອ ລາຍງານຄວາມຄືບຫນ້າ ແລະ ໝາກຜົນຂອງການຈັດຕັ້ງປະຕິບັດ ວຽກງານ REDD+ ໄປຍັງສາກົນ.

< ກິດຈະກຳທີ່ໄດ້ຮັບການສະໜູນໃນຜົນໄດ້ຮັບທີ່ 2 >

- ການພັດທະນາຂອງແຜນທີ່ປະເພດປ່າສຳລັບປີ 2015 ແລະ 2018.
- ການຈັດຕັ້ງປະຕິບັດ NFI ຄັ້ງທີ່2 ເປັນການສຳຫຼວດປ່າໄມ້ທົ່ວປະເທດ.
- ການພັດທະນາ FREL/FRL ຊຶ່ງຈະມີການຄຳນວນການປ່ອຍ ແລະ ການ ກຳຈັດທາດອາຍພິດເຮືອນແກ້ວທີ່ກ່ຽວຂ້ອງກັບປ່າໄມ້ ໃນອານາຄົດ
- ການພັດທະນາລະບົບ MRV ເພື່ອປະເມີນຜົນຂອງກິດຈະກຳ REDD+ ຕໍ່ FREL/FRL
- ການພັດທະນາ ແລະ ການຈັດຕັ້ງປະຕິບັດ NFMS.

REDD+ (ການຫຼຸດຜ່ອນການປ່ອຍອາຍພິດຈາກການທຳລາຍປ່າໄມ້ ແລະ ການ ເຮັດໃຫ້ປ່າເສື່ອມໂຊມ ແລະ ບົດບາດໃນການອະນຸລັກ, ຄຸ້ມຄອງປ່າໄມ້ແບບຍືນ ນານ, ແລະ ເພີ່ມການເກັບສະສົມທາດກາກບອນປ່າໄມ້ໃນບັນດາປະເທດທີ່ກຳ ລັງ ພັດທະນາ) ເປັນກົນໄກໜຶ່ງທີ່ບັນດາປະເທດພັດທະນາແລ້ວໄດ້ສະຫນອງສິ່ງຈູງໃຈ ທາງເສດຖະກິດໃຫ້ແກ່ບັນດາປະເທດກຳລັງພັດທະນາເພື່ອຫຼຸດຜ່ອນການປ່ອຍອາຍ ພິດເຮືອນແກ້ວ ຊຶ່ງໄດ້ຮັບຮອງໃນສັນຍາ Paris 2015 ພາຍໃຕ້ UNFCCC.

Separate Volume

2-2 Project Newsletter

Vol. 1 Jan 2016
for Nov 2015 ~ Jan 2016

F-REDD Newsletter

Sustainable Forest Management and REDD+ Support Project
Nov 2015 - Oct 2020

持続可能な森林管理及びREDD+支援プロジェク(F-REDD)

本プロジェクトの目的はREDD+に係る戦略策定、実施体制構築、実施のコーディネーションの支援と森林資源情報の整備などに係る能力の強化をはかり、それによってラオスの持続的な森林管理の促進に寄与することです。天然資源環境省森林資源管理局(MONRE-DFRM)と農林省森林局(MAF-DOF)を相手国機関としています。

第1回 JCC 開催

F-REDDの第1回JCC(Joint Coordination Committee)がMONRE-DFRMのVongdeuane Vongsiharath局長を議長、JICAラオス事務所の牧本小枝次長を副議長として、2015年11月12日にヴィエンチャンプラザホテルにて開催されました。

Vongsiharath局長（右）と牧本次長（左）

MONRE-DFRM、MAF-DOF、ルアンプラバン県のカウンターパートと日本大使館、JICAラオス事務所、そしてプロジェクト専門家の総勢40名が一堂に会する中、プロジェクトの概要が説明され、今後の進め方に関する質疑や議論が交わされました。

開会の挨拶ではVongsiharath議長から、森林戦略2020改定やその他重要政策への支援、気候変動枠組条約(UNFCCC)に向けたFREL/FRLやMRV提出といった国際的な要求への対応、FCPF炭素基金獲得に向けた協力、ルアンプラバン県におけるREDD+準備支援など、当プロジェクトへ大きな期待が寄せられました。

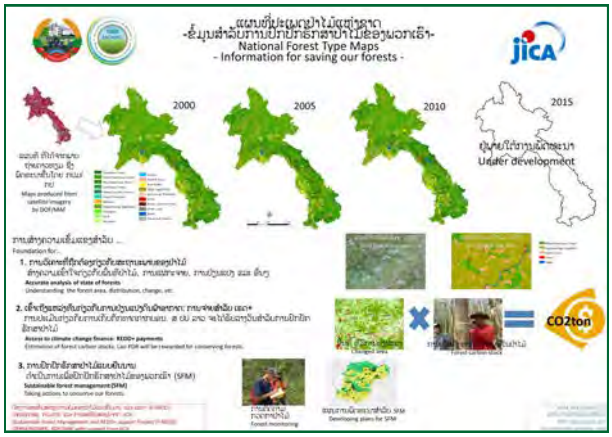
質疑応答の様子

また、成果4に関してはPAREDDプロジェクトの成果である住民参加型の森林減少抑制手法（PAREDDアプローチ）の普及基盤強化支援に対する県側からの好意的なコメントが得られ、ルアンプラバン県におけるREDD+準備に関する活動について議論がなされました。

質疑応答を含めた活発な議論の末、業務計画や年間計画と合わせてプロジェクトの正式開始が承認されました。

RTMポスター展示

11月27日に開催されたラオス政府と開発パートナーがラオスの国家開発について協議する第12回ハイレベルRTM (Round Table Meeting)のエキシビジョンにおいて当プロジェクトの紹介ポスターを展示しました。過去のJICAプロジェクトで作成した森林区分図を提示し、それらが森林状態の正確な把握やREDD+への活用などを通じて持続的な森林経営に寄与することをアピールしました。当日は政府首脳をはじめ多くの参加者がエキシビジョンに訪れ、JICAの支援について理解してもらうよい機会となりました。



RTMのエキシビジョンで展示したポスター

ルアンプラバン県

JICAが以前より支援を続けており、FCPF炭素基金の対象6県の一つでもあります。成果4の支援はFCPF炭素基金の支払い獲得にもつながることが期待されます。

ルアンプラバン県キックオフミーティング

11月17日に成果4に係る活動のキックオフミーティングがルアンプラバン県の森林局において開催されました。主にプロジェクトの概要と成果4に係る活動についてカウンターパートと協議をしました。成果4の活動はルアンプラバン県を対象に県レベルでのREDD+実施準備を支援することですが、その成果を国レベルのREDD+戦略へフィードバックするというねらいもあります。

また、成果4にかかる活動の一部はアジア・大洋州の森林保全を目的に活動しているRECOFTCとJICAのパートナーシップ事業に沿って連携していくことになります。当日はRECOFTCのバンコク事務所とラオス事務所からも専門家がミーティングに参加しました。

名村専門家による成果4の説明の様子

成果毎の主な活動

共通の活動

◆第1回JCC開催

◆第1回JCC及びその後のコメント期間を経てワークプランの最終版を作成

成果1：中央政府の森林セクター支援

◆3種森林区分（生産林、保護林、保全林）の境界見直し手法等についてのコメントをMONRE-DFRMに提出

成果2：REDD+実施による排出削減・吸収増加量の測定支援

◆全国森林調査である全国森林インベントリ（NFI）のラオス語版マニュアルを関係機関に配布

◆森林区分図2015に用いる衛星画像の前処理

成果3：国レベルのREDD+支援

◆FCPF基金の今後のプロセスに関する会合

成果4：ルアンプラバン県のREDD＋準備支援

◆ルアンプラバン県キックオフミーティング

コンタクト

プロジェクトオフィス

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天然資源環境省
Ministry of Natural Resources and Environment (MONRE)

農林省
Ministry of Agriculture and Forestry (MAF)

日本国際協力機構
Japan International Corporation Agency (JICA)

プロジェクトイベントスケジュール

次期四半期のイベント

1st Feb FCPF Carbon Fundミーティング@ルアンプラバン	REL/MRV技術作業部会準備会合
12th Feb 森林サブセクターワーキンググループ	プロジェクトワークショップ
	次期NFI開始
	ルアンプラバン県森林減少・劣化ドライバー調査

Vol. 1 Jan 2016
for Nov 2015 ~ Jan 2016

F-REDD Newsletter

Sustainable Forest Management and REDD+ Support Project

Nov 2015 - Oct 2020

Sustainable Forest Management and REDD+ Support Project (F-REDD or "the Project")

The purpose of the Project is to strengthen capacity for clarification of REDD+ strategy and improve forest resource information, which contributes to the goal of the Project, to promote sustainable forest management (SFM). The implementing agencies are the Department of Forest Resource Management, Ministry of Natural Resources and Environment (MONRE-DFRM), and the Department of Forestry, Ministry of Agriculture and Forestry (MAF-DOF).

1st Joint Coordination Committee

The 1st Joint Coordination Committee (JCC) was held on November 12th, 2015 at Vientiane Plaza Hotel. The meeting was chaired by Mr. Vongdeuane Vongsiharath, Director General, MONRE-DFRM and co-chaired by Ms. Saeda Makimoto, Senior Representative, JICA Laos Office.

The Project was introduced to a total of 40 participants from the MONRE-DFRM, MAF-DOF, Luang Prabang Provincial Office, Embassy of Japan, JICA Laos office, and JICA Expert Team, also a Q&A session and discussions were held to clarify the future direction of the Project.

The chair, Mr. Vongdeuane gave the opening remarks, emphasizing the high expectations of the Project such as support in revising the Forest Strategy 2020 and other important policies; in meeting international requirements including submission of FREL/FRL (Forest Reference Emission Levels/Forest Reference Levels) and MRV (Measurement, Reporting and Verification) to the UNFCCC (United Nations Framework Convention on Climate Change); in gaining funding from the FCPF (Forest Carbon Partnership Facility) , and in preparing for REDD+ implementation in Luang Prabang Province.

Mr. Vongdeuane (right) and Ms. Makimoto (left)

Q&A session

The Provincial Office gave positive feedback regarding the Project support in strengthening the foundation to expand the Participatory Land and Forest Management Project for Reducing Deforestation (PAREDD) Approach, which is one of the activities of the Project (Output 4). Furthermore, the REDD+ readiness in Luang Prabang was discussed. The project including the Work Plan and the Detailed Plan of Operation were officially approved through the discussion and Q&A session.

Poster exhibition at RTM

A poster detailing the Project was presented at exhibition of the 12th high level Round Table Meeting held on November 27th, 2015, in which the Government of Lao and development partners discussed the national development of Lao PDR. It showcased how the forest type maps developed by past JICA projects will contribute to sustainable forest management by enabling correct understanding of forest conditions and utilization of the maps in REDD+ activities.

Many participants including government leaders visited the exhibition and it was a good opportunity to help better understand the support of JICA.

Poster presented at RTM

has been being supported by JICA and is one of the target provinces of the FCPF Carbon Fund. Output 4 is expected to aid in the Lao side gaining funding from the FCPF Carbon Fund.

Kick-off Meeting in Luang Prabang Province

The kick-off meeting (related to the Output 4) of the Project was held on November 17th, 2015 at the Provincial Agriculture and Forestry Office (PAFO) in Luang Prabang. Our team discussed with the implementation agency mainly on the Project outline and the activities of Output 4. The Output 4 mainly supports the preparation for REDD+ implementation at the provincial level in Luang Prabang. Moreover, another aim of the meeting was to give feedback on the development of a national REDD+ strategy.

In addition, the Project will collaborate with the RECOFTC (The Center for People and Forests), which has been working with the purpose of forest conservation in the Asia and Pacific regions, in Output 4 activities. This cooperation comes under the JICA-RECOFTC Partnership Program. Therefore experts from the RECOFTC Bangkok and Lao offices participated in the meeting.

Introduction of Project (Output 4) activities by the JICA expert, Mr. Namura

Main activities on

Output 1: Support central forest sector

- Submission of the comments to the MONRE-DFRM for boundary revision of the three forest category (Production Forest, Protection forest and Conservation Forest)

Output 2: Support measurement of emission reduction and absorption by REDD+ implementation

- Manual for the next NFI was translated into Lao language and distributed to the concerned agencies
- Pre-processing of satellite imagery for Forest Type Map 2015

Output 3: Support National REDD+

- Meeting about the process of obtaining FCPF funding

Output4: Support Luang Prabang Province REDD+ Readiness

- Luang Prabang kick-off meeting

Common activity

- 1st Joint Coordination Committee
- Finalized the Work Plan after 1st JCC and commenting period

Contact

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MONRE
Ministry of Natural Resources and Environment

MAF
Ministry of Agriculture and Forestry

JICA
Japan International Corporation Agency

Project Event schedule

Events in the next quarter

1st Feb
FCPF Carbon Fund meeting @Luang Prabang

12th Feb
Forest Sub-Sector Working Group

22st Feb
Launch the next NFI

24st Feb
Inception Workshop

Preparation meeting for REL/MRV Working Group

Deforestation and Forest Degradation Drivers Analysis in Luang Prabang

Vol. 1 ມັງກອນ 2016
ສຳລັບ ພະຈິກ 2015 ~ ມັງກອນ 2016

ຈົດໝາຍຂ່າວໂຄງການ F-REDD

ໂຄງການສະໜັບສະໜຸນ ການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນນານ ແລະ REDD+

ພະຈິກ 2015 - ຕຸລາ 2020

ໂຄງການສະໜັບສະໜຸນ ການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນນານ ແລະ REDD+ (ຊື່ຫຍໍ້ F-REDD ຫຼື "ໂຄງການ")

ຈຸດປະສົງຂອງໂຄງການແມ່ນເພື່ອສ້າງຄວາມອາດສາມາດໃນການເຮັດໃຫ້ຍຸດທະສາດ REDD+ ມີຄວາມຊັດເຈນຂຶ້ນ ແລະ ປັບປຸງຂໍ້ມູນຂ່າວສານຊັບພະຍາກອນປ່າໄມ້ ເພື່ອຈະໄດ້ຊຸກຍູ້ໃຫ້ແກ່ເປົ້າໝາຍຂອງໂຄງການ ໃນການຊຸກຍູ້ສິ່ງເສີມການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນນານ (SFM). ຂະແໜງການຮັບຜິດຊອບວຽກງານດັ່ງກ່າວແມ່ນ ກົມຄຸ້ມຄອງຊັບພະຍາກອນປ່າໄມ້ ຂອງກະຊວງຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ (MONRE-DFRM), ແລະ ກົມປ່າໄມ້ຂອງກະຊວງກະສິກຳ ແລະ ປ່າໄມ້ (MAF-DOF).

ຄະນະກຳມະການປະສານງານຮ່ວມຄັ້ງທີ 1

ກອງປະຊຸມຄະນະກຳມະການປະສານງານຮ່ວມຄັ້ງທີ 1 ໄດ້ຈັດຂຶ້ນໃນວັນທີ 12 ພະຈິກ 2015 ຢູ່ທີ່ໂຮງແຮມວຽງຈັນພລາຊາ ໂດຍການເປັນປະທານຂອງທ່ານ ວົງເດືອນ ວົງສີຫາລາດ, ຫົວໜ້າກົມຄຸ້ມຄອງຊັບພະຍາກອນປ່າໄມ້, ກະຊວງຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ ແລະ ປະທານຮ່ວມ ໂດຍທ່ານ ນ. ເຊດະ ມະກິໂມະໂຕະ, ຜູ້ຕາງໜ້າລະດັບສູງຈາກ ຫ້ອງການ JICA ປະຈຳ ສປປ ລາວ.

ກອງປະຊຸມໄດ້ມີການນຳສະເໜີກ່ຽວກັບໂຄງການໃຫ້ຜູ້ເຂົ້າຮ່ວມທັງໝົດ 40 ຄົນ ໄດ້ຮັບຊາບ ຊຶ່ງມາຈາກກົມຄຸ້ມຄອງຊັບພະຍາກອນປ່າໄມ້ ຂອງກະຊວງຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ, ກົມປ່າໄມ້ ຂອງກະຊວງກະສິກຳ ແລະ ປ່າໄມ້, ພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ ແລະ ພະແນກກະສິກຳ ແລະ ປ່າໄມ້ ແຂວງຫລວງພະບາງ, ຕາງໜ້າສະຖານທູດຍີ່ປຸ່ນ, ຫ້ອງການ JICA ປະຈຳ ສປປ ລາວ ແລະ ຊ່ຽວຊານ JICA. ໃນກອງປະຊຸມແມ່ນໄດ້ມີການປຶກສາຫາລື ແລະ ຊີ້ແຈງຄຳສັກຖາມ ເພື່ອໃຫ້ເຂົ້າໃຈຢ່າງຈະແจ້ງ ກ່ຽວກັບແນວທາງການດຳເນີນງານຂອງໂຄງການໃນອະນາຄົດ.

ທ່ານ ວົງເດືອນ ວົງສີຫາລາດ ແລະ ທ່ານ ນ. ເຊດະ ມະກິໂມະໂຕະ

ປະທານກອງປະຊຸມ, ທ່ານ ວົງເດືອນ ວົງສີຫາລາດ ໄດ້ກ່າວເປີດກອງປະຊຸມ ພ້ອມທັງສະແດງຄວາມມຸ້ງຫວັງຢ່າງສູງຕໍ່ກັບໂຄງການນີ້ເຊັ່ນ: ການສະໜັບສະໜຸນໃນການປັບປຸງຍຸດທະສາດປ່າໄມ້ປີ 2020 ແລະ ນະ�โยบายອື່ນໆທີ່ສຳຄັນ; ການຕອບສະໜອງຕາມຄວາມຮຽກຮ້ອງຕ້ອງການໃນລະດັບສາກົນ ລວມທັງການຍື່ນສະເໜີ ລະດັບການປ່ອຍທາດອາຍພິດທຽບຖານ/ລະດັບທຽບຖານປ່າໄມ້ (FREL/FRL) ແລະ ການວັດແທກ, ການລາຍງານ ແລະ ການພິສູດຢັ້ງຢືນ (MRV) ໄປ

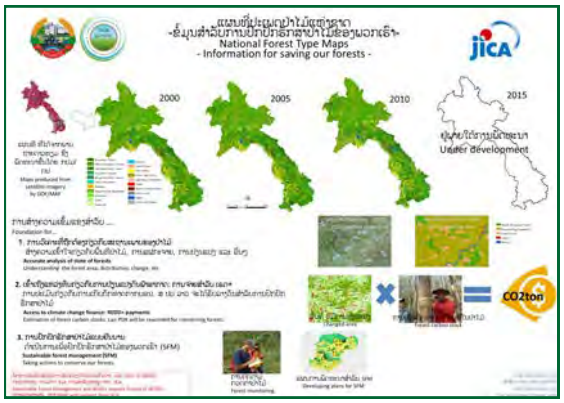
ການຖາມ&ຕອບ

ຍັງ ສົນທິສັນຍາສະຫະປະຊາຊາດວ່າດ້ວຍການປ່ຽນແປງດິນຟ້າອາກາດ (UNFCCC); ການຍາດແຍ່ງທຶນຊ່ວຍເຫລືອຈາກກອງທຶນການອນຸລັກປ່າໄມ້ (FCPF) ແລະ ການກະກຽມສຳລັບການຈັດຕັ້ງປະຕິບັດວຽກງານ REDD+ ຢູ່ ແຂວງຫລວງພະບາງ.

ພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ ແລະ ພະແນກກະສິກຳ ແລະ ປ່າໄມ້ ແຂວງ ໄດ້ໃຫ້ການຕອບຮັບເປັນຢ່າງດີໃນການສະໜັບສະໜຸນການສ້າງຄວາມເຂັ້ມແຂງ ເພື່ອຂະຫຍາຍແນວທາງການດຳເນີນງານຂອງໂຄງການຄຸ້ມຄອງທີ່ດິນ ແລະ ປ່າໄມ້ແບບມີສ່ວນຮ່ວມ ເພື່ອຫຼຸດຜ່ອນການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າເສື່ອມໂຊມ (ຫຼື ແນວທາງ PAREDD) ຊຶ່ງແມ່ນໜຶ່ງໃນກິດຈະກຳ (ຜົນໄດ້ຮັບທີ່ 4) ຂອງໂຄງການ F-REDD ນີ້ . ນອກຈາກນັ້ນ, ຍັງໄດ້ມີການປຶກສາຫາລື ກ່ຽວກັບຄວາມພ້ອມທາງດ້ານວຽກງານ REDD+ ຂອງແຂວງຫລວງພະບາງ. ພ້ອມທັງໄດ້ມີການຮັບຮອງຢ່າງເປັນທາງການກ່ຽວກັບແຜນວຽກ ແລະ ແຜນດຳເນີນງານລະອຽດ ເພື່ອນຳໄປຈັດຕັ້ງປະຕິບັດໃນຂັ້ນຕໍ່ໄປ.

ງານວາງສະແດງPosterໃນກອງປະຊຸມໂຕະມົນ

ໄດ້ມີການນຳສະເໜີກ່ຽວກັບ Poster ທີ່ສະແດງໃຫ້ເຫັນພາບລວມຂອງໂຄງການ ໃນງານວາງສະແດງຂອງກອງປະຊຸມໂຕະມົນ ຄັ້ງທີ 12 ທີ່ໄດ້ຈັດຂຶ້ນໃນວັນທີ 27 ພະຈິກ 2015, ຊຶ່ງລັດຖະບານລາວ ແລະ ຄູ່ຮ່ວມພັດທະນາໄດ້ມີການປຶກສາຫາລື ກ່ຽວກັບການພັດທະນາໃນລະດັບຊາດຂອງ ສປປ ລາວ. Poster ດັ່ງກ່າວໄດ້ສະແດງໃຫ້ເຫັນກ່ຽວກັບການສ້າງແຜນທີ່ປ່າໄມ້ ໂດຍບັນດາໂຄງການຊ່ວຍເຫລືອຂອງອົງການ JICA ໃນໄລຍະຜ່ານມາ ຊຶ່ງ ຈະເປັນການປະກອບສ່ວນເຂົ້າໃນວຽກງານການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນນານໃນຕໍ່ໜ້າ ໂດຍ ການຮັບຮູ້ ແລະ ເຂົ້າໃຈຢ່າງຖືກຕ້ອງກ່ຽວກັບສະພາບປ່າໄມ້ ແລະ ການນຳໃຊ້ແຜນທີ່ເຂົ້າໃນວຽກງານ REDD+. ຜູ້ເຂົ້າຮ່ວມຈາກຫລາຍພາກສ່ວນ ລວມທັງການນຳຂັ້ນສູງຂອງລັດຖະບານ ກໍໄດ້ເຂົ້າຢ້ຽມຊົມງານວາງສະແດງດັ່ງກ່າວ ເປັນໂອກາດອັນດີເຮັດໃຫ້ເຂົ້າໃຈ ກ່ຽວກັບການສະໜັບສະໜຸນຊ່ວຍເຫຼືອຂອງອົງການ JICA ດີຂຶ້ນ.



Poster ທີ່ນຳສະເໜີໃນກອງປະຊຸມໂຕະມົນ

ກອງປະຊຸມລິເລີ່ມໂຄງການ ຢູ່ ແຂວງຫລວງພະບາງ

ແຂວງຫລວງພະບາງ

ກອງປະຊຸມລິເລີ່ມ (ກ່ຽວກັບ ຜົນໄດ້ຮັບທີ 4) ຂອງໂຄງການ F-REDD ໄດ້ຈັດຂຶ້ນໃນວັນທີ 17 ພະຈິກ 2015 ຢູ່ ພະແນກກະສິກຳ ແລະ ປ່າໄມ້ແຂວງຫລວງພະບາງ. ທີມງານໂຄງການໄດ້ປຶກສາຫາລືກັບພາກສ່ວນຈັດຕັ້ງປະຕິບັດໂຄງການ ໂດຍສະເພາະລັກສະນະລວມຂອງໂຄງການ ແລະ ກິດຈະກຳຂອງຜົນໄດ້ຮັບທີ 4. ຜົນໄດ້ຮັບທີ 4 ແມ່ນເລັ່ງໃສ່ການສະ ໜັບສະໜູນ ເພື່ອກະກຽມການຈັດຕັ້ງປະຕິບັດວຽກງານ REDD+ ຢູ່ ແຂວງຫລວງພະບາງ. ນອກນັ້ນ, ຈຸດປະສົງອື່ນຂອງ ກອງປະຊຸມແມ່ນ ເພື່ອຮັບຟັງຄຳຄິດເຫັນກ່ຽວກັບການສ້າງຍຸດ ທະສາດ REDD+ ໃນລະດັບຊາດ.

ນອກຈາກຈຸດປະສົງຂ້າງເທິງແລ້ວ ຜົນໄດ້ຮັບທີ 4 ຂອງ ໂຄງການ ແມ່ນຍັງສືບຕໍ່ການຮ່ວມມືກັບ RECOFTC (ສູນ ສຳລັບປະຊາຊົນ ແລະ ປ່າໄມ້) ຊຶ່ງອົງການດັ່ງກ່າວໄດ້ມີການ ເຄື່ອນໄຫວວຽກງານ ກ່ຽວກັບການຄຸ້ມຄອງປົກປັກຮັກສາປ່າ ໄມ້ໃນພາກພື້ນອາຊີ-ປາຊີຟິກ ໃນໄລຍະຜ່ານມາ. ການຮ່ວມມື ດັ່ງກ່າວແມ່ນຢູ່ພາຍໃຕ້ ໂຄງການຮ່ວມມືລະຫວ່າງ JICA-RECOFTC. ເພາະສະນັ້ນ, ຈຶ່ງມີຊ່ຽວຊານຈາກຫ້ອງການ RECOFTC ປະຈຳ ບາງກອກ ເຂົ້າຮ່ວມໃນກອງປະຊຸມນີ້.

ໄດ້ຮັບການສະໜັບສະໜູນຈາກອົງການ JICA ແລະ ເປັນໜຶ່ງໃນບັນດາແຂວງເປົ້າໝາຍຂອງ ກອງທຶນ FCPF. ຜົນໄດ້ຮັບທີ 4 ຄາດຫວັງ ວ່າຈະຊ່ວຍກະຕຸກຊຸກຍູ້ໃຫ້ຝ່າຍລາວ ໄດ້ຮັບ ທຶນຊ່ວຍເຫລືອຈາກກອງທຶນ FCPF ດັ່ງກ່າວ

ການແນະນຳກິດຈະກຳຂອງໂຄງການ (ຜົນໄດ້ຮັບທີ 4) ໂດຍຊ່ຽວຊານ JICA, ທ່ານ ນະມຸລະ

ກິດຈະກຳຫລັກຂອງແຕ່ລະຜົນໄດ້ຮັບ

ຜົນໄດ້ຮັບ 1: ການສະໜັບສະໜູນຂະແໜງການປ່າໄມ້ໃນລະດັບສູນກາງ

- ◆ ການສະເໜີຄຳແນະນຳໄປຍັງກົມຄຸ້ມຄອງຊັບພະຍາກອນປ່າໄມ້ຂອງກະຊວງຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ ສຳລັບການທົບທວນການຈັດແບ່ງສາມປະເພດປ່າ(ປ່າຜະລິດ, ປ່າປ້ອງກັນ ແລະ ປ່າ ສະຫງວນ)

ຜົນໄດ້ຮັບ 2: ສະໜັບສະໜູນການວັດແທກກ່ຽວກັບການຫລຸດຜ່ອນ/ການ ດູດຊັບການປ່ອຍທາດອາຍພິດໂດຍການຈັດຕັ້ງປະຕິບັດວຽກງານ REDD+

- ◆ ຄູ່ມື NFI ຄັ້ງຕໍ່ໄປໄດ້ແປເປັນພາສາລາວ ແລະ ແຈກຢາຍໃຫ້ພາກສ່ວນກ່ຽວຂ້ອງ.
- ◆ ກະກຽມພາບຖ່າຍດາວທຽມ ເພື່ອສ້າງແຜນທີ່ປະເພດປ່າໄມ້ ປີ 2015

ຜົນໄດ້ຮັບ 3: ການສະໜັບສະໜູນ REDD+ ໃນລະດັບຊາດ

- ◆ ກອງປະຊຸມກ່ຽວກັບຂັ້ນຕອນການເຂົ້າເຖິງແຫລ່ງທຶນ FCPF

ຜົນໄດ້ຮັບ 4: ການສະໜັບສະໜູນຄວາມພ້ອມ ຂອງ REDD+ ສຳລັບ ແຂວງຫລວງພະບາງ

- ◆ ກອງປະຊຸມລິເລີ່ມ ຢູ່ ແຂວງຫລວງພະບາງ

ກິດຈະກຳອື່ນໆ

- ◆ ກອງປະຊຸມຄະນະກຳມະການປະສານງານຮ່ວມຄັ້ງທີ 1
- ◆ ສັງລວມແຜນວຽກ ແລະ ໄລຍະເວລາເລີ່ມລົງມື ພາຍຫລັງກອງປະຊຸມຄັ້ງທີ 1 ຂ້າງເທິງ

ຕິດຕໍ່ພົວພັນ

ຫ້ອງການໂຄງການ
ຖະໜົນ ຄູວຽງ, ບ້ານສີສະເກດ, ເມືອງຈັນທະບູລີ,
ນະຄອນຫລວງວຽງຈັນ, ສປປ ລາວ

ກຊສ
ກະຊວງຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດ

ກປ
ກະຊວງກະສິກຳ ແລະ ປ່າໄມ້

JICA
ອົງການຮ່ວມມືສາກົນປະເທດຍີ່ປຸ່ນ

ຕາຕະລາງກິດຈະກຳໂຄງການ

ກິດຈະກຳໃນໄຕມາດໜ້າ

1 ກຸມພາ
ກອງປະຊຸມກອງທຶນການກວບອນ FCPF ຢູ່ ແຂວງຫລວງພະບາງ

12 ກຸມພາ
ກອງປະຊຸມຄະນະດຳເນີນງານຂະ ແໜງການປ່າໄມ້

22 ກຸມພາ
ເລີ່ມລົງມືການສຳຫຼວດປ່າໄມ້ແຫ່ງຊາດ (NFI) ຄັ້ງຕໍ່ໄປ

24 ກຸມພາ
ກອງປະຊຸມລິເລີ່ມໂຄງການ

ກອງປະຊຸມກະກຽມສຳລັບຄະນະ ດຳເນີນງານ REL/MRV

ການວິເຄາະສາເຫດຂອງການທຳ ລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າ ເສື່ອມໂຊມ ທົ່ວແຂວງຫລວງພະບາງ

季刊　第2号
2016年1月 ~ 3月

F-REDD Newsletter

Sustainable Forest Management and REDD+ Support Project
Nov 2015 - Oct 2020

持続可能な森林管理及びREDD+支援プロジェク(F-REDD)

本プロジェクトの目的はREDD+に係る戦略策定、実施体制構築、実施のコーディネーションの支援と森林資源情報の整備などに係る能力の強化をはかり、それによってラオスの持続的な森林管理の促進に寄与することです。天然資源環境省森林資源管理局(MONRE-DFRM)と農林省森林局(MAF-DOF)を実施機関として協力しています。

インセプション・ワークショップ開催

MONRE-DFRMのVongdeuane Vongsiharath局長を議長として2016年2月24日にインセプション・ワークショップが開催されました。今回のワークショップの目的はカウンターパートのみならず、そのほかの援助機関にも当プロジェクトを広く認識してもらうことです。これにより、今後の活動の連携を促進するねらいもあります。

当日はプロジェクトの内容のみならず、森林戦略2020改定と国家REDD+戦略策定の関係や森林区分図と森林被覆度調査における森林率の差、FCPF炭素基金の成果支払いを目指したルアンプラバン県の現場支援（実施資金）の必要性などの議論も交わされました。

Vongsiharath局長(右奥)とSingsavanh計画協力課長(左奥)

各方面からの発表の様子

森林サブセクター作業部会

MONRE-DFRMのVongdeuane Vongsiharath局長を議長、JICAラオス事務所の牧本次長を共同議長として第10回森林サブセクター部会（FSSWG）が2016年3月12日に森林局にて開催されました。政府の森林関係各機関のほか大学、研究機関、援助機関、NGO等を含めた総勢60名が集う会合となりました。

MONREの2025年長期戦略の発表をはじめ、森林被覆度を調査したFCA2015やNTFP（特用林産物）の経済性評価研究、生物多様性保全を目的としたアジア開発銀行/BCCプロジェクトなど各方面からの発表が行われました。また、FSSWG及び村落林作業部会の運営規約案について紹介・議論が交わされ、その承認プロセスが確認されました。

国家森林インベントリ開始

確実な工程管理とカウンターパートへの一層の技術移転を考慮して、2016年10月~2017年6月の乾季に実施予定であった全国規模の森林調査である国家森林インベントリ（NFI）を今乾季の2016年2月から前倒しで開始しました。この調査はラオス国全土の森林に蓄積された炭素量を推定するために非常に重要な基礎データを収集するものです。

今乾季にはHouaphan, Xiangkhouang, Khammouane, Xekongの4県を対象に調査を進めています。開始に当たって2016年2月5日のNFIキックオフミーティングの議長をMAFのThongphat副大臣が務めたことからもラオス側の強い意気込みが伺えます。

タブレット端末を用いた調査の様子

REL/MRV技術作業部会の立ち上げ支援

REDD+を推進する上では、UNFCCCを始めとする国際標準に沿った温室効果ガス排出・吸収の将来予測（REL)や、削減成果を測定、報告、検証する仕組み（MRV）が必要です。ラオス政府はこれらの技術的検討の場として、国家REDD+タスクフォースのもとにREL/MRV技術作業部会を設置することを決定しています。F-REDDによるRELやMRV等への支援も、同作業部会において集中的な議論と検証が為される予定であることから、密接な連携が求められます。

F-REDDはREL/MRV技術作業部会をリードするパートナーして、その立ち上げに必要な運営規約の起草、活動計画の策定、関係者間の協調促進等を支援しました。来期以降、本格的に同作業部会の活動が開始する予定ですので、多くの関係者の参加のもとで同作業部会が活発に運営されるよう、引き続き中心的な役割を担って行きます。

REL/MRV技術作業部会設立のための準備会合

森林減少・劣化要因調査に用いた地図

ルアンプラバン森林減少・劣化要因調査

2月中旬に、ルアンプラバン県内の全郡を対象とした森林減少・劣化要因調査が行われました。森林減少・劣化の要因が明らかになると、森林減少を回避したり抑制したりするための対応策を検討することが可能になることから、県REDD+戦略を策定するための重要な調査と位置づけています。

ルアンプラバン県天然資源環境事務所、及び県農林事務所のカウンターパートが各郡を訪問し、森林減少地を示す衛星画像を元に、各地域の森林の状況に精通した郡レベルの森林セクター職員スタッフに対する聞き取り調査を行いました。この調査の結果、各郡の森林減少・劣化の状況やその要因に関する情報を収集することができました。

成果毎の主な活動

成果1：中央政府の森林セクター支援
- ◆森林サブセクター作業部会会合開催
- ◆6月の本邦研修に向けた準備

成果2：REDD+実施による排出削減・吸収増加量の測定支援
- ◆国家森林インベントリ開始
- ◆森林区分図作成のための衛星画像における変化抽出作業

成果3：国レベルのREDD+支援
- ◆REL/MRV作業部会の立ち上げ支援
- ◆FCPF炭素基金対象６県の合同会合開催支援及び参加

成果4：ルアンプラバン県のREDD+準備支援
- ◆ルアンプラバン県森林減少・劣化要因調査

共通の活動
- ◆インセプション・ワークショップ

コンタクト

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次期四半期のイベント

Apr
森林減少・劣化要因調査結果とりまとめ

Apr
REL/MRV第1回技術作業部会開催

May
第11回FSSWG会合

Jun
本邦研修（FREL/FRL及びNFMS）

天然資源環境省
Ministry of Natural Resources and Environment (MONRE)

農林省
Ministry of Agriculture and Forestry (MAF)

日本国際協力機構
Japan International Corporation Agency (JICA)

Quarterly issue, Vol. 2
January - March 2016

F-REDD Newsletter

Sustainable Forest Management and REDD+ Support Project

Nov 2015 - Oct 2020

Sustainable Forest Management and REDD+ Support Project (F-REDD)

The purpose of F-REDD is to enhance the capacity of forestry sector through strengthening policies, effective incorporation of REDD+, and improvement of forest resource information as the foundation of sustainable forest management (SFM) in both central and provincial levels (Luang Prabang as the pilot province). The Department of Forest Resource Management, Ministry of Natural Resources and Environment (MONRE-DFRM), and the Department of Forestry, Ministry of Agriculture and Forestry (MAF-DOF) are the implementing agencies of F-REDD.

Inception Workshop presented the F-REDD activities

The Inception Workshop was held on February 24th, 2016 chaired by Mr. Vongdeuane Vongsiharath, Director General of MONRE DFRM as the Project Director. The purpose of the Workshop was to introduce F-REDD widely to the counterparts as well as other development partners, and to facilitate collaborations in the future activities.

In addition, the following issues were discussed: the importance of harmonizing the revision of Forest Strategy 2020 and the formulation of the National REDD+ Strategy; the differences in the results of forest cover between the Forest Type Maps and Forest Cover Assessment survey; and the need of investment support to the field-level activities in Luang Prabang in order to realize result-based payment from the FCPF Carbon Fund.

Mr. Vongsiharath (right) and
Mr. Singsavanh (Project Manager) (left)

10th FSSWG discussed a variety of issues

A variety of topics were presented

The 10th Forest Sub-Sector Working Group (FSSWG) was held on February 12th, 2016 at the Department of Forestry. The meeting was chaired by Mr. Vongdeuane Vongsiharath, Director General of MONRE-DFRM and co-chaired by Ms. Saeda Makimoto, Senior Representative of JICA Laos Office. A total of 60 people from government agencies, universities, research institutes and Civil Society Organizations (CSOs) participated in the meeting.

A variety of topics were shared and discussed, starting with the MONRE Strategy towards 2025, other topics included Forest Cover Assessment 2015 which surveyed the national forest cover rate, economic evaluation study of Non Timber Forest Products (NTFPs), Asian Development Bank (ADB) / Biodiversity Conservation Corridors (BCC) project for the purpose of biodiversity conservation, and so forth. The Terms of References (TORs) of FSSWG and the Village Forest Working Group were also introduced and the meeting confirmed the approval process.

Launching of the National Forest Inventory

The National Forest Inventory (NFI) – a nationwide forest survey – supported under F-REDD, was originally planned for the dry season of October 2016 – June 2017. In order to ensure adequate process control and further capacity building of the counterpart staff, the project decided to launch the NFI from February 2016, nearly eight months ahead of schedule. The survey will collect important base data for the estimation of carbon stock in the forests of Lao PDR.

The survey is currently on-going in four provinces; Houaphan, Xiangkhouang, Khammouane, and Xekong. Mr. Thongphath Vongmany, Vice Minister of MAF, chaired the kick-off meeting on 5th February, expressed a strong commitment of the government towards successful implementation of the survey and agreed that MAF would co-finance NFI from their own financial resources.

NFI field survey using a tablet device with automated survey program

Assisting the launch of REL/MRV TWG

It is essential for a REDD+ country to establish Reference Emission Level (REL) – a benchmark for assessing the performance of implementing REDD+ activities – and Measuring, Reporting and Verification (MRV) system – a system to "measure", "report", and "verify" the performance against REL – in line with the decisions adopted by the Conference of Parties (COP) of UNFCCC. The government of Lao PDR decided to establish the REL/MRV Technical Working Group (REL/MRV TWG) under the National REDD+ Task Force as a forum to discuss these issues. Furthermore, it is also important for F-REDD to closely collaborate with the REL/MRV TWG, as the support by F-REDD to REL and MRV will be intensively discussed and reviewed in the REL/MRV TWG meetings.

As a leading partner of RELMRV TWG, F-REDD took a facilitative role on drafting the TOR, developing the work plan, and enhancing coordination among the TWG members. F-REDD will continue to play a key role in assisting the launch of the REL/MRV TWG in the next quarter, and will keep the group lively through active participation of the related organizations.

Pre meeting of REL/MRV TWG

Maps used for 'DD survey'

'DD survey' in Luang Prabang

The Deforestation and Forest Degradation Drivers Analysis Survey (DD survey) targeting all districts in Luang Prabang Province was conducted in mid-February. DD survey is an important process for the development of Provincial REDD+ Strategy, since identification of drivers will serve as the basis for discussing the countermeasures to avoid and control deforestation and forest degradation.

The counterpart teams from Provincial Office of Natural Resources and Environment, and Provincial Office of Agriculture and Forestry visited each district and conducted a group meeting with the forestry officers from the district who have good knowledge of the local situation. Satellite maps which indicate recently-deforested areas were used to visualize the state of forest of the district. Detailed information about the situation and drivers of deforestation and forest degradation were collected for further analysis.

Main activities conducted

Output 1: Support forestry sector at the central level
- 10th meeting of Forest Sub-Sector Working Group
- Preparation for a training program in Japan in June

Output 2: Support measurement of emissions reduction and removal through implementation of REDD+
- Launching the National Forest Inventory
- Change detection on satellite imagery for the development of Forest Type Map 2015

Output 3: Support National REDD+
- Preparatory meetings to support launching the REL/MRV TWG
- Joint consultation meetings for FCPF Carbon Fund provinces (6 provinces)

Output 4: Support Luang Prabang Province REDD+ Readiness
- Deforestation and Forest Degradation Drivers Analysis Survey in Luang Prabang

Common activity
- Inception Workshop

Contact

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Events in the next quarter

Apr
Analysis of DD survey results

Apr
1st REL/MRV TWG

May
11th FSSWG

Jun
Training in Japan (FREL/FRL and NFMS)

MONRE
Ministry of Natural Resources and Environment (MONRE)

MAF
Ministry of Agriculture and Forestry (MAF)

JICA
Japan International Corporation Agency (JICA)

ປະຈຳໄຕມາດ, ສະບັບທີ 2
ມັງກອນ - ມີນາ 2016

ຈົດໝາຍຂ່າວໂຄງການ F-REDD

ໂຄງການສະໜັບສະໜຸນ ການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນນານ ແລະ REDD+
ພະຈິກ 2015 - ຕຸລາ 2020

ໂຄງການສະໜັບສະໜຸນ ການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນນານ ແລະ REDD+(F-REDD)

ຈຸດປະສົງຂອງໂຄງການ F-REDD ແມ່ນເພື່ອຍົກລະດັບຄວາມເຂັ້ມແຂງຂອງຂະແໜງການປ່າໄມ້ໂດຍຜ່ານການສ້າງຄວາມເຂັ້ມແຂງທາງດ້ານນະ�โยบาย, ການຮ່ວມມືທີ່ມີປະສິດທິພາບກ່ຽວກັບວຽກງານ REDD+, ການປັບປຸງຂໍ້ມູນຊັບພະຍາກອນປ່າໄມ້ ຊຶ່ງເປັນພື້ນຖານໃນການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນນານ (SFM) ທັງຢູ່ໃນລະດັບສູນກາງ ແລະ ທ້ອງຖິ່ນ (ຫລວງພະບາງ ແມ່ນເປັນແຂວງທົດລອງ). ກົມຄຸ້ມຄອງຊັບພະຍາກອນປ່າໄມ້ ຂອງ ກະຊວງຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ, ແລະ ກົມປ່າໄມ້ ຂອງ ກະຊວງກະສິກຳ ແລະ ປ່າໄມ້ ແມ່ນເປັນພາກສ່ວນຮັບຜິດຊອບໃນການຈັດຕັ້ງປະຕິບັດໂຄງການ F-REDD.

ກອງປະຊຸມລິເລີ່ມໂຄງການ ໄດ້ນຳສະເໜີກ່ຽວກັບກິດຈະກຳ ຂອງໂຄງການ F-REDD

ກອງປະຊຸມລິເລີ່ມໂຄງການໄດ້ຈັດຂຶ້ນໃນວັນທີ 24 ກຸມພາ, 2016 ໂດຍການເປັນປະທານຂອງທ່ານ ວິງເດືອນ ວິງສີຫາລາດ, ຫົວໜ້າກົມຄຸ້ມຄອງຊັບພະຍາກອນປ່າໄມ້ ຂອງ ກະຊວງຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ ໃນນາມຫົວໜ້າຊີ້ນຳໂຄງການ. ຈຸດປະສົງຂອງກອງປະຊຸມແມ່ນເພື່ອສະເໜີກ່ຽວກັບໂຄງການ F-REDD ໃຫ້ແກ່ຜູ້ປະສານງານ ແລະ ຄູ່ຮ່ວມພັດທະນາອື່ນໆ ແນໃສ່ເພື່ອຊຸກຍູ້ສິ່ງເສີມການຮ່ວມມືໃນອະນາຄົດ.

ນອກຈາກນັ້ນ, ຍັງໄດ້ມີການປຶກສາຫາລືກ່ຽວກັບບັນຫາດັ່ງຕໍ່ໄປນີ້: ການປັບປຸງຍຸດທະສາດປ່າໄມ້ປີ 2020 ແລະ ການກຳນົດຍຸດທະສາດ REDD+ ແຫ່ງຊາດ; ຄວາມແຕກຕ່າງຂອງເນື້ອທີ່ປົກຫຸ້ມປ່າໄມ້ ທຽບໃສ່ແຜນທີ່ປະເພດປ່າໄມ້ ແລະ ຜົນການສຳຫລວດປະເມີນເນື້ອທີ່ປົກຫຸ້ມປ່າໄມ້; ແລະ ຄວາມຕ້ອງການທຶນສະໜັບສະໜຸນກິດຈະກຳພາກສະໜາມ ຢູ່ ແຂວງຫຼວງພະບາງ ເພື່ອຈະໄດ້ເງິນຊຸກຍູ້ຈາກກອງທຶນກາກບອນ FCPF ໂດຍອີງໃສ່ຜົນໄດ້ຮັບຂອງການປະຕິບັດກິດຈະກຳຕົວຈິງ.

ທ່ານ. ວິງເດືອນ (ຫົວໜ້າຊີ້ນຳໂຄງການ-ຂວາມື) ແລະ ທ່ານ. ສາລີ (ຫົວໜ້າຄຸ້ມຄອງໂຄງການ-ຊ້າຍມື)

FSSWG ຄັ້ງທີ 10 ໄດ້ປຶກສາຫາລືຫລາຍບັນຫາ

ໄດ້ມີການນຳສະເໜີຫລາຍຫົວຂໍ້

ກອງປະຊຸມ FSSWG ຄັ້ງທີ 10 ໄດ້ຈັດຂຶ້ນໃນວັນທີ 12 ກຸມພາ 2016 ທີ່ ກົມປ່າໄມ້ ໂດຍການເປັນປະທານຂອງທ່ານ ວິງເດືອນ ວິງສີຫາລາດ, ຫົວໜ້າກົມຄຸ້ມຄອງຊັບພະຍາກອນປ່າໄມ້, ກະຊວງຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ, ແລະ ການເປັນປະທານຮ່ວມຂອງ ທ່ານ ນ. ເຊດະ ມະກິໂມະໂຕະ, ຜູ້ຕາງໜ້າອາວຸโส ຈາກຫ້ອງການ JICA ປະຈຳ ສປປ ລາວ. ກອງປະຊຸມດັ່ງກ່າວມີຜູ້ເຂົ້າຮ່ວມທັງໝົດ 60 ທ່ານ ຈາກພາກລັດ, ມະຫາວິທະຍາໄລ, ສະຖາບັນຄົ້ນຄວ້າ ແລະ ອົງການຈັດຕັ້ງສັງຄົມຕ່າງໆ.

ກອງປະຊຸມໄດ້ມີການເຜີຍແຜ່ ແລະ ປຶກສາຫາລືໃນຫລາຍໆບັນຫາ ໂດຍເລີ່ມຈາກຍຸດທະສາດຂອງກະຊວງຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມຮອດປີ 2025 ແລະ ບັນຫາອື່ນໆ ລວມມີການປະເມີນເນື້ອທີ່ປົກຫຸ້ມປ່າໄມ້ປີ 2015 ຊຶ່ງໄດ້ມີການສຳຫລວດອັດຕາການປົກຫຸ້ມປ່າໄມ້ໃນລະດັບຊາດ, ການປະເມີນທາງດ້ານເສດຖະກິດກ່ຽວກັບເຄື່ອງປ່າຂອງດົງ, ແລະ ໂຄງການຂອງທະນາຄານພັດທະນາອາຊີ ເພື່ອປົກປັກຮັກສາຊີວະນາໆພັນ (ADB/BCC) ແລະ ບັນຫາອື່ນໆ. ນອກນັ້ນ, ຍັງໄດ້ສະເໜີບົດບາດ ແລະ ໜ້າທີ່ຮັບຜິດຊອບຂອງ FSSWG ແລະ ຄະນະທິມງານປ່າໄມ້ບ້ານ ເພື່ອໃຫ້ກອງປະຊຸມຮັບຮອງເອົາ.

ການຈັດຕັ້ງປະຕິບັດການສຳຫຼວດປ່າໄມ້ແຫ່ງຊາດ

ການສຳຫລວດປ່າໄມ້ແຫ່ງຊາດ (NFI) ຊຶ່ງຈັດຕັ້ງປະຕິບັດໃນທົ່ວປະເທດ ແມ່ນໄດ້ຮັບການສະໜັບສະໜຸນຈາກ ໂຄງການ F-REDD ໄດ້ມີການວາງແຜນໃນເບື້ອງຕົ້ນ ໂດຍເລີ່ມສຳຫລວດໃນລະດູແລ້ງຂອງເດືອນຕຸລາ 2016 - ມີຖຸນາ 2017. ເພື່ອຮັບປະກັນການປະຕິບັດຂັ້ນຕອນຕ່າງໆໃຫ້ຖືກຕ້ອງເຫມາະສົມ ທັງເປັນການສ້າງຄວາມອາດສາມາດໃຫ້ແກ່ພະນັກງານ ໂຄງການຈຶ່ງໄດ້ກະກຽມຕັ້ງແຕ່ເດືອນກຸມພາ 2016 ເປັນຕົ້ນມາ (ປະມານ 8 ເດືອນກ່ອນກຳນົດ). ການສຳຫຼວດແມ່ນຈະເກັບກຳຂໍ້ມູນພື້ນຖານທີ່ສຳຄັນ ສຳລັບການປະເມີນການເກັບກັກທາດກາກບອນໃນປ່າໄມ້ຂອງ ສປປ ລາວ.

ການສຳຫຼວດໃນປັດຈຸບັນແມ່ນກຳລັງຈັດຕັ້ງປະຕິບັດໃນ 4 ແຂວງ ເຊັ່ນ: ຫົວພັນ, ຊຽງຂວາງ, ຄຳມ່ວນ ແລະ ເຊກອງ. ທ່ານ ທອງພັດ ວິງມະນີ, ຮອງລັດຖະມົນຕີກະຊວງກະສິກຳ ແລະ ປ່າໄມ້, ໄດ້ເປັນປະທານໃຫ້ແກ່ກອງປະຊຸມລິເລີ່ມດັ່ງກ່າວ ໃນວັນທີ 5 ກຸມພາ 2016 ຊຶ່ງທ່ານໄດ້ສະແດງໃຫ້ເຫັນເຖິງຄວາມເປັນຫ່ວງເປັນໃຍ ແລະ ເອົາໃຈໃສ່ຂອງລັດຖະບານ ເຮັດແນວໃດເພື່ອໃຫ້ການສຳຫຼວດປ່າໄມ້ແຫ່ງຊາດປະສົບຜົນສຳເລັດຢ່າງຈົບງາມ ໂດຍກະຊວງກະສິກຳ ແລະ ປ່າໄມ້ ຈະໃຫ້ການສະໜັບສະໜຸນທາງດ້ານການເງິນ ເພື່ອສົມທົບໃນການສຳຫຼວດປ່າໄມ້ແຫ່ງຊາດໃນຄັ້ງນີ້.

ການນຳໃຊ້ໂປລແກລມການສຳຫລວດໃນ Tablet ເພື່ອຊ່ວຍໃນການສຳຫລວດພາກສະໜາມ

ການຊ່ວຍເຫລືອທີມງານວິຊາການ REL/MRV

ມັນເປັນສິ່ງຈຳເປັນສຳລັບບັນດາປະເທດທີ່ຈັດຕັ້ງປະຕິບັດວຽກງານ REDD+ ທີ່ຈະຕ້ອງສ້າງ REL - ມາດຖານສຳລັບການປະເມີນຜົນການຈັດຕັ້ງປະຕິບັດກິດຈະກຳ REDD+ - ລະບົບ MRV ແມ່ນ ເປັນລະບົບສຳລັບ "ວັດແທກ", "ລາຍງານ", ແລະ "ພິສູດຢັ້ງຢືນ" ການຈັດຕັ້ງປະຕິບັດ REL ຊຶ່ງສອດຄ່ອງກັບຂໍ້ຕົກລົງທີ່ໄດ້ຖືກຮັບຮອງໂດຍກອງປະຊຸມຂອງບັນດາປະເທດພາຄີ (COP) ຂອງ UNFCCC. ລັດຖະບານ ສປປ ລາວ ໄດ້ຕັດສິນໃຈສ້າງຕັ້ງຄະນະທີມງານວິຊາການ REL/MRV ພາຍໃຕ້ ຄະນະດຳເນີນງານສະເພາະກິດວຽກງານ REDD+ ເພື່ອໃຊ້ເປັນເວທີສຳລັບການປຶກສາຫາລືກ່ຽວກັບບັນຫາເຫຼົ່ານີ້. ນອກຈາກນັ້ນ, ໂຄງການ F-REDD ຍັງຕ້ອງໄດ້ຮ່ວມມືຢ່າງໃກ້ຊິດກັບ ຄະນະທີມງານວິຊາການ REL/MRV ດັ່ງກ່າວ ເນື່ອງຈາກວ່າການສະໜັບສະໜູນການສ້າງ REL/MRV ຈະຕ້ອງໄດ້ປຶກສາຫາລືຢ່າງກ້ວາງຂວາງ ແລະ ທົບທວນໃນຫຼາຍໆກອງປະຊຸມຂອງຄະນະທີມງານວິຊາການ REL/MRV ທີ່ຈະມີຂຶ້ນໃນຕໍ່ໜ້າ.

ໃນຖານະເປັນຜູ້ນຳພາຄະນະທີມງານວິຊາການ REL/MRV ດັ່ງກ່າວ, ໂຄງການ F-REDD ໄດ້ຊ່ວຍໃນການຮ່າງພາລະບົດບາດ, ສິດ ແລະ ໜ້າທີ່ຮັບຜິດຊອບຂອງຄະນະ, ກຳນົດແຜນວຽກ ແລະ ຊຸກຍູ້ໃຫ້ການປະສານງານລະຫວ່າງສະມາຊິກຂອງຄະນະທີມງານດີຂຶ້ນ. ໂຄງການ F-REDD ຈະ ສືບຕໍ່ບົດບາດສຳຄັນໃນການພັກດັນໃຫ້ຄະນະທີມງານວິຊາການ REL/MRV ໃນໄຕມາດໜ້າ ແລະ ຊຸກຍູ້ໃຫ້ພາກສ່ວນຕ່າງໆທີ່ເຂົ້າຮ່ວມໃນຄະນະທີມງານສາມາດປະຕິບັດໜ້າທີ່ໄດ້ຢ່າງຫ້າວຫັນ.

ກອງປະຊຸມກະກຽມຂອງຄະນະທີມງານວິຊາການ REL/MRV

ແຜນທີ ທີ່ນຳໃຊ້ສຳລັບ 'ການສຳຫລວດ DD'

'ການສຳຫລວດ DD' ຢູ່ ແຂວງຫລວງພະບາງ

ການສຳຫຼວດວິເຄາະສາເຫດຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າເສື່ອມ�โຊມ (ການສຳ ຫຼວດ DD) ຢູ່ ທຸກເມືອງຂອງແຂວງຫລວງພະບາງ ໄດ້ເລີ່ມລົງມືໃນກາງເດືອນກຸມພາ 2016 ເປັນຕົນມາ. ການສຳຫຼວດ DD ແມ່ນຂັ້ນຕອນທີ່ສຳຄັນ ເພື່ອເປັນພື້ນຖານໃຫ້ແກ່ການສ້າງຍຸດທະ ສາດ REDD+ ໃນລະດັບແຂວງ ເນື່ອງຈາກວ່າການກຳນົດສາເຫດຈະເປັນບ່ອນອີງໃຫ້ແກ່ການ ປຶກສາຫາລື ເພື່ອຊອກຫາມາດຕະການຫຼຸດຜ່ອນການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າເສື່ອມ �โຊມສຳລັບແຂວງ.

ທີມງານຜູ້ປະສານງານຈາກພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ, ພະແນກ ກະສິກຳ ແລະ ປ່າໄມ້ແຂວງ ໄດ້ລົງເກັບກຳຂໍ້ມູນໃນແຕ່ລະເມືອງ ແລະ ຈັດກອງປະຊຸມຮ່ວມກັບ ພະນັກງານປ່າໄມ້ເມືອງຜູ້ທີ່ມີຄວາມຮູ້ກ່ຽວກັບສະພາບປ່າໄມ້ຂອງທ້ອງຖິ່ນ. ແຜນທີ່ພາບຖ່າຍທາງ ດາວທຽມທີ່ສະແດງໃຫ້ເຫັນພື້ນປ່າໄມ້ທີ່ຖືກທຳລາຍໃນປັດຈຸບັນແມ່ນໄດ້ຖືກນຳໃຊ້ເພື່ອເກັບກຳ ຂໍ້ມູນສະພາບປ່າໄມ້ຕົວຈິງໃນເມືອງດັ່ງກ່າວ. ການວິເຄາະສາເຫດຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າເສື່ອມ�โຊມ ຍັງຈະສືບຕໍ່ເກັບກຳຂໍ້ມູນໃນຂະແໜງການອື່ນໆຕື່ມອີກ.

ກິດຈະກຳຫລັກທີ່ໄດ້ປະຕິບັດ

ຜົນໄດ້ຮັບ 1: ການສະໜັບສະໜູນຂະແໜງການປ່າໄມ້ໃນລະດັບສູນກາງ
- ◆ ກອງປະຊຸມ FSSWG ຄັ້ງທີ 10
- ◆ ກະກຽມການຝຶກອົບຮົມຢູ່ປະເທດຍີ່ປຸ່ນໃນເດືອນມິຖຸນາ

ຜົນໄດ້ຮັບ 2: ສະໜັບສະໜູນການວັດແທກ, ການຫລຸດຜ່ອນ ແລະ ການດູດຊຶບການ ປ່ອຍທາດ ອາຍພິດໂດຍການຈັດຕັ້ງປະຕິບັດວຽກງານ REDD+
- ◆ ກຳລັງລິເລີ່ມ NFI
- ◆ ສຶກສາການປ່ຽນແປງພາບຖ່າຍດາວທຽມເພື່ອສ້າງແຜນທີ່ປ່າໄມ້ປີ2015

ຜົນໄດ້ຮັບທີ່ 3: ການສະໜັບສະໜູນ REDD+ ໃນລະດັບຊາດ
- ◆ ກອງປະຊຸມກະກຽມເພື່ອລິເລີ່ມເພື່ອສະໜັບສະໜູນຄະນະທີມງານວິຊາການ REL/MRV
- ◆ ກອງປະຊຸມປຶກສາຫາລືຮ່ວມສຳລັບບັນດາແຂວງຂອງກອງທຶນການກອນ FCPF (6 ແຂວງ)

ຜົນໄດ້ຮັບທີ່ 4: ການສະໜັບສະໜູນຄວາມພ້ອມສຳລັບແຂວງຫລວງພະບາງ
- ◆ ການສຳຫຼວດວິເຄາະສາເຫດຂອງ ການທຳລາຍປ່າໄມ້ ແລະ ການເຊື່ອມ�โຊມປ່າໄມ້ໃນແຂວງ ຫລວງພະບາງ

ກິດຈະກຳທົ່ວໄປ
- ◆ ກອງປະຊຸມລິເລີ່ມໂຄງການ

ຕິດຕໍ່ພົວພັນ

ຫ້ອງການໂຄງການ

ຖະໜົນ ຄູວຽງ,

ບ້ານສີສະເກດ,

ເມືອງຈັນທະບູລີ,

ນະຄອນຫລວງວຽງຈັນ, ສປປລາວ

ໂທ & ແຟັກ: 021(22)2536

ກິດຈະກຳໃນໄຕມາດໜ້າ

ເມສາ
ວິເຄາະຜົນການສຳຫລວດ DD

ເມສາ
ກອງປະຊຸມຂອງຄະນະທີມງານວິຊາການ REL/MRV ຄັ້ງທີ 1

ພຶດສະພາ
ກອງປະຊຸມ FSSWG ຄັ້ງທີ 11

ມິຖຸນາ
ການຝຶກອົບຮົມໃນປະເທດຍີ່ປຸ່ນ (FREL/FRL ແລະ NFMS)

ກຊສ

ກະຊວງຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດ

ກປ

ກະຊວງກະສິກຳ ແລະ ປ່າໄມ້

JICA

ອົງການຮ່ວມມືສາກົນປະເທດຍີ່ປຸ່ນ

季刊　第3号
2016年4月 ~ 6月

F-REDD Newsletter

Sustainable Forest Management and REDD+ Support Project
Nov 2015 - Oct 2020

持続可能な森林管理及びREDD+支援プロジェクト（F-REDD）

本プロジェクトの目的はREDD+に係る戦略策定、実施体制構築、実施のコーディネーションの支援と森林資源情報の整備などに係る能力の強化をはかり、それによってラオスの持続的な森林管理の促進に寄与することです。天然資源環境省森林資源管理局(MONRE-DFRM)と農林省森林局(MAF-DOF)を実施機関として協力しています。

REL/MRV 技術作業部会 第1回会合

ラオスではREDD+を推進するために6つの技術作業部会が設置されています（前号紹介）。その一つであるREL/MRV技術作業部会の第1回会合が4月27日に開催され、DFRM、DOF、MONRE災害対策気候変動局といった主要な部局及びその他開発パートナーを交えた総勢30名が参加しました。この作業部会はF-REDDの主なC/P機関の一つであるDOF森林調査計画課（FIPD）のリントン課長が部会長を務め、F-REDDが実質的なリード・ドナーとして企画・運営を支援しています。

今回は第１回会合として2020年に向けたワークプランを議論したほか、F-REDD専門家がREDD+の概要、REL、MRV、NFMSといった本技術作業部会の主要事項について、基礎的な内容にラオスのケースを交えて紹介・意見交換をしました。部会の役割とこれからの取り組み予定について、メンバーの共通理解を深める良いスタートが切れたと思います。

F-REDD専門家によるRELの説明

NFI 2015-2016 完了

4県を対象とした今乾季（2015 ~ 2016）の国家森林インベントリが終了しました。調査中、DOF-FIPDのリントン課長及びDFRM保護林・保全林調査課のソンヴァン課長による視察が行われ、調査の進行状況と問題の洗い出しが行われました。この視察及び今季の調査結果をとりまとめ、問題から分析された反省点や改善点を反映させた次期乾季の調査計画を現在作成中です。

国家森林インベントリ調査は来乾季で終了し、その情報がRELや将来のMRVに必要な森林炭素量変化推定の基礎データとなります。情報を正確に取得できるように調査実施体制を改善・強化していきます。

DOF及びDFRMの課長による視察

“REDD+ Financing” ワークショップ参加

REDD+による森林保全を資金面から如何に後押しするかは、国際交渉の場でも中心的な議題です。このたびUN-REDD、FCPF及びREDD+ Partnershipの共催による、“REDD+ Financing”に関するワークショップが5月25日から27日にかけてバンコクで開催されました。多くの途上国がREDD+準備の段階から実施及び結果に基づく支払いの段階へ移行するにあたり、それらの資金源やアクセス方法に関する知識の共有と、今後への期待や課題を議論することを目的としたワークショップです。ラオスからはDOF、DFRM、財務省職員と共にF-REDDからも専門家が参加しました。

ワークショップでは他のアジア諸国12カ国の他、国際機関や民間金融機関からも参加者を迎え、REDD+資金の動向や民間セクターの見方、そして他国事例などを元にしながら、関係者の能力向上、森林保全活動や環境負荷の低い農林業システムへの転換、そして公正かつ透明性のある資金メカニズムの構築のためにはどのような制度が有効かといった議論がなされました。これからREDD+戦略作りが開始するラオスにとって、資金面から将来を見据える良いきっかけとなりました。

WSで発言するDOF職員

本邦研修： REL・NFMS研修

模擬RELの設定

F-REDDではラオス現地での研修やOJTの他にも、日本の事例等から学ぶための本邦研修を実施することにしています。その第1回目として6月13日から24日にかけて本邦研修を実施し、DFRM及びDOFからREDD+を推進する上でキーパーソンとなるリントン課長など職員4名が、特にREL及びNFMSの理解を深めるために訪日しました。

例えばREDD+実施の結果を測る際のベンチマークであるRELや、実際の結果を測定などするMRVは、国の温室効果ガスインベントリとの整合性が求められます。REDD+担当者としてはそのような課題を予め整理しておくが重要であることから、研修ではRELの概要と温室効果ガスインベントリの概要から始まり、実際に模擬REL設定の演習も行うなど、具体的な理解が得られるように工夫しました。

また、林野庁では日本の温室効果ガスインベントリにおける森林炭素データの作成方法、REL提出後の技術審査、温室効果ガス排出削減の手段として日本政府が実施しているJCM（Joint Crediting Mechanism）のREDD+プロジェクトに関するガイドラインについて講義を受けました。

天竜人工林見学の様子

さらに、二酸化炭素の吸収源ともなる森林管理の好例として、日本三大人工美林の一つである天竜で幾代にも渡り適切に管理されている中山林業合資会社の山林を見学させていただきました。ラオスの森林はほとんどが天然林ですが、それらの持続的経営は重要課題の一つとされていることから、GISを用いた施業方法や流通・販売についても質疑を交え、研修員は熱心に説明を聴いていました。見学した山林は森林認証制度（FSC）に登録されていることもあり、研修員にとって非常に興味深いモデルであったことが伺えました。

今後、研修員がこの研修で学んだことを活かしてラオスにおけるREDD+の推進と森林管理の向上に貢献することが期待されます。

成果毎の主な活動

成果1：中央政府の森林セクター支援

◆本邦研修（REL・NFMS研修）

成果2：REDD+実施による排出削減・吸収増加量の測定支援

◆2015年森林区分図作成のための、2010～2015年間の衛星画像による変化抽出作業

◆第2回NFI 2015 - 2016 乾季における調査完了

成果3：国レベルのREDD+支援

◆第1回REL/MRV技術作業部会会合開催

◆Regional Knowledge Exchange: “REDD+ Financing” への参加

成果4：ルアンプラバン県のREDD+準備支援

◆県REDD+タスクフォース（PRTF）及びREDD+オフィスの開設承認

◆県REDD+戦略策定に必要な森林減少要因調査の取りまとめ及び県森林セクター5カ年計画や統計資料の情報収集・分析

コンタクト

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次期四半期のイベント

Jul
国家REDD+タスクフォース向け合同研修

Aug
第12回森林サブセクター作業部会会合
ルアンプラバン県REDD+タスクフォース会合、技術会合

Sep
第2回REL/MRV技術作業部会会合

天然資源環境省
Ministry of Natural Resources and Environment (MONRE)

農林省
Ministry of Agriculture and Forestry (MAF)

日本国際協力機構
Japan International Corporation Agency (JICA)

Quarterly Vol. 3
April - June 2016

F-REDD Newsletter

Sustainable Forest Management and REDD+ Support Project

Nov 2015 - Oct 2020

Sustainable Forest Management and REDD+ Support Project (F-REDD)

The purpose of F-REDD is to enhance the capacity of forestry sector through strengthening policies, effective incorporation of REDD+, and improvement of forest resource information as the foundation of sustainable forest management (SFM) in both central and provincial levels (Luang Prabang as the pilot province). The Department of Forest Resource Management, Ministry of Natural Resources and Environment (MONRE-DFRM), and the Department of Forestry, Ministry of Agriculture and Forestry (MAF-DOF) are the implementing agencies of F-REDD.

1st REL/MRV TWG Meeting held

Forestry sector of Lao PDR has agreed to establish six Technical Working Groups (TWGs) to promote REDD+. The 1st meeting of REL/MRV TWG was held on 27th April with a total of 30 participants from DFRM, DOF, MONRE Department of Disaster Management and Climate Change, and development partners concerned. Mr. Linthong, the Director of Forest Inventory and Planning Division (FIPD) of DOF, chaired the meeting, and F-REDD supported the meeting as a lead partner.

The meeting discussed the TWG's work plan towards 2020 and experts from F-REDD presented the basics of some key topics under the TWG, such as REDD+, REL, MRV and NFMS. The presentation included issues for Lao PDR and was followed by a lively exchange of views. It was a highly useful opportunity for the participants to foster shared understanding of the roles and planned activities of the TWG.

Presentation of the basics of REL

NFI 2015-2016 Dry Season completed

The National Forest Inventory (NFI) for the dry season of 2015 - 2016 which targeted four provinces (Houaphanh, Khammouane, Xiengkhouang, and Sekong) has been completed. During the survey, Mr. Linthong, the Director of DOF-FIPD, and Mr. Somvang, the Director of Protection Forest and Conservation Forest Inventory Service of DFRM, also inspected the survey to check the progress as well as the operational issues. The findings will be incorporated into the plan for the next NFI 2016-2017 Dry Season.

The country-wide NFI will continue in the dry season of 2016 – 2017 and the results will become basic data for estimating forest carbon change, which are essential for REL and MRV. From the experiences of NFI 2015-2016 Dry Season, the survey structure will be further improved to ensure a high level of accuracy.

Field inspection by DOF and DFRM directors

Participating in the "REDD+ Financing" Workshop

One of the main topics on REDD+ at international negotiations is how to accelerate forest conservation through financing. In order to find some clues on this topic, the staff from DOF, DFRM and Ministry of Finance, and an expert from F-REDD participated in the workshop on "REDD+ Financing" (co-hosted by UN-REDD, FCPF and REDD+ Partnership) held on 25th - 27th May in Bangkok. As many developing countries are in their transitional stage from 'REDD+ readiness' to 'implementation' and 'results-based payment', the workshop aimed to share the knowledge and experiences on how to explore financing options, and also to discuss expectations and challenges regarding REDD+ financing.

The workshop invited 12 other Asian countries, international organizations, and financial sector representatives. The participants discussed the following: the need of capacity building of stakeholders; forest conservation actions and shift to low-emission agriculture and forestry; and necessity of developing a fair and transparent financing mechanism. The workshop offered good entry points for Lao PDR, which will soon start developing its national REDD+ strategy, to look ahead to the financial aspects of REDD+.

DOF staff at Workshop

REL/NFMS training in Japan hosted 4 project counterparts

F-REDD provides its counterparts various training opportunities, such as in-country trainings and On-the-Job Trainings (OJT) in Lao PDR, and also trainings in Japan. The 1st counterpart training in Japan was held from 13th to 24th June, and four counterparts from DFRM and DOF traveled to Japan to enhance their understanding, particularly on REL and NFMS.

For instance, REL and MRV are required to be consistent with national greenhouse gas inventory. As it is important for REDD+ officers to understand such issues, the training course started from general knowledge on REL and greenhouse gas inventory, and went on to the simulation exercise on developing REL. Such combination of 'basics' and 'practice' has proved to be effective for enhancing the learning of the counterparts who participated.

Then, the counterparts visited the Forestry Agency of Japan to learn from the experiences of Japan. This includes the methodology of forest carbon estimation in its national greenhouse gas inventory, UNFCCC's technical assessment of REL, and Joint Crediting Mechanism (JCM; a bilateral mechanism advocated by Japan aimed at supporting low carbon development) guideline for REDD+ projects, which is under development.

REL simulation exercise

Visit to a forest in Tenryu

They also had a chance to visit the forest of Nakayama Forest Limited Partnership Company in Tenryu, a renowned plantation forest area of Japan which has been managed well for generations. As sustainable management of forests is a challenge for Lao PDR, the counterparts listened carefully to the explanations of the aforementioned company, and raised questions on the use of GIS, supply-chain of harvested wood, and so forth. The fact that the forests have been certified as Forest Stewardship Council (FSC) forests also seemed to draw their interest.

We are expecting the counterparts to further contribute to REDD+ and forest management back in their home country by using the knowledge and skills obtained through this training course.

Main activities conducted

Output 1: Support forestry sector at the central level

- Training (REL/NFMS) in Japan *(completed)*

Output 2: Support measurement of emission reduction and removal through implementation of REDD+

- Forest Type Map 2015 development: change detection between 2010 – 2015 *(ongoing)*
- NFI 2015-2016 Dry Season *(completed)*

Output 3: Support National REDD+

- Support of the 1st REL/MRV TWG meeting *(completed)*
- Participation in Regional Knowledge Exchange: "REDD+ Financing" *(completed)*

Output 4: Support Luang Prabang Province REDD+ Readiness

- Facilitation of the establishment of Provincial REDD+ Task Force (PRTF) and Provincial REDD+ office (PRO) *(completed)*
- Collection and analysis of information for Provincial REDD+ strategy development *(ongoing)*

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Events in the next quarter

Jul
Joint-training for National REDD+ Task Force

Aug
12th Forest Sub-Sector Working Group (FSSWG) meeting
Luang Prabang Province REDD+ Task Force meeting/technical workshop

Sep
2nd REL/MRV TWG meeting

MONRE
Ministry of Natural Resources and Environment

MAF
Ministry of Agriculture and Forestry

JICA
Japan International Corporation Agency

ປະຈຳໄຕມາດ, ສະບັບທີ 3
ເມສາ - ມິຖຸນາ 2016

ຈົດໝາຍຂ່າວໂຄງການF-REDD

ໂຄງການສະໜັບສະໜູນ ການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນນານ ແລະ REDD+
ພະຈິກ 2015 - ຕຸລາ 2020

ໂຄງການສະໜັບສະໜູນ ການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນນານ ແລະ REDD+(F-REDD)

ຈຸດປະສົງຂອງໂຄງການ F-REDD ແມ່ນເພື່ອຍົກລະດັບຄວາມເຂັ້ມແຂງຂອງຂະແໜງການປ່າໄມ້ໂດຍຜ່ານການສ້າງຄວາມເຂັ້ມແຂງທາງດ້ານນະ�โยบาย, ການຮ່ວມມືທີ່ມີປະສິດທິພາບກ່ຽວກັບວຽກງານ REDD+, ການປັບປຸງຂໍ້ມູນຊັບພະຍາກອນປ່າໄມ້ ຊຶ່ງເປັນພື້ນຖານໃນການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນນານ (SFM) ທັງຢູ່ໃນລະດັບ ສູນກາງ ແລະ ທ້ອງຖິ່ນ (ຫລວງພະບາງ ແມ່ນເປັນແຂວງທົດລອງ). ກົມຄຸ້ມຄອງຊັບພະຍາກອນປ່າໄມ້ ຂອງ ກະຊວງຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ, ແລະ ກົມປ່າໄມ້ ຂອງ ກະຊວງກະສິກຳ ແລະ ປ່າໄມ້ ແມ່ນເປັນພາກສ່ວນຮັບຜິດຊອບໃນການຈັດຕັ້ງປະຕິບັດໂຄງການ F-REDD.

ໄດ້ຈັດກອງປະຊຸມ REL/MRV TWG ຄັ້ງທີ່ 1

ຂະແໜງການປ່າໄມ້ຂອງ ສປປ ລາວ ໄດ້ຕົກລົງເຫັນດີໃນການສ້າງຕັ້ງ 6 ທີມງານວິຊາການເພື່ອສົ່ງເສີມວຽກງານ REDD+. ກອງປະຊຸມ REL/MRV TWG ຄັ້ງທີ່ 1 ໄດ້ຈັດຂຶ້ນໃນວັນທີ 27 ເມສາ ຊຶ່ງມີຜູ້ເຂົ້າຮ່ວມທັງໝົດ 30 ຄົນ ຈາກ ກຄຊປ, ກປມ, ກຊສ, ກົມຄຸ້ມຄອງໄພພິບັດ ແລະ ຄູ່ຮ່ວມພັດທະນາກ່ຽວຂ້ອງ. ທ່ານ ລິນທອງ ຄຳດີ, ຫົວໜ້າກອງສຳຫລວດ ແລະ ວາງແຜນປ່າໄມ້ ຂອງ ກປມ, ເປັນປະທານກອງປະຊຸມ ແລະ ໂຄງການ F-REDD ໄດ້ໃຫ້ການສະໜັບສະໜູນ ໂດຍເປັນທີ່ປຶກສາຫລັກໃຫ້ແກ່ກອງປະຊຸມ.

ກອງປະຊຸມໄດ້ມີການປຶກສາຫາລື ແຜນການດຳເນີນງານຂອດປີ 2020 ແລະ ຊ່ຽວຊານຈາກໂຄງການ F-REDD ໄດ້ນຳສະເໜີຂໍ້ມູນພື້ນຖານຂອງບາງບັນຫາທີ່ສຳຄັນພາຍໃຕ້ TWG ເຊັ່ນ: REDD+, REL, MRV ແລະ NFMS. ການນຳສະເໜີໄດ້ກວມເອົາບັນຫາຕ່າງໆ ຢູ່ ສປປ ລາວ ແລະ ແລກປ່ຽນແນວຄວາມຄິດ ຊຶ່ງເປັນໂອກາດອັນດີໃຫ້ຜູ້ເຂົ້າຮ່ວມໄດ້ແລກປ່ຽນ ແລະ ທຳຄວາມເຂົ້າໃຈກ່ຽວກັບ ບົດບາດ ແລະ ແຜນກິດຈະກຳຂອງ TWG.

ນຳສະເໜີກ່ຽວກັບພື້ນຖານຂອງ REL

ສຳເລັດ NFI ໃນຊ່ວງລະດູແລ້ງສົກປີ 2015-2016

ການສຳຫລວດປ່າໄມ້ແຫ່ງຊາດ ສຳລັບຊ່ວງລະດູແລ້ງສົກປີ 2015 – 2016 ຊຶ່ງດຳເນີນ ຢູ່ 4 ແຂວງເປົ້າໝາຍ (ຫົວພັນ, ຄຳມ່ວນ, ຊຽງຂວາງ ແລະ ເຊກອງ) ແມ່ນໄດ້ສຳເລັດເປັນທີ່ຮຽບຮ້ອຍ. ໃນລະຫວ່າງການສຳຫລວດ ທ່ານ ລິນທອງ ຄຳດີ, ຫົວໜ້າ ກອງສຳຫລວດ ແລະ ວາງແຜນປ່າໄມ້ ແລະ ທ່ານ ສົມຫວັງ, ຫົວໜ້າກອງສຳຫລວດປ່າປ້ອງກັນ ແລະ ປ່າສະຫງວນຂອງ ກຄຊປ ຍັງໄດ້ລົງຕິດຕາມ ເພື່ອກວດສອບຄວາມຄືບໜ້າ ແລະ ບັນຫາອື່ນໆໃນການຈັດຕັ້ງປະຕິບັດ ຊຶ່ງຈະໄດ້ລວມເຂົ້າໃນແຜນສືບຕໍ່ການສຳຫລວດປ່າໄມ້ແຫ່ງຊາດໃນລະດູແລ້ງສົກປີ 2016-2017.

ການສືບຕໍ່ສຳຫຼວດໃນຊ່ວງລະດູແລ້ງສົກປີ 2016 – 2017 ແລະ ຜົນໄດ້ຮັບຈາກການສຳຫຼວດດັ່ງກ່າວ ຈະເປັນຂໍ້ມູນພື້ນຖານສຳລັບການປະເມີນການປ່ຽນແປງທາດກາກບອນປ່າໄມ້ ຊຶ່ງມີຄວາມສຳຄັນກັບວຽກງານ REL ແລະ MRV. ຈາກປະສົບການ ການສຳຫລວດປ່າໄມ້ແຫ່ງຊາດໃນຊ່ວງລະດູແລ້ງສົກປີ 2015-2016 ແລະ ເພື່ອຮັບປະກັນຄວາມຖືກຕ້ອງ ໂຄງຮ່າງການສຳຫລວດຈະມີການປັບປຸງໃຫ້ດີຂຶ້ນ.

ການກວດກາພາກສະໜາມໂດຍ ກປມ ແລະ ກຄຊປ

ການເຂົ້າຮ່ວມກອງປະຊຸມ "REDD+ Financing"

ຊຶ່ງເປັນໜຶ່ງໃນຫົວຂໍ້ກ່ຽວກັບ REDD+ ທີ່ໄດ້ມີການເຈລະຈາໃນລະດັບສາກົນ ເຖິງວິທີການຄຸ້ມຄອງປ່າໄມ້ໂດຍຜ່ານການຊອກຫາແຫຼ່ງທຶນ ເພື່ອທີ່ຈະຄົ້ນຄວ້າແນວຄວາມຄິດຕໍ່ກັບຫົວຂໍ້ດັ່ງກ່າວ, ພະນັກງານຈາກ ກປມ, ກຄຊປ, ກະຊວງການເງິນ ແລະ ຊ່ຽວຊານຈາກໂຄງການ F-REDD ຈຶ່ງໄດ້ເຂົ້າຮ່ວມກອງປະຊຸມ ກ່ຽວກັບ "REDD+ Financing" (ຊຶ່ງເປັນເຈົ້າພາບຮ່ວມກັບ UN-REDD, FCPF ແລະ ຄູ່ຮ່ວມງານຂອງ REDD+). ກອງປະຊຸມໄດ້ຈັດຂຶ້ນລະຫວ່າງວັນທີ 25- 27 ພຶດສະພາ ທີ່ ບາງກອກ ໂດຍມີຫຼາຍປະເທດທີ່ກຳລັງພັດທະນາແມ່ນນອນຢູ່ໃນຂັ້ນຕອນການຂ້າມຜ່ານຈາກການກະກຽມຄວາມພ້ອມທາງດ້ານ REDD+' ໄປສູ່ 'ການຈັດຕັ້ງປະຕິບັດ ແລະ ການຈ່າຍບົນພື້ນຖານຜົນໄດ້ຮັບ'. ກອງປະຊຸມດັ່ງກ່າວ ແມ່ນມີຈຸດປະສົງໃນການແບ່ງປັນຄວາມຮູ້ ແລະ ປະສົບການກ່ຽວກັບວິທີການສຶກສາທາງເລືອກທາງດ້ານແຫຼ່ງທຶນ ແລະ ຍັງມີການປຶກສາຫາລືກ່ຽວກັບຄວາມຄາດຫວັງ ແລະ ສິ່ງທ້າທາຍທາງດ້ານແຫລ່ງທຶນຂອງ REDD +.

ກອງປະຊຸມດັ່ງກ່າວໄດ້ເຊື້ອເຊີນຜູ້ເຂົ້າຮ່ວມຈາກ 12 ປະເທດອາຊຽນ, ອົງການຈັດຕັ້ງສາກົນ, ຜູ້ຕ່າງໜ້າ ຈາກຂະແໜງການເງິນ. ຜູ້ເຂົ້າຮ່ວມໄດ້ມີການປຶກສາຫາລື ກ່ຽວກັບບັນຫາດັ່ງຕໍ່ໄປນີ້: ຄວາມຕ້ອງການໃນ ການສ້າງຄວາມອາດສາມາດຂອງພາກສ່ວນທີ່ກ່ຽວຂ້ອງ; ການອະນຸລັກຮັກສາປ່າໄມ້ ແລະ ການປ່ຽນແປງໄປສູ່ກະສິກຳ ແລະ ປ່າໄມ້ທີ່ມີການປ່ອຍທາດອາຍພິດໃນລະດັບຕ່ຳ; ແລະ ຄວາມຈຳເປັນໃນການພັດທະນາກົນໄກທາງດ້ານການເງິນທີ່ທ່ຽງທຳ ແລະ ໂປ່ງໃສ. ກອງປະຊຸມໄດ້ສະເໜີທາງເລືອກທີ່ດີ ສຳລັບ ສປປ ລາວ. ຊຶ່ງຈະເລີ່ມພັດທະນາຍຸດທະສາດ REDD+ ແຫ່ງຊາດເພື່ອກ້າວໄປສູ່ດ້ານແຫລ່ງທຶນຂອງ REDD+.

ພະນັກງານ ກປມ ຢູ່ກອງປະຊຸມ

ການຝຶກອົບຮົມ REL/NFMS ຢູ່ ປະເທດຍີ່ປຸ່ນ ຊຶ່ງເປັນເຈົ້າພາບໂດຍ ຜູ້ປະສານງານຂອງ 4 ໂຄງການ

ການຝຶກກ່ຽວກັບ REL

ໂຄງການ F-REDD ແມ່ນໄດ້ສະໜັບສະໜຸນຜູ້ປະສານງານໂຄງການໃນການເຂົ້າຮ່ວມໃນຫລາຍການ ຝຶກອົບຮົມ ເຊັ່ນ: ການຝຶກອົບຮົມພາຍໃນປະເທດ ແລະ ການຝຶກອົບຮົມ (OJT) ໃນ ສປປລາວ, ແລະ ຍັງມີການຝຶກອົບຮົມ ຢູ່ ປະເທດຍີ່ປຸ່ນ. ການຝຶກອົບຮົມ ຢູ່ ຍີ່ປຸ່ນຄັ້ງທຳອິດແມ່ນຈັດຂຶ້ນລະຫວ່າງວັນທີ່ 13 ຫາ 24 ມີຖຸນາ ຊຶ່ງມີ ຜູ້ປະສານງານ 4 ທ່ານຈາກ ກຄຊປ ແລະ ກປມ ເຂົ້າຮ່ວມ ໂດຍຈຸດປະສົງຂອງການ ຝຶກອົບຮົມແມ່ນເພື່ອຍົກລະດັບຄວາມເຂົ້າໃຈກ່ຽວກັບ REL ແລະ NFMS ເຊັ່ນວ່າ: REL ແລະ MRV ຕ້ອງມີຄວາມສອດຄ່ອງກັບການສຳຫລວດທາດອາຍພິດເຮືອນແກ້ວ ຊຶ່ງມັນຈຳເປັນສຳລັບພະນັກ ງານຜູ້ຮັບຜິດຊອບວຽກງານ REDD+ ທີ່ຈະເຂົ້າໃຈກ່ຽວກັບບັນຫາເຫລົ່ານີ້, ຫລັກສູດການຝຶກອົບຮົມ ແມ່ນເລີ້ມຈາກຄວາມຮູ້ທົ່ວໄປ, ການສຳຫລວດທາດອາຍພິດ ແລະ ກ້າວໄປສູ່ການຝຶກກ່ຽວກັບການພັດ ທະນາ REL ເຊັ່ນ: ການຝຶກທັງທາງດ້ານຄວາມຮູ້ພື້ນຖານ ແລະ ການປະຕິບັດຕົວຈິງແມ່ນມີປະສິດທິ ພາບໃນການຍົກລະດັບການຮຽນຮູ້ຂອງຜູ້ປະສານງານທີ່ໄດ້ເຂົ້າຮ່ວມ.

ຫລັງຈາກນັ້ນ, ຜູ້ເຂົ້າຮ່ວມໄດ້ໄປຢ້ຽມຢາມຫ້ອງການປ່າໄມ້ຂອງປະເທດຍີ່ປຸ່ນ, ຊຶ່ງໄດ້ຮຽນຮູ້ແນວທາງ ກ່ຽວກັບ ການປະເມີນທາດການກບອນປ່າໄມ້ໃນການສຳຫລວດທາດອາຍພິດເຮືອນແກ້ວໃນລະດັບຊາດ, ການປະເມີນທາງດ້ານວິຊາການຂອງ UNFCCC ກ່ຽວກັບ REL, ກົນໄກສິນເຊື່ອການກບອນຮ່ວມ (ກົນ ໄກການສະໜັບສະໜຸນຈາກປະເທດຍີ່ປຸ່ນມຸ້ງເນັ້ນໃນການສົ່ງເສີມການພັດທະນາການກບອນຕ່ຳ), ແນວ ທາງສຳລັບໂຄງການ REDD+ ຊຶ່ງຢູ່ພາຍໃຕ້ການພັດທະນາ.

ລົງຢ້ຽມຢາມປ່າໄມ້ໃນ Tenryu

ຜູ້ເຂົ້າຮ່ວມຍັງໄດ້ມີໂອກາດລົງຢ້ຽມຢາມປ່າໄມ້ຂອງບໍລິສັດ Nakayama ແລະ ສວນປູກຂອງປະ ເທດຍີ່ປຸ່ນຊຶ່ງໄດ້ມີການຄຸ້ມຄອງຈັດການເປັນຢ່າງດີ. ການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນນານແມ່ນສິ່ງທ້າທາຍສຳ ລັບ ສປປ ລາວ, ຜູ້ເຂົ້າຮ່ວມແມ່ນໄດ້ຮັບຟັງ ຄຳອະທິບາຍຢ່າງລະອຽດຂອງບໍລິສັດດັ່ງກ່າວ. ແລະ ຍັງໄດ້ ສອບຖາມກ່ຽວກັບການນຳໃຊ້ GIS ແລະ ລະບົບຕ່ອງໂສ້ການສະໜອງໄມ້ທີ່ໄດ້ຮັບການຂຸດຄົ້ນ ແລະ ອື່ນໆ. ໃນຄວາມເປັນຈິງແລ້ວ ປ່າໄທີ່ໄດ້ຮັບການຢັ້ງຢືນ ແມ່ນ ປ່າໄມ້ (FSC) ຊຶ່ງເບິ່ງຄືວ່າ ຜູ້ເຂົ້າຮ່ວມ ຈະໃຫ້ຄວາມສົນໃຈກ່ຽວກັບບັນຫາດັ່ງກ່າວ.

ພວກເຮົາແມ່ນຄາດຫວັງໃຫ້ຜູ້ເຂົ້າຮ່ວມປະກອບສ່ວນໃນວຽກງານ REDD+ ແລະ ການຄຸ້ມຄອງປ່າ ໄມ້ເພີ້ມຕື່ມ ພາຍຫລັງທີ່ໄດ້ກັບໄປປະເທດຂອງຕົ້ນ ໂດຍໄດ້ນຳໃຊ້ຄວາມຮູ້ ແລະ ທັກສະທີ່ໄດ້ຮັບຈາກ ການຝຶກອົບຮົມໃນຄັ້ງນີ້.

ກິດຈະກຳຫລັກທີ່ໄດ້ຈັດຕັ້ງປະຕິບັດ

ຜົນໄດ້ຮັບ 1: ການສະໜັບສະໜຸນຂະແໜງການປ່າໄມ້ໃນລະດັບສູນກາງ

- ການຝຶກອົບຮົມ (REL/NFMS) ໃນປະເທດຍີ່ປຸ່ນ *(ສຳເລັດ)*

ຜົນໄດ້ຮັບ 2: ສະໜັບສະໜຸນການວັດແທກ, ການຫລຸດຜ່ອນ ແລະ ການດູດຊັບການ ປ່ອຍທາດ ອາຍພິດໂດຍການຈັດຕັ້ງປະຕິບັດວຽກງານ REDD+

- ການສ້າງແຜນທີ່ປ່າໄມ້ 2015: ກວດສອບການປ່ຽນແປງລະຫວ່າງປີ 2010 – 2015 *(ກຳລັງດຳເນີນການ)*
- NFI 2015-2016 ໃນຊ່ວງລະດູແລ້ງ *(ສຳເລັດ)*

ຜົນໄດ້ຮັບທີ່ 3: ການສະໜັບສະໜຸນ REDD+ ໃນລະດັບຊາດ

- ສະໜັບສະໜຸນກອງປະຊຸມ REL/MRV TWG ຄັ້ງທີ່ 1 *(ສຳເລັດ)*
- ເຂົ້າຮ່ວມກອງປະຊຸມແລກປ່ຽນຄວາມຮູ້ກໃນລະດັບພາກພື້ນກ່ຽວກັບ: "REDD+ Financing" *(ສຳເລັດ)*

ຜົນໄດ້ຮັບທີ່ 4: ການສະໜັບສະໜຸນຄວມພ້ອມສຳລັບແຂວງຫລວງພະບາງ

- ຊຸກຍູ້ການສ້າງຕັ້ງ PRTF ແລະ ຫ້ອງການ REDD+ ໃນລະດັບແຂວງອງຖິ່ນ *(ສຳເລັດ)*
- ເກັບກຳ ແລະ ວິເຄາະຂໍ້ມູນສຳລັບການພັດທະນາຍຸດທະສາດ REDD+ໃນລະດັບແຂວງ *(ກຳລັງດຳເນີນການ)*

ຕິດຕໍ່ພົວພັນ

ຫ້ອງການໂຄງການ

ຖະໜົນ ຄູວຽງ,

ບ້ານສີສະເກດ,

ເມືອງຈັນທະບູລີ,

ນະຄອນຫລວງວຽງຈັນ,

ສປປລາວ

ໂທ & ແຟັກ: 021(22)2536

ກິດຈະກຳໃນໄຕມາດໜ້າ

ກໍລະກົດ

ຝຶກອົຮົມສຳລັບ NRFT

ສິງຫາ

ກອງປະຊຸມ FSSWG ຄັ້ງທີ12

ກອງປະຊຸມ PRTF ແຂວງຫລວງພະບາງ/ກອງ ປະຊຸມວິຊາການ

ກັນຍາ

ກອງປະຊຸມ REL/MRV TWG ຄັ້ງທີ່ 2

ກຊສ

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ກປ

ກະຊວງກະສິກຳ ແລະ ປ່າໄມ້

JICA

ອົງການຮ່ວມມືສາກົນປະເທດຍີ່ປຸ່ນ

季刊　第4号
2016年7月 ~ 9月

F-REDD Newsletter

Sustainable Forest Management and REDD+ Support Project
Nov 2015 - Oct 2020

持続可能な森林管理及びREDD+支援プロジェクト（ F-REDD ）

本プロジェクトの目的はREDD+に係る戦略策定、実施体制構築、実施のコーディネーションの支援と森林資源情報の整備などに係る能力の強化をはかり、それによってラオスの持続的な森林管理の促進に寄与することです。天然資源環境省森林資源管理局(MONRE-DFRM)と農林省森林局(MAF-DOF)を実施機関として協力しています。

REL/MRV 技術作業部会 第2回会合

技術作業部会の様子

REL/MRV技術作業部会の第2回会合が9月2日に開催され、DFRM、DOF及びその他開発パートナーを交えた総勢30名が参加しました。

今回の会合ではRELの作成に向けたスケジュールを確認し、RELドラフティングチームの設立に関して議論が交わされました。ラオスはUNFCCCとFCPF炭素基金の両機関向けに同時並行でRELを作成する予定であり、綿密な作業工程の準備と実行が求められます。また、REDD+の要件の一つである国家森林モニタリングシステム（NFMS）の段階的構築方針として、まずはMRVの機能を軸としたデザインやスコープ等の開発方針が議論されました。さらに、NFI2015□2016年乾季調査の進捗が報告されたほか、ラオス側による土地・森林分類の一部見直しや、森林減少・森林劣化・森林回復の定義の協議結果が共有されました。その他にも、技術作業部会全体の底上げと関連部局職員の能力強化機会を拡大するために、部会メンバー(現在5名)を拡充する「アシスタント」制度の導入がラオス側より発案され、積極的提案として賛同を得ました。

世銀 MRV 専門家との意見交換

ラオスとJICA本部を繋いだTV会議

前述のようにラオスはFCPFの準備基金及び炭素基金の双方の対象国であることから、世界銀行（世銀）を通じて様々な技術的助言を受ける機会が提供されています。その中でも、森林炭素の計測手法はREDD+の中核として日進月歩にあり、またFCPF炭素基金による成果支払いのベースとなることから、とりわけ関心の高い分野です。そのような背景から、このたび世銀からの提案でFCPFのREL/MRV専門家がラオスに派遣され、ラオスのREL/MRV手法に関する意見交換が開催されました。

F-REDDはラオスのREL/MRV支援を全般的に主導していることから、FCPF炭素基金向けに検討中のREL及びMRVの基本方針および個別技術についてプレゼンテーションを行いました。また、世銀専門家からはFCPF炭素基金のMethodological Framework等についてプレゼンテーションがあり、会合に参加していたラオス政府関係者や他プロジェクトのアドバイザーを交えた質疑応答と議論が為されました。

会合の結果として、想定されているラオスのFCPF炭素基金向けREL/MRVの方向性や技術手法については概ね妥当であること、一方で個別事項についてはいくつかの課題を克服する必要があることなどを確認でき、非常に有意義でした。

FCPFとは？？

Forest Carbon Partnership Facility (FCPF)は世界銀行のもとに設置された先進国などの資金拠出によるREDD+推進のための国際的な基金です。ラオス政府は2008年に準備基金(Readiness Fund)の参加国となったのに続いて、本年9月には炭素基金(Carbon Fund)の参加国にもなりました。

炭素基金は参加国がREDD+を実施した結果としての温室効果ガス排出削減・吸収増加に対して成果支払いを行う基金です。当該基金への参加を受けてラオス政府は今後18ヶ月を目途に詳細なプロジェクト・ドキュメントを準備することになります。F-REDDは本件について構想当初よりラオス政府を支援してきており、今後もプロジェクト・ドキュメント作成全般ならびにREL/MRV等の具体的技術面で支援を行っていく予定です。

ラオス国内研修の共同実施

ラオスのREDD+を推進するために国家REDD+タスクフォース（NRTF）と6つの技術作業部会が設置されていますが、これら関係者のREDD+に関する知識及び各々の役割の理解向上が急務とされています。その一環として、F-REDDを始めとする開発パートナーとラオス政府の共同により、このたび6つの作業部会メンバー向けに国内研修が実施されました。

これらの研修を通して、各技術作業部会が相互に連携しながら体系的にラオスのREDD+を推進していくこと、国家REDD+戦略の作成過程にも各々の立場から貢献していくこと、などが確認されました。技術作業部会が本格稼動することでREDD+の個別分野について進展が期待される一方で、今後はREDD+担当部局の全体コーディネート力が一層必要となります。

技術作業部会ごとにグループディスカッション

県REDD+タスクフォース第1回会合&森林減少・森林劣化対策ワークショップ

マルチ・セクター参加のもとで開催された第１回PRTF会合

F-REDDでは中央省庁への支援に加えて、ルアンプラバン県に対して県レベルでのREDD+準備を支援しています。

本年5月に同県のREDD+タスクフォース（PRTF）及び県REDD+オフィスが設置されたことを受けて、7月28日にPRTF第1回会合が開催されました。本会合では冒頭にDFRMのREDD＋担当官からREDD+の概要やラオスのREDD+の進捗状況について説明があり、またPRTFの目的や運営規約がメンバーで確認されました。

また、本年2月に行われたルアンプラバン県の森林減少要因調査結果（第2号参照）をもとに、8月5日に県レベルで森林減少の抑制や森林保全を図るための政策・活動について協議するワークショップを開催しました。ワークショップには森林管理を実際に進める県レベル・郡レベルの森林担当セクターに加えて、森林減少の要因となりうる水力発電、鉱山開発などの他セクターも参加し、県内の森林変化の動向を踏まえた上で森林減少をいかに抑制するか、また森林をどのように保全ないしは増加させるかについて、セクターごとの対応策を協議しました。これらの議論の結果は、県REDD+行動計画の基礎として活用されます。

持続的な開発の方針のもとで森林保全を進めるには、森林に影響を及ぼす他セクターとの調整が大きな挑戦といえます。従ってこの先も森林以外に、農業や工業といった他セクターや、民衆組織や女性組織といった幅広い関係者が、ルアンプラバン県の森林管理や県REDD+行動計画の策定に向けて議論をしていくことになります。

セクターごとの対応策の発表

成果毎の主な活動

共通の活動

◆JICAウェブサイト内にF-REDDのプロジェクトページ開設（和・英）

◆FCPF REL/MRV専門化との意見交換

成果1：中央政府の森林セクター支援

◆ラオス国内研修（7月・8月）

成果2：REDD+実施による排出削減・吸収増加量の測定支援

◆第2回NFI 2015-2016乾季の調査とりまとめ及び2016-2017 乾季における調査準備

◆RELドラフティングチーム設立にむけた支援

◆2015年森林区分図の作成支援

◆NFMSの基本デザインの作成・協議

成果3：国レベルのREDD+支援

◆第2回REL/MRV技術作業部会会合開催

◆FCPF炭素基金のプロジェクト・ドキュメント作成に関する支援

成果4：ルアンプラバン県のREDD+準備支援

◆県REDD+タスクフォース（PRTF）第1回会合

◆森林減少・森林劣化対策ワークショップ

次期四半期のイベント

Oct

ルアンプラバン県REDD+行動計画策定に関するワークショップ

NFI 2016 - 2017年乾季調査のキックオフ及び技術研修

Nov

第2回JCC (Joint Coordination Committee)（未確定）

プロジェクトオフィス

Kouvieng Street, Sisaket Village, Chanthabouli District, Vientiane Capital, Laos Tel & Fax: 021(22)2536

プロジェクトHP: http://www.jica.go.jp/project/laos/018/index.html

Quarterly Vol. 4
July - September 2016

F-REDD Newsletter

Sustainable Forest Management and REDD+ Support Project

Nov 2015 - Oct 2020

Sustainable Forest Management and REDD+ Support Project (F-REDD)

The purpose of F-REDD is to enhance the capacity of forestry sector through strengthening policies, effective incorporation of REDD+, and improvement of forest resource information as the foundation of sustainable forest management (SFM) in both central and provincial levels (Luang Prabang as the pilot province). The Department of Forest Resource Management, Ministry of Natural Resources and Environment (MONRE-DFRM), and the Department of Forestry, Ministry of Agriculture and Forestry (MAF-DOF) are the implementing agencies of F-REDD.

2nd REL/MRV TWG Meeting held

2nd REL.MRV TWG meeting

The 2nd meeting of REL/MRV TWG was held on 2nd September with a total of 30 participants from the DFRM, DOF, and development partners concerned.

The meeting confirmed the submission schedule of REL to the UNFCCC and the FCPF Carbon Fund (FCPF CF), and agreed on the need to establish a REL drafting team to task this work. As Lao PDR is aiming to develop the RELs for both the UNFCCC and the FCPF CF in parallel, precise scheduling and careful management of the drafting process will be required.

The stepwise development of the National Forest Monitoring System (NFMS) was another topic discussed. The NFMS for Lao PDR was agreed to focus on supporting the MRV as its first step, and gradually expand its function to include other monitoring information.

Moreover, the Government of Lao (GoL) reported the results of National Forest Inventory (NFI) for the dry season 2015-2016, and also shared their initiative of reviewing the forest and land classification system, as well as the definitions of deforestation, forest degradation and reforestation.

Furthermore, the Technical Working Group (TWG) — currently only five members officially appointed — suggested to introduce the 'assistant system', which would consist of adding more members to the TWG from the relevant departments, with the aim of strengthening the TWG foundation as well as providing more capacity building opportunities for the technical staff. The idea was highly welcomed and endorsed by the participants.

TV conference connecting Vientiane and Tokyo

Technical meeting with the WB MRV expert

There are opportunities to access various technical advices through the World Bank (WB), as Lao PDR is a participant country to the Readiness Fund and the Carbon Fund of FCPF. The forest carbon measurement and accounting is one of the technical fields which have drawn high interest due to its fast-evolving nature, and, not to mention, its system of performance-based payments. With such a background, the WB suggested the GoL to send their MRV expert to Vientiane to have a technical meeting with the GoL staff and development partners to discuss the proposed approach on the REL/MRV.

In the technical meeting the F-REDD experts, who are supporting the REL/MRV, made presentations on the basic strategy and some key methodologies which are considered for the Lao PDR's FCPF CF program. The WB expert also made a presentation on the key points of the Methodological Framework of FCPF CF and gave technical feedback regarding the approach on the presented REL/MRV. Then, the meeting was opened for free discussion.

At the end of the meeting, it was generally agreed that the presented strategy and methodologies of the REL/MRV are generally reasonable. It was also very meaningful to realize some challenges to improve the technical soundness of REL/MRV.

What is FCPF??

The Forest Carbon Partnership Facility (FCPF) is a global partnership — established under the WB and sponsored by developing countries and other partners — with the aim of promoting REDD+. The Lao PDR joined the Readiness Fund in 2008 and the Carbon Fund in September 2016.

The Carbon Fund is designed to pilot performance-based payments for emission reductions and removals by REDD+ programs in the participant countries. After joining the Carbon Fund, Lao PDR needs to prepare a detailed project document (ERPD) within 18 months. The F-REDD has been supporting Lao PDR to become a participant country from the initial stage, and it will continue to assist the preparation of ERPD in general and the determination of technical details of REL/MRV in particular.

(For more information, see the FCPF website
<https://www.forestcarbonpartnership.org/>)

REDD+ training for the TWGs

The National REDD+ Task Force and the six TWGs have been established to promote REDD+ in Lao PDR. However, the awareness-building of REDD+ and the capacity improvement of these members are seen to be in urgent need. Therefore, to address this issue, the GoL and development partners including F-REDD jointly conducted two REDD+ trainings for the members of six TWGs — one in July and another in August.

Through the trainings it was confirmed that the six TWGs need to closely collaborate in implementing REDD+. Moreover, each TWG also agreed to play their role to contribute to the development of National REDD+ Strategy from their standpoints.

REDD+ in Lao PDR is now ready for full-scale implementation. Moreover, by having the six TWGs in operating, the coordination role of the National REDD+ focal points will become even more important.

TWGs divided into groups for in-depth discussion

1st PRTF meeting and Workshop on addressing drivers of deforestation

1st PRTF meeting participated by multi-sector representatives

In addition to the support to the central government, F-REDD is also supporting the REDD+ readiness of Luang Prabang Province.

The 1st meeting of Provincial REDD+ Task Force (PRTF) was held on 28th July, following the establishment of the PRTF and the Provincial REDD+ Office (PRO) in May. A representative from the DFRM participated in the meeting to explain the overview and progress of REDD+ in Lao PDR. Furthermore, the meeting confirmed the objectives and the terms of reference (ToR) of the PRTF.

In the following week, on 5th August, another workshop was held to discuss the necessary policies and measures for addressing deforestation and enhancing forest conservation. This workshop was designed to build on the results of the deforestation and forest degradation drivers analysis, which was surveyed in February (reported in our Newsletter Vol. 2). The meeting invited the representatives from forestry sector of the province and districts, and also from other sectors including hydropower and mining, which are considered as the causes of deforestation. The participants reviewed the recent forest cover trends in their province and discussed how each sector can contribute to protect and increase their forests. The results of discussion were noted as important inputs to develop the provincial REDD+ action plan.

It is a big challenge to harmonize conflicting interests when pursuing forest conservation and economic development at the same time. This is why the PRTF consists of members not only from the forestry sector, but also from other stakeholder groups, such as agriculture, industry, civil society, and women's groups. This diverse range of stakeholders will continue to further discuss ways to realize sustainable management of forests and REDD+ in Luang Prabang.

presentation by each sector on their roles in forest management

Main activities conducted

Common activity

◆F-REDD project website opened *(completed)*

◆Technical meeting with the WB REL/MRV expert *(completed)*

Output 1: Support forestry sector at the central level

◆REDD+ training for the TWGs (July and August) *(completed)*

Output 2: Support measurement of emissions reduction and removal through implementation of REDD+

◆Compilation of the results of NFI dry season 2015-2016*(completed)* and preparation for the NFI dry season 2016-2017 *(ongoing)*

◆Establishment of REL drafting team *(ongoing)*

◆Development of Forest Type Map 2015 *(ongoing)*

◆Conceptualization and development of NFMS *(ongoing)*

Output 3: Support National REDD+

◆2nd REL/MRV TWG meeting *(completed)*

◆Development of ERPD for the FCPF CF *(ongoing)*

Output 4: Support Luang Prabang Province REDD+ Readiness

◆1st PRTF meeting *(completed)*

◆Workshop on addressing drivers of deforestation *(completed)*

Events in the next quarter

Oct.
Workshop for the development of provincial REDD+ action plan in Luang Prabang Province

Kick-off and technical trainings of the NFI dry season 2016 - 2017

Nov.
2nd Joint Coordination Committee meeting (to be decided)

Project Office
Kouvieng Street, Sisaket Village, Chanthabouli District, Vientiane Capital, Laos Tel & Fax: 021(22)2536
Project Website: http://www.jica.go.jp/project/laos/018/index.html

ປະຈຳໄຕມາດ, ສະບັບທີ 3
ກໍລະກົດ - ກັນຍາ 2016

ຈົດໝາຍຂ່າວ ໂຄງການF-REDD

ໂຄງການສະໜັບສະໜູນ ການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນນານ ແລະ REDD+

ພະຈິກ 2015 - ຕຸລາ 2020

ໂຄງການສະໜັບສະໜູນ ການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນນານ ແລະ REDD+(F-REDD)

ຈຸດປະສົງຂອງໂຄງການ F-REDD ແມ່ນເພື່ອຍົກລະດັບຄວາມເຂັ້ມແຂງຂອງຂະແໜງການປ່າໄມ້ໂດຍຜ່ານການສ້າງຄວາມເຂັ້ມແຂງທາງດ້ານນະໂຍບາຍ, ການຮ່ວມມືທີ່ມີປະສິດທິພາບກ່ຽວກັບວຽກງານ REDD+, ການປັບປຸງຂໍ້ມູນຊັບພະຍາກອນປ່າໄມ້ ຊຶ່ງເປັນພື້ນຖານໃນການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນນານ (SFM) ທັງຢູ່ໃນລະດັບ ສູນກາງ ແລະ ທ້ອງຖິ່ນ (ຫລວງພະບາງ ແມ່ນເປັນແຂວງທົດລອງ). ກົມຄຸ້ມຄອງຊັບພະຍາກອນປ່າໄມ້ ຂອງ ກະຊວງຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ, ແລະ ກົມປ່າໄມ້ ຂອງ ກະຊວງກະສິກຳ ແລະ ປ່າໄມ້ ແມ່ນເປັນພາກສ່ວນຮັບຜິດຊອບໃນການຈັດຕັ້ງປະຕິບັດໂຄງການ F-REDD.

ການຈັດກອງປະຊຸມ REL/MRV TWG ຄັ້ງທີ່ 2

ກອງປະຊຸມ REL/MRV TWG ຄັ້ງທີ່ 2

ກອງປະຊຸມ REL/MRV TWG ຄັ້ງທີ່ 2 ໄດ້ຈັດຂຶ້ນໃນເດືອນກັນຍາ ຊຶ່ງມີຜູ້ເຂົ້າຮ່ວມທັງໝົດ 30 ຄົນ ຈາກ ກຄຊປ, ກປມ, ກຊສ ແລະ ຄູ່ຮ່ວມພັດທະນາກ່ຽວຂ້ອງ.

ກອງປະຊຸມດັ່ງກ່າວໄດ້ຢືນຢັນກ່ຽວກັບຊ່ວງເວລາໃນການຍື່ນ REL ໄປຍັງ UNFCCC ແລະ ກອງທຶນການອນ FCPF(FCPF CF), ແລະ ຍັງໄດ້ມີການຕົກລົງເຫັນດີໃນການສ້າງບຕັ້ງທີມງານຮ່ຽງເອກະສານ REL ເພື່ອຮັບຜິດຊອບວຽກງານດັ່ງກ່າວ. ຄືດັ່ງທີ່ ສ ປປ ລາວ ມີຈຸດປະສົງທີ່ຈະສ້າງ RELs ເພື່ອຍື່ນສະເໜີໃຫ້ທັງ UNFCCC ແລະ ກອງທຶນການອນ FCPF(FCPF CF) ຊຶ່ງຈະຕ້ອງມີການກຳນົດຊ່ວງໄລຍະເວລາ, ການຄຸ້ມຄອງຂັ້ນຕອນໃນການຮ່ຽງເອກະສານດັ່ງກ່າວຢ່າງລະອຽດ.

ການພັດທະນາຂັ້ນຕອນຂອງລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ (NFMS) ແມ່ນຫົວຂໍ້ໜຶ່ງທີ່ໄດ້ມີການປຶກສາຫາລື. ໄດ້ມີການຕົກລົງເຫັນດີກ່ຽວກັບ NFMS ສຳລັບ ສປປ ລາວ ເພື່ອສຸມໃສ່ການສະໜັບສະໜຸນ MRV ຊຶ່ງເປັນບາດກ້າວທຳອິດ, ແລະ ຄ່ອຍໆຂະຫຍາຍໄປສູ່ function ອື່ນໆ ເພື່ອກວມເອົາຂໍ້ມູນການຕິດຕາມກວດກາອື່ນໆ.

ນອກຈາກນັ້ນ ລັດຖະບານລາວ ຍັງໄດ້ລາຍງານຜົນໄດ້ຮັບຂອງການສຳຫລວດປ່າໄມ້ແຫ່ງຊາດ (NFI) ໃນຊ່ວງລະດູແລ້ງ ສົກປີ 2015-2016, ແລະ ຍັງເຜີຍແຜ່ຂໍ້ມູນການລິເລີ່ມກ່ຽວກັບ ການທົບທວນລະບົບການຈັດຊຸ້ນທີ່ດິນ ແລະ ປ່າໄມ້, ແລະ ກຳນົດຄຳນິຍາມຂອງປ່າໄມ້, ການເສື່ອມໂຊມຂອງປ່າໄມ້ ແລະ ການທຳລາຍປ່າໄມ້.

ນອກຈາກນັ້ນ, ໃນປັດຈຸບັນ ຄະນະດຳເນີນງານວິຊາການ (TWG) ແມ່ນໄດ້ຮັບການແຕ່ງຕັ້ງຢ່າງເປັນທາງການພຽງແຕ່ 5 ທ່ານ ດັ່ງນັ້ນ ຈຶ່ງໄດ້ແນະນຳໃຫ້ມີການແຕ່ງຕັ້ງ "ຜູ້ຊ່ວຍ" ຊຶ່ງຈະປະກອບມີສະມາຊິກຈາກພາກສ່ວນທີ່ກ່ຽວຂ້ອງ ເພີ່ມເຂົ້າມາໃນ ຄະນະດຳເນີນງານວິຊາການ (TWG), ຊຶ່ງມີຈຸດປະສົງເພື່ອສ້າງຄວາມເຂັ້ມແຂງໃຫ້ ຄະນະດຳເນີນງານວິຊາການ (TWG) ແລະ ສ້າງຄວາມອາດສາມາດໃຫ້ແກ່ພະນັກງານວິຊາການ. ຜູ້ເຂົ້າຮ່ວມກອງປະຊຸມທຸກທ່ານແມ່ນ ເຫັນດີ ແລະ ໄດ້ຮັບຮອງເອົາແນວຄວາມຄິດດັ່ງກ່າວ.

ກອງປະຊຸມຜ່ານທາງໄກຈາກ ນະຄອນຫລວງ ແລະ ໂຕກຽວ

ການປະຊຸມວິຊາການຮ່ວມກັບຊ່ຽວຊານ WB MRV

ໄດ້ມີໂອກາດເຂົ້າຮັບຟັງຄຳແນະນຳດ້ານວິຊາການຈາກ ທະນາຄານໂລກ (WB), ຊຶ່ງ ສປປ ລາວ ແມ່ນເປັນປະເທດໜຶ່ງທີ່ເຂົ້າຮ່ວມໃນກອງທຶນການສ້າງຄວາມພ້ອມ ແລະ ກອງທຶນການອນ FCPF. ການວັດແທກ ແລະ ການຄິດໄລ່ທາດການອນປ່າໄມ້ ແມ່ນເປັນໜຶ່ງວິທີໃນການສຳຫລວດພາກສະໜາມຊຶ່ງໄດ້ຮັບຄວາມສົນໃຈຫລາຍ ເນື່ອງຈາກມີການພັດທະນາຢ່າງໄວວາ ແລະ ນອກນັ້ນ ຍັງເປັນທີ່ຮູ້ຈັກກັນດີກ່ຽວກັບລະບົບການຈ່າຍຄ່າຕອບແທນຍືນພື້ນຖານຜົນໄດ້ຮັບ. ທະນາຄານໂລກ (WB) ໄດ້ແນະນຳໃຫ້ ລັດຖະບານລາວສົ່ງຊ່ຽວຊານດ້ານ MRV ເຂົ້າຮ່ວມກອງປະຊຸມກັບພະນັກງານ ລັດ ແລະ ຄູ່ຮ່ວມພັດທະນາອື່ນໆ ຢູ່ນະຄອນຫລວງວຽງຈັນ ເພື່ອປຶກສາຫາລືເຖິ່ງແນວທາງການດຳເນີນງານກ່ຽວກັບ REL/MRV.

ໃນກອງປະຊຸມວິຊາການດັ່ງກ່າວ, ຊ່ຽວຊານໂຄງການ F-REDD ຜູ້ທີ່ຮັບຜິດຊອບວຽກງານ REL/MRV ໄດ້ນຳສະເໜີຍຸດທະສາດພື້ນຖານ ແລະ ແນວທາງການດຳເນີນງານທີ່ສຳຄັນ ຊຶ່ງໄດ້ຮັບການພິຈາລະນາສຳລັບ ໂຄງການ FCPF CF ຂອງ ສປປ ລາວ. ຊ່ຽວຊານຂອງທະນາຄານໂລກ (WB) ໄດ້ນຳສະເໜີຈຸດທີ່ສຳຄັນກ່ຽວກັບການອນແນວທາງການດຳເນີນງານຂອງ FCPF CF ແລະ ໃຫ້ຄຳຄິດເຫັນດ້ານວຊາການເຖິ່ງແນວທາງການດຳເນີນງານກ່ຽວກັບ REL/MRV ທີ່ໄດ້ສະເໜີ ແລະ ຫລັງຈາກນັ້ນ ກອງປະຊຸມກໍ່ໄດ້ມີການປຶກສາຫາລືກັນຢ່າງເປີດກວ້າງ.

ໃນຊ່ວງທ້າຍກອງປະຊຸມ, ໄດ້ມີການຕົກລົງເຫັນດີວ່າ ຍຸດທະສາດ ແລະ ແນວທາງການດຳເນີນງານກ່ຽວກັບ REL/MRV ແມ່ນສົມເຫດສົມຜົນ, ຊຶ່ງເຮັດໃຫ້ຮູ້ເຖິ່ງ ສິ່ງທ້າທາຍໃນການປັບປຸງຄວາມເໝາະສົມຂອງ REL/MRV.

FCPF ແມ່ນຫຍັງ??

ໂຄງການຮ່ວມມືການອນປ່າໄມ້ (FCPF) ແມ່ນເປັນການຮ່ວມມືໃນລະດັບສາກົນ ຊຶ່ງສ້າງຕັ້ງຂຶ້ນພາຍໃຕ້ ທະນາຄານໂລກ (WB) ແລະ ການສະໜັບສະໜຸນຈາກ ບັນດາປະເທດທີ່ພັດທະນາແລ້ວ ແລະ ຄູ່ຮ່ວມງານອື່ນໆ ຊຶ່ງມີຈຸດປະສົງໃນການ ສົ່ງເສີມວຽກງານ REDD+. ສປປ ລາວ ໄດ້ເຂົ້າຮ່ວມໃນກອງທຶນສ້າງຄວາມພ້ອມ ໃນປີ 2008 ແລະ ກອງທຶນການອນໃນເດືອນກັນຍາ 2016.

ກອງທຶນການອນແມ່ນໄດ້ຮັບການອອກແບບຂຶ້ນເພື່ອທົດລອງການການຈ່າຍຄ່າຕອບແທນຍືນພື້ນຖານການຈັດຕັ້ງປະຕິບັດສຳລັບການຫລຸດຜ່ອນ ແລະ ການກຳຈັດການປ່ອຍທາດອາຍພິດ ໂດຍ ໂຄງການ REDD+ ໃນບັນດາປະເທດທີ່ໄດ້ເຂົ້າຮ່ວມ. ພາຍຫລັງເຂົ້າຮ່ວມກອງທຶນດັ່ງກ່າວແລ້ວ, ສປປ ລາວ ຈຳເປັນຕ້ອງໄດ້ມີການກະກຽມເອກະສານໂຄງການລະອຽດ (ERPD)ເປັນໄລຍະເວລາ 18 ເດືອນ.

ໂຄງການ F-REDD ໄດ້ໃຫ້ການສະໜັບສະໜຸນ ສປປ ລາວ ໃຫ້ເປັນປະເທດທີ່ໄດ້ເຂົ້າຮ່ວມໃນກອງທຶນດັ່ງກ່າວໃນເບື້ອງຕົ້ນ, ແລະ ຍັງໄດ້ສືບຕໍ່ໃຫ້ການສະໜັບສະໜຸນເພື່ອຊ່ວຍໃນການກະກຽມ ERPD ແລະ ການກຳນົດລາຍລະອຽດດ້ານວິຊາການກ່ຽວກັບ REL/MRV

(ສຳລັບຂໍ້ມູນເພີ້ມຕື່ມ, ກະລຸນາເຂົ້າເບິ່ງໃນເວັບໄຊສ້ອງ FCPF <https://www.forestcarbonpartnership.org/>)

ການຝຶກອົບຮົມ REDD+ ສຳລັບຄະນະດຳເນີນງານວິຊາການ

ຄະນະຊີ້ນຳ REDD+ ລະດັບຊາດ ແລະ 6 ຄະນະດຳເນີນງານວິຊາການໄດ້ຮັບການສ້າງຕັ້ງຂຶ້ນເພື່ອສົ່ງເສີມວຽກງານ REDD+ ໃນ ສປປ ລາວ. ແຕ່ເຖິງຢ່າງໃດກໍ່ຕາມ, ແມ່ນຈຳເປັນຕ້ອງໄດ້ມີການດຳເນີນການຢ່າງຮີບດ່ວນກ່ຽວກັບ ການປູກຈິດສຳນຶກທາງດ້ານວຽກງານ REDD+ ແລະ ການປັບປຸງຄວາມຮູ້ຄວາມສາມາດໃຫ້ແກ່ສະມາຊິກເຫລົ່ານີ້. ດັ່ງນັ້ນ ເພື່ອແກ້ໄຂບັນຫາດັ່ງກ່າວ, ລັດຖະບານລາວ ແລະ ຄູ່ຮ່ວມພັດທະນາອື່ນໆ ລວມທັງໂຄງການ F-REDD ຈຶ່ງໄດ້ເຂົ້າຮ່ວມໃນການຈັດ ການຝຶກອົບຮົມກ່ຽວກັບ REDD+ ສຳລັບສະມາຊິກຂອງ 6 ຄະນະດຳເນີນງານວິຊາການ ຊຶ່ງຈັດຂຶ້ນຄັ້ງທີ່ 1 ແມ່ນເດືອນ ກໍລະກົດ ແລະ ຄັ້ງຕໍ່ມາແມ່ນເດືອນ ສິງຫາ.

ຜ່ານການຝຶກອົບຮົມແມ່ນໄດ້ສະແດງໃຫ້ເຫັນວ່າ ທັງ 6 ຄະນະດຳເນີນງານວິຊາການຕ້ອງໄດ້ມີການປະສານສົມທົບກັນຢ່າງໃກ້ຊິດໃນການຈັດຕັ້ງປະຕິບັດວຽກງານ REDD+. ນອກຈາກນັ້ນ, ແຕ່ລະຄະນະດຳເນີນງານວິຊາການຍັງໄດ້ຕົກລົງເຫັນດີໃນການປະກອບສ່ວນພັດທະນາຍຸດທະສາດ REDD+ ແຫ່ງຊາດ

ວຽກງານ REDD+ ໃນ ສປປ ລາວໃນປັດຈຸບັນແມ່ນພ້ອມແລ້ວສຳລັບການຈັດຕັ້ງປະຕິບັດຢ່າງເຕັມຮູບແບບ. ນອກຈາກນັ້ນ, ການສ້າງຕັ້ງ 6 ຄະນະດຳເນີນງານວິຊາການສຳລັບຮັບຜິດຊອບໃນການດຳເນີນງານ, ແລະ ບົດບາດໃນການເປັນຜູ້ປະສານງານ REDD+ ໃນລະດັບຊາດແມ່ນຈະມີຄວາມສຳຄັນຢ່າງຍິ່ງ.

ການປຶກສາຫາລືເປັນກຸ່ມຂອງ ຄະນະດຳເນີນງານວິຊາການ

ກອງປະຊຸມ PRTF ຄັ້ງທີ່ 1 ແລະ ກອງປະຊຸມກ່ຽວກັບການແກ້ໄຂ ສາເຫດຂອງການທຳລາຍປ່າໄມ້

ພາກສ່ວນທີ່ກ່ຽວຂ້ອງຈາກຫລາຍພາກສ່ວນໄດ້ເຂົ້າຮ່ວມກອງປະຊຸມຄະນະຊີ້ນຳ REDD+ ຂັ້ນແຂວງຄັ້ງທີ່ 1

ນອກເໜືອຈາກການສະໜັບສະໜູນໃນຂັ້ນສູນກາງແລ້ວ, ໂຄງການ F-REDD ຍັງສະໜັບສະໜູນວຽກງານການສ້າງຄວາມພ້ອມໃນແຂວງຫລວງພະບາງ.
ກອງປະຊຸມຂອງຄະນະຊີ້ນຳ REDD+ ຂັ້ນແຂວງໄດ້ຈັດຂຶ້ນໃນວັນທີ່ 28 ກໍລະກົດ ອີງຕາມການສ້າງຕັ້ງຄະນະຊີ້ນຳ REDD+ ຂັ້ນແຂວງ ແລະ ຫ້ອງການ REDD+ ຂັ້ນແຂວງໃນເດືອນ ພຶດສະພາ. ຜູ້ຕ່າງໜ້າຈາກ ກົມຄຸ້ມຄອງຊັບພະຍາກອນປ່າໄມ້ ໄດ້ເຂົ້າຮ່ວມໃນກອງປະຊຸມດັ່ງກ່າວ ເພື່ອນຳສະເໜີກ່ຽວກັບພາບລວມ ແລະ ຄວາມຄືບໜ້າຂອງວຽກງານ REDD+ ໃນ ສປປ ລາວ. ນອກຈາກນັ້ນ, ກອງປະຊຸມຍັງໄດ້ຮັບຮອງກ່ຽວກັບ ຈຸດປະສົງ ແລະ ໜ້າວຽກ ຂອງ ຄະນະຊີ້ນຳ REDD+ ຂັ້ນແຂວງ.

ໃນອາທິດຕໍ່ມາ, ໃນວັນທີ່ 5 ສິງຫາ, ຍັງໄດ້ຈັດກອງປະຊຸມເພື່ອປຶກສາຫາລືກ່ຽວກັບ ນະ�โยบาย ແລະ ມາດຕະການສຳຄັນໃນການແກ້ໄຂບັນຫາການທຳລາຍປ່າໄມ້ ແລະ ການເພີ້ມທະວີໃນການປົກປັກຮັກສາປ່າໄມ້. ກອງປະຊຸມດັ່ງກ່າວແມ່ນໄດ້ອອກແບບມາເພື່ອວິເຄາະສາເຫດການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂສມ, ຊຶ່ງໄດ້ມີການສຳຫລວດໃນຊ່ວງເດືອນກຸມພາ (ໄດ້ມີການລາຍງານໄວ້ໃນ ຈົດໝາຍຂ່າວ ສະບັບທີ່ 2). ກອງປະຊຸມດັ່ງກ່າວໄດ້ເຊື້ອເຊີນຜູ້ຕ່າງໜ້າຈາກຂະແໜງການປ່າໄມ້ຂອງແຂວງ ແລະ ເມືອງ, ແລະ ຂະແໜງການອື່ນໆ, ລວມທັງ ຂະແໜງພະລັງງານ ແລະ ບໍ່ແຮ່ ຊຶ່ງໄດ້ຖືກພິຈາລະນາໃຫ້ເປັນ ສາເຫດຂອງການທຳລາຍປ່າໄມ້. ຜູ້ເຂົ້າຮ່ວມກອງປະຊຸມແມ່ນໄດ້ທົບທວນແນວໂນ້ມການປົກຫຸ້ມຂອງປ່າໄມ້ໃນປັດຈຸບັນ ພາຍໃນແຂວງຂອງພວກເຂົາ ແລະ ປຶກສາຫາລືກ່ຽວກັບວິທີການຂອງແຕ່ລະຂະແໜງການທີ່ຈະສາມາດປະກອບສ່ວນໃນການປົກປັກຮັກສາ ແລະ ເຮັດໃຫ້ປ່າໄມ້ເພີ້ມຂຶ້ນ. ຜົນຂອງການປຶກສາຫາລືແມ່ນເປັນຂໍ້ມູນທີ່ສຳຄັນໃນການພັດທະນາແຜນການດຳເນີນງານ REDD+ ຂັ້ນແຂວງ.

ມັນເປັນສິ່ງທ້າທາຍທີ່ສຳຄັນ ໃນການດຳເນີນ ການອະນຸລັກຮັກສາປ່າໄມ້ ແລະ ການພັດທະນາເສດຖະກິດ ໃນເວລາດຽວກັນ, ນີ້ຈຶ່ງເປັນເຫດຜົນທີ່ວ່າ ເປັນຫຍັງ ຄະນະຊີ້ນຳ REDD+ ຂັ້ນແຂວງຈຶ່ງຕ້ອງປະກອບມີສະມາຊິກຈາກຫລາຍພາກສ່ວນ ບໍ່ສະເພາະແຕ່ຂະແໜງການປ່າໄມ້, ແຕ່ຍັງມາຈາກພາກສ່ວນອື່ນທີ່ກ່ຽວຂ້ອງເຊັ່ນ: ຂະແໜງການກະສິກຳ, ອຸດສະຫະກຳ, ສັງຄົມ ແລະ ແມ່ຍິງ. ການຈັດລະດັບສາເຫດຂອງພາກສ່ວນທີ່ກ່ຽວຂອງຈະຍັງຄົງສືບຕໍ່ເພື່ອປຶກສາຫາລືເພີ້ມຕື່ມກ່ຽວກັບການຄຸ້ມຄອງປ່າໄມ້ ແລະ ວຽກງານ REDD+ ຢ່າງຍືນນານ ໃນແຂວງຫລວງພະບາງ.

ການນຳສະເໜີກ່ຽວກັບບົດບາດໃນການຄຸ້ມຄອງປ່າໄມ້ຈາກຫລາຍພາກສ່ວນ

ກິດຈະກຳຫຼັກທີ່ໄດ້ຈັດຕັ້ງ

ກິດຈະກຳທົ່ວໄປ

- ເປີດນຳໃຊ້ເວັບໄຊສຂອງໂຄງການ F-REDD *(ສຳເລັດ)*
- ກອງປະຊຸມວິຊາການຮ່ວມກັບຊ່ຽວຊານ WB REL/MRV *(ສຳເລັດ)*

ຜົນໄດ້ຮັບ 1: ການສະໜັບສະໜູນຂະແໜງການປ່າໄມ້ໃນລະດັບສູນກາງ

- ການຝຶກອົບຮົມກ່ຽວກັບ REDD+ ສຳລັບຄະນະດຳເນີນງານວິຊາການ(ກໍລະກົດ ແລະ ສິງຫາ) *(ສຳເລັດ)*

ຜົນໄດ້ຮັບ 2: ສະໜັບສະໜູນການວັດແທກ, ການຫລຸດຜ່ອນ ແລະ ການດູດຊຶບການ ປ່ອຍທາດອາຍພິດໂດຍການຈັດຕັ້ງປະຕິບັດວຽກງານ REDD+

- ສັງລວມຜົນໄດ້ຮັບຂອງ NFI ໃນຊ່ວງລະດູແລ້ງ ສົກປີ 2015-2016 *(ສຳເລັດ)* ແລະ ກະກຽມສຳລັບ NFI ໃນຊ່ວງລະດູແລ້ງ ສົກປີ 2016-2017 *(ກຳລັງດຳເນີນການ)*
- ສ້າງຕັ້ງທີມງານຮ່າງເອກະສານ REL *(ກຳລັງດຳເນີນການ)*
- ການສ້າງແຜນທີ່ປ່າໄມ້ 2015 *(ກຳລັງດຳເນີນການ)*
- ແນວຄວາມຄິດ ແລະ ການພັດທະນາກ່ຽວກັບ *(ກຳລັງດຳເນີນການ)*

ຜົນໄດ້ຮັບທີ່ 3: ການສະໜັບສະໜູນ REDD+ ໃນລະດັບຊາດ

- ກອງປະຊຸມຂອງ REL/MRV TWG ຄັ້ງທີ່ 2 *(ສຳເລັດ)*
- ການພັດທະນາ ERPD ສຳລັບ FCPF CF *(ກຳລັງດຳເນີນການ)*

ຜົນໄດ້ຮັບທີ່ 4: ການສະໜັບສະໜູນຄວາມພ້ອມສຳລັບແຂວງຫລວງພະບາງ

- ກອງປະຊຸມຂອງ PRTF ຄັ້ງທີ່ 1 *(ກຳລັງດຳເນີນການ)*
- ກອງປະຊຸມກ່ຽວກັບການແກ້ໄຂສາເຫດການທຳລາຍປ່າໄມ້ *(ສຳເລັດ)*

ກິດຈະກຳໃນໄຕມາດໜ້າ

ຕຸລາ

ກອງປະຊຸມສຳລັບການພັດທະນາແຜນການດຳເນີນງານ REDD+ລະດັບແຂວງ ໃນແຂວງຫລວງພະບາງ.

ພະຈິກ

ການຝຶກອົບວິຊາການກ່ຽວກັບ NFI ໃນຊ່ວງລະດູແລ້ງ ສົກປີ2016 - 2017

ຫ້ອງການໂຄງການ
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季刊　第5号
2016年10月~12月

F-REDD Newsletter

Sustainable Forest Management and REDD+ Support Project
Nov 2015 - Oct 2020

持続可能な森林管理及びREDD+支援プロジェクト（F-REDD）

本プロジェクトの目的はREDD+に係る戦略策定、実施体制構築、実施のコーディネーションの支援と森林資源情報の整備などに係る能力の強化をはかり、それによってラオスの持続的な森林管理の促進に寄与することです。天然資源環境省森林資源管理局(MONRE-DFRM)と農林省森林局(MAF-DOF)を実施機関として協力しています。

森林減少・劣化地域の要因調査

国家REDD+戦略策定の一環としてラオス国全土を対象とした森林減少・劣化地域要因調査が12月から約2ヶ月間の予定で開始されました。この調査は国家レベルのREDD+支援を使命とするF-REDDとFCPF準備プロジェクトが共同でカウンターパートを支援するものです。

調査の目的はリモートセンシングの技術を用いて、それぞれの地域における主な森林減少・劣化ホットスポットを特定し、その要因を分析することです。リモートセンシング技術をもってラオスの森林をモニタリングしている森林調査計画課（FIPD）の職員と、ラオスの全県から各1名ずつ招聘された各現地の実状に詳しい森林官が共同作業を通じて分析を行っています。速報段階では、主要な森林減少・劣化ホットスポットが特定され、またその主な要因も国や地域、森林区分のレベルで特定されることが分りました。

また、この結果を活用して中央と地方の関係者が連携してコンサルテーションを行うことも予定されています。森林減少・劣化の要因は県や地域によって異なる特徴を持っていることから、これらの分析結果は国家REDD+戦略策定に反映されることが期待されています。

上：要因判読のデモンストレーション
下：県森林官へのリモートセンシング技術研修

REDD+基礎、ジェンダー配慮＆セーフガード研修

上：県REDD+タスクフォースのメンバーに対するREDD+基礎研修。REDD+とはなにか？というテーマでグループディスカッションした結果を発表している様子。
下：郡の森林官を対象としたセーフガード研修。グループディスカッションを通じて社会的公正に配慮したREDD+実施の重要性を学んでいる。

F-REDDは、アジア・大洋州を拠点として主に森林保全活動をしているRECOFTCとともにJICA-RECOFTC連携パートナーシップのもと、ルアンプラバン県におけるREDD+の理解促進や能力強化の支援を行っています。特に今四半期はREDD+活動の実施に伴う環境・社会への負の影響を緩和させるためのセーフガードの能力強化の支援を行いました。

まず10月に、現場の森林管理を担うルアンプラバン県内12郡の森林官を対象に、ジェンダー配慮や住民参加の重要性を理解するためのセーフガード研修（基礎編）を行いました。また、12月には、ルアンプラバン県のREDD+タスクフォースメンバーを対象に、REDD+に関する基礎的な理解を深めるための研修を実施し、さらに、前回研修に参加した県、郡の森林官を対象としたセーフガード研修（応用編）を実施しました。

例えば、ジェンダー社会配慮については、日常の森林の利用や管理において、男性と女性がどのような役割を果たしているのかグループ討議をしたうえで、森林管理を進めるためには、男女の協同、とくに女性の参画が重要であることを認識してもらう良い機会となりました。一連の研修を通じて得られた知見は、今後の県REDD+活動計画策定やパイロット活動の実施時に活用されることが期待されます。

NFI 2016-2017 森林・非森林境界年確定調査

調査を担うFIPD調査チームに対する屋内外での事前研修を経て、10月末から今乾季の国家森林インベントリ（NFI）調査が開始されました。前乾季（2015-2016）に引き続き、ラオスの森林資源情報を、特にバイオマス量把握に主眼を置いて調査しています。これによりラオスの森林に蓄積されている炭素量（ならびに、そこから算定される二酸化炭素量）の推定が可能となります。

なお、REDD+では非森林と森林を国の森林定義に従ってきちんと区別する必要があります。焼畑耕作が盛んなラオスでは、リモートセンシングによって焼畑跡地が森林定義を満たす森林へと遷移したと正確に判断するのは難しい課題です。そこで、焼畑跡地がどのくらいの年数で森林に回復するのかを現地調査をもとに推定する調査を5県において行っています。これはUnmanned Aerial Vehicle (UAV)、通称ドローンを用いて撮影された空中写真に基づく樹冠率及び地上調査による胸高直径と、その土地の焼畑耕作後年数を比較することで、森林と非森林を判断する基準（境界年数）を設定しようとする試みです。これまでラオスにおいて、このような焼畑後の森林と非森林の境界年数は明確に分かっていなかったため、調査の結果はラオスの森林バイオマスを算出する上で重要な意味を持っています。

この森林・非森林境界年確定調査においては、森林の定義を満たしていなくとも、森林へ回復するポテンシャルを持っている場所についても、炭素量を推定するために調査区内の一部の植生を刈り取ってバイオマス量を測定しています。これにより、土地状況ごとにさらに精緻な炭素量の把握が可能となります。

上：UAVによる調査の様子
左：空中写真
耕作放棄後１年の植生（手前）と耕作地へ転換された土地（奥）
右：バイオマス刈取調査

成果毎の主な活動

成果2：REDD+実施による排出削減・吸収増加量の測定支援

◆第2回NFI 2016-2017乾季における調査開始
◆RELドラフティングチーム設立及び第1回会合
◆森林減少・劣化地域の要因調査

成果4：ルアンプラバン県のREDD+準備支援

◆森林減少抑制及び森林保全強化のための対策協議ワークショップ開催
◆JICA-RECOFTC連携プログラムに基づくREDD+基礎研修及びセーフガード研修実施

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次期四半期のイベント

Jan.
第3回REL/MRV技術作業部会会合

Feb.
第2回JCC (Joint Coordination Committee)（未確定）
第13回森林サブセクター作業部会会合（未確定）
第3回ルアンプラバン県REDD+タスクフォース会合（ルアンプラバン県）
県REDD+行動計画策定に向けた郡・村落レベルのコンサルテーション

天然資源環境省
Ministry of Natural Resources and Environment (MONRE)

農林省
Ministry of Agriculture and Forestry (MAF)

日本国際協力機構
Japan International Corporation Agency (JICA)

Quarterly Vol. 5
October - December 2016

F-REDD Newsletter

Sustainable Forest Management and REDD+ Support Project

Nov 2015 - Oct 2020

Sustainable Forest Management and REDD+ Support Project (F-REDD)

The purpose of F-REDD is to enhance the capacity of forestry sector through strengthening policies, effective incorporation of REDD+, and improvement of forest resource information as the foundation of sustainable forest management (SFM) in both central and provincial levels (Luang Prabang as the pilot province). The Department of Forest Resource Management, Ministry of Natural Resources and Environment (MONRE-DFRM), and the Department of Forestry, Ministry of Agriculture and Forestry (MAF-DOF) are the implementing agencies of F-REDD.

Deforestation and Forest Degradation Drivers Analysis

The Deforestation and Forest Degradation Drivers Analysis was launched in December with an expected duration of two months. This analysis is an important step for the development of the National REDD+ Strategy, and is jointly supported by F-REDD and FCPF Readiness Support Project which both support building the capacity for REDD+ of Lao PDR.

The purpose of the analysis is to identify the hotspots of deforestation and forest degradation, and analyze the drivers (direct and underlying causes) using remote sensing technology. First, one forestry officer from each province—with extensive local knowledge—gathered in Vientiane, and collaborated with FIPD staff to identify the hotspots and analyze the drivers of each province. The preliminary results showed the major hotspots and the chief drivers at the national, regional and forest-type levels could be clearly identified.

After completion of the analysis, a stakeholder consultation will be organized at the central and local levels to further the analysis. As the drivers in different provinces and regions have differing characteristics, the results are expected to provide valuable and diverse inputs to the National REDD+ Strategy.

Upper: Demonstration of the drivers analysis
Lower: Training the provincial forestry officers remote sensing skills

Upper: Presentation on the safeguard issues to be considered by different sectors
Lower: Participants discussing the importance of REDD+ and social equity

Trainings on REDD+ Basics, Gender and Safeguards in Luang Prabang

Through the JICA-RECOFTC Partnership Programme, F-REDD and RECOFTC (http://www.recoftc.org/) are collaborating to strengthen the capacity for REDD+ in Luang Prabang Province. In this quarter, the collaboration especially focused on REDD+ safeguards to enhance measures to avoid and mitigate possible negative environmental and social impacts of REDD+ activities.

First, in October, a basic-level REDD+ Safeguards Training was organized for the local forestry officers of the 12 districts (in Luang Prabang Province), and the importance of gender mainstreaming and community participation was discussed. In December, a training for the Provincial REDD+ Task Force members was held, to facilitate their basic understanding of REDD+. Furthermore, another advanced-level REDD+ Safeguard Training was organized for the district officers who participated in the basic-level training in October.

For instance, in the gender mainstreaming session, the participants had a group work to discuss what kind of roles males and females have in forest management resource use. This was a good opportunity for them to better understand and recognize the need for males and females to cooperate, and particularly the importance of females' participation in protecting the forests.

The knowledge acquired through the series of training courses is expected to be utilized for the upcoming development of the Provincial REDD+ Action Plan and the implementation of pilot activities.

Survey of years taken for forest regeneration in NFI 2016-2017

The National Forest Inventory (NFI) survey for the dry season 2016-2017 started at the end of October after the classroom and field trainings. As in the previous (2015-2016) dry season survey, forest resource information is collected with a focus on forest biomass. The NFI will enable estimation of the carbon stock in Lao forests; and hence, will also facilitate estimations of the amount of CO2 emitted to or removed from the atmosphere.

REDD+ requires the participating countries to clearly distinguish non-forest and forest according to the national forest definition. However, in Lao PDR where slash-and-burn agriculture is widely practiced, accurate interpretation of the transition (regeneration) from slash-and-burn land (non-forest) to forest on satellite imagery has been a big challenge.

To cope with this, a supplementary survey is ongoing in five provinces to clarify the number of years abandoned agricultural lands would need to regenerate to forests (threshold year) after being slashed and burnt. The survey for investigating the threshold year consists of two components: a combination of tree crown cover analysis from aerial photos taken by Unmanned Aerial Vehicles (UAV), or so called "drones", and field measurement of diameter at breast height (DBH); and assessment of abandoned year of the sites. As Lao PDR does not have clear information on the number of years for slash and burn land to regenerate to a forest, the survey is vital for Lao PDR to improve its forest carbon stock estimation.

This survey of forest to non-forest change is also working on measuring the biomass of the lands which do not yet meet the national definition of forests, but have potential to regenerate to forests in the future (so called "potential forests"), through sample collection of above-ground vegetation. This will improve the estimation of biomass and carbon stock of non-forest lands.

Upper: Survey using a UAV

Left: Aerial photo taken by a UAV; agricultural land after being abandoned one year (lower part), and newly cleared land for agriculture (upper part)

Right: Sample collection of biomass

Main Activities Conducted

Output 2: Support measurement of emissions reduction and removal through implementation of REDD+

- NFI survey for the dry season 2016-2017 *(ongoing)*
- Establishment of the REL Drafting Team and the 1st meeting *(completed)*
- Deforestation and Forest Degradation Drivers Analysis *(ongoing)*

Output 4: Support Luang Prabang Province REDD+ Readiness

- PaMs Workshop for reducing deforestation and enhancement of forest conservation *(completed)*
- Trainings on REDD+ Basics, Gender and Safeguards in Luang Prabang *(completed)*

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Events in the Next Quarter

Jan.

3rd meeting of REL/MRV Technical Working Group

Feb.

2nd Joint Coordination Committee (JCC) meeting (tbd)

13th meeting of the Forest Sub-Sector Working Group (tbd)

3rd meeting of the Provincial REDD+ Task Force in Luang Prabang

Consultation workshop at district and village cluster levels for drafting PRAP

MONRE
Ministry of Natural Resources and Environment

MAF
Ministry of Agriculture and Forestry

JICA
Japan International Corporation Agency

ປະຈຳໄຕມາດ, ສະບັບທີ 5
ຕຸລາ - ທັນວາ 2016

ຈົດໝາຍຂ່າວໂຄງການ F-REDD

ໂຄງການສະໜັບສະໜູນ ການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນນານ ແລະ REDD+

ໂຄງການສະໜັບສະໜູນ ການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນນານ ແລະ REDD+ (F-REDD)

ຈຸດປະສົງຂອງໂຄງການ F-REDD ແມ່ນເພື່ອຍົກລະດັບຄວາມເຂັ້ມແຂງຂອງຂະແໜງການປ່າໄມ້ໂດຍຜ່ານການສ້າງຄວາມເຂັ້ມແຂງທາງດ້ານນະ�โยบาย, ການຮ່ວມມືທີ່ມີປະສິດທິພາບກ່ຽວກັບວຽກງານ REDD+, ການປັບປຸງຂໍ້ມູນຊັບພະຍາກອນປ່າໄມ້ ຊຶ່ງເປັນພື້ນຖານໃນການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນນານ (SFM) ທັງຢູ່ໃນລະດັບ ສູນກາງ ແລະ ທ້ອງຖິ່ນ (ຫລວງພະບາງ ແມ່ນເປັນແຂວງທົດລອງ). ກົມຄຸ້ມຄອງຊັບພະຍາກອນປ່າໄມ້ ຂອງ ກະຊວງຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ, ແລະ ກົມປ່າໄມ້ ຂອງ ກະຊວງກະສິກຳ ແລະ ປ່າໄມ້ ແມ່ນເປັນພາກສ່ວນຮັບຜິດຊອບໃນການຈັດຕັ້ງປະຕິບັດໂຄງການ F-REDD.

ການວິເຄາະສາເຫດຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ

ການວິເຄາະສາເຫດຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ແມ່ນໄດ້ເລີ່ມຈັດຕັ້ງປະຕິບັດໃນເດືອນ ທັນວາ 2016 ສືບຕໍ່ເປັນໄລຍະເວລາ 2 ເດືອນ. ການວິເຄາະດັ່ງກ່າວ ແມ່ນເປັນບາດກ້າວທີ່ສຳຄັນ ໃນການສ້າງຍຸດທະສາດ REDD+ ແຫ່ງຊາດ, ເຊິ່ງໄດ້ຮັບການສະໜັບສະໜູນຈາກໂຄງການ F-REDD ແລະ ໂຄງການ FCPF Readiness Support. ທັງ 2 ໂຄງການແມ່ນສະໜັບສະໜູນການສ້າງຄວາມອາດສາມາດ ໃນວຽກງານ REDD+ ຂອງ ສປປ ລາວ.

ການວິເຄາະດັ່ງກ່າວແມ່ນມີຈຸດປະສົງເພື່ອກຳນົດຈຸດສຸມ (ຈຸດທີ່ມີການທຳລາຍປ່າໄມ້ທີ່ຮ້າຍແຮງ) ຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ແລະ ວິເຄາະສາເຫດທາງກົງ ແລະ ທາງອ້ອມ ໂດຍການນຳໃຊ້ເຕັກໂນ�โลຊີການວິເຄາະທາງໄກ (remote sensing). ການຈັດຕັ້ງປະຕິບັດດັ່ງກ່າວເລີ່ມຕົ້ນຈາກ ການເຊື້ອເຊີນເອົາວິຊາການດ້ານປ່າໄມ້ຂອງແຕ່ລະແຂວງ ທີ່ມີຄວາມຮູ້ດ້ານສະພາບແຂວງຂອງຕົນເປັນຢ່າງດີ ເຂົ້າຮ່ວມ ແລະ ປະສານສົມທົບກັບ ວິຊາການຂອງກອງສຳຫຼວດ ແລະ ວາງແຜນປ່າໄມ້ ໃນການກຳນົດຈຸດສຸມ ແລະ ວິເຄາະສາເຫດຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ໃນແຕ່ລະແຂວງ. ຜົນໄດ້ຮັບເບື້ອງຕົ້ນສະແດງໃຫ້ເຫັນຈຸດສຸມ ແລະ ສາເຫດຫຼັກໆ ໃນຂອບເຂດທົ່ວປະເທດ ແລະ ແຕ່ລະພາກ (ພາກເໜືອ, ກາງ, ໃຕ້) ພ້ອມຂໍ້ມູນການຈັດສັນປະເພດປ່າໄມ້ທີ່ລະອຽດຈະແຈ້ງ.

ພາຍຫຼັງສຳເລັດການວິເຄາະດັ່ງກ່າວແລ້ວ ຈະໄດ້ຈັດກອງປະຊຸມປຶກສາຫາລືຂຶ້ນໃນຂັ້ນສູນກາງ ແລະ ທ້ອງຖິ່ນ ເພື່ອຈະໄດ້ເຮັດການວິເຄາະເພີ່ມຕື່ມ. ເນື່ອງຈາກວ່າສາເຫດຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ແມ່ນມີລັກສະນະແຕກຕ່າງກັນໃນແຕ່ລະແຂວງ, ສະນັ້ນ ການວິເຄາະດັ່ງກ່າວຈະສະໜອງຂໍ້ມູນທີ່ມີຄ່າ ແລະ ຫຼາກຫຼາຍ ເຂົ້າໃນ ຍຸດທະສາດ REDD+ ແຫ່ງຊາດ.

ຮູບຂ້າງເທິງ: ການສາທິດການວິເຄາະສາເຫດ
ຮູບຂ້າງລຸ່ມ: ຝຶກອົບຮົມໃຫ້ວິຊາການປ່າໄມ້ຂັ້ນແຂວງໃນການນຳໃຊ້ Remote sensing

ຮູບພາບຂ້າງເທິງ: ການສະເໜີບັນຫາກ່ຽວກັບການປົກປ້ອງ (safeguards) ເພື່ອให้แต่ละขะแหงการพิจาละนา
ຮູບພາບຂ້າງລຸ່ມ: ຜູ້ເຂົ້າຮ່ວມປຶກສາຫາລືຄວາມສຳຄັນຂອງວຽກງານ ແລະ ຄວາມສະເໝີພາບໃນສັງຄົມ

ການຝຶກອົບຮົມຄວາມຮູ້ພື້ນຖານກ່ຽວກັບ REDD+, ບົດບາດຍິງ-ຊາຍ ແລະ ການປົກປ້ອງ ຢູ່ ແຂວງຫຼວງພະບາງ

ໂຄງການຮ່ວມມື JICA-RECOFTC, ໂຄງການ F-REDD ແລະ ອົງການ RECOFTC (http://www.recoftc.org/) ແມ່ນໄດ້ປະສານສົມທົບໃນການເພີ່ມທະວີຄວາມອາດສາມາດໃນວຽກງານ REDD+ ຂອງ ແຂວງຫຼວງພະບາງ. ເຊິ່ງໃນໄຕມາດນີ້, ການປະສານສົມທົບແມ່ນໄດ້ສຸມໃສ່ວຽກງານ ການປົກປ້ອງ ເພື່ອເພີ່ມທະວີມາດຕະການ ໃນການຫຼີກລ້ຽງ ແລະ ຜ່ອນເບົາ ຜົນກະທົບດ້ານລົບ ຂອງວຽກງານ REDD+ ຕໍ່ສິ່ງແວດລ້ອມ ແລະ ສັງຄົມ.

ໃນເດືອນຕຸລາ 2016, ແມ່ນໄດ້ຈັດຝຶກອົບຮົມກ່ຽວກັບຄວາມຮູ້ພື້ນຖານໃນວຽກງານການປົກປ້ອງ ຂຶ້ນໃຫ້ວິຊາການດ້ານປ່າໄມ້ໃນຂັ້ນທ້ອງຖິ່ນຂອງທັງ 12 ເມືອງໃນແຂວງຫຼວງພະບາງ ເຊິ່ງກໍ່ໄດ້ປຶກສາຫາລືກ່ຽວກັບຄວາມສຳຄັນຂອງການເສື່ອມບົດບາດຍິງ-ຊາຍ ແລະ ການມີສ່ວນຮ່ວມຂອງຊຸມຊົນ. ໃນເດືອນທັນວາ 2016, ແມ່ນໄດ້ຈັດຝຶກອົບຮົມໃຫ້ແກ່ຄະນະຊີ້ນຳວຽກງານ REDD+ ຂັ້ນແຂວງ ເພື່ອໃຫ້ມີຄວາມເຂົ້າໃຈຕື່ມກ່ຽວກັບວຽກງານ REDD+. ນອກຈາກນັ້ນ ກໍ່ຍັງໄດ້ຈັດຝຶກອົບຮົມກ່ຽວກັບວຽກງານການປົກປ້ອງ ເພີ່ມຕື່ມ ໃຫ້ແກ່ວິຊາການຂັ້ນເມືອງຜູ້ທີ່ໄດ້ເຂົ້າຮ່ວມໃນການຝຶກອົບຮົມຂັ້ນພື້ນຖານໃນເດືອນຕຸລາ ທີ່ຜ່ານມາ ເພື່ອຍົກລະດັບຄວາມຮູ້ໃນວຽກງານດັ່ງກ່າວ.

ຕົວຢ່າງ, ໃນລະຫว่างການປົກສາຫາລືກ່ຽວກັບການເສື່ອມບົດບາດຍິງ-ຊາຍ ຜູ້ເຂົ້າຮ່ວມໄດ້ເຮັດວຽກເປັນກຸ່ມ ເພື່ອສົນທະນາກ່ຽວກັບບົດບາດຍິງ-ຊາຍ ໃນການຄຸ້ມຄອງ ແລະ ນຳໃຊ້ຊັບພະຍາກອນປ່າໄມ້. ກິດຈະກຳດັ່ງກ່າວແມ່ນໄດ້ຊ່ວຍໃຫ້ເຂົາເຈົ້າເຂົ້າໃຈ ແລະ ຮັບຮູ້ ເພີ່ມຕື່ມ ເຖິງຄວາມສຳຄັນໃນການຮ່ວມມືລະຫว่างຍິງ-ຊາຍ ໂດຍສະເພາະຄວາມສຳຄັນຂອງການມີສ່ວນຮ່ວມຂອງເພດຍິງໃນການປົກປັກຮັກສາປ່າໄມ້.

ຄວາມຮູ້ທີ່ໄດ້ຈາກການຝຶກອົບຮົມໃນຫຼາຍໆຄັ້ງຜ່ານມາ ແມ່ນຈະໄດ້ເອົາມານຳໃຊ້ໃນການສ້າງແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງ (Provincial REDD+ Action Plan) ແລະ ທົດລອງຈັດຕັ້ງປະຕິບັດກິດຈະກຳ່ຕ່າງໆ.

ການສຳຫຼວດເວລາທີ່ໃຊ້ໃນການຟື້ນຟູຂອງປ່າ ໃນການສຳຫຼວດປ່າໄມ້ແຫ່ງຊາດ 2016-

ການສຳຫຼວດປ່າໄມ້ແຫ່ງຊາດ ສຳລັບລະດູແລ້ງ 2016-2017 ໄດ້ເລີ່ມຈັດຕັ້ງປະຕິບັດໃນເດືອນ ຕຸລາ 2016 ພາຍຫຼັງໄດ້ມີການຝຶກອົບຮົມ. ດັ່ງທີ່ໄດ້ເຮັດການສຳຫຼວດໃນປີຜ່ານມາ (2015-2016), ການເກັບຂໍ້ມູນຊັບພະຍາກອນປ່າໄມ້ແມ່ນໄດ້ສຸມໃສ່ສະພາບຊີວະມວນສານປ່າໄມ້. ຂໍ້ມູນຈາກການສຳຫຼວດປ່າໄມ້ແຫ່ງຊາດ ແມ່ນຈະຊ່ວຍໃນການຄາດຄະເນປະລິມານຂອງທາດກາກບອນໃນ ສປປ ລາວ. ສະນັ້ນ ຂໍ້ມູນດັ່ງກ່າວຈະຊ່ວຍ ໃນການຄາດຄະເນປະລິມານ ການປ່ອຍ CO2 ຫຼື ປະລິມານທີ່ຖືກກຳຈັດອອກຈາກຊັ້ນບັນຍາກາດ.

REDD+ ແມ່ນຮຽກຮ້ອງໃຫ້ບັນດາປະເທດທີ່ເຂົ້າຮ່ວມ ຈຳແນກພື້ນທີ່ເປັນປ່າ ແລະ ບໍ່ເປັນປ່າ ໂດຍອີງໃສ່ການກຳນົດ ຫຼື ການໃຫ້ນິຍາມ ປ່າໄມ້ແຫ່ງຊາດ. ເຖິງຢ່າງໃດກໍ່ຕາມ ການຖາງປ່າເຮັດໄຮ່ຢູ່ໃນ ສປປ ລາວ ແມ່ນມີແຜ່ຫຼາຍ ເຮັດໃຫ້ການແປພາບຖ່າຍດາວທຽມ ກ່ຽວກັບພື້ນທີ່ ປ່າເລົ່າກັບມາເປັນປ່າ ມີຄວາມທ້າທາຍຫຼາຍ.

ເພື່ອແກ້ໄຂບັນຫາດັ່ງກ່າວ ຈຶ່ງໄດ້ມີການສຳຫຼວດເພີ່ມຕື່ມ ເຊິ່ງກຳລັງຈັດຕັ້ງປະຕິບັດຢູ່ 5 ແຂວງ, ການສຳຫຼວດແມ່ນສຸມໃສ່ເກັບກຳຂໍ້ມູນ ກ່ຽວກັບເວລາທີ່ໃຊ້ໃນການຟື້ນຟູ (ຈຳນວນປີນັບແຕ່ປີທີ່ເລີ່ມປະເຂື້ອ) ຈາກພື້ນທີ່ປ່າເລົ່າຄືນມາເປັນປ່າ. ການສຳຫຼວດດັ່ງກ່າວມີ 2 ວິທີຄື: ການ ປະສົມປະສານລະຫວ່າງການວິເຄາະຄວາມໜາແໜ້ນຂອງເຮືອນຍອດຕົ້ນໄມ້ຈາກພາບຖ່າຍທາງອາກາດໂດຍນຳໃຊ້ Unmanned Aerial Vehicles (UAV), ຫຼື “drones”, ແລະ ການວັດແທກຕົວຈິງພາກສະໜາມ ໂດຍໃຊ້ວິທີການວັດແທກເສັ້ນຜ່າສູນກາງຂອງຕົ້ນໄມ້ ຢູ່ ລະດັບຄວາມສູງພຽງເອິກ (DBH) ແລະ ການປະເມີນຈຳນວນປີທີ່ຖືກປະເຂື້ອ. ຍ້ອນວ່າ ສປປ ລາວ ບໍ່ໄດ້ມີຂໍ້ມູນທີ່ຊັດເຈນ ກ່ຽວກັບ ຈຳນວນປີທີ່ພື້ນຖານປ່າເຮັດໄຮ່ໃຊ້ໃນການຟື້ນຟູໃຫ້ກັບມາເປັນປ່າ ການສຳຫຼວດດັ່ງກ່າວຈະສະໜອງຂໍ້ມູນທີ່ສຳຄັນໃນການຄາດຄະເນປະລິມານ ຂອງທາດກາກບອນຂອງປ່າໄມ້ ໃນ ສປປ ລາວ.

ການສຳຫຼວດການປ່ຽນແປງຂອງພື້ນທີ່ປ່າໄມ້ ແລະ ພື້ນທີ່ບໍ່ແມ່ນປ່າໄມ້ ແມ່ນຍັງໄດ້ສຸມໃສ່ວັດແທກຊີວະມວນສານຂອງພື້ນທີ່ດິນ ທີ່ຍັງບໍ່ໄດ້ຖືກກຳນົດຕາມມາດຕະຖານຂອງປ່າໄມ້ເທື່ອ ແຕ່ອາດມີຄວາມສາມາດຟື້ນຟູກັບມາເປັນປ່າໄດ້ໃນອະນາຄົດ ຫຼື ເອີ້ນວ່າ “potential forests” ໂດຍການເກັບຕົວຢ່າງພືດພັນເທິງໜ້າດິນເພື່ອນຳມາວິເຄາະ. ຂໍ້ມູນດັ່ງກ່າວຈະຊ່ວຍເຮັດໃຫ້ການຄາດຄະເນຊີວະມວນສານ ແລະ ປະລິມານຂອງທາດກາກບອນໃນພື້ນທີ່ທີ່ບໍ່ແມ່ນປ່າ ໃຫ້ມີຄວາມຖືກຕ້ອງເພີ່ມຂຶ້ນ.

ຮູບຂ້າງເທິງ: ການສຳຫຼວດໂດຍການນຳໃຊ້ UAV

ຮູບຂ້າງຊ້າຍ: ພາບຖ່າຍເທິງອາກາດຈາກ UAV; ພື້ນທີ່ຖາງປ່າເຮັດໄຮ່ຫຼັງຈາກຖືກ ປະເຂື້ອ ມາ 1 ປີ (ທາງລຸ່ມຂອງຮູບ) ແລະ ພື້ນທີ່ທີ່ຖືກຖາງໃໝ່ໆ (ທາງເທິງຂອງຮູບ)

ຮູບຂ້າງຂວາ: ການເກັບກຳຕົວຢ່າງຊີວະ ມວນສານ.

ກິດຈະກຳຫຼັກທີ່ໄດ້ຈັດຕັ້ງປະຕິບັດ

ຜົນໄດ້ຮັບ ທີ 2: ສະໜັບສະໜຸນການວັດແທກການຫຼຸດຜ່ອນ ແລະ ການກຳຈັດການປ່ອຍ ອາຍພິດ ໂດຍການຈັດຕັ້ງປະຕິບັດກິດຈະກຳ REDD+

- ການສຳຫຼວດປ່າໄມ້ແຫ່ງຊາດ ສຳລັບລະດູແລ້ງ 2016-2017 *(ກຳລັງຈັດຕັ້ງປະຕິບັດ)*
- ການສ້າງຕັ້ງທີມງານຮ່າງເອກະສານ REL ແລະ ການປະຊຸມຄັ້ງທຳອິດ *(ສຳເລັດ)*
- ການວິເຄາະສາເຫດ ການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ *(ກຳລັງຈັດຕັ້ງປະຕິບັດ)*

ຜົນໄດ້ຮັບ ທີ 4: ສະໜັບສະໜຸນຄວາມພ້ອມ ຂອງ REDD+ ຢູ່ ແຂວງຫຼວງພະບາງ

- ຝຶກອົບຮົມນະໂຍບາຍ ແລະ ມາດຕະການ (PaMs) ເພື່ອຫຼຸດຜ່ອນການທຳລາຍປ່າໄມ້ ແລະ ເພີ່ມທະວີການອະນຸລັກປ່າໄມ້ *(ສຳເລັດ)*
- ຝຶກອົບຮົມຄວາມຮູ້ພື້ນຖານກ່ຽວກັບ REDD+, ບົດບາດຍິງ-ຊາຍ ແລະ ການປົກປ້ອງ (Safeguards) ຢູ່ ແຂວງຫຼວງພະບາງ *(ສຳເລັດ)*

ຕິດຕໍ່ພົວພັນ

ຫ້ອງການໂຄງການ
ຖະໜົນຄູວຽງ,
ບ້ານສີສະເກດ,
ເມືອງຈັນທະບູລີ,
ນະຄອນຫຼວງວຽງຈັນ, ສປປ ລາວ
ໂທ & ແຟກ: 021(22)2536

ເວັບໄຊສ໌ໂຄງການ
http://www.jica.go.jp/project/laos/018/index.html

ກິດຈະກຳໃນໄຕມາດໜ້າ

ມັງກອນ 2017

ກອງປະຊຸມທີມງານສະເພາະດ້ານ REL/MRV ຄັ້ງທີ 3

ກຸມພາ 2017

ກອງປະຊຸມຮ່ວມ ຄະນະຊີ້ນຳປະສານງານ (JCC) ຄັ້ງທີ 2 (ຍັງບໍ່ໄດ້ກຳນົດມື້).

ກອງປະຊຸມ FSSWG ຄັ້ງທີ 13 (ຍັງບໍ່ໄດ້ກຳນົດມື້).

ກອງປະຊຸມ ຄະນະຊີ້ນຳສະເພາະດ້ານ ວຽກງານ REDD+ ຂັ້ນແຂວງ ຢູ່ ແຂວງຫຼວງພະບາງ.

ກອງປະຊຸມປຶກສາຫາລື ຂັ້ນເມືອງ ແລະ ກຸ່ມບ້ານ ເພື່ອສ້າງແຜນປະຕິບັດ ງານ REDD+ ຂັ້ນແຂວງ (PRAP).

ກະຊວງ ຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ

ກະຊວງ ກະສິກຳ ແລະ ປ່າໄມ້

ອົງການຮ່ວມມືສາກົນຍີ່ປຸ່ນ (ໄຈກາ)

季刊　第6号
2017年1月~3月

F-REDD Newsletter

Sustainable Forest Management and REDD+ Support Project
Nov 2015 - Oct 2020

持続可能な森林管理及びREDD+支援プロジェクト（F-REDD）

本プロジェクトの目的はREDD+に係る戦略策定、実施体制構築、実施のコーディネーションの支援と森林資源情報の整備などに係る能力の強化をはかり、それによってラオスの持続的な森林管理の促進に寄与することです。天然資源環境省森林資源管理局(MONRE-DFRM)と農林省森林局(MAF-DOF)を実施機関として協力しています。

REDD+技術作業部会合同会合開催

ラオスではREDD+を推進するために6つの分野（注1）において技術作業部会が設置されています。各部会はそれぞれの分野に関する国の方針や制度を検討する役割を持っていますが、同時に部会横断的事項への対処や協調も非常に重要です。

例えば、森林を含む土地利用変化の動向とその背景要因の共通理解は国家REDD+戦略を構築する上で必要不可欠です。F-REDDが支援している複数時点の森林区分図や、FCPF準備支援プロジェクトと共同で支援している全国レベルの森林減少・劣化地域要因調査は、衛星画像を元に、リモートセンシング技術を用いてラオスの森林と土地利用が直面している状況と課題を明らかにしようとするものです。

今回、REL/MRV技術作業部会の主催で、これらの中間結果の紹介と検証を目的とした、6つの技術作業部会による合同会合が開催されました。会合では各部会の専門家や開発パートナー各々の知見から建設的な意見が提供され、あわせて分析の改善点や現場レベルとのさらなるコンサルテーションの必要性などが確認されました。

6分野技術作業部会合同会合の様子

（注1）REL/MRV、Land Use、Enforcement and Implementation of Mitigation、Legal Framework、Benefit Sharing、Social and Environmental Safeguardの6分野。

県REDD+行動計画の策定に向けた郡・村落へのコンサルテーション開始

ルアンプラバン県では、県のREDD+推進のために、昨年5月に、森林セクターをはじめとした県・郡の関係各部局から構成される県REDD+タスクフォースが設置されました。F-REDDは、ここ半年かけて、県内の森林減少・劣化要因分析を始め、森林減少・劣化対策の検討、実施に伴う環境・社会リスクの検討など、行動計画の策定に向けた県関係部局との会合を重ねてきました。昨年7月のキックオフ会合、同12月のREDD+研修に続き、この2月3日に開催された会合では、県REDD+行動計画の策定プロセスや実施体制、スケジュールが議論されました。

今回の会合では、利害関係者、特に、森林管理を担う郡行政官や、森林地域に居住する村人の参加を確保するセーフガードの観点から、県関係者だけでなく、郡行政官や村人と協議するためのコンサルテーションを行うことで合意しました。また、このコンサルテーションの実施に際しては、県REDD+推進の事務局となっている県REDD+オフィスがリードし、郡でも担当部局から構成されるユニットを立ち上げることとなりました。

メンバーである県関係部局及び郡副知事が今後の県REDD+行動計画の進め方について検討した。

これから、1か月近くかけて、ルアンプラバン県内12郡や、森林減少が進んでいる村落を訪問し、県REDD＋行動計画策定に向けたコンサルテーション会合を実施することになります。F-REDDは県REDD+推進に向けた県や郡のイニシアティブを、引き続き支援していきます。

森林セクター動向調査

ラオス農林省は国家REDD戦略策定及び森林法改正に取組んでいるところであり、その後、REDD+の役割や取組み方向を取り込んだ形で森林戦略を改訂することも想定されています。

F-REDDはREDD+活動のみならず、中央政府の森林政策・制度面についても支援をしており、準備段階のとしてラオスにおける森林関連の情報を収集・整理するために森林セクター動向調査を行いました。調査は約2ヶ月にわたり行われ、森林面積変化の実態や要因、木材伐採・輸出、植林など8分野で計26の指標にとりまとめました。報告書はF-REDDだけでなく、ラオスの森林セクターやドナーの意見やコメントを取り入れています。

この調査では森林減少の主な要因が商業的農業生産地の拡大にあること、ラオス政府が定めている木材伐採量のデータと国連が提供しているラオスからの木材輸出量に大きな乖離があり、近年は減少傾向にあるものの依然として大量の違法伐採が行われていることなどが明らかにになりました。また、2000年以降韓国・日本への白炭輸出が急増したほか、2010年以降は中国及びタイ向けの黒炭の輸出も急増しており資源劣化の懸念もあります。 これらの結果はラオス国の森林法改正の前提となる改正方針の策定や、ひいては森林戦略の改訂方針にインプットされることになります。

議長のサイサモン次長（右）と
共同議長の牧本次長（左）

森林サブセクター作業部会会合開催

ラオスは昨年4月から行っている政府組織改革の一環として天然資源環境省森林資源管理局の農林省森林局への統合を進めている影響で、長らく森林サブセクター作業部会が開催されていませんでしたが、この度3月24日に農林省が担当している農業・地域開発セクター作業部会のもとでの第1回会合が半日開催されました。今回の会合では部会の運営規約案の提案と今後の活動予定をラオス政府及びドナーの政策対話の場である円卓会議や上位セクター作業部会での森林関係課題に沿ったものとすることとしました。また、セクター管理・運営に大きな影響を及ぼす森林法改正、3種森林境界見直し、FLEGT交渉（EUの合法材輸入規則に沿った国内制度創設）及びREDD+の現状や予定などについてラオス側担当者からプレゼンテーションが行われ、特に森林法改正内容や3種森林境界見直し手法などについて活発な議論が行われました。

成果毎の主な活動

成果1：中央政府の森林セクター支援
- ◆森林セクター動向調査
- ◆森林サブセクター作業部会会合開催

成果2：REDD+実施による排出削減・吸収増加量の測定支援
- ◆第2回NFI 2016-2017年乾季における調査完了
- ◆森林・非森林境界年確定調査完了
- ◆RELドラフティングチーム設立及び第2, 3回会合開催
- ◆2015年及び参照年森林区分図の修正作業
- ◆森林減少・劣化地域の要因調査結果取りまとめ
- ◆NFMSの物理システムセットアップ作業

成果3：国レベルのREDD+支援
- ◆6技術作業部会の合同会合開催
- ◆第3回REL/MRV技術作業部会会合開催
- ◆ERPD作成スケジュール及び執筆分担の確認

成果4：ルアンプラバン県のREDD+準備支援
- ◆県REDD+タスクフォース（PRTF）第3回会合
- ◆県REDD+行動計画（PRAP）策定に向けた郡・村落レベルでのローカルコンサルテーション
- ◆PRAP優先政策パイロットの計画立案

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次期四半期のイベント

May.
第2回JCC (Joint Coordination Committee)
年次ワークショップ（第２回）
第4回REL/MRV技術作業部会

Jun.
森林サブセクター作業部会

天然資源環境省
Ministry of Natural Resources and Environment (MONRE)

農林省
Ministry of Agriculture and Forestry (MAF)

日本国際協力機構
Japan International Corporation Agency (JICA)

Quarterly Vol. 6
January - March

F-REDD Newsletter

Sustainable Forest Management and REDD+ Support Project

Nov 2015 - Oct 2020

Sustainable Forest Management and REDD+ Support Project (F-REDD)

The purpose of F-REDD is to enhance the capacity of forestry sector through strengthening policies, effective incorporation of REDD+, and improvement of forest resource information as the foundation of sustainable forest management (SFM) in both central and provincial levels (Luang Prabang as the pilot province). The Department of Forest Resource Management, Ministry of Natural Resources and Environment (MONRE-DFRM), and the Department of Forestry, Ministry of Agriculture and Forestry (MAF-DOF) are the implementing agencies of F-REDD.

Joint Meeting of Six TWGs

Lao PDR has established six Technical Working Groups (TWG)*1 to promote REDD+ in Lao PDR. Each of the TWGs plays a key role in designing the national policies and institutions related to its own area. It is also important that the six TWGs jointly address cross-cutting issues and synchronize their efforts.

It is essential for the development of the National REDD+ Strategy to understand the land use and forest cover change and its background. The Forest Type Maps at several time points and the Deforestation and Forest Degradation Drivers Analysis, which are both being developed by the DOF, serve as the base information to analyze the land use and forest cover change. These efforts aim to reveal the status and the challenges Lao PDR has been facing using satellite-based remote sensing technologies.

On 12 January 2017, the REL/MRV TWG hosted a joint meeting of the six TWGs to introduce and discuss the interim results of the abovementioned work by the DOF. Lao experts of the six TWGs and donor and development partners in attendance shared constructive views and advice based on their vast experience. Points for further improvement and the need for consultations with local-level stakeholders were also recognized.

Joint meeting of six TWGs

*1: REL/MRV, Land Use, Enforcement and Implementation of Mitigation, Legal Framework, Benefit Sharing and Social and Environmental Safeguard

District and Village Level Consultations for Provincial REDD+ Planning

Luang Prabang established its Provincial REDD+ Task Force (PRTF) in May 2016 as a hub for promoting REDD+ in the province. The PRTF consists of government representatives from relevant sectors who have a stake in forest management. Over the last six months, F-REDD has collaborated mainly with the provincial level authorities — holding a series of meetings — to analyze the causes of deforestation and forest degradation, social and environmental risks, and other issues associated with the implementation of REDD+. Following the kick-off meeting in July 2016 and the 2nd meeting in December, the 3rd PRTF meeting on 3rd February 2017 discussed the planning process, implementation arrangements, and schedule for the Provincial REDD+ Action Plan (PRAP).

Members of the PRTF discussed the roadmap to develop the PRAP

The next step is to ensure the designed REDD+ activities are in line with the agenda of the local-level stakeholders, and support and promote REDD+ safeguards. To verify this, the PRTF members agreed on the need of outreaching to the district forestry officers and the local communities through multi-layered consultations. The Provincial REDD+ Office (PRO) leads the consultation process, and district task units will be set up and will collaborate with the PRO in each district. A series of consultation meetings will start in the coming month, targeting the 12 districts and sample village clusters that are showing high deforestation and forest degradation.

Forestry Sector Indicator Survey Completed

The Ministry of Agriculture and Forestry (MAF) is currently formulating the National REDD Strategy and is also revising the Forestry Law. Thereafter, the results are planned to be incorporated into the revision of the Forest Strategy.

F-REDD supports the central level policies and institutions related to REDD+ and the forestry sector in general. As a preparatory step for this entire process, F-REDD implemented the Forestry Sector Indicator Survey to collect and analyze the latest forest-related information in Lao PDR. The survey took two months to categorize the information into eight fields and 26 indicators — including forest area change dynamics and the driving factors, timber logging and export, and afforestation. Also, the report has been finalized by incorporating opinions and comments from the stakeholders concerned.

The survey revealed the continuing trend of deforestation and discovered the expansion of the commercial agricultural production area as its main driver. There seems to be a large gap between the government quota on timber harvesting volume and the data of the timber export volume provided by the United Nations which indicates that, although the situation has been improving in recent years, a large amount of timber is still illegally logged. In addition to a sharp increase of export of white charcoal to Korea and Japan since 2000, the export of black charcoal to China and Thailand has also increased rapidly since 2010, which brings up a concern over deterioration of forest resources. The results will be used as an input when revising the Forestry Law and the Forest Strategy.

1st FSSWG Meeting Held under the New Government Structure

Mr. Saysamon (right) and Ms. Makimoto (left)

The Forestry Sub-Sector Working Group (FSSWG) has not been held since April 2016 due to the government organizational reform of forestry sector agencies. Upon the agreement to integrate the FSSWG under the umbrella of the Sector Working Group of Agriculture and Rural Development (SWG-ARD), led by the Ministry of Agriculture and Forestry, the 1st FSSWG meeting was held for half a day in the morning of 24th March, 2017.

The meeting discussed the revised ToR, and also agreed to align its work plan to the higher-level forums, namely the Round Table Meeting — the highest level dialogue meeting between the GoL and development partners — and the SWG-ARD. In the meeting, the GoL representatives presented some important topics — the revision of Forestry Law; the review of boundary delineation of three forest categories; the FLEGT negotiation, establishment of domestic timber legality assurance system in compliance with the EU regulations; and the updates on Lao REDD+. The presentations were followed by lively discussions, particularly regarding the revision of the Forestry Law and the methodologies for boundary re-delineation of three forest categories.

Main Activities Conducted

Output 1: Support forestry sector at the central level

- Forest Sector Indicator Survey *(completed)*
- Forest Sub-Sector Working Group Meeting *(completed)*

Output 2: Support measurement of emissions reduction and removal through implementation of REDD+

- 2nd NFI dry season 2016-2017 *(completed)*
- Survey of years taken for forest regeneration *(completed)*
- Establishment of the REL drafting team followed by 2nd and 3rd meeting *(completed)*
- Revision of Forest Type Map 2000, '05, '10, '15 *(ongoing)*
- Reporting of the Deforestation and Forest Degradation Drivers Analysis *(ongoing)*
- Setting up of the physical system of the NFMS *(ongoing)*

Output 3: Support National REDD+

- Joint meeting of six TWGs *(completed)*
- 3rd REL/MRV TWG meeting *(completed)*
- Confirmation of ERPD development schedule and role sharing for drafting *(completed)*

Output 4: Support Luang Prabang Province REDD+ Readiness

- 3rd meeting of Provincial REDD+ Task Force (PRTF) *(completed)*
- Local consultation at district and village level for developing the Provincial REDD+ Action Plan *(ongoing)*
- Planning the pilot of the priority forestry policies in line with the PRAP *(ongoing)*

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Events in the Next Quarter

May.

2nd meeting of Joint Coordination Committee (JCC)

2nd Annual Workshop

4th meeting of REL/MRV Technical Working Group

Jun.

The Forestry Sub-Sector Working Group

MONRE

Ministry of Natural Resources and Environment

MAF

Ministry of Agriculture and Forestry

JICA

Japan International Corporation Agency

ປະຈຳໄຕມາດ, ສະບັບທີ 6

ມັງກອນ - ມີນາ 2017

ຈົດໝາຍຂ່າວໂຄງການ F-REDD

ໂຄງການສະໜັບສະໜູນ ການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນນານ ແລະ REDD+

ພະຈິກ 2015 - ຕຸລາ 2020

ໂຄງການສະໜັບສະໜູນ ການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນນານ ແລະ REDD+ (F-REDD)

ຈຸດປະສົງຂອງໂຄງການ F-REDD ແມ່ນເພື່ອຍົກລະດັບຄວາມເຂັ້ມແຂງຂອງຂະແໜງການປ່າໄມ້ໂດຍຜ່ານການສ້າງຄວາມເຂັ້ມແຂງທາງດ້ານນະໂຍບາຍ, ການຮ່ວມມືທີ່ມີປະສິດທິພາບກ່ຽວກັບວຽກງານ REDD+, ການປັບປຸງຂໍ້ມູນຊັບພະຍາກອນປ່າໄມ້ ຊຶ່ງເປັນພື້ນຖານໃນການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນນານ (SFM) ທັງຢູ່ໃນລະດັບສູນກາງ ແລະ ທ້ອງຖິ່ນ (ຫລວງພະບາງ ແມ່ນເປັນແຂວງທົດລອງ). ກົມຄຸ້ມຄອງຊັບພະຍາກອນປ່າໄມ້ ຂອງ ກະຊວງຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ, ແລະ ກົມປ່າໄມ້ ຂອງ ກະຊວງກະສິກຳ ແລະ ປ່າໄມ້ ແມ່ນເປັນພາກສ່ວນຮັບຜິດຊອບໃນການຈັດຕັ້ງປະຕິບັດໂຄງການ F-REDD.

ກອງປະຊຸມຮ່ວມ ຂອງ 6 ຄະນະທີມງານວິຊາການສະເພາະດ້ານ

ສປປ ລາວ ໄດ້ແຕ່ງຕັ້ງ 6 ຄະນະທີມງານວິຊາການສະເພາະດ້ານ (TWG)*1 ເພື່ອສະໜັບສະໜຸນວຽກງານ ເຣດ+ ໃນ ສປປ ລາວ. ແຕ່ລະຄະນະທີມງານວິຊາການສະເພາະດ້ານ ແມ່ນມີໜ້າທີ່ສ້າງນະໂຍບາຍແຫ່ງຊາດ ແລະ ໂຄງປະກອບການຈັດຕັ້ງ ທີ່ກ່ຽວຂ້ອງກັບແຕ່ລະຄະນະ. ສຳຄັນທີ່ສຸດ ແມ່ນ ແຕ່ລະຄະນະ ຄວນຮ່ວມມືແກ້ໄຂ ບັນຫາ ທີ່ກ່ຽວພັນກັນ ແລະ ປະສານງານເຮັດວຽກຮ່ວມກັນ.

ໃນການສ້າງຍຸດທະສາດ ເຣດ+ ແຫ່ງຊາດ ແມ່ນຕ້ອງໄດ້ມີຄວາມເຂົ້າໃຈ ກ່ຽວກັບ ການປ່ຽນແປງ ການນຳໃຊ້ທີ່ດິນ ແລະ ຄວາມປົກຫຸ້ມຂອງປ່າໄມ້ ແລະ ຄວາມເປັນມາຂອງການປ່ຽນແປງດັ່ງກ່າວ. ແຜນທີ່ປະເພດປ່າໄມ້ ຂອງແຕ່ລະໄລຍະ ປີ (2000; 2005; 2010; 2015) ແລະ ການວິເຄາະສາເຫດຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ, ເຊິ່ງຈັດຕັ້ງປະຕິບັດໂດຍກົມປ່າໄມ້, ແມ່ນເປັນຂໍ້ມູນພື້ນຖານ ໃນການວິເຄາະ ການປ່ຽນແປງການນຳໃຊ້ທີ່ດິນ ແລະ ຄວາມປົກຫຸ້ມຂອງປ່າໄມ້. ການຈັດຕັ້ງປະຕິບັດດັ່ງກ່າວ ແມ່ນມີຈຸດປະສົງ ເພື່ອສະໜອງຂໍ້ມູນ ສະພາບຕົວຈິງ ແລະ ສິ່ງທ້າທາຍ ຂອງ ສປປ ລາວ ໂດຍຜ່ານການນຳໃຊ້ ເຕັກໂນ�โลຊີ ພາບຖ່າຍດາວທຽມຈາກທາງໄກ.

ໃນວັນທີ 12 ມັງກອນ 2017, ຄະນະທີມງານວິຊາການສະເພາະດ້ານ REL/MRV ໄດ້ຈັດກອງປະຊຸມຮ່ວມ ຂອງ 6 ຄະນະທີມງານ ວິຊາການສະເພາະດ້ານ ເພື່ອນຳສະເໜີ ແລະ ປຶກສາຫາລື ຜົນໄດ້ຮັບເບື້ອງຕົ້ນ ຂອງວຽກງານດັ່ງກ່າວ ພາຍໃຕ້ກົມປ່າໄມ້. ວິຊາການສະເພາະດ້ານຂອງທັງ 6 ຄະນະ, ບັນດາຜູ້ໃຫ້ທຶນ ແລະ ຄູ່ຮ່ວມພັດທະນາ ແມ່ນໄດ້ເຂົ້າຮ່ວມກອງປະຊຸມ ດັ່ງກ່າວ ແລະ ປະກອບຄຳຄິດເຫັນ ຕໍ່ວຽກງານດັ່ງກ່າວ. ກອງປະຊຸມຍັງໄດ້ ປຶກສາຫາລື ເພື່ອປັບປຸງການຈັດຕັ້ງປະຕິບັດວຽກງານດັ່ງກ່າວ ແລະ ຄວາມຈຳເປັນໃນການຈັດ ການປຶກສາຫາລື ໃນຂັ້ນທ້ອງຖິ່ນ.

ກອງປະຊຸມຮ່ວມ ຂອງ 6 ຄະນະທີມງານວິຊາການສະເພາະດ້ານ

*1: REL/MRV, ການນຳໃຊ້ທີ່ດິນ, ການປ້ອງກັນໃຊ້ກົດໝາຍ ແລະ ການຈັດຕັ້ງປະຕິບັດການຫຼຸດຜ່ອນອາຍຜິດເຮືອນແກ້ວ, ນິຕິກຳ, ການແບ່ງປັນຜົນປະໂຫຍດ, ການປົກປ້ອງ ສັງຄົມ ແລະ ສິ່ງແວດລ້ອມ.

ກອງປະຊຸມປຶກສາຫາລືຂັ້ນເມືອງ ແລະ ກຸ່ມບ້ານ ສຳລັບການວາງແຜນວຽກງານ ເຣດ+ ຂັ້ນແຂວງ

ແຂວງຫຼວງພະບາງ ໄດ້ແຕ່ງຕັ້ງ ຄະນະຊີ້ນຳວຽກງານ ເຣດ+ (PRTF) ຂັ້ນແຂວງ ໃນເດືອນພຶດສະພາ ປີ 2016 ເພື່ອເປັນໃຈກາງໃນການຊຸກຍູ້ວຽກງານ ເຣດ+ ພາຍໃນແຂວງ. ຄະນະຊີ້ນຳດັ່ງກ່າວແມ່ນລວມມີ ຕາງໜ້າຈາກຂະແໜງການທີ່ກ່ຽວຂ້ອງ ທີ່ມີຄວາມກ່ຽວພັນກັບ ການຄຸ້ມຄອງປ່າໄມ້. ໃນຊ່ວງ 6 ເດືອນທີ່ຜ່ານມາ ໂຄງການ F-REDD ແມ່ນໄດ້ປະສານສົມທົບກັບ ໜ່ວຍງານທີ່ກ່ຽວຂ້ອງໃນຂັ້ນແຂວງ ຈັດກອງປະຊຸມຫຼາຍໆຄັ້ງ ເພື່ອວິເຄາະສາເຫດ ການທຳລາຍປ່າໄມ້ ແລະ ການເສື່ອມໂຊມຂອງປ່າໄມ້, ຄວາມສ່ຽງທາງດ້ານສິ່ງແວດລ້ອມ ແລະ ສັງຄົມ, ແລະ ບັນຫາອື່ນໆ ທີ່ກ່ຽວພັນກັບ ການຈັດຕັ້ງປະຕິບັດວຽກງານ ເຣດ+. ສືບຕໍ່ມາຈາກ ກອງປະຊຸມ ຄະນະຊີ້ນຳວຽກງານ ເຣດ+ (PRTF) ຂັ້ນແຂວງ ຄັ້ງທຳອິດ ໃນເດືອນ ກໍລະກົດ 2016 ແລະ ກອງປະຊຸມຄັ້ງທີ 2 ໃນເດືອນທັນວາ 2016, ກອງປະຊຸມຄັ້ງທີ 3 ໃນວັນທີ 3 ກຸມພາ 2017 ໄດ້ປຶກສາຫາລື ຂັ້ນຕອນການວາງແຜນ, ການຈັດຕັ້ງປະຕິບັດ ແລະ ກອບເວລາ ໃນການສ້າງແຜນດຳເນີນງານ ເຣດ+ ຂັ້ນແຂວງ (PRAP).

ຂັ້ນຕອນຕໍ່ໄປ ແມ່ນຕ້ອງໄດ້ຮັບປະກັນວ່າ ການກຳນົດກົດຈະກຳຂອງວຽກງານ ເຣດ+ ແມ່ນຕ້ອງໃຫ້ສອດຄ່ອງກັບ ກອບເວລາວຽກ ຂອງພາກສ່ວນກ່ຽວຂ້ອງຂັ້ນທ້ອງຖິ່ນ, ແລະ ການສະໜັບສະໜຸນ ແລະ ສິ່ງເສີມວຽກງານການປົກປ້ອງ ສັງຄົມ ແລະ ສິ່ງແວດລ້ອມ. ສະນັ້ນ ສະມາຊິກຂອງ PRTF ແມ່ນໄດ້ຕົກລົງເຫັນດີ ກ່ຽວກັບຄວາມຈຳເປັນໃນການເຜີຍແຜ່ວຽກງານດັ່ງກ່າວ ຕໍ່ວິຊາການຂະແໜງການປ່າໄມ້ ໃນຂັ້ນເມືອງ ແລະ ຊຸມຊົນ ໂດຍຜ່ານການປະຊຸມປຶກສາຫາລື ໃນແຕ່ລະຂັ້ນ. ທ້ອງການ ເຣດ+ ຂັ້ນແຂວງ ແມ່ນມີໜ້າທີນຳພາ ຂັ້ນຕອນການປຶກສາຫາລື ແລະ ຈະໄດ້ສ້າງຕັ້ງໜ່ວຍງານໃນຂັ້ນເມືອງ ເພື່ອເຮັດວຽກປະສານສົມທົບ ກັບທ້ອງການເຣດ+ ຂັ້ນແຂວງ. ຈະໄດ້ຈັດກອງປະຊຸມປຶກສາຫາລື ອີກຫຼາຍໆຄັ້ງ ໃນຊ່ວງເດືອນທີ່ຈະມາຮອດນີ້ ໂດຍຈະສຸມໃສ່ທັງ 12 ເມືອງ ແລະ ກຸ່ມບ້ານ ທີ່ມີສະພາບອັດຕາການຕັດໄມ້ທຳລາຍປ່າ ແລະ ການເສື່ອມໂຊມຂອງປ່າໄມ້ ທີ່ສູງ.

ສະມາຊິກຂອງ PRTF ປຶກສາຫາລື ແຜນວຽກ ແລະ ກອບເວລາໃນການສ້າງ PRAP

ສຳເລັດການສຳຫຼວດຕົວຊີ້ວັດຂະແໜງການປ່າໄມ້

ກະຊວງ ກະສິກຳ ແລະ ປ່າໄມ້ ແມ່ນກຳລັງຢູ່ໃນຂັ້ນຕອນ ສ້າງຍຸດທະສາດ ເຣດ+ ແຫ່ງຊາດ ແລະ ທົບທວນຄືນກົດໝາຍປ່າໄມ້. ສະນັ້ນ ເນື້ອໃນການປັບປຸງດັ່ງກ່າວ ແມ່ນຈະໄດ້ນຳເຂົ້າມາ ບັນຈຸຢູ່ໃນ ການທົບທວນຄືນຍຸດທະສາດປ່າໄມ້.

ໂຄງການ F-REDD ໂດຍລວມແມ່ນ ສະໜັບສະໜູນ ນະໂຍບາຍ ໂຄງສ້າງການຈັດຕັ້ງ ໃນຂັ້ນສູນກາງ ທີ່ກ່ຽວພັນກັບວຽກງານເຣດ+ ແລະ ຂະແໜງການປ່າໄມ້. ເພື່ອເປັນການກະກຽມ ໂຄງການ F-REDD ໄດ້ຈັດຕັ້ງປະຕິບັດການສຳຫຼວດຕົວຊີ້ວັດ ຂະແໜງການປ່າໄມ້ ເພື່ອເກັບກຳ ແລະ ວິເຄາະ ຂໍ້ມູນຫຼ້າສຸດ ກ່ຽວກັບປ່າໄມ້ ໃນ ສປປ ລາວ. ການສຳຫຼວດດັ່ງກ່າວ ແມ່ນໃຊ້ເວລາ ຢູ່ 2 ເດືອນ ໃນການຈັດປະເພດຂໍ້ມູນ ເຊິ່ງແບ່ງອອກເປັນ 8 ປະເພດ ແລະ 26 ຕົວຊີ້ວັດ — ເຊິ່ງລວມມີການປ່ຽນແປງເຂດພື້ນທີ່ປ່າໄມ້ ແລະ ສາເຫດຕົ້ນຕໍ, ການຕັດໄມ້ ແລະ ການສົ່ງອອກ, ແລະ ການປຸກປ່າ. ພ້ອມດຽວກັນນັ້ນ, ບົດລາຍງານ ກໍ່ຍັງ ໄດ້ພິຈາລະນາເອົາ ຄຳຄິດເຫັນ ຂອງພາກສ່ວນທີ່ກ່ຽວຂ້ອງ.

ຜົນການສຳຫຼວດ ສະແດງໃຫ້ເຫັນເຖິງທ່າອ່ຽງຂອງ ການທຳລາຍປ່າໄມ້ ຢ່າງຕໍ່ເນື່ອງ ແລະ ຊີ້ໃຫ້ເຫັນວ່າ ການຂະຫຍາຍຕົວຂອງເຂດພື້ນທີ່ການຜະລິດກະສິກຳ ແມ່ນສາເຫດຫຼັກຂອງ ການທຳລາຍປ່າໄມ້. ອີງຕາມ ຂໍ້ມູນກ່ຽວກັບຕົວເລກ ຫຼື ໂຄຕ້າ (quota) ຂອງໄມ້ທີ່ລັດຖະບານອະນຸຍາດໃຫ້ຕັດ ກັບຈຳນວນ ໄມ້ທີ່ສົ່ງ ອອກຕົວຈິງຈາກ ສປປ ລາວ ມີຄວາມແຕກຕ່າງກັນຫຼາຍ ຖ້າທຽບໃສ່ຂໍ້ມູນຂອງສະຫະປະຊາຊາດ (UN) ທີ່ຕິດຕາມກ່ຽວກັບບັນຫານີ້. ເຖິງແມ່ນວ່າບັນຫາການຕັດໄມ້ດັ່ງກ່າວ ຈະມີທ່າທີທີ່ດີຂຶ້ນໃນປີຜ່ານໆມາ ແຕ່ ກໍມີໄມ້ຈຳນວນບໍ່ໜ້ອຍ ຍັງແມ່ນມາຈາກການຕັດໄມ້ແບບຜິດກົດໝາຍ. ນອກນັ້ນຄວາມຕ້ອງການໄມ້ ເພື່ອ ຜະລິດເປັນຖ່ານຂາວ ແລະ ສິ່ງອອກໄປຍັງປະເທດເກົາຫຼີໃຕ້ ແລະ ຍີ່ປຸ່ນ ກໍເພີ່ມຂຶ້ນຢ່າງໄວວາ ໂດຍສະ ເພາະນັບແຕ່ປີ 2000 ເຊັ່ນດຽວກັນກັບການສົ່ງອອກຖ່ານດຳ ໄປປະເທດຈີນ ແລະ ໄທ ກໍ່ເພີ່ມຂຶ້ນເຊັ່ນກັນ ນັບແຕ່ປີ 2010 ເປັນຕົ້ນມາ ອັນໄດ້ສ້າງຄວາມກັງວົນຕໍ່ການເສື່ອມໂຊມຂອງຊັບພະຍາກອນປ່າໄມ້. ຜົນການ ສຳຫຼວດດັ່ງກ່າວແມ່ນຈະນຳໃຊ້ ເພື່ອທົບທວນຄືນກົດໝາຍ ແລະ ຍຸດທະສາດປ່າໄມ້.

ກອງປະຊຸມ FSSWG ຄັ້ງທຳອິດພາຍຫຼັງມີການປັບປຸງໂຄງຮ່າງການຈັດຕັ້ງໃໝ່ຂອງລັດຖະບານ

ທ່ານ ສາຍສະໝອນ (ຂວາ) ແລະ ທ່ານ ນາງ Makimoto (ຊ້າຍ)

ກອງປະຊຸມ ຄະນະດຳເນີນງານຂະແໜງການຍ່ອຍດ້ານປ່າໄມ້ (FSSWG) ແມ່ນຍັງບໍ່ໄດ້ຈັດມາແຕ່ເດືອນ ເມສາ 2016 ເນື່ອງຈາກ ມີການປັບປຸງໂຄງຮ່າງການຈັດຕັ້ງໃໝ່ ຂອງຂະແໜງການປ່າໄມ້. ພາຍຫຼັງມີການຕົກລົງເຫັນດີຮວມເອົາ FSSWG ໃຫ້ຂຶ້ນກັບ ຄະນະ ດຳເນີນງານຂະແໜງການກະສິກຳ ແລະ ພັດທະນາຊົນນະບົດ (SWG-ARD) ໂດຍການຊີ້ນຳຂອງ ກະຊວງກະສິກຳ ແລະ ປ່າໄມ້ ກໍໄດ້ ຈັດກອງປະຊຸມ FSSWG ຄັ້ງທຳອິດ ໃນຕອນເຊົ້າຂອງວັນທີ 24 ມີນາ 2017.

ກອງປະຊຸມຄັ້ງນີ້ໄດ້ປຶກສາຫາລື ກ່ຽວກັບການປັບປຸງຄືນພາລະບົດບາດ ແລະ ໜ້າທີ່ຮັບຜິດຊອບ (ToR) ໂດຍການຕົກລົງເຫັນດີ ດັດປັບແຜນວຽກຂອງ FSSWG ເພື່ອໃຫ້ສອດຄ່ອງກັບແຜນວຽກຂອງກອງປະຊຸມໂຕະມົນ ເຊິ່ງເປັນກອງປະຊຸມລະດັບສູງ ລະ ຫວ່າງ ລັດຖະບານ ສປປ ລາວ ແລະ ຄູ່ຮ່ວມພັດທະນາ ແລະ ກອງປະຊຸມ SWG-ARD. ກອງປະຊຸມ FSSWG ຄັ້ງວັນທີ 24 ມີນາ ໄດ້ນຳສະເໜີຫົວຂໍ້ທີ່ສຳຄັນເຊັ່ນ: ການທົບທວນຄືນກົດໝາຍປ່າໄມ້, ການທົບທວນຄືນຂອບເຂດຂອງ 3 ປະເພດປ່າ, ການເຈລະຈາ ກ່ຽວກັບວຽກງານການບັງຄັບໃຊ້ກົດໝາຍປ່າໄມ້, ການຄຸ້ມຄອງ ແລະ ການຄ້າໄມ້ (FLEGT), ການສ້າງຕັ້ງລະບົບການຮັບປະກັນດ້ານ ກົດໝາຍກ່ຽວກັບໄມ້ພາຍໃນປະເທດ ໂດຍໃຫ້ປະຕິບັດຕາມກົດລະບຽບຂອງສະຫະພາບເອີຣົບ (EU) ແລະ ຄວາມຄືບໜ້າຂອງວຽກ ງານ ເຣດ+ ໃນ ສປປ ລາວ. ຜູ້ເຂົ້າຮ່ວມໄດ້ປຶກສາຫາລືໃນຫຼາຍບັນຫາ ໂດຍສະເພາະວຽກງານການທົບທວນຄືນກົດໝາຍປ່າໄມ້ ແລະ ວິທີການທົບທວນຄືນຂອບເຂດຂອງ 3 ປະເພດປ່າ.

ກິດຈະກຳຫຼັກທີ່ໄດ້ຈັດຕັ້ງປະຕິບັດ

ຜົນໄດ້ຮັບທີ 1: ສະໜັບສະໜູນຂະແໜງການປ່າໄມ້ໃນຂັ້ນສູນກາງ

- ການສຳຫຼວດຕົວຊີ້ວັດຂະແໜງການປ່າໄມ້ *(ສຳເລັດ)*
- ກອງປະຊຸມຄະນະດຳເນີນງານຂະແໜງການຍ່ອຍດ້ານປ່າໄມ້ *(ສຳເລັດ)*

ຜົນໄດ້ຮັບທີ 2: ສະໜັບສະໜູນການວັດແທກການຫຼຸດຜ່ອນ ແລະ ການກຳຈັດການປ່ອຍອາຍພິດ ໂດຍຜ່ານ ການຈັດຕັ້ງປະຕິບັດວຽກງານ ເຣດ+.

- ການສຳຫຼວດປ່າໄມ້ແຫ່ງຊາດ ຄັ້ງທີ 2 ສຳລັບລະດູແລ້ງ ປີ 2016-2017 *(ສຳເລັດ)*
- ສຳຫຼວດຈຳນວນປີ ທີ່ໃຊ້ໃນການຟື້ນຟູປ່າໄມ້ *(ສຳເລັດ)*
- ສ້າງຕັ້ງທີມງານຮ່າງເອກະສານລະດັບທຽບຖານ (REL) ແລະ ກອງປະຊຸມຄັ້ງທີ 2 ແລະ 3 *(ສຳເລັດ)*
- ການທົບທວນຄືນ ແຜນທີປະເພດປ່າໄມ້ ປີ 2000, '05, '10, '15 *(ກຳລັງດຳເນີນ)*
- ລາຍງານການວິເຄາະສາເຫດການທຳລາຍປ່າໄມ້ ແລະ ການເສື່ອມໂຊມຂອງປ່າໄມ້ *(ກຳລັງດຳເນີນ)*
- ສ້າງລະບົບການຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ *(ກຳລັງດຳເນີນ)*

ຜົນໄດ້ຮັບທີ 3: ສະໜັບສະໜູນວຽກງານເຣດ+ ແຫ່ງຊາດ

- ກອງປະຊຸມຮ່ວມຂອງທັງ 6 TWGs *(ສຳເລັດ)*
- ກອງປະຊຸມ REL/MRV TWG ຄັ້ງທີ 3 *(ສຳເລັດ)*
- ກອບເວລາການສ້າງ ERPD ແລະ ໜ້າວຽກຮ່ວມໃນການຮ່າງເອກະສານດັ່ງກ່າວ *(ສຳເລັດ)*

ຜົນໄດ້ຮັບ ທີ 4: ການກະກຽມຄວາມພ້ອມວຽກງານ ເຣດ+ ໃນແຂວງຫຼວງພະບາງ.

- ກອງປະຊຸມ ຄະນະຊີ້ນຳວຽກງານ ເຣດ+ ຂັ້ນແຂວງ ຄັ້ງທີ 3 *(ສຳເລັດ)*
- ກອງປະຊຸມປຶກສາຫາລື ຢູ່ ຂັ້ນເມືອງ ແລະ ກຸ່ມບ້ານ ໃນການສ້າງແຜນດຳເນີນງານ ເຣດ+ ຂັ້ນແຂວງ (PRAP) *(ກຳລັງດຳເນີນ)*
- ວາງແຜນທົດລອງນະໂຍບາຍປ່າໄມ້ທີ່ເປັນບຸລິມະສິດ ໂດຍໃຫ້ສອດຄ່ອງກັບ PRAP *(ກຳລັງດຳເນີນ)*

ຕິດຕໍ່ພົວພັນ

ຫ້ອງການໂຄງການ
ຖະໜົນຄຸວຽງ,
ບ້ານສີສະເກດ,
ເມືອງຈັນທະບູລີ,
ນະຄອນຫຼວງວຽງຈັນ, ສປປ ລາວ
ໂທ & ແຟກ: 021(22)2536

ເວັບໄຊສໂຄງການ
https://www.jica.go.jp/project/english/laos/018/index.html

ກິດຈະກຳໃນໄຕມາດໜ້າ

ພຶດສະພາ

ກອງປະຊຸມ ຄະນະກຳມະການປະສານງານຮ່ວມ ຄັ້ງທີ 2 (JCC)
ກອງປະຊຸມປະຈຳປີ ຄັ້ງທີ 2
ກອງປະຊຸມ ຄະນະທີມງານວິຊາການສະເພາະດ້ານ REL/MRV ຄັ້ງມີ 4

ມິຖຸນາ

ກອງປະຊຸມ FSSWG

ກະຊວງ ຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ

ກະຊວງ ກະສິກຳ ແລະ ປ່າໄມ້

ອົງການຮ່ວມມືສາກົນຍີ່ປຸ່ນ (ໄຈກາ)

季刊　第7号
2017年4月~6月

F-REDD Newsletter

Sustainable Forest Management and REDD+ Support Project
Nov 2015 - Oct 2020

持続可能な森林管理及びREDD+支援プロジェクト（F-REDD）

本プロジェクトの目的はREDD+に係る戦略策定、実施体制構築、実施のコーディネーションの支援と森林資源情報の整備などに係る能力の強化をはかり、それによってラオスの持続的な森林管理の促進に寄与することです。農林省森林局(MAF-DOF)を実施機関として協力しています。

第2回JCC開催

第2回JCC (Joint Coordination Committee) が農林省森林局のスサート局長を議長、JICAラオス事務所の牧本小枝次長を共同議長として、5月12日に開催されました。会議ではこれまでのプロジェクト活動成果と今後の活動計画が説明され、それに対する質疑や議論が交わされました。

今回の会議では、ラオス政府による森林関部局の農林省への統合を受けて、プロジェクト実施機関を森林局に一本化することが合意されました。これを受けて今後、JCCメンバーやプロジェクト実施体制の改正が為されます。また、農林省からの要請を受けて森林法改正とFCPF炭素基金向け「排出削減プログラム計画書（ERPD)」作成への支援が新たに追加されたほか、ルアンプラバン県における政策パイロット事業の内容も了解されました。

共同議長の牧本次長（左）と 議長のスサート局長（右）

ラオスはUNFCCCやFCPF炭素基金からの成果支払い獲得に向けてREDD+実施の準備段階にあり、今後1年のうちにF-REDDが支援の一翼を担うFREL/FRLやERPDの提出、ルアンプラバン県REDD+計画策定などが控えています。与えられた時間の中で、技術移転を進めながらこれらの目的を遂行するためにも関係者一同一層力を入れて取り組んでいく必要があることが再認識されました。

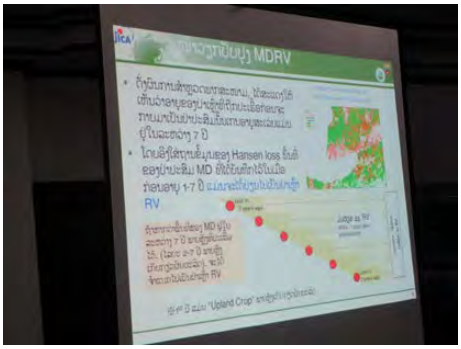
年次ワークショップ開催

F-REDDは他の開発パートナーとの緊密な連携のもとにラオスの森林セクターならびにREDD+を支援しています。そのため、プロジェクト方向性や進捗、成果を関係者に広く知ってもらうことが非常に重要です。

その一環として、5月24日に年次ワークショップが開催されました。森林局、大学、研究機関といったラオス関係者と、森林セクターを支援している国際プロジェクトや援助機関などの代表が参加し、F-REDDのカウンターパートと専門家が共同でプロジェクトの活動計画と進捗を発表しました。

参加者からは、プロジェクトの方向性や技術面への質問、成果をより高めるための建設的なコメントが多数提示されました。ラオスでは様々な森林関係の取り組みやプロジェクトが実施されておりそれら関係者にとってF-REDDの支援への関心の高さが伺えました。

REL/MRV 技術作業部会 第4回会合



暫定REL及びその基礎データに関する発表

森林調査計画課のリントン課長がリーダーを務めるREL/MRV技術作業部会の第4回会合が5月24日午後に開催され、森林局やその他開発パートナーを含めた総勢30名が参加しました。

今回の会合では、F-REDDが支援している複数年次の森林区分図や森林タイプごとの炭素量データを元に、ラオス国の森林からの温室効果ガス排出・吸収量を予測するRELの算定方法と暫定値が発表され、参加者の間でその妥当性について議論が交わされました。今回の会合は技術的に複雑な内容であり、暫定値を用いた結果でもあったことから、技術作業部会メンバーと専門家間で、さらなる時間を設けて検討することとなりました。

ラオスが今後、UNFCCCやFCPF炭素基金の要求水準を満たすRELレポートをまとめ上げるには、関係各所の十分なキャパシティ向上と連携が欠かせません。F-REDDは引き続き技術面・体制面を支援していきます。

成果毎の主な活動

共通の活動
- ◆第2回JCC開催
- ◆年次ワークショップ開催

成果1：中央政府の森林セクター支援
- ◆9月の本邦研修に向けた準備

成果2：REDD+実施による排出削減・吸収増加量の測定支援
- ◆森林区分図（2000,05,10,15年）の完成
- ◆RELドラフティングチーム第4回会合開催および暫定REL作成
- ◆層化および不確実性検討
- ◆NFMSの物理システム機能開発作業

成果3：国レベルのREDD+支援
- ◆第4回REL/MRV技術作業部会会合開催
- ◆ERPD作成にあたっての検討・調整および執筆作業

成果4：ルアンプラバン県のREDD+準備支援
- ◆県REDD+行動計画（PRAP）策定に向けた郡・村落レベルでのローカルコンサルテーションとりまとめ
- ◆県REDD+活動計画（PRAP）ドラフティング作業
- ◆PRAP優先政策パイロットの計画立案および情報収集作業

コンタクト

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Vientiane Capital, Laos
Tel & Fax: 021(22)2536

プロジェクトHP
http://www.jica.go.jp/project/laos/018/index.html

次期四半期のイベント

Jul.
RELドラフティングチーム第5回会合開催

Aug.
森林サブセクター作業部会
第5回REL/MRV技術作業部会会合

Sep.
本邦研修（森林の多面的利用）

農林省
Ministry of Agriculture and Forestry (MAF)

日本国際協力機構
Japan International Corporation Agency (JICA)

Quarterly Vol. 7
April - June

F-REDD Newsletter

Sustainable Forest Management and REDD+ Support Project

Nov 2015 - Oct 2020

Sustainable Forest Management and REDD+ Support Project (F-REDD)

The purpose of F-REDD is to enhance the capacity of forestry sector through strengthening policies, effective incorporation of REDD+, and improvement of forest resource information as the foundation of sustainable forest management (SFM) in both central and provincial levels (Luang Prabang as the pilot province). The Department of Forestry, Ministry of Agriculture and Forestry (MAF-DOF) is the implementing agencies of F-REDD.

2nd Joint Coordination Committee Meeting held under the new counterpart structure

The 2nd Joint Coordination Committee (JCC) was held on 12th May, chaired by Mr. Sousath Sayakoummane, Director General of DOF and co-chaired by Ms. Saeda Makimoto, Senior Representative of JICA Laos Office. The main objectives of the meeting were to present the outputs produced up until now and the planned activities for the future.

Ms. Makimoto (left) and Mr. Sousath (right)

The meeting agreed to assign DOF as the sole implementing agency following the Lao Government decision to integrate the forestry sector agencies under DOF. Accordingly, the JCC members and the project implementation structure will be revised. Additional support, requested by MAF, was also approved. Namely support for revising the Forestry Law, development of "Emission Reduction Program Document (ERPD)" for the FCPF Carbon Fund, and the policy piloting in Luang Prabang province.

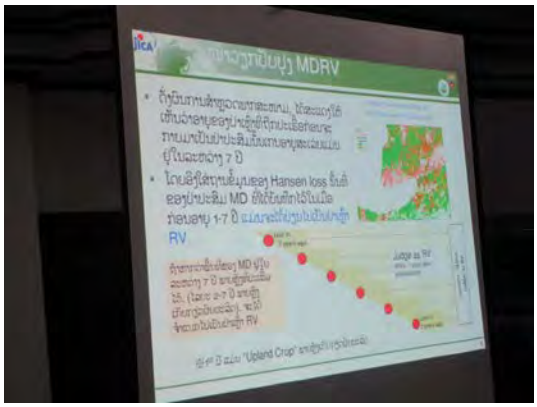
Lao PDR is now in the preparation stage of REDD+ towards the result based payment from the UNFCCC and the FCPF Carbon Fund. With support from F-REDD and other development partners, the country has several important tasks to complete in the next year, such as submission of the FREL/FRL to the UNFCCC, submission of the ERPD to the FCPF Carbon Fund, and formulation of the Provincial REDD+ Action Plan for Luang Prabang. The co-chairs concluded the meeting by emphasizing the need of all the stakeholders to join efforts on fulfilling these tasks within the given time, and also the need of sufficient capacity building of the Lao counterparts during this time.

2nd Annual Workshop held

As F-REDD supports the forestry sector and REDD+ in Lao PDR in close collaboration with other development partners, it is very important to widely inform the relevant stakeholders on the strategic direction, progress and results of the Project. For this purpose, the 2nd Annual Workshop was held on 24th May with participation from DOF, universities and research institutes, and international projects and donor agencies supporting the forestry sector. The F-REDD team made a presentation on the progress of the Project and plans for future activities.

Many questions were raised on the technical and policy aspects which the Project is dealing with, and various constructive comments were also shared to increase the value of the expected outcomes of the Project. As there are many ongoing initiatives and projects in the forestry sector, F-REDD will continue to explore collaboration and synergy with such efforts.

4th REL/MRV TWG presented the provisional methodologies and estimation of REL



Technical discussions were held on interim REL and its basic data

The 4th meeting of REL/MRV TWG was held in the afternoon of May 24th with a total of over 30 participants from DOF and other development partners.

F-REDD has been supporting the production of multi-year Forest Type Maps by remote sensing, and quantification of forest carbon stocks through the National Forest Inventory (NFI). Using these results, provisional methodologies and estimation of REL were presented. Key issues discussed included the method to differentiate the level of forest regeneration using a parameter (i.e. years after the forest loss), carbon pools and GHG gases to consider, and assessing the impact of logging. As the contents were technically complex and partly based on provisional data, it was agreed to have further discussions.

In order for the REL of Lao PDR to fulfill the requirements of the UNFCCC and the FCPF Carbon Fund, sufficient capacity development and cooperation among related agencies are essential. F-REDD will continue to support this technically and institutionally.

Main Activities Conducted

Common activities

- 2nd JCC meeting *(completed)*
- Annual Workshop *(completed)*

Output 1: Support forestry sector at the central level

- Preparation for a training program in Japan in September *(ongoing)*

Output 2: Support measurement of emissions reduction and removal through implementation of REDD+

- Completion of Forest Type Map 2000, '05, '10, '15 *(completed)*
- 4th meeting of the REL drafting team and development of interim REL *(completed)*
- Carbon stratification and uncertainty assessment *(ongoing)*
- Development of the functions of the NFMS physical system *(ongoing)*

Output 3: Support National REDD+

- 4th REL/MRV TWG meeting *(completed)*
- Drafting of ERPD *(ongoing)*

Output 4: Support Luang Prabang Province REDD+ Readiness

- Compiling the results of local consultation at district and village level for developing the Provincial REDD+ Action Plan *(completed)*
- Drafting work of Provincial REDD+ Action Plan (PRAP) *(ongoing)*
- Planning of the pilot for the priority forestry policies in line with PRAP and collecting related information *(ongoing)*

Contact

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Events in the Next Quarter

Jul.
5th meeting of the REL drafting team

Aug.
The Forestry Sub-Sector Working Group
5th meeting of REL/MRV Technical Working Group

Sep.
Training in Japan (multiple-use of forests)

MAF
Ministry of Agriculture and Forestry

JICA
Japan International Corporation Agency

ປະຈຳໄຕມາດ, ສະບັບທີ 7

ເມສາ - ມິຖຸນາ 2017

ຈົດໝາຍຂ່າວໂຄງການ F-REDD

ໂຄງການສະໜັບສະໜູນ ການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນນານ ແລະ REDD+

ພະຈິກ 2015 - ຕຸລາ 2020

ໂຄງການສະໜັບສະໜູນ ການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນນານ ແລະ REDD+ (F-REDD)

ຈຸດປະສົງຂອງໂຄງການ F-REDD ແມ່ນເພື່ອຍົກລະດັບຄວາມເຂັ້ມແຂງຂອງຂະແໜງການປ່າໄມ້ໂດຍຜ່ານການສ້າງຄວາມເຂັ້ມແຂງທາງດ້ານນະໂຍບາຍ, ການຮ່ວມມືທີ່ມີປະສິດທິພາບກ່ຽວກັບວຽກງານ REDD+, ການປັບປຸງຂໍ້ມູນຊັບພະຍາກອນປ່າໄມ້ ຊຶ່ງເປັນພື້ນຖານໃນການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນນານ (SFM) ທັງຢູ່ໃນລະດັບສູນກາງ ແລະ ທ້ອງຖິ່ນ (ຫລວງພະບາງ ແມ່ນເປັນແຂວງທົດລອງ). ກົມປ່າໄມ້ ຂອງ ກະຊວງກະສິກຳ ແລະ ປ່າໄມ້ ແມ່ນເປັນພາກສ່ວນຮັບຜິດຊອບໃນການຈັດຕັ້ງປະຕິບັດໂຄງການ F-REDD.

ກອງປະຊຸມຄະນະກຳມະການປະສານງານຮ່ວມຄັ້ງທີ 2, ພາຍໃຕ້ຄູ່ຮ່ວມງານໃໝ່

ທ່ານ ນ. Makimoto (ຊ້າຍ) ແລະ ທ່ານ ຊູຊາດ (ຂວາ)

ກອງປະຊຸມຄະນະກຳມະການປະສານງານຮ່ວມ ຄັ້ງທີ 2 ໄດ້ຈັດຂຶ້ນໃນວັນທີ 12 ພຶດສະພາ 2017 ໂດຍການເປັນປະທານຮ່ວມ ລະຫວ່າງ ທ່ານ ຊູຊາດ ໄຊຍະກຸມມານ, ຫົວໜ້າກົມປ່າໄມ້ ແລະ ທ່ານ ນາງ Saeda Makimoto, ຜູ້ຕາງໜ້າອາວຸโส ຈາກຫ້ອງການ ໄຈກາ ປະຈຳ ລາວ. ຈຸດປະສົງຂອງກອງປະຊຸມ ແມ່ນເພື່ອນຳສະເໜີ ຄວາມຄືບໜ້າການຈັດຕັ້ງປະຕິບັດໂຄງການ ຈົນເຖິງປະຈຸບັນ ແລະ ແຜນວຽກໃນຕໍ່ໜ້າ.

ກອງປະຊຸມ ແມ່ນໄດ້ຕົກລົງເຫັນດີ ໃຫ້ກົມປ່າໄມ້ ເປັນພາກສ່ວນຫຼັກໃນການ ຈັດຕັ້ງ ປະຕິບັດໂຄງການ ພາຍຫຼັງໄດ້ມີການລວມຂະແໜງການປ່າໄມ້ ເຂົ້າຢູ່ພາຍໃຕ້ ກົມປ່າໄມ້. ສະນັ້ນ, ແມ່ນຈະໄດ້ມີການທົບທວນ ຄະນະກຳມະການປະສານງານ ແລະ ໂຄງຮ່າງການຈັດຕັ້ງ ຂອງໂຄງການ ຄືນໃໝ່. ກອງປະຊຸມ ຍັງໄດ້ ຮັບຮອງ ເຫັນດີ ການສະເໜີຈາກ ກະຊວງ ກະສິກຳ ແລະ ປ່າໄມ້ ໃນການຂໍການສະໜັບສະໜູນ ຈາກໂຄງການ ເພີ່ມຕື່ມ ໃນວຽກງານອື່ນ ເຊັ່ນ ການທົບທວນຄືນ ກົດໝາຍປ່າໄມ້, ການຮ່າງເອກະສານ "ການຫຼຸດຜ່ອນທາດອາຍພິດ (Emission Reduction Program Document)" ເພື່ອຈະນຳສົ່ງໃຫ້ ກອງທຶນການກອບອນ FCPF, ແລະ ການທົດລອງນະໂຍບາຍ ໃນແຂວງຫຼວງພະບາງ.

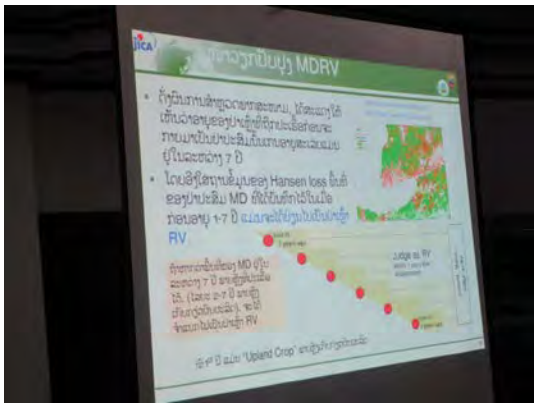
ສ ປປ ລາວ ແມ່ນກຳລັງຢູ່ໃນຂັ້ນຕອນ ການກະກຽມ ເພື່ອຈັດຕັ້ງປະຕິບັດ ວຽກງານເຣດ+ ເຊິ່ງເປັນຂັ້ນຕອນກ່ອນຈະຮອດ ການຈ່າຍອີງຕາມຜົນໄດ້ຮັບ (result based payment) ຈາກ UNFCCC ແລະ ກອງທຶນການກອບອນ FCPF. ໃນປີຕໍ່ໜ້ານີ້ ແມ່ນຍັງມີຫຼາຍວຽກທີ່ສຳຄັນ ທີ່ ສ ປປ ລາວ ຕ້ອງໄດ້ຈັດຕັ້ງປະຕິບັດໃຫ້ສຳເລັດ ເຊັ່ນ ການສົ່ງເອກະສານ ລະດັບການປ່ອຍອາຍພິດເຮືອນແກ້ວ ທຽບຖານ (FREL/FRL) ໃຫ້ UNFCCC, ເອກະສານ ການຫຼຸດຜ່ອນທາດອາຍພິດ (ERPD) ໃຫ້ກອງທຶນການກອບອນ FCPF, ແລະ ການສ້າງ ແຜນປະຕິບັດງານ ເຣດ+ ຂອງແຂວງຫຼວງພະບາງ, ວຽກງານດັ່ງກ່າວ ແມ່ນກຳລັງໄດ້ຮັບການສະໜັບສະໜູນ ຈາກ ໂຄງການ F-REDD ແລະ ຄູ່ຮ່ວມພັດທະນາ ອື່ນໆ. ປະທານຮ່ວມ ຍັງໄດ້ເນັ້ນໜັກ ໃຫ້ແຕ່ລະພາກສ່ວນ ສຸມໃສ່ປະກອບສ່ວນ ເພື່ອເຮັດໃຫ້ວຽກງານດັ່ງກ່າວ ສຳເລັດ ຕາມເວລາທີ່ກຳນົດໄວ້ ຄວບຄູ່ໄປກັບການສ້າງຄວາມອາດສາມາດໃຫ້ຄູ່ຮ່ວມງານຝ່າຍລາວ.

ກອງປະຊຸມ ປະຈຳປີ ຄັ້ງທີ 2

ເນື່ອງຈາກ ໂຄງການ F-REDD ສະໜັບສະໜູນຂະແໜງການປ່າໄມ້ ແລະ ວຽກງານ ເຣດ+ ໃນ ສປປ ລາວ ໂດຍການປະສານສົມທົບຢ່າງໃກ້ຊິດກັບ ຄູ່ຮ່ວມ ພັດທະນາອື່ນໆ, ສະນັ້ນ ຈຶ່ງມີຄວາມຈຳເປັນຕ້ອງໄດ້ນຳສະເໜີຄວາມຄືບໜ້າ ແລະ ແນວທາງຂອງໂຄງການ ໃຫ້ແກ່ພາກສ່ວນທີ່ກ່ຽວຂ້ອງ ເພື່ອຮັບຊາບ, ສະນັ້ນ ຈຶ່ງ ໄດ້ຈັດ ກອງປະຊຸມປະຈຳປີ ຄັ້ງທີ 2 ຂຶ້ນ ໃນວັນທີ 24 ພຶດສະພາ ລວມມີຜູ້ເຂົ້າ ຮ່ວມຈາກ ກົມປ່າໄມ້, ມະຫາວິທະຍາໄລ ແລະ ສະຖາບັນຄົ້ນຄ້ວາ, ແລະ ໂຄງການຊ່ວຍເຫຼືອ ອື່ນໆ ທີ່ສະໜັບສະໜູນວຽກງານຂອງ ຂະແໜງການປ່າໄມ້. ຊ່ຽວຊານຂອງໂຄງການ ແມ່ນໄດ້ນຳສະເໜີ ຄວາມຄືບໜ້າ ແລະ ແຜນວຽກໃນຕໍ່ ໜ້າ ຂອງໂຄງການ.

ຜູ້ເຂົ້າຮ່ວມ ໄດ້ຍົກຫຼາຍໆບັນຫາຂຶ້ນມາຖາມ ເຊັ່ນ ດ້ານເຕັກນິກວິຊາການ ແລະ ນະ�โยบายต่างๆ ທີ່ກ່ຽວພັນກັບໂຄງການ ແລະ ໄດ້ປະກອບຄຳຄິດເຫັນ ທີ່ມີ ຄວາມສຳຄັນຕໍ່ຜົນໄດ້ຮັບຂອງໂຄງການ. ປະຈຸບັນ ແມ່ນມີຫຼາຍໆ ການລິເລີ່ມ ແລະ ໂຄງການຕ່າງໆ ຢູ່ໃນຂະແໜງການປ່າໄມ້, ໂຄງການ F-REDD ແມ່ນຈະ ສືບຕໍ່ຄົ້ນຄ້ວາ ເພື່ອຫາຊ່ອງທາງໃນການເຮັດວຽກປະສານສົມທົບກັບ ຄູ່ຮ່ວມ ພັດທະນາອື່ນໆ ເພີ່ມຕື່ມ.

ກອງປະຊຸມ REL/MRV TWG ຄັ້ງທີ 4: ນຳສະເໜີ ວິທີການ ແລະ ການຄາດຄະເນ REL ໃນເບື້ອງຕົ້ນ



ປຶກສາຫາລືດ້ານວິຊາການ ກ່ຽວກັບ REL ແລະ ຂໍ້ມູນພື້ນຖານໃນເບື້ອງຕົ້ນ

ກອງປະຊຸມ REL/MRV TWG ຄັ້ງທີ 4 ໄດ້ຈັດຂຶ້ນໃນຕອນບ່າຍຂອງວັນທີ 24 ພຶດສະພາ ມີຜູ້ເຂົ້າຮ່ວມທັງໝົດ 30 ທ່ານ ຈາກກົມປ່າໄມ້ ແລະ ຄູ່ຮ່ວມພັດທະນາອື່ນໆ.

ໂຄງການ F-REDD ແມ່ນສະໜັບສະໜູນໃນການສ້າງແຜນທີປະເພດປ່າໄມ້ ໃນແຕ່ລະໄລຍະປີ ໂດຍການນຳໃຊ້ ພາບຖ່າຍດາວທຽມ ແລະ ການຄຳນວນປະລິມານຂອງທາດກາກບອນໃນປ່າໄມ້ ອີງຕາມຂໍ້ມູນການສຳຫຼວດປ່າໄມ້ແຫ່ງຊາດ (NFI). ໂດຍອີງໃສ່ຂໍ້ມູນດັ່ງກ່າວ ກອງປະຊຸມແມ່ນໄດ້ນຳສະເໜີ ວິທີການ ແລະ ການຄາດຄະເນ REL. ກອງປະຊຸມຍັງໄດ້ປຶກສາຫາລື ບັນຫາຫຼັກ ເຊັ່ນ: ວິທີການໄຈ້ແຍກລະດັບການຟື້ນຟູຂອງປ່າໄມ້ ໂດຍການນຳໃຊ້ ປາຣາມິເຕີ້ (parameter) (ຕົວຢ່າງ: ຈຳນວນປີຫຼັງຈາກປ່າຖືກທຳລາຍ), ອ່າງກາກບອນ, ທາດອາຍເຮືອນແກ້ວ, ແລະ ການປະເມີນຜົນກະທົບຈາກການຕັດໄມ້. ເນື່ອງຈາກວ່າ ເນື້ອໃນທີ່ຖືກນຳສະເໜີ ແມ່ນມີລັກສະນະເຕັກນິກວິຊາການ ແລະ ຍັງອີງໃສ່ຂໍ້ມູນທີ່ຍັງບໍ່ເປັນທາງການ, ກອງປະຊຸມ ຈຶ່ງໄດ້ຕົກລົງເຫັນດີ ຈັດກອງປະຊຸມປຶກສາຫາລືພິເສດ ເພີ່ມຕື່ມ.

ກິດຈະກຳຫຼັກທີ່ໄດ້ຈັດຕັ້ງປະຕິບັດ

ກິດຈະກຳທົ່ວໄປ

- ◆ ກອງປະຊຸມ JCC ຄັ້ງທີ 2 *(ສຳເລັດ)*
- ◆ ກອງປະຊຸມປະຈຳປີ *(ສຳເລັດ)*

ຜົນໄດ້ຮັບ 1: ສະໜັບສະໜູນຂະແໜງການປ່າໄມ້ ໃນຂັ້ນສູນກາງ

- ◆ ກະກຽມການຝຶກອົບຮົມໃນປະເທດຍີ່ປຸ່ນ ໃນເດືອນກັນຍາ *(ກຳລັງດຳເນີນ)*

ຜົນໄດ້ຮັບ 2: ສະໜັບສະໜູນການວັດແທກການຫຼຸດຜ່ອນ ແລະ ການກຳຈັດການປ່ອຍອາຍພິດ ໂດຍຜ່ານ ການຈັດຕັ້ງປະຕິບັດວຽກງານ ເຣດ+.

- ◆ ແຜນທີປະເພດປ່າໄມ້ ປີ 2000, '05, '10, '15 *(ສຳເລັດ)*
- ◆ ກອງປະຊຸມທີມງານຮ່າງເອກະສານ REL ຄັ້ງທີ 4 ແລະ ການສ້າງ REL ໃນເບື້ອງຕົ້ນ *(ສຳເລັດ)*
- ◆ ການຈັດຊັ້ນທາດອາຍກາກບອນ ແລະ ການປະເມີນຄວາມບໍ່ແນ່ນອນ *(ກຳລັງດຳເນີນ)*
- ◆ ການສ້າງ ຟັງຊັນ ຕ່າງໆ ຂອງລະບົບ NFMS *(ກຳລັງດຳເນີນ)*

ຜົນໄດ້ຮັບ 3: ສະໜັບສະໜູນວຽກງານເຣດ+ ແຫ່ງຊາດ

- ◆ ກອງປະຊຸມ REL/MRV TWG ຄັ້ງທີ 4 *(ສຳເລັດ)*
- ◆ ຮ່າງເອກະສານ ERPD *(ກຳລັງດຳເນີນ)*

ຜົນໄດ້ຮັບ 4: ການກະກຽມຄວາມພ້ອມວຽກງານ ເຣດ+ ໃນແຂວງຫຼວງພະບາງ.

- ◆ ສັງລວມ ຂໍ້ມູນຈາກການປຶກສາຫາລື ໃນຂັ້ນເມືອງ ແລະ ກຸ່ມບ້ານ ໃນການສ້າງແຜນປະຕິບັດງານຂັ້ນແຂວງ *(ສຳເລັດ)*
- ◆ ຮ່າງແຜນປະຕິບັດງານຂັ້ນແຂວງ (PRAP) *(ກຳລັງດຳເນີນ)*
- ◆ ທົດລອງຈັດຕັ້ງປະຕິບັດນະ�โยบายປ່າໄມ້ ໃຫ້ສອດຄ່ອງກັບ PRAP ແລະ ເກັບກຳຂໍ້ມູນທີ່ກ່ຽວຂ້ອງ *(ກຳລັງດຳເນີນ)*

ຕິດຕໍ່ພົວພັນ

ຫ້ອງການໂຄງການ
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https://www.jica.go.jp/project/english/laos/018/index.html

ກິດຈະກຳໃນໄຕມາດໜ້າ

ກິດຈະກຳ
ກອງປະຊຸມທີມງານຮ່າງເອກະສານ REL ຄັ້ງທີ 5

ສິ່ງທາ
ກອງປະຊຸມກຸ່ມເຮັດວຽກ ຂະແໜງການຍ່ອຍດ້ານປ່າໄມ້
ກອງປະຊຸມ REL/MRV TWG ຄັ້ງທີ 5

ກັນຍາ
ຝຶກອົບຮົມໃນປະເທດຍີ່ປຸ່ນ (ການນຳໃຊ້ປ່າໄມ້ແບບຫຼາກຫຼາຍຮູບແບບ)

ກະຊວງ ກະສິກຳ ແລະ ປ່າໄມ້

ອົງການຮ່ວມມືສາກົນຍີ່ປຸ່ນ (ໄຈກາ)

季刊　第8号
2017年 7月~ 9月

F-REDD Newsletter

Sustainable Forest Management and REDD+ Support Project
Nov 2015 - Oct 2020

持続可能な森林管理及びREDD+支援プロジェクト（F-REDD）

本プロジェクトの目的はREDD+に係る戦略策定、実施体制構築、実施のコーディネーションの支援と森林資源情報の整備などに係る能力の強化をはかり、それによってラオスの持続的な森林管理の促進に寄与することです。農林省森林局(MAF-DOF)を実施機関として協力しています。

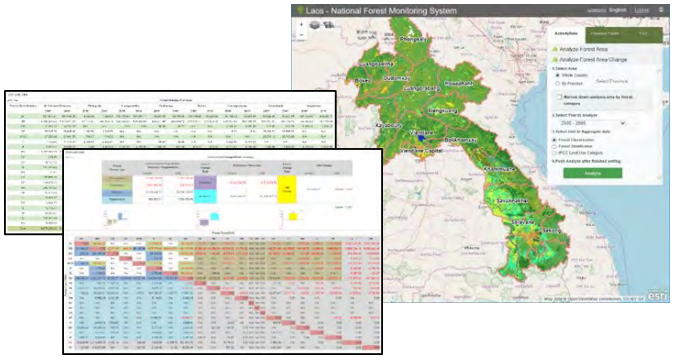
国家森林モニタリングシステムの設計及び開発

REDD+を実施する国は段階的な国家森林モニタリングシステム(National Forest Monitoring System: NFMS)の構築をもってREDD+活動を的確かつ透明性をもってモニタリングし、報告することが求められています。ラオスで実現するNFMSのスコープやロードマップはREL/MRV技術作業部会等を通じて合意形成が図られており、第1段階としては二酸化炭素(CO2)の排出・吸収を計測する機能(MRV*のM (Measurement)) を主な目的として開発を進めることが合意されています。

NFMSは既にDOF所管のサーバにセットアップが完了し、2000年、2005年、2010年、2015年の衛星画像データや森林区分図、森林被覆変化図、全国規模の森林調査である国家森林インベントリ（NFI）結果等の情報を格納しています。また、それらのデータを利用して、全国・県別の森林区分の面積／面積変化やCO2排出・吸収量／排出・吸収量変化の計算をするための機能が実装されています。システムの最終的なチェックを経て、2017年12月には、第1段階で予定していた機能の開発及びデータの搭載が一通り終了する予定です。そのため、DOF職員が持続的にNFMSの管理・運用・改良できる能力を向上させるべく、11月にNFMS管理・運用研修を約3週間に亘って実施することを予定しています。

2018年以降は、NFMSの試験運用を通じて抽出された課題と対策を整理し、改修とフィードバックを繰り返すことで、NFMSの本格運用を目指します。さらには、森林モニタリングなど、段階的に機能を拡張して行くことが目指されており、F-REDDを中心に他のプロジェクトと協力しながら支援して行く予定です。

*MRV：REDD+実施状況を計測（Measurement）、報告（Reporting）、検証（Verification）するための仕組み。



NFMSで表示した森林面積、CO2排出・吸収量変化の計算結果及び森林区分図

ルアンプラバン県の保護林管理計画づくりを開始しました

F-REDDはルアンプラバン県の県REDD+活動計画（PRAP）の策定を支援しています。PRAPには、ルアンプラバン県の森林減少要因とその対策が記載されていますが、そのひとつとして、保護林管理の強化が挙げられています。保護林は、ルアンプラバン県面積のおおよそ6割を占め、また6割の森林がこの保護林内に残っており、農地の拡大等による森林減少が進行する中で、保護林をいかに適切に管理するかが重要課題となっています。

F-REDDではルアンプラバン県農林事務所と協議しつつ、ルアンプラバン市内に近いながらも比較的手付かずの自然が残されているプープン・プーパトゥン・タットクアンシー保護林、約34,000haをパイロットエリアとして選定し、REDD+パイロット活動支援の一環として、保護林管理計画の策定を開始しました。

まず、対象保護林の衛星画像や数値標高モデルを解析して、また村落での聞き取り調査を通じて、治山・治水の観点から必要な情報の収集を開始しました。例えば、過去15年間かく乱のない森林の特定や、重要水源及び河川、斜面崩壊地あるいはその可能性のある区域の特定を進めました。また、生物多様性という観点からも検討を進め、対象保護林の領域内に生息する、絶滅のおそれのある野生動植物種のリストの作成とその生息地を特定するための情報収集を行いました。

対象保護林の中では昔から村が存在しており、焼畑などの土地利用も確認されています。これらの土地利用との調整を図るために、収集された情報を元に、保護区内でも特に重点的に保護すべき区域 (TPZ: Total Protection Zone) と一定の利用を認める区域 (CUZ: Control Use Zone) にゾーニングし、それぞれのゾーニングにおける保護林管理計画の策定を進めています。今回のパイロットにおける保護林管理策定を通して、県の保護林管理の実施体制や、計画・実施能力が強化されることが期待されています。

上：村落での聞き取り調査の様子。保護林境界の確認及び保護林管理計画に必要な情報の収集を行った。
下：水道公社が取り決めている水源管理区域を確認した。

本邦研修：森林の多目的利用

上：高尾山では地域と連携して森林保全・管理を行っている。（高尾森林ふれあい推進センター）
中：人工林に広葉樹を植栽して、より自然度の高い森林へ変換する試みを行っているパッチワークの森（NPO山村塾）
下：村産材で作成されたモデルルームにて意見交換（諸塚村）

F-REDDはラオス政府職員の能力強化を目的として、昨年に引き続きラオス行政官を対象に本邦研修を実施しました。今回は「森林の多面的利用」をテーマとして、DOFの中央職員3名とその傘下であるルアンプラバン県職員3名が参加しました。

日本が合法的に伐採された木材等の利用と流通の促進を目的として施行したクリーンウッド法に関して林野庁およびFAIRWOOD PARTNERS*1から異なる視点で講義をうけました。ラオスでは昨年から厳しく取り締まっている違法伐採に加えて、合法材を適切に輸出管理する必要性を学びました。

また、林野庁で森林の多様な空間利用に関する講義を受けた後、それらの実践例を複数視察しました。高尾ふれあい推進センターでは学生・児童を対象とした森林教育や地域ボランティアを巻き込んだ森林整備などを実施している現場を訪問しました。ラオスでは地域住民をどのように巻き込んで森林管理を行うかが重要な課題となっているため、研修員は非常に興味があるようでした。また、福岡県では、八女市が事業主体として推進している森林セラピーを視察し、エコツーリズムの視点で森林を活用しかつ行政の歳入ともなる点が特に勉強になりました。同じく八女市で都市の住民や海外からのボランティアを巻き込んで山村振興を行っているNPO山村塾を訪問し、市民が主体となった森林管理の事例を学ぶことができました。

宮崎県諸塚村では行政が個人の林家や地元の企業を後押ししている林業振興の好例を視察しました。ここでは行政が森林認証制度（FSC）の取得を主導したり、木材加工場や販売経路開拓の支援をしたりしています。また、それとは対照的に江戸時代からの飫肥林業*2の流れを汲み、今もなお国有林での分収造林*3を実施している宮崎南部森林管理所を訪問しました。ここでは行政の歳入と地域住民の利益という双方にメリットのある施業を実現しています。仕組みや体制は違えども林業を推進している日本の好例を対比する形で見学できたことは研修員にとってよい刺激であったようです。

本研修はその目的の通り多岐にわたる分野を組み込んでいましたが、適切な森林管理には総じて行政と地域住民の連携が鍵となっていました。ラオスにとってどのような関係性や仕組みを取り入れて森林保全・管理を行っていくかを考える非常によい研修であったと考えられます。特に、研修員からは日本の森林管理の確立された仕組みから学ぶことが多いとの好評を受けました。

*1 FAIRWOOD PARTNERS: 途上国の違法伐採防止および日本を含む木材輸入国の合法木材利用推進を目的として国際環境 NGO FoE Japanと（財）地球・人間環境フォーラムが共同で行っている活動。https://www.fairwood.jp/index.html
*2 飫肥林業：江戸時代に飫肥藩における造林政策によって形成された林業地及び施業方法。藩と藩民で木材伐採の収益を配分した。
*3 分収造林：森林地所有者、造林実施者の2者が共同で植林を行い、伐採時の収益をあらかじめ取り決めた比率で分配する施業方法。

成果毎の主な活動

成果1：中央政府の森林セクター支援
- ◆本邦研修（9月）
- ◆第2回森林サブセクター作業部会会合

成果2：REDD+実施による排出削減・吸収増加量の測定支援
- ◆UNFCCC向け国家RELレポート作成
- ◆FCPF炭素基金ERPDのREL/MRV関連箇所の検討および執筆作業
- ◆NFMS構築支援

成果3：国レベルのREDD+支援
- ◆第5回REL/MRV技術作業部会会合開催
- ◆FCPF炭素基金ERPDの作成にあたっての検討、調整および執筆作業

成果4：ルアンプラバン県のREDD+準備支援
- ◆県REDD+活動計画（PRAP）最終コンサルテーション開催
- ◆PRAP優先政策パイロット保護林管理計画策定のための情報収集調査及び解析作業

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次期四半期のイベント

Oct.
プロジェクト中間評価

Nov.
NFMS管理・運用研修

Dec.
FCPF炭素基金ERPDコンサルテーション（中央、地方）
第6回REL/MRV技術作業部会会合

農林省
Ministry of Agriculture and Forestry (MAF)

日本国際協力機構
Japan International Corporation Agency (JICA)

Quarterly Vol.8
July - September 2017

F-REDD Newsletter

Sustainable Forest Management and REDD+ Support Project

Nov 2015 - Oct 2020

Sustainable Forest Management and REDD+ Support Project (F-REDD)

The purpose of F-REDD is to enhance the capacity of forestry sector through strengthening policies, effective incorporation of REDD+, and improvement of forest resource information as the foundation of sustainable forest management (SFM) in both central and provincial levels (Luang Prabang as the pilot province). The Department of Forestry, Ministry of Agriculture and Forestry (MAF-DOF) is the implementing agencies of F-REDD.

Designing and developing the National Forest Monitoring System

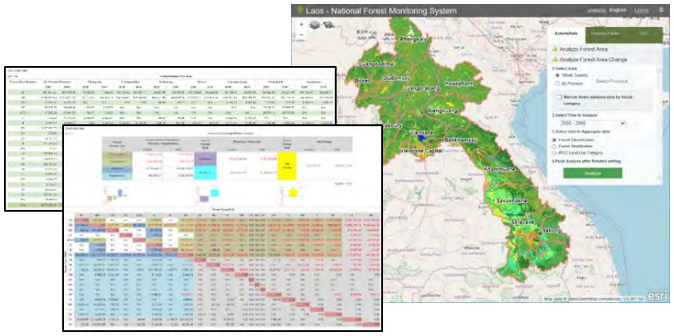
The developing countries implementing REDD+ are required to monitor and report the REDD+ activities transparently through stepwise development of the National Forest Monitoring System (NFMS). The consensus on the scope and roadmap of the NFMS in Laos has been developed through the REL/MRV Technical Working Group and other technical discussions. It was agreed that the NFMS would be developed, as the first step, to advance the function to measure (M of MRV*) emission and removal of carbon dioxide (CO2).

The NFMS prototype is already set up in the server of the Department of Forestry (DOF), and stores the satellite image data and the Forest Type Maps (2000, 2005 and 2010), Forest Cover Change Maps, the results of the National Forest Inventory (NFI), and other related data. Also, using these data, NFMS can calculate the areas/change areas of the forest types at national or provincial level, and also calculate CO2 emissions/removals and their changes.

The function development and data installation at the first stage will be completed through final check of the system in December 2017. Prior to this, the training for management and operation of the NFMS will be conducted for three weeks in November with the purpose of the capacity development of DOF officials to maintain, operate and improve the NFMS sustainably.

From 2018, the F-REDD is aiming to support further development of the NFMS based on extracted issues and sorted out measures in the NFMS trial operation and improvements and feedback. Furthermore, the F-REDD is aiming to expand its functions such as forest monitoring and will continue to support improvement of the NFMS in collaboration with other donors.

*MRV: is the system to carry out the measurement, reporting, and verification of the REDD+ results of emission reductions of greenhouse gases.



CO2 emissions/removals change (left) and Forest Type Map (right) shown on the NFMS.

Protection Forest management planning in Luang Prabang Province

F-REDD is supporting the formulation of the Provincial REDD+ Action Plan (PRAP) in Luang Prabang province, which describes the drivers and measures of deforestation and forest degradation in the province. One of these measures is to strengthen the capacity of the Protection Forest management for the Provincial Agriculture and Forestry Office (PAFO) in Luang Prabang. The Protection Forest occupies roughly 60% of the area of Luang Prabang province and 60% of the actual forest cover remains in the Protection Forest area. How to manage the Protection Forest properly is a very important challenge as rapid deforestation, mainly due to expansion of agricultural land, advances in the province.

Consulting with the PAFO, the F-REDD selected Phou Pheung - Phou Pha Thoun - Tat Kuang Si Protection Forest Area (PP-PPT-TKS PFA) of 34,000 ha as a pilot site, which still remains relatively intact despite its vicinity to Luang Prabang City, and started to formulate the Protection Forest management plan.

The information related erosion and flood control was collected by analyzing satellite imagery and using the Digital Elevation Models of the target area and also through the village interview survey. For instance, intact forests free of disturbance in the last 15 years, important water sources and rivers, and pervious or potential land-slide areas have been identified. Biodiversity was also taken into account for the planning. The Project developed a list of the endangered species of wild animals and plants inhabiting PP-PPT-TKS PTA and also collected the habitat location data.

There have been villages existing in the PP-PPT-TKS PTA from a long time ago and other land use like shifting cultivation has been observed. Considering this, the PP-PPT-TKS PTA was classified based on the collected information into a Total Protection Zone (TPZ), which is to be prioritized for protection; and a Control Use Zone (CUZ), which allows for certain uses. The forest management is now under development for each zoning area. It is also expected that the PAFO will strengthen the structure and capacity of planning and implementation of Protection Forest management through this pilot planning.

The boundary of the Protection Forest Area was confirmed and topographical information was also collected through the interview survey at village level (upper photo).
The water management area under the Water Supply State Enterprise was confirmed (lower photo).

Training in Japan 2017: Multiple Use of Forest

Takao Forest Fureai (rapport) Promotion Center implements forest conservation and management in Mt. Takao in collaboration with local people (upper photo).
In a patchwork forest where NPO Sanson-juku is trying to convert a plantation forest into a wild forest by planting hardwood species (middle photo).
Exchange of views was held in the showroom made by wood products in Morotsuka Village (lower photo).

F-REDD implemented the training in Japan with the theme of "Multiple Use of Forest", as scheduled every year for the purpose of strengthening the capacity of government officials in Lao PDR. Three officials from the Department of Forestry and three officials from the Provincial Agriculture and Forestry Office in Luang Prabang participated in the training.

The trainees had lectures provided by the Forestry Agency of Japan and the FAIRWOOD PARTNERS[*1] regarding the Clean Wood Act in Japan which was enforced for the purpose of promotion of utilization and trade of legally logged woods. The trainees learnt the importance of management of legal wood exportation as well as of tackling illegal logging, which has been strengthened since last year in Lao PDR.

The lecture regarding various spatial uses of forests in the Forestry Agency of Japan was followed by the related site visits. The trainees visited Takao Fureai (rapport) Promotion Center and Mt. Takao where the forest education for children and students and the forest management involving regional volunteers are implemented. They were very interested in how to involve locals in forest management, which is a very important issue in Lao PDR. The trainees also observed the forest therapy in Yame City, Fukuoka Prefecture, which is promoted and run by the city. Both achievements of forest utilization and the city revenue were good learning experiences for the trainees. They also visited the NPO Sanson-juku in the same city, which is working on rural development involving volunteers from overseas and urban residents, and learned the example of the forest management promoted by the citizens.

A good practice was seen at Morotsuka Village where local government is supporting individual families and local companies for promotion of the forestry industry. The village office leads the way to obtain Forest Stewardship Council (FSC) certification, provide financial and institutional support for the wood processing plants and create new marketing channels of those wooden products. In contrast, the Miyazaki Southern Forestry Office showed the Profit Sharing Forestry[*2] continuing in the state forests, which is descended from the Obi Forestry[*3] in the Edo period. The operation system brings merits of both the administrative revenues and the interest of local residents. Comparing good practices in Japan seemed to have stimulated the trainees even though they have different systems or structures.

Although this training incorporated a wide range of fields based on the theme, the coordination between local government and local residents is the key for appropriate forest management. This training seemed be very useful for letting the trainees think about the various systems or relationships to be adopted for forest management and conservation in Lao PDR.

*1 FAIRWOOD PARTNERS: programs or activities jointly conducted by FoE Japan and the Earth and Human Environment Forum for preventing illegal logging in developing countries and promoting the use of legal timber in wood importing countries including Japan. https://www.fairwood.jp/eng/
*2 Obi Forestry: forestry land and operation method formed by the silvicultural policy of the Obi domain in the Edo period. The logging profit was allocated to both the domain and the people engaged.
*3 Profit Sharing Forestry: a forestry operation in which a plantation is jointly conducted by land owners and engaged workers. Logging profit is allocated to both parties at a predetermined ratio.

Main Activities Conducted

Output 1: Support forestry sector at the central level

- Training in Japan 2017 held in September *(completed)*
- 2nd Forest Sub-Sector Working Group Meeting *(completed)*

Output 2: Support measurement of emissions reduction and removal through implementation of REDD+

- Development of the National REL Report for UNFCCC *(ongoing)*
- ERPD drafting on REL/MRV part for FCPF-CF *(ongoing)*
- Development of the NFMS *(ongoing)*

Output 3: Support National REDD+

- 5th REL/MRV TWG meeting *(completed)*
- ERPD drafting for FCPF-CF *(ongoing)*

Output 4: Support Luang Prabang Province REDD+ Readiness

- Final consultation for the development of the Provincial REDD+ Action Plan *(completed)*
- Information collection and data analysis for Protection Forest management planning as priority policy piloting *(ongoing)*

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Events in the Next Quarter

Oct.
Project Mid-term review

Nov.
Training for management and operation of the NFMS

Dec.
FCPF-CF ERPD consultation (central and regional)
6th REL/MRV TWG meeting

MAF
Ministry of Agriculture and Forestry (MAF)

JICA
Japan International Corporation Agency

Separate Volume

2-3 Land use and change for

National RREDD+ Strategy

Draft paper on "Land use , Land use changes and Trends" for

2.1 Assessment of Land Use, Land Use Change, and Drivers of Deforestation and Forest Degradation

2.1.1 Assessment of land use, land use change and trends (Land Issue, REL/MRV TWGs)

15th May 2017
TWGs for REL/MRV and Land Use

According to the results of the Forest and Land Use Maps for 2000, 2005, 2010 and 2015 shown in Table XX, major land uses, land use changes and trends can be summarized as below.

1. Land uses

Current Forest (CF) including Forest Plantation has been the dominant land use or vegetation type occupying around 60 % of the total land area of Lao PDR mostly due to its mountainous terrain. Second largest land use is Regenerating Vegetation (RV) including Bamboo area, which occupies more than a quarter of the total land area and mostly consists of re-growing vegetation after abandonment of slash and burn cultivation. Some of them reach the forest threshold but many are burnt again for upland rice and other crops. Next largest land use is Permanent Agriculture Land (PAL) including rice paddy, agriculture plantations including fruit orchards and other crop areas and this land use type now occupies 10% of total land area.

2. Land use changes and trends

2.1 National Level

CF has been decreasing continuously from 60.9% in 2000 to 58.0% in 2015 (Natural Forest from 60.9% to 57.4 %). Cropland has increased from 7.0% to 10.1% during the 15 years. Another notable change is increase of Forest Plantation (FP; circa 18,000 ha in 2000 to 138,000 in 2015) and Water (276,000 ha in 2000 and 350,000 ha in 2015), even though their share in the total land area is still small at 0.6 % and 1.5 % respectively. The increase in PCL, FP and Water reflects influx of foreign investment as well as domestic investment in commercial plantations and hydro-power dams in line with the government development policy.

Table XX: Major land use area and change (2000, 2005, 2010, 2015)

		ha	2015	%	2010	%	2005	%	2000	%
Current Forest	Evergreen Forest	EF	2,605,557		2,613,226		2,618,169		2,617,238	
	Mixed Deciduous Forest	MD	9,205,036		9,487,839		9,684,854		9,832,953	
	Dry Dipterocarp Forest	DD	1,188,198		1,215,712		1,272,006		1,304,130	
	Coniferous Forest	CF	124,772		125,229		134,055		135,510	
	Mixed Coniferous and	MCB	107,880		108,567		142,458		142,323	
	Forest Plantation	P	137,965	58.0%	110,024	59.3%	23,880	60.2%	17,889	60.9%
Regenerating Vegetation	Bamboo	B	88,900		91,143		68,989		64,662	
	Regenerating Vegetation	RV	6,073,581	26.7%	5,840,908	25.7%	6,090,500	26.7%	6,166,200	27.0%
Other Vegetated Areas	Savannah	SA	102,110		103,253		105,861		107,024	
	Scrub	SR	26,637	0.6%	26,784	0.6%	27,472	0.6%	27,374	0.6%
	Grassland	G	254,376		255,834		269,652		271,819	
	Swamp	SW	9,561	1.1%	9,957	1.2%	10,425	1.2%	10,809	1.2%
Cropland	Upland Crop	UC	150,519	0.7%	205,272	0.9%	208,264	0.9%	192,130	0.8%
	Rice Paddy	RP	1,199,903		1,202,541		1,180,530		1,158,181	
	Other Agriculture	OA	1,052,569		954,666		617,832		413,517	
	Agriculture Plantation	AP	83,306	10.1%	81,981	9.7%	52,297	8.0%	49,526	7.0%
Non Vegetated	Urban	U	75,638		73,296		64,355		63,252	
	Barren Land and Rock	BR	186,157	1.1%	185,956	1.1%	186,088	1.1%	186,366	1.1%
Other Land	Other Land	O	31,289	0.1%	22,204	0.1%	17,673	0.1%	17,833	0.1%
Water	Water	W	350,304	1.5%	339,866	1.5%	278,892	1.2%	275,523	1.2%
Other	Cloud	CL	0		0		0		0	
	Cloud Shadow	SH	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Unknown Agriculture									
	Unknown Change			0.0%		0.0%		0.0%		0.0%
	Sum		23,054,258	100%	23,054,258	100%	23,054,258	100%	23,054,258	100%

Source: Forest Type Maps (final draft) by FIPD/DOF

Looking at the changes between land uses in Table xxx from 2005 to 2015, some features can be drawn as follows.

Table xxx Land use change matrix from 2005 to 2015

	2015	Change from 2005 to 2015	Current Forest		Regenerating Vegetation	Crop Land		Water	Other Vegetated area	Other land	Total
2005	ha		1) Natural Forest	2) Forest Plantation		1) Upland Crop	2) Permanent				
Current Forest	1) Natural Forest	- 620,101	13,135,621	57,555	397,010	54,198	163,530	34,871	263	8,496	13,851,544
	2) Forest Plantation	+ 114,085	0	22,721	417	15	718	1	0	8	23,880
Regenerating Vegetation		+ 2,991	95,058	42,912	5,508,968	80,236	397,345	26,771	128	8,070	6,159,489
Crop Land	1) Upland Crop	- 57,745	742	29	197,121	5,557	3,546	241	873	155	208,264
	2) Permanent Agriculture lan	+ 485,118	21	9,632	56,835	9,669	1,761,524	3,762	28	9,189	1,850,659
Water		+ 71,412	0	0	0	0	372	278,372	0	148	278,892
Other Vegetated area		- 20,726	0	5,099	1,500	695	8,110	5,966	391,387	655	413,411
Other land		+ 24,967	0	17	630	148	632	320	6	266,363	268,117
Total		+ 0	13,231,443	137,965	6,162,480	150,519	2,335,778	350,304	392,685	293,084	23,054,258

Source: ditto

At the national level, about 716,000 ha of natural forest were converted to PAL, RV after mostly subsistent slash and burn cultivation, FP and upland crop (UC; cleared land and crop type unknown) during the 10 year period (620,101 ha is the net loss = Gross loss – Regeneration to Natural forest (95,058 ha and so on)) . On the other hand, forest regeneration (FR) was only about 96,000 ha, so the net loss of natural forest was a little bit more than 620,000 ha. According to the current Land Law

and Forestry Law, conversion of natural forest to these uses is considered illegal. Natural Forest was also lost to Water, mostly reservoirs of hydro-power dams, about 35,000 ha.

As for the source of agriculture expansion, Regenerating Vegetation (RV) is the largest providing almost 400,000 ha. RV is also converted to FP and Water, and about 80,000 ha was burnt again for slash and burn cultivation.

According to the government development plan, conversion to PAL and Water will continue and due to the ban on land concessions for rubber trees and eucalyptus, forest conversion to FP may decrease if the ban is not lifted.

2.2 Forest change matrix for each of three regions

Table xxy Northern Regions (NR: 7 Provinces)

	2015	Change from 2005 to 2015	Current Forest		Regenerating Vegetation	Crop Land		Water	Other Vegetated area	Other land	Total
2005	ha		1) Natural Forest	2) Forest Plantation		1) Upland Crop	2) Permanent Agriculture land				
Current Forest	1) Natural Forest	− 225,626	4,936,512	151	210,777	33,475	34,156	22	58	632	5,215,784
	2) Forest Plantation	+ 3,107	0	8,293	49	5	209	1	0	2	8,559
Regenerating Vegetation		+ 145,099	52,901	777	3,302,558	57,153	141,295	188	96	1,632	3,556,601
Crop Land	1) Upland Crop	− 72,615	728	0	166,647	4,587	2,411	18	201	80	174,672
	2) Permanent Agriculture land	+ 148,551	17	2,443	21,190	6,295	442,446	28	0	532	472,951
Water		+ 128	0	0	0	0	138	53,820	0	14	53,972
Other Vegetated area		− 880	0	0	104	481	627	0	167,726	24	168,962
Other land		+ 2,237	0	0	375	60	220	24	0	22,159	22,838
Total		+ 0	4,990,158	11,665	3,701,700	102,057	621,502	54,100	168,082	25,075	9,674,338

Table xyy Central Region (CR: 6 Provinces; VTE, XKW, XSB, BKX, KMM, VTE Capital)

	2015	Change from 2005 to 2015	Current Forest		Regenerating Vegetation	Crop Land		Water	Other Vegetated area	Other land	Total
2005	ha		1) Natural Forest	2) Forest Plantation		1) Upland Crop	2) Permanent Agriculture land				
Current Forest	1) Natural Forest	− 220,388	3,969,070	10,316	113,091	13,783	63,272	33,901	21	4,205	4,207,659
	2) Forest Plantation	+ 37,588	0	3,840	367	8	412	0	0	7	4,633
Regenerating Vegetation		− 137,554	18,190	20,295	1,428,737	11,459	202,571	26,292	22	4,923	1,712,488
Crop Land	1) Upland Crop	+ 8,103	9	0	17,932	544	760	221	138	39	19,644
	2) Permanent Agriculture land	+ 236,946	2	5,183	14,326	1,771	465,596	3,406	28	8,220	498,531
Water		+ 69,638	0	0	0	0	208	125,066	0	112	125,386
Other Vegetated area		− 11,717	0	2,577	353	139	2,444	5,892	101,683	526	113,615
Other land		+ 17,384	0	12	128	42	215	245	6	214,212	214,860
Total		+ 0	3,987,271	42,221	1,574,934	27,747	735,477	195,024	101,898	232,244	6,896,816

Table xyx Southern Region (SR: 5 Provinces)

	2015	Change from 2005 to 2015	Current Forest		Regenerating Vegetation	Crop Land		Water	Other Vegetated area	Other land	Total
2005	ha		1) Natural Forest	2) Forest Plantation		1) Upland Crop	2) Permanent Agriculture land				
Current Forest	1) Natural Forest	− 174,087	4,230,039	47,088	73,142	6,940	66,102	948	184	3,659	4,428,101
	2) Forest Plantation	+ 73,390	0	10,588	1	1	98	0	0	0	10,688
Regenerating Vegetation		− 4,554	23,968	21,840	777,673	11,624	53,479	291	10	1,515	890,401
Crop Land	1) Upland Crop	+ 6,767	5	29	12,542	426	375	2	534	36	13,949
	2) Permanent Agriculture land	+ 99,622	2	2,006	21,318	1,603	853,483	328	0	437	879,177
Water		+ 1,646	0	0	0	0	27	99,486	0	22	99,534
Other Vegetated area		− 8,130	0	2,522	1,043	75	5,039	74	121,978	105	130,835
Other land		+ 5,346	0	6	128	46	196	51	0	29,992	30,419
Total		+ 0	4,254,014	84,078	885,847	20,715	978,798	101,180	122,705	35,766	6,483,103

Looking at forest conversion by region, there is a stark contrast among the 3 regions. The Northern region (NR) has the largest gross loss, but most of the loss is degradation to RV (most likely through slash and burn cultivation) and smallest conversion to PAL and FP. On the other hand, the Central Region (CR) and Southern Region (SR) have high forest conversion to PAL. CR has about 34,000 ha loss to Water and this is most likely due to the construction of Nam Teun II dam. About 26,000 ha of RV is also converted to Water i.e. Nam Teun II. SR has high forest conversion to FP, which stands out at 47,000 ha and most of them is considered rubber tree plantations. A large area of FP is also established in RV in both CR and SR. SR has the highest net increase in both FP and PAL among the 3 regions.

Looking at regeneration to Natural Forest, NR is highest at 53,000 ha due to the largest area of RV and SR followed by CR with much smaller area.

2. Extent of forest by management category

At the time of preparation of FS2020, forest was categorised into five, according to Forestry Law of the time, those were; Production Forest, Conservation Forest, Protection Forest, Regeneration Forest and Degraded Forest. The first four categories were related to expected functions and management objectives while the last one was based on the current vegetation.

Forestry Law was amended and came into effect in 2007, and the concept of forest category was changed. Under the new categorisation, forest was categorised into three, Production Forest, Conservation Forest and Protection Forest, which includes regeneration forestland, dry forestland or barren forestland and village use forest land (Article 56). DOF delineated these three categories and Table 1-2 shows the total areas of these categorized forests and forested areas inside of them.

Table 1-2: Areas and Forested Areas of 3 Forest Categories as of 2005 and 2015

(Unit: 1000 ha)

Forest Category	Administrative level	2005 Current Forest	2015 Current Forest	Total land area (*)	Forest rate 2005(*)	Forest rate 2015(*)
Productin		2,237	2,142	3,097	72.2%	69.2%
Protection	National	4,447	4,306	7,476		
	Provincial	94	90	145		
	District	239	222	360		
	Protection total	4,779	4,619	7,980	59.9%	57.9%
Conservation	National	2,977	2,926	3,868		
	Provincial	328	322	459		
	District	226	221	336		
	Conservation total	3,532	3,470	4,663	75.7%	74.4%
Categories total		10,548	10,230	15,740	67.0%	65.0%
Others		3,328	3,139	7,314	45.5%	42.9%
Total area		13,875	13,369	23,054	60.2%	58.0%

(*) Source: Total landarea and Forest rate: FTM2015, DOF, DFRM
Note: As of May 2017

As expected, in 2015 CF has the highest forest cover rate of 74.4%, then Production Forest 69.2% and Protection Forest 57.9%, which is almost same as the national average. Un-categorised land area ("Others" in the table) has lowest forest cover of 42.9%, but there are still more than 3 million ha of Current Forest equivalent to 23.5% of the total Current Forest.

As for the change from 2005 to 2015, the loss of forest in each type is as follows;

Table 1-2-1 Loss of forest in 3 Forest categories from 2005 to 2015 (Unit: 1000 ha)

Category	2005 (a)	2015 (b)	Lost area (a-b)	Ratio (b/a)
Production	2237	2142	95	95.8%
Protection	4779	4619	160	96.7%
Conservation	3532	3470	62	98.2%
3 categories total	10548	10230	318	97.0%
Un-categorised	3328	3139	189	94.3%
Total	13875	13369	506	96.4%

Forest loss in the un-categorised land area is the largest in terms of both area and percentage. These forests are considered mostly under village management, but due to lack of clear ownership and management system, and their vicinity to residential areas of villages they are subject to open access and clearance for expansion of crop production, road construction, heavy logging and so on.

Among the 3 categories, Production Forest lost about 95 thousand ha and 4.2% from 2005, Protection Forest 160 thousand ha and 3.3% and Conservation Forest 62 thousand ha and 1.8% respectively.

Separate Volume

2-4 2nd National Forest Inventory Survey in Lao People's Democratic Republic

2nd National Forest Inventory Survey in Lao People's Democratic Republic

Draft

August 2017

Draft

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Draft

Abbreviation

Abbreviation	Name
AGB	Above Ground Biomass
B	Bamboo
BGB	Below Ground Biomass
CF	Coniferous Forest
CI	Confidential Interval
CliPAD	Climate Protection through Avoided Deforestation
DAFO	District Agriculture and forest Office
DBH	Diameter at Breast Height
DD	Dry Dipterocarps Forest
DFRM	Department of Forest Resource Management
DOF	Department of Forestry
DOFI	Department of Forestry Inspection
DW	Dead Wood
EF	Emission Factor
EG	Evergreen Forest
ER-PD	Emission Reduction Program Document
FCPF	Forest Carbon Partnership Facility
FIM	Forest Information Program
FIPD	Forestry Inventory and Planning Division
FREL/ FRL	Forest Reference Emission Level /Forest Reference Level
GIS	Geological Information System
GPS	Global Positioning System
ITPP	Industrial Tree Plantation Project
Lao PDR	The Lao People's Democratic Republic
MAF	Ministry of Agriculture and Forestry
MCB	Mixed Coniferous and Broadleaved Forest
MDF	Mixed Deciduous Forest
NAFES	National Agriculture and Forestry Extension Service
NAFRI	National Agriculture and Forestry research Institute of Laos
NFI	National forest Inventory
NFIS	National Forest Information System project
NTFP	Non Timber Forest Products
NTV	Non Tree Vegetation
PAFO	Provincial Agriculture and Forest Office
PAREDD	Participatory Land and Forest Management Project for Reducing Deforestation in Lao PDR
PKK NPA	Phou Khao Kouay National Protected Area
PSUs	Primary Sampling Units
QC	Quality Control
REDD+	Reducing Emissions from Deforestation and Forest Degradation and the role of conservation of forests and enhancement of forest carbon stock
REL	Reference Emission level
SD	Standard Deviation
SE	Standard Error

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SOP	Standard Operating Procedure
SSUs	Secondary Sampling Units
SUFORD	Sustainable Forestry and Rural Development
UNFCCC	United Nations Framework Convention on Climate Change
UXO	Unexploded Ordnance Programme

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1. Introduction

1.1 Background

National Forest Inventory (NFI) as a way to understand the current conditions of the forests and other land types. The forest (and sometimes non-forest) lands are sampled by taking field measurements at different locations across the country. These field measurements are combined with land cover mapping and land use information to summarize different aspects of the forest land.

In Lao PDR, various field measurements of the forest have taken place over time (Table 1). This includes the 1st NFI conducted in 1991-1999 and whose focus was on estimating timber volumes. 1st NFI is the only national level survey so far.

Table 1: Brief summary of previous project related to the forest inventory and biomass in Laos

Project	Implementation Period	Focal Area	Implementation Agencies	Finance	Main Objective
First NFI	1991-1999	National	Forest Inventory and Planning Center (FIPC)	Sweden	Timber Estimate
SUFORD (phase I~I I I)	2003-2017,	Khammoune, Savanakhet, Salavan, Champasak, Xekong, Attepue, Bolikhamxay, Vientiane Province and Xayabouli	DoF, DOFI, NAFES, NAFRI, Provincial and District Forest Offices, Village Forestry Organisations/Units	World Bank USD 10 million, Government of Finland USD 12 million (Phase II)	Timber Estimate
Timber plantations	2006	Bolikhamxay,Champassak Salavan,Savannakhet and Vientiane Province	ADB Industrial Tree Plantation Project (ITPP)	N/A	Timber Estimate
CliPAD	2009-2018	Sayaboury and Houaphan Provinces	MAF, DoF, Provincial and District Agriculture and Forestry Offices	GIZ (4.0 million EUR), KfW (10.0 million EURO)	Biomass Stocks
PARRED+	2009-2014	Luang Prabang	National Agriculture and Forestry Extension	JICA(4 million USD)	Biomass Stocks

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			Service, Provincial and District Forest Offices		
FIM	2010-2013	Whole Provinces (National Level) but Luang Prabang for feasibility study with PAREDD	DOF/FIPD	JICS(5.5 million USD)	Biomass Stocks

The FREL/FRL report to the UNFCCC will be submitted in 2018 including emission/removal of carbon, which estimated by NFI information and others. Before implementing 2nd NFI, pilot survey was conducted in Khammouane province under the support of JICA (NFIS). In the project of NFIS, the manual for the 2nd NFI was created including the learning from pilot survey with the support of Kokusai Kogyo, Winrock International and Forest Carbon. The 2nd NFI was implemented for five forest types in whole Laos while utilizing the above manual. To meet the timeframe of REL report submission, 3 forest types only were surveyed in dry season of 2015-16 based on Forest type map 2010. Remaining forest types were surveyed in dry season of 2016-17 based on forest type map 2015.

1.2 Objectives

The objectives of the 2nd NFI was to survey the forest biomass[1] of the five natural forest classes of the whole country. (Excluding forest plantations due to its relatively small area and possible use of IPCC default factors; and bamboo and regenerating vegetation which do not currently meet the status as forest under the Lao forest definition.) A standardized methodology and sample-based field measurements were applied.

1.3 Quality Control (QC) survey

For assessing the data quality, an additional Quality Control (QC) team was also established with experienced FIPD staff to inventory 10% of the NFI plots between February and May 2017. Considering the estimated need to inventory 583 plots, 58 plots were selected to be re-measured by the QC team. The breakdown of plots for these 58 was done to ensure that 10% of all plots within ER-PD provinces were also selected, as well as 10% of plots per forest type. The field survey and analysis method are the same with the normal survey.

[1] [1] The main target of the survey was to measure the forest biomass, however, other information, such as observed disturbances and NTFP (Non-Tree Forest Production) were also recorded.

2. Preparation

2.1 Number of sampling plots

Number of sampling plots to be conducted was calculated by mean and variability of stratum and target uncertainty. Mean and variety of stratum were collected from existing survey (1st NFI, CliPAD and NFIS project). For calculating the number of sample plots needed to estimate terrestrial carbon stocks within one stratum, based on a specified targeted precision, was used following equation. This equation is published by Winrock International as "Sampling Plot Calculator" Excel tool.

$$number\ of\ plots\ for\ strata\ = (t * \frac{standard\ deviation}{0.10 * x})\text{^}2$$

Where:

t = Critical value from a two tail-test with n-1 degrees of freedom, based on target confidence level (e.g. 90%)

X= the mean estimated biomass value of a strata (t dry matter ha-1)

Z= socre(statistical measurement of a number's relationship to the mean in a group of numbers

Target number of plots for each strata are shown on the table 2.

Table 2 : Prelaminar Target plot number

Strata	Target # Plots	Error Target
Evergreen Forest	70	<10% Error at 90% CI
Mixed Deciduous Forest	200	<10% Error at 90% CI
Dry Dipterocarp Forest	120	<10% Error at 90% CI
Coniferous Forest	50	<20% Error at 90% CI
Mix Conifer Broadleaved forest	30	<20% Error at 90% CI
Total	470	

This target number would not allow 'Province specific' carbon stock estimates. Thus, additional plots are included in order to keep the equivalent accuracy with the national level in 6 Northern provinces for estimating the carbon stock in the area of Forest Carbon Partnership Facility Carbon Fund. Conclusive target number are shown on the table 3.

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Table 3: Conclusive target plot number

Strata	Original Target # Plots	Additional # plots	Target # Plots
Evergreen Forest	70	25	95
Mixed Deciduous Forest	200	64	264
Dry Dipterocarp Forest	120		120
Coniferous Forest	50		50
Mix Conifer Broadleaved forest	30		30
Total	470	89	559

2.2 Survey sites

For the estimation of carbon stocks in the tree, non-tree woody, non-woody vegetation, litter, and deadwood pools, sampling should take place across a stratum in an unbiased way.

The sampling design consists of selecting primary sampling units (PSUs) at the first stage and then selecting secondary sampling units (SSUs) at the second stage of sampling. The approach described ensures that any location has an equal probability of being sampled. The initial sampling units are chosen by using a systematic sampling with a random start approach. A 'grid' is placed across the area to be sampled in a randomly selected orientation. The grid cells will then serve as the 'primary sampling unit' (PSUs). Once the PSUs are chosen, a particular location within the PSU is randomly chosen to initiate field sampling. This is referred here to as the SSU1.

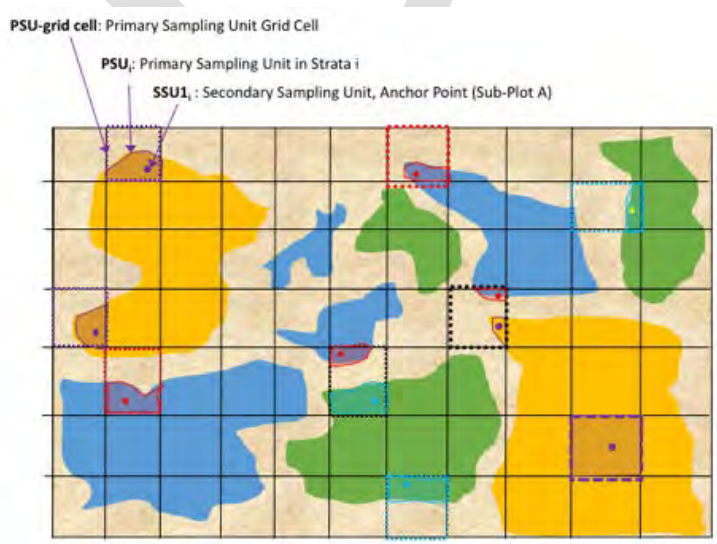

Figure 1: Example of selected PSU-grids in dashed lines and selected PSUs (polygons) with SSUs (dots) assigned within. Note, some PSU-grids may randomly be selected for two different stratum.

The detail method and procedure are described on "Lao PDR NFI Standard Operating Procedure (SOP) Manual for Terrestrial Carbon Measurement".

The result of sampling layout is shown on Figure 2.The detail information of survey plot are shown in annex 8.3, including province and location information.

Figure 2: Sampling layout

2.3 Equipment & permission letter

The equipment list is shown on attachment 8.2. In here, the process of acquiring survey permission in Lao P.D.R is described. Survey institution, (Forest Investment Planning Division (FIPD) /Department of Forestry (DOF)), made request letter and submit it to the Ministry of Agriculture and Forest (MAF). After that, FIPD send request letter to PAFO and DAFO attached permission letter from MAF. In total, it took 4 weeks to get all permission. The followings show the contents of the letter.

- Purpose of the survey
- Survey site (Province)
- Survey method
- Surveyor name
- Cost

2.4 Cost for 2nd NFI

The total direct cost for 2nd NFI, which include DSA and accommodation fee for surveyor, transportation fee, equipment and others, is around 470,000USD except supervising fee including JICA expert' one. This cost was shared by FCPF readiness project, JICA and Forestry Development Fund from MAF.

2.5 Training

Training was provided to the NFI field teams and QC team before each field season; the trainings occurred in mid-February and late October 2016 respectively. The trainings included three components, as listed below:

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1. Classroom training: This training aimed at familiarizing the NFI field teams with the SOPs for the NFI, introducing them to the use of tablets for data collection and ensuring the teams were capable and confident with the use of the various equipment to be used during the NFI field season.

2. Field based training: The field based training occurred in the Phou Khao Kouay National Protected Area (PKK NPA). The training occurred over 2.5 days and included: (i) a half day with all the field teams reviewing the SOP process in a single sub-plot location; (ii) a full day where two field teams combined forces to navigate to and then inventory two sub-plots together; and (iii) a full day where each field team navigated to and inventoried four sub-plots that comprise a full plot.

3. Field oversight: This was done for all four of the field teams for the first season, as well as four of the six field teams for the second season. The two teams not to receive oversight during the second field season were those considered to be the most experienced and therefore did not require additional support.

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3. Survey method

The detail method and procedure are described on "Lao PDR NFI Standard Operating Procedure (SOP) Manual for Terrestrial Carbon Measurement" .

3.1 Establishment of plot

Sampling used a 'floating' clustered design with four nested tree-plots. Where sampling for non-tree pools will be included, lying dead wood and clip-plot measurements (square boxes) shall be conducted for each plot. Sampling locations for these pools is described below.

In the 'floating' cluster nested tree-plot design, all sampling at each sampling point takes place only in locations under the same stratum. The location of the 'anchor point' and of each nested tree-plots was determined prior to field sampling and in a GIS environment. Due to the highly fragmented landscape and the terrain causing some locations to require significant time to access, a set of four potential subplot locations are chosen in GIS. In GIS, for a given stratum an Anchor Point is placed using the two-staged sampling design described above. The first tree-plot center (tree-plot A) is then placed on this Anchor Point. Three additional points (B, C, D) are then randomly placed within the given stratum within a 300 m radius of the Anchor Point, but no closer than 75 m from each other or the Anchor point. These serve as the center of four potential tree-plots.

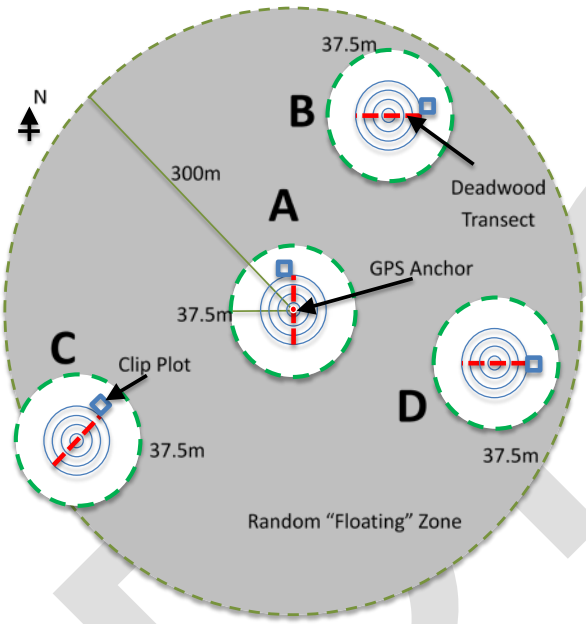

Figure 3: A "floating" cluster plot with a fixed center subplot. Red lines represent 40 m lying deadwood transects while blue boxes represent clip plots (50cm*50cm) for NTV.

Nested Tree-plots

The following circular nest sizes are shown for each stratum as below.

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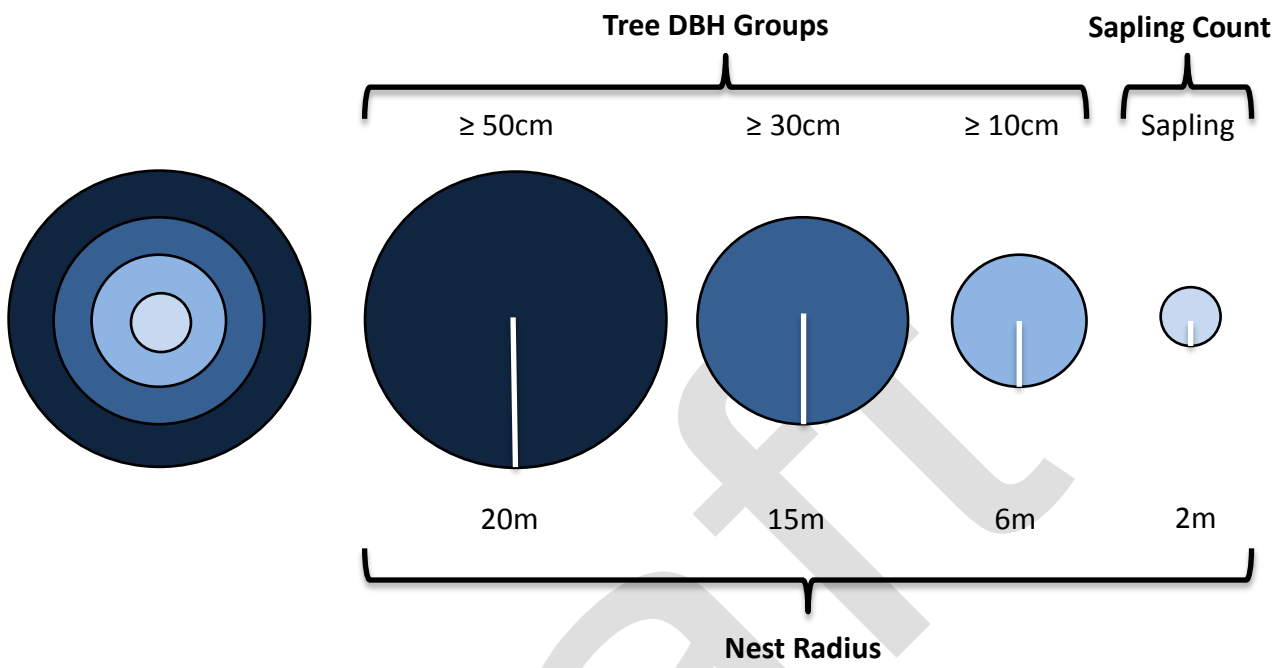

Figure 4 Nest radii (when slope <10% and size classes for each nest. Sapling defined as tree with height >1.3 m and DBH of <10 cm).

Other vegetation and carbon pools

Each team also measure standing and lying deadwood, non-tree vegetation in clip plots. The location of sampling should follow the above sampling point layouts. Field measurement procedures should follow the relevant SOP.

3.2 Field measurement

In the established plot, trees, saplings, dead wood (standing and lying), bamboo and non-tree vegetation (NTV) are measured.

Trees

Record the name of the tree and record tree diameter at breast height (1.3m). It should be measured to the nearest 0.1 cm (e.g. diameter of 10.2 cm *not* 10 cm).

Saplings

Count the number of saplings (defined as trees <10 cm DBH and >1.3 m tall) in the smallest plot (2 meter radius plot) and record on data sheet.

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Bamboo

Bamboo is measured in Nest 2 (6m radius). Count the number of culms in the patch 5 culms should be selected at random and their DBH measured with the calipers. Each of the 5 selected culms should be cut at their base and pulled out from the patch to measure their length with the tape measure.

Dead wood (Standing)

Each standing dead trees should be classified into two classes:
Class 1: Dead tree with branches and twigs and resembles a live tree except for absence of leaves
Class 2: Dead trees containing large branches or no branches at all, including stumps.
Class 1 trees:

Follow the same measurement protocols as for the measurement of live trees, including the measurement of tree DBH. Mark tree as 'Dead' on datasheet.
Class 2 trees:

Measure DBH using methods for live trees. Measure the diameter at the base of the tree. ($\mathbf{D}_{base}$) Measure height of stem (H) both using a clinometer and measuring tape or laser range finder or through direct measurement using tape measure. Measure diameter at top of stump ($\mathbf{D}_{top,}$) either through direct measurement. Alternatively, do not take a measurement at the top of the stump and write 'None' or 'NA' on datasheet.
Class 2 trees (stumps):

Stumps are measured in all nests.

Three measurements are taken:

1. Height (H) - this will be below 1.3m
2. Smallest Diameter (D_1) – this is the smallest diameter across the top of the stump
3. D_2 – the diameter at a 90° angle to D_1.

Dead wood (Lying)

Lying dead wood is defined as all woody material on the ground with a diameter $\geq$10 cm.
Along the length of the line, measure the diameter and length of each intersecting piece of coarse dead wood (> 10 cm diameter)

Non tree vegetation (NTV)

All non-tree biomass is measured in clip plots. This includes shrubs and herbaceous vegetation but not include bamboo. NTV are cut at ground level. Put all material into

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the sample bag and measure it. At the laboratory, sample bad will be dried in order to get wet-dry ratio.

3.3 Analysis method

NFI – Dash is the final component of the NFI data collection and analysis process as shown in Figure 5 below. It both calculates the necessary results of the NFI and presents these results graphically in an easy to manipulate interface. The NFI – Dash is a script based web application written in the statistical program language R and the R package shiny.

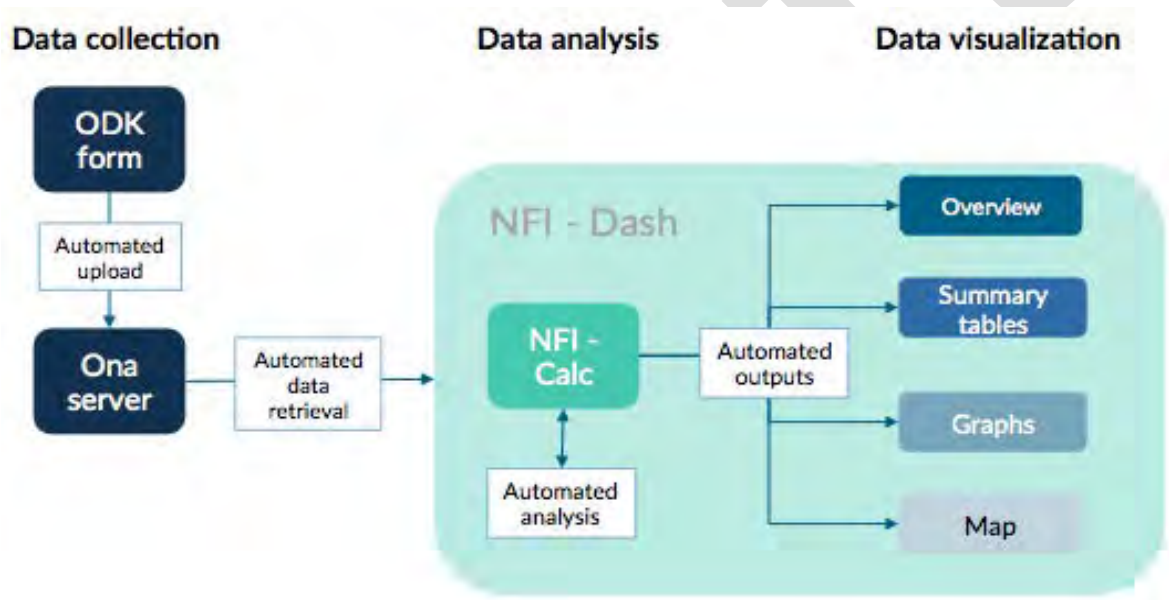

Figure 5 : Overview of the data collection and analysis process

In the first step of the data collection and analysis process, field data for each plot in the inventory are collected using the ODK form on an android tablet. After all measurements for a plot are collected the form is automatically submitted to the Ona cloud-based server once the tablet comes into range of either a 3G or Wi-Fi signal. At the server level, all the data collected from the various teams is aggregated into a single CSV file and made available for download.

When the NFI – Dash application is opened in a browser, it automatically retrieves the raw data from the Ona server, uses the script "NFI – Calc" to preform various analyses and automatically generates an overview of the data collected to date.

Two additional scripts (NFI – Server and NFI – Interface) then allow for various summary tables and graphs to be produced and display the plot locations on a map.

The "NFI – Calc" script is the backbone of the application and was developed and thoroughly tested during the NFI piloting phase in 2015, to ensure all possible quality issues were automatically flagged before moving to the full NFI implementation in 2016 and 2017. The first version of NFI – Calc during piloting stage essentially scripted the equivalent of all the calculations conducted in an excel spreadsheet that was used for the data analysis. Thus, each step of the "translation" process from excel to the script was verified by comparing the results of the script with the results of the spreadsheet.

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4. Survey implementation

4.1 Implementation structure (team organization)

Survey team is organized in the following member.

Table 4: Survey team member

Institution	Number of staff
FIPD (Forest Inventory and Planning Division)	3
Driver	2
PAFO (Provincial Agriculture and Forest Office)	1
DAFO (District Agriculture and Forest Office)	1
Villager	2

In 2015, survey was conducted by 4 teams. In 2016, survey was conducted by 6 teams including 4 teams, which were in charge of last year survey.

4.2 Schedule

3 forest types only were surveyed in dry season of 2015-16 based on Forest type map 2010. Remaining forest types and remaining plot from a year earlier were surveyed in dry season of 2016-17 based on forest type map 2015.

Figure 6: Schedule

Year	Schedule
2015-2016	March-2016 to June-2016
2016-2017	October-2016 to April-2017

4.3 Monitoring

The web application NFI – Dash was used to monitor the survey progress and data quality through internet. By confirming the progress a few times a week, did not conduct more than necessary number of surveys, leading to efficient investigation.

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5. Results

Presented below are the results from the NFI at the national level, FCPF-ERPD provinces and Quality Control with regards to carbon stocks by forest type, carbon pools, DBH distribution and non-timber forest product distribution.

In total, 420 plots are used for calculation of carbon stock. The plot location are shown in figure 7 by forest type.

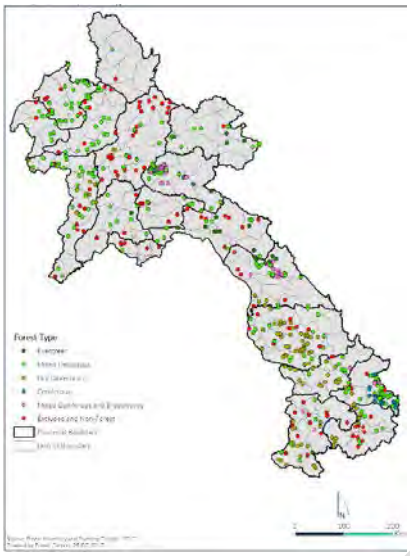

Figure 7: NFI surveyed plot breakdown by forest type

National Level

Forest types

Across all 5 forest types surveyed during the 2015-2017 field seasons, a total of 420 out of a the total 592 of surveyed plots were viable (plots were surveyed, forested and not excluded for any reason). Results of the nation-wide forest type strata carbon stocks and associated statistics can be found in Table 7. These are provided for the three combined carbon pools of Above Ground Biomass (AGB), Below Ground Biomass (BGB) and Deadwood (DW), as well as only AGB and BGB since, as explained later, the DW pool could be considered insignificant.

Expectedly, the largely open and low tree density DD forests are represented by the lowest carbon stock value of 48 tC/ha. Somewhat surprisingly however, MDF and CF forests held similar carbon stocks of 103 tC/ha. MCB forests, by comparison held 137 tC/ha, while the larger and generally more remote EG type held 233 tC/ha. Overall these values followed general expectations in terms of both their relative stock

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distributions and scale and are representative of inventories conducted at national and jurisdictional levels regionally.

Table 5: Nation-wide total carbon stocks by forest type

Forest Type	N	Carbon stock (tC/ha)	S.D. (tC/ha)	S.E. (tC/ha)	CI (95%)	Uncertainty (95%)	C min (tC/ha)	C max (tC/ha)
Including AGB, BGB and DW								
EG	23	208.17	71.26	14.86	29.13	13.99	91.94	372.29
MDF	227	95.56	38.15	2.53	4.96	5.19	19.92	239.66
DD	101	46.64	19.42	1.93	3.79	8.12	13.15	147.06
CF	24	103.83	40.37	8.24	16.15	15.56	32.98	189.22
MCB	45	125.43	91.90	13.70	26.85	21.41	28.34	464.44
Including only AGB and BGB								
EG	23	200.03	68.40	14.26	27.95	13.98	90.28	362.03
MDF	227	87.69	33.92	2.25	4.41	5.03	19.92	238.16
DD	101	43.18	19.22	1.91	3.75	8.68	10.47	147.06
CF	24	92.60	30.50	6.23	12.20	13.18	32.98	139.66
MCB	45	114.74	87.46	13.04	25.55	22.27	27.78	464.44

A minimum target of 30 plots per forest type was targeted for the 2-year study. Although this target was not reached for CF and EG, overall these two classes were well below the maximum uncertainty threshold of 20. Surprisingly, MCB forests, with 45 viable plots, returned an uncertainty of over 22 at a 95% CI. At a 90% CI, however, the uncertainty falls below the maximum threshold of 20. Variance within this class was due largely to the high variability between the MCB forests in and around the Nakai plateau of Khammouan Province, as compared to the MCB forests of Xiengkhouang which were either naturally/ecologically less dense or exhibited an increased level of disturbance. A quick look at the MCB standard deviation (104.71 tC/ha) and C min/max plot ranges of between 28-524tC/ha are illustrative of the level of variability in these strata.

Carbon Pools

This NFI was also the first time that nation-wide carbon data has been explicitly collected on all above ground carbon pools within each forest type. Table 8 below breaks down each carbon pool by forest type. These included AGB (living trees, saplings, bamboo and non-tree vegetation (NTV)), BGB, and DW (standing deadwood, lying deadwood and stumps). A key significance cutoff for national and subnational

greenhouse gas accounting systems is that carbon pools representing less than 10% of the total strata layer can be omitted. Since no previous data existed in Lao PDR to make this determination, this NFI sampled all pools in order to comprehensively make this determination and to understand the extent that these pools contribute to overall carbon stocks.

Table 6. Nation-wide carbon stock by carbon pool and forest type

Carbon pool	Forest Type	N	Carbon stock (tC/ha)	S.D. (tC/ha)	% of Strata
AGB	**EG**	**23**	**161.57**	**55.05**	**77.62%**
	MDF	**227**	**72.11**	**27.26**	**75.45%**
	DD	**101**	**35.91**	**15.44**	**76.99%**
	CF	**24**	**73.71**	**25.87**	**70.99%**
	MCB	**45**	**93.25**	**70.18**	**74.35%**
Living trees	EG	23	160.63	55.07	77.16%
	MDF	227	67.82	27.37	70.97%
	DD	101	34.28	15.5	73.50%
	CF	24	72.23	25.57	69.57%
	MCB	45	91.98	70.23	73.33%
Saplings	EG	23	0.42	0.16	0.20%
	MDF	227	0.65	0.37	0.68%
	DD	101	0.32	0.24	0.69%
	CF	24	0.3	0.26	0.29%
	MCB	45	0.48	0.39	0.38%
Bamboo	EG	23	0.03	0.1	0.01%
	MDF	227	3.02	7.92	3.16%
	DD	101	0.24	1.14	0.51%
	CF	24	0.11	0.51	0.11%
	MCB	45	0.07	0.25	0.06%
NTV	EG	23	0.5	0.2	0.24%
	MDF	227	0.62	0.44	0.65%
	DD	101	1.06	0.44	2.27%
	CF	24	1.07	0.72	1.03%
	MCB	45	0.72	0.45	0.57%
BGB	**EG**	**23**	**38.46**	**13.36**	**18.47%**
	MDF	**227**	**15.58**	**6.88**	**16.30%**
	DD	**101**	**7.27**	**3.8**	**15.59%**
	CF	**24**	**18.89**	**4.71**	**18.19%**
	MCB	**45**	**21.49**	**17.28**	**17.13%**
DW	**EG**	**23**	**8.14**	**5.86**	**3.91%**

	MDF	**227**	**7.88**	**13.83**	**8.25%**
	DD	**101**	**3.46**	**4.06**	**7.42%**
	CF	**24**	**11.23**	**17.85**	**10.82%**
	MCB	**45**	**10.69**	**18.03**	**8.52%**
Dead Trees	EG	23	5.33	4.94	2.56%
	MDF	227	5.21	12.38	5.45%
	DD	101	2.04	3.28	4.37%
	CF	24	9.91	17.98	9.54%
	MCB	45	8.48	18.12	6.76%
Stump	EG	23	0.44	0.65	0.21%
	MDF	227	0.19	0.33	0.20%
	DD	101	0.35	0.39	0.75%
	CF	24	0.17	0.38	0.16%
	MCB	45	0.36	0.46	0.29%
LDW	EG	23	2.38	2.73	1.14%
	MDF	227	2.47	4.31	2.58%
	DD	101	1.07	1.49	2.29%
	CF	24	1.14	1.26	1.10%
	MCB	45	1.85	1.7	1.47%

The AGB pool represented about 70 – 74% of the total carbon stock for each forest type. This was almost entirely from living trees, in fact, saplings, bamboo and NTV formed an insignificant part of the overall AGB component, often contributing to less than 1% of the total carbon stock of each forest type.

The BGB pool ranges between 18% and 27% of the total carbon stock for each forest type. This is a significant carbon pool that needs to be taken into account.

DW, on the other hand, comprised less than 10% of the total stock in all but the coniferous forest plots. As such, this pool could be excluded from the calculus of overall carbon stocks if so desired. Of the DW pool, standing dead trees were the largest contributors and if DW is to be considered for inclusion in future NFIs, then the DW pool should focus on this sub-DW pool.

<u>DBH Distribution</u>

Stand tables for each of the five forest type across all provinces are summarized below. The tables show a largely uniform pattern across each of the forest types. The distribution is a normal and expected distribution for secondary and disturbed forests, having a large population smaller individuals in the 10-50cm DBH range, tapering off as individual trees of larger DBH become scarcer and harder to locate.

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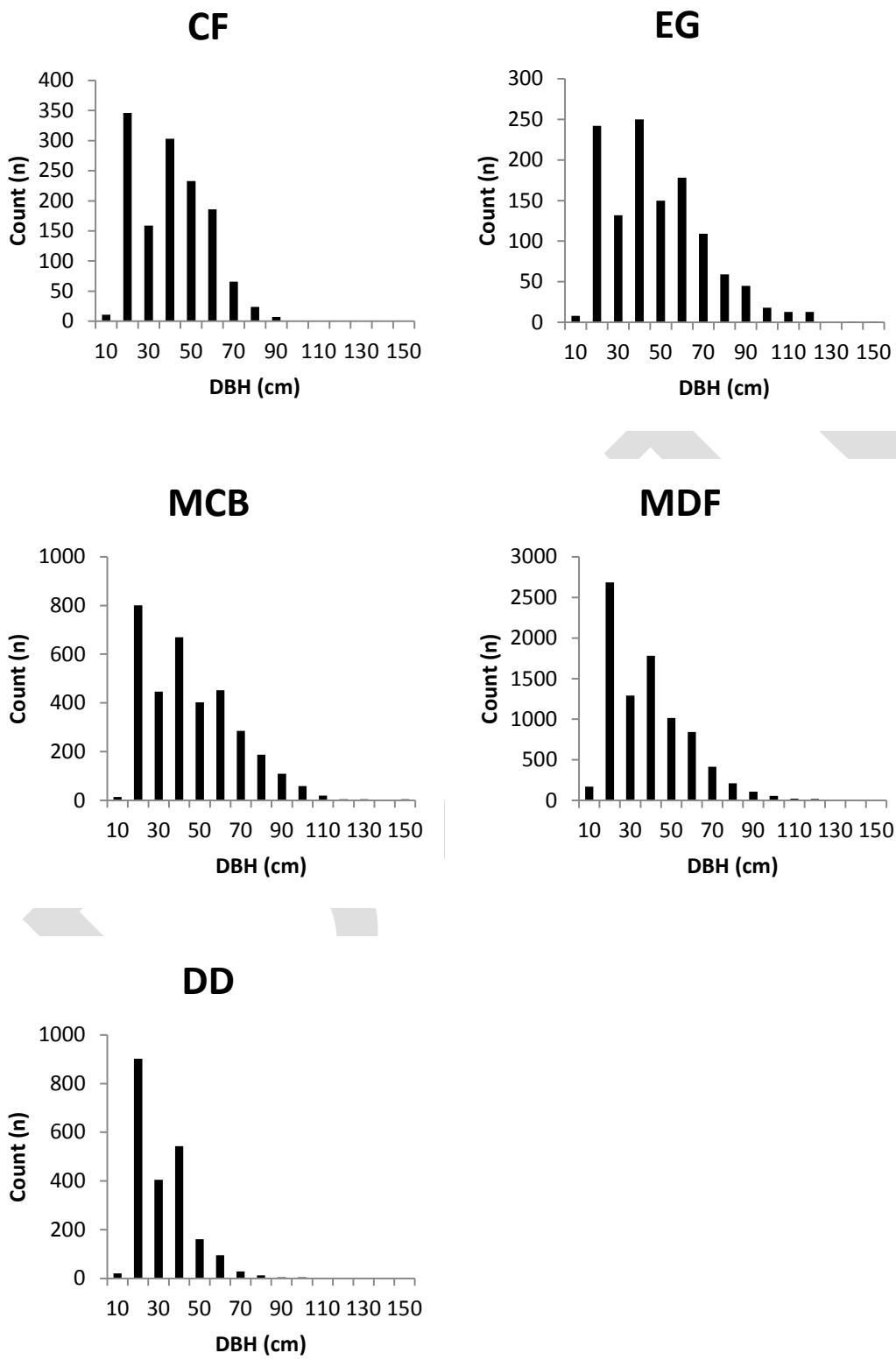

Figure 8: DBH (cm) distribution by forest type

Such DBH distributions can be explained in a number of ways depending on forest type, locality and influence/role of human populations on the landscape. Normal distribution curves generally shifted to the left are often indicative of selective logging, fire clearance and subsequent secondary regrowth which can be hampered from full-scale recovery by the presence of more aggressive bamboo species.

Non Timber Forest Products (NTFPs)

NTFPs were found in 75% of all sampled plots. Some form of NTFP was found in all EG plots, while a majority of MCB and MDF plots also featured some form of NTFP (78% and 88% respectively). NTFPs were only present in 42% and 46% of CF and DD respectively. Edible plants were the most common NTFP, followed by medicinal plants, fibers, ornamentals, animals or animal products, and extracts.

Table 7: Occurrence of NTFPs in plots as percentage of total number of plots.

Forest Type	Edible plants	Medicinal plants	Fibers	Extracts	Ornamentals	Animal products	*Total*
EG	91%	52%	35%	0%	0%	0%	*100%*
MDF	83%	52%	45%	4%	26%	27%	*88%*
DD	46%	15%	8%	0%	3%	0%	*46%*
CF	38%	8%	4%	4%	17%	8%	*42%*
MCB	62%	40%	16%	0%	20%	13%	*78%*
Total	*70%*	*39%*	*30%*	*3%*	*18%*	*16%*	*75%*

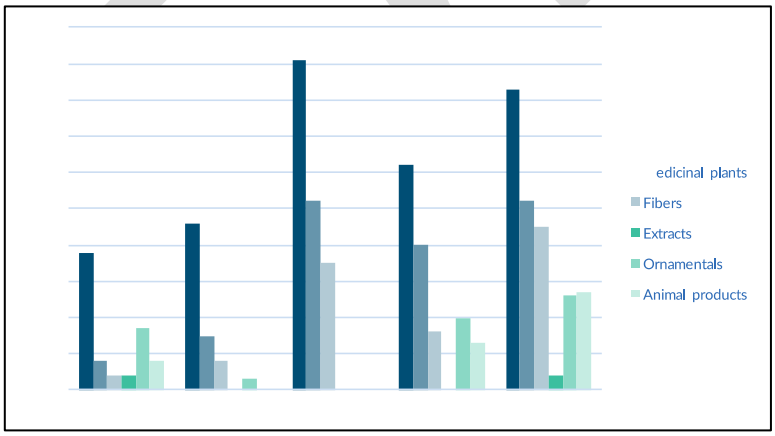

Figure 9. Percentage occurrence by type of NTFP per forest type

While EG contained NTFPs in all of its surveyed plots, the breadth of NTFPs found was limited to only edible plants, medicinal plants and fibers. This is on contrast to MDF and CF where all six types of NTFPs surveyed were found. In MCB plots all NTFPs but extracts were found, while in DD extracts as well as ornamentals were missing.

FCPF ER-PD Provinces

Lao PDR is currently engaged in the development of jurisdiction level strategies on the reduction of emissions from deforestation and degradation in six provinces: Houaphan, Bokeo, Louangnamtha, Louangphabang, Oudomxai and Xaignabouly. These strategies, developed within the context of the World Bank's Forest Carbon Partnership Facility's Carbon Fund will be submitted as part of an Emission Reduction Program Document (ER-PD) outlining emission reduction estimates for these six provinces. As such, the NFI was designed to attempt to collect data from a sufficient number of plots from within these six provinces so that carbon stock inferences from only these six provinces could be made. Analyzed and presented below are the results for carbon stocks by forest type and carbon pools for these six provinces.

Forest Types

Table 10 below shows the corresponding carbon stocks in the represented forest types from these six provinces. These results are shown for all three carbon pools (AGB, BGB and DW) as well as for only the AGB and BGB pools.

Overall sampling within the EG and DD forest types was very low within the six provinces, despite initial planning attempts to identify sufficient plots to meet minimum survey requirements. Only four EG plots and ten DD plots were found in the field. This resulted in high standard error values for these two forest types when calculating carbon stocks and, subsequently, the survey did not meet the maximum uncertainty threshold of 20 at either the 90% or 95% CI.

As compared to national averages, EG and MDF areas within the FCPF ER-PD zone show lower carbon stocks: 177 tC/ha as compared to 233 tC/ha for EG, and 100 tC/ha as compared to 103 tC/ha for MDF. DD, on the other hand, shows higher carbon stocks: 69 tC/ha as compared to 48.3 tC/ha. Because MDF comprises the vast majority of forest across the country and the differences is effectively non-significant; this is good news in terms of using MDF as a viable carbon strata at both national and sub-national/ER-PD levels. However, both the EG and DD forest types are both under sampled within the FCPF zone, correspond with a high degree of uncertainty and differ significantly as compared to national figures.

Table 8: Carbon stocks by forest type within the 6-province FCPF ER-PD zone

Forest Type	N	Carbon (tC/ha)	S.D.	S.E.	CI (95%)	Uncertainty (95%)
Including AGB, BGB and DW						
EG	4	158.40	61.07	30.53	59.85	37.78
MDF	100	92.07	33.44	3.34	6.55	7.12
DD	10	64.07	35.29	11.16	21.87	34.13
Including only AGB and BGB						
EG	4	151.08	57.96	28.98	56.80	37.60
MDF	100	86.32	31.26	3.13	6.13	7.10
DD	10	62.71	35.96	11.37	22.29	35.54

Carbon Pools

Table 11 below breaks down each carbon pool by forest type. These results should be considered in light of both the EG and DD forest types not meeting the minimum uncertainty thresholds.

As with the national level, AGB was by far the largest pool across all forest types ranging from 69% to 75% of total carbon. BGB was the next largest and represented between 23% and 27% of total carbon stocks. Again, as with the national level, the DW pool was the smallest pool and in all forest types represented less than 10% of total carbon in each forest type. This again suggests that the DW pool could be excluded from future calculations of emission reductions.

Table 9: ER-PD-Province-wide carbon stock by carbon pool and forest type

Carbon pool	Forest Type	N	Carbon stock (tC/ha)	S.D. (tC/ha)	% of Strata
AGB	EG	4	122.20	46.42	77.14%
	MDF	100	71.01	24.97	77.13%
	DD	10	51.72	28.57	80.71%
BGB	EG	4	28.88	11.54	18.24%
	MDF	100	15.31	6.45	16.63%
	DD	10	11.00	7.40	17.16%
DW	EG	4	7.32	4.35	4.62%
	MDF	100	5.75	12.26	6.25%

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QUALITY CONTROL

Random re-sampling of plots was conducted in the field on a total of 58 plots in 10 Provinces. As indicated in Table 6, the QC team managed to re-survey 57 plots. This being said, even with the exact surveyed GPS coordinates loaded in their tablet, the QC team encountered difficulties finding the metal poles set by the initial field teams to represent the center of the sub-plot. This was particularly the case in Khammouan, Oudomxai and Louangnamtha provinces. The metal detector provided to the QC team proved to be ineffective at locating the metal pole. Furthermore, in some cases, despite being able to locate the saplings at the center of the plot (these were marked with spray paint) the QC team was unable to location the metal pole.

These difficulties could also been seen comparing the GPS coordinates collected for each plot by both the field team and QC team, as well as the recollection of the QC Team leader. Consequently, where GPS coordinates for any sub-plots differed between the field team and QC team by more than 20m, then the entire plot was excluded from the QC analysis. Similarly, if GPS sub-plot locations differed by more than 15m and the QC Team Leader remembered having difficulties locating the center of a sub-plot plot at that location, then this plot was also excluded. Otherwise, the quality control would represent a quality control of the forest type and not the plot itself. In doing so, 22 plots were excluded, leaving 35 valid plots to conduct the comparison analysis. This, therefore represents a check on 8% of the total plots surveyed (35/420)

Non-parametric multiple comparison significance tests were carried out to determine if the measurements between the quality control sampling and the normal sampling on 2 levels. T-tests were not considered suitable in this case due to the lack of normal distribution of the data. We first tested the means of each quality control plot with the corresponding plot of the normal sampling (Appendix 1), and secondly compared the means of each forest type between the quality control and normal sampling (Table 14). P values of less than 0.05 indicate that there was a statistically significant difference in sampling time 1 (normal sampling) as compared to sampling time 2 (quality control sampling) across the entire forest type. P values greater than 0.05 indicate that there is no significant difference between the normal and the resampled QC measurements of each forest type.

As shown in Table 14 below, p-values for all forest types were greater than 0.05, indicating that there is no significant statistical difference between the carbon stocks as determined by the quality control vs. normal sampling of the same selection of plots.

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It should be noted that only 8% of plots were resampled, rather than the target of 10%, giving a less robust QC check. While none of the P-values indicate a significant difference in QC vs normal sampling, the count of plots only represents 8% of plots overall and in the case of CF, EG and MCB only represent 1 to 3 QC plots each, not enough to robustly control at forest type level. This being said, individual CI at 90% and 95% for individual forest classes are below target thresholds (see Table 7) and should be considered reliable in the absence of a more rigorous QC result.

Table 10: Comparison of carbon stocks by forest type between the QC sampling plots and respective the normal field sampling plots, including the results of the test for significant differences

		QC sampling				Normal Sampling				
Forest type	**N**	**Carbon stock (t/ha)**	**S.D.**	**S.E.**	**CI (95%)**	**Carbon stock (t/ha)**	**S.D.**	**S.E.**	**CI (95%)**	**p value**
EG	2	127.33	34.91	20.15	39.50	166.82	14.34	8.28	16.23	0.94
MDF	18	77.19	33.67	7.94	15.56	79.57	33.89	7.99	15.65	1.00
DD	11	48.64	10.34	3.12	6.11	44.00	10.34	3.12	6.11	0.99
CF	1	99.93	-	-	-	57.61	-	-	-	-
MCB	3	56.15	51.29	29.61	58.04	53.56	40.32	23.28	45.62	1

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6. Recommendations

The following recommendations are provided for consideration in the design and implementation of the third iteration of the Lao NFI.

NFI DESIGN

The overall design of the NFI proved to be appropriate for the task of determining C stocks nationally across Lao PDR.

Number of Sub-Plots

This iteration of the NFI included 4 sub-plots for each main plot. The field teams assessed the forest type for each sub-plot and this was considered in the determination of the dominant forest type for the plot. It was found, however, that a large number of plots became unusable when there was a split classification of forest types for a plot (i.e. two sub-plots being identified as one forest type and the other two sub-plots identified as another forest type). Due to the decision to include an even number of sub-plots in the design this "split decision" issue arose.

To avoid this situation in the next iteration of the NFI it is worth considering changing the number of sub-plots to an odd number. For example, 5 sub-plots could be considered for each plot (in which case the overall radius of the plot would need to increase to 400m to accommodate the additional sub-plot).

Carbon Pools

Seeing as no national inventory focused on C stocks had been conducted prior to this NFI, all C pools were considered. However, as the Results section demonstrates, the only significant C pools were AGB and BGB; the DW pool represents less than 10% of overall carbon stocks. Within the AGB pool, the focus should be kept entirely on living trees as the other pools within this larger pool were determined to be minor contributors (i.e. bamboo, saplings, NTV).

With DW representing less than 10% of total carbon stocks, it can be ignored in future iterations of the NFI. However, if the choice is made to include the DW pool, then the data collection should focus on standing deadwood as this represented the largest pool within the overall DW pool.

It is also noted that the data collected on stumps was used in a separate analysis to determine biomass loss and emissions from logging. In the case that this method to estimate emissions from logging is considered robust and significant, then data collection on stumps may be required in future iterations of the NFI.

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Data Measurements and SOP

Based on the two recommendations above, some changes to the SOP and field data to be collected will need to be made. Based on the recommendation to include only AGB and BGB (and potentially a subset of the DW pool) in the next iteration of the NFI, the amount of field based data to collect will be diminished. It will no longer be necessary to collect data on saplings, bamboo, NTV or lying deadwood. No longer needing to destructively sample bamboo culms will greatly reduce the time required to sample each plot, as this proved to be the most laborious and time intensive portion of the field data collection protocol. This was particularly an issue in the MDF class, which was the dominant forest type.

If the next iteration of the NFI will consider a greater number of sub-plots then the SOP will also need to be updated to take into account this additional sub-plot.

Finally, with regards to data collection, for the purposes of supporting the quality assurance process, it is recommended that the SOP be amended to require that Team Leaders take a picture of any tree larger than 100 cm DBH. Considering the large impact these larger DBH trees have on the C stock of a plot it is worth including an additional quality assurance step that confirms the presence of this large tree instead of being the result of a data entry error (for e.g. entering 103 cm instead of the actual tree DBH of 10.3 cm).

Plot Identification

Plots per Forest Type

Whether due to the inaccuracies of the satellite image classification or inconsistencies with the field teams' classification of forest types, there was low congruence between the predicted and actual classification of forest types for the NFI plots. This resulted in lower than desired samples for non-MDF forest classes. Most notably, the 30-plot target for CF and EG was not reached at the national level. Also, the QC inventory resulted in only one CF plot, 2 EG plots and 3 MCB plots. The inventory of ER-PD province plots also resulted in a low sample size, especially for EG.

As such, for the future iteration of the NFI, unless there is much greater confidence in the satellite image based classification, it is recommended to greatly increase the number of non-MDF plots - knowing that once in field a large number of these will end up being MDF – to ensure minimum thresholds are met for all forest types.

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Pre-Screening of Plots for Difficult to Access Areas

The field teams mentioned that on several occasions the selected plots were in either restricted or difficult to access areas. Examples of restricted areas included military zones, concessions, border areas (for e.g. in southern Champasak Province) or sensitive areas (for e.g. areas of Saysomboun Province). While the field seasons were designed to accommodate a certain number of missed plots, greater efforts should be taken to verify whether plots fall in areas that are likely to be considered "off-limits". For the current NFI, the team was limited by the lack of accurate shapefiles identifying concession boundaries and military zones. If available for the next iteration of the NFI, these should be used to confirm whether some plots should be re-selected. Similarly, a review of the pre-selected plots with the provincial staff that come for the training (see below) can also be a chance to confirm whether some areas may be "off-limits" due to sensitivities.

Steep slopes were also mentioned as a factor making both access and measurement of plots difficult. For the current NFI, a slope constraint of 35o was included when selecting plots; no plots on slopes steeper than this were selected. However, for the next iteration of the NFI, it might be prudent to further constrain this to 30o, particularly in the interest of safety.

Training

Overall, the Team Leaders and field teams felt the training was largely sufficient to feel comfortable with the SOP and knowledgeable on how to use the various equipment provided to conduct the NFI. However, Team Leasers did express a desire for more field based training than what was provided before beginning the actual inventory process. This is so that field teams can learn how to deal with field based realities that are hard to capture in a SOP. Learning how to troubleshoot these scenarios before beginning the actual inventory was considered important for the next NFI.

Team Leaders also requested that additional time be spent learning how to both conduct the data inputting in the tablets and how to troubleshoot tablet issues. This can be achieved through both additional classroom training as well as the extended field training where Team leaders will be actively using the tablets to enter field data.

FIPD staff have only had limited formal training in the identification of forest types. While the training included a session on forest type identification, Team Leaders would benefit from additional training to ensure that each Team Leader, when in the field, is classifying forest types similarly. This will help to ensure that minimum accuracies are achieved more quickly when collecting field data.

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Field Implementation

Field Teams

Team Leaders assessed the team composition as being mostly sufficient to complete all the field based inventory tasks. However, a challenge they encountered was the need to field-train the accompanying provincial and district staff once in the field, as it was only those who were properly trained on the SOP who could effectively help. As such, it is recommended to invite an identified PAFO staff member from each province to join the NFI training in Vientiane to ensure they have a common understanding of the SOP and the field protocols. In this way, their assistance will be of even greater value and the teams do not have to spend time training these staff themselves when in the field. If not possible to invite the provincial staff to Vientiane for the training, then an additional national staff should be made available to support the teams. As such, the role of the district staff is mostly to facilitate access and coordinate with villagers, and would be a less active member of the field based measurements.

In addition to the above, the QC team requires that all efforts be made to ensure that the same district staff and villagers that accompanied the main teams, be the people to accompany the QC team when conducting the re-measurements. This greatly facilitates the difficult task of locating the exact location of the plot as these people are generally able to remember the path and approach to the plot.

Field Safety

Implementation of the 2nd NFI unfortunately resulted in one serious incident. A DFRM staff member was gravely injured when a farmer's tok tok flipped over on a steep road and landed on the staff's chest. The staff member needed to be evacuated urgently, underwent several surgeries, and only after an extended time in hospital was able to, fortunately, make a full recovery.

This incident heightened the need for even greater field safety protocols and training in the future. Specific recommendations for this include:

Risk assessment training. Team Leader's should be given a specific field risk assessment and safety training. Staff need to be able to properly assess various risks and make an informed decision as to whether proceeding will put their team's in jeopardy. This should include topics such as terrain and navigation, vehicle use and operation, atmospheric conditions, and UXOs, among others.

First aid training. Besides being provided with a first-aid kit, there was no formal first aid response training for the teams. This should be considered mandatory and

provided to all staff conducting future NFIs. This should be complemented by first aid SOPs, to be included in the first aid kit, on how to respond to different emergency and non-emergency medical situations.

Enforced rest days. To complete the NFI field season quickly, NFI teams often neglected the need for rest days. An enforced rest day, for example after every 5 days of conducting field measurements, could be considered as a way to ensure field teams remain healthy and alert. Enforced rest on monthly religious days (Buddha days) can also be considered as an alternative or in addition to the above rest days.

Navigation to Plots

The field teams greatly appreciated the availability of both the GPS units and tablets loaded with the maps to support navigation to the plots. Besides the often-difficult terrain to cross to reach the plots, the teams found these two pieces of technology to consistently find their way to the inventory plots. The teams only recommended two small improvements.

The first is that the tablet loaded maps include the name of rivers and mountains as this will support the field navigation. District staff and, especially villagers, are often familiar with the names of these natural features and being able to cross-reference this on the maps would help teams to orient themselves, especially when deep in the forest.

The second is for the primary field teams to provide a narrative description of how to access each plot that will act as a guide for the QC team when they return to the plot. This can be an additional data field in the data collection form that will explain the primary team's approach to the plot, such as from which village the plot was accessed, which roads and paths were taken and other features to be aware of. This, in addition to making use of the same district staff and villagers that accompanied the first inventory team, will greatly facilitate the ability of the QC team to find the plots for re-measurement.

Tablet Use and Data Collection

All teams were greatly appreciative of the tablets, their multi-functionality and the extent to which they facilitate the data collection process. Although no tablets were damaged during the implementation of the NFI, greater attention should be placed on protecting these tablets and ensuring their continued functionality throughout the field season, considering the central role they play in the NFI. As such, for future NFIs it is recommended to purchase heavy duty, waterproof tablet cases. Additionally, while spare battery packs were provided for the current field season, the teams recommend

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that higher storage battery packs be provided next time for the times when the teams must spend upwards of two days in the forest to inventory a plot.

Quality Control

In addition to the above recommendation that a greater number of non-MDF plots be pre-identified when designing the QC process, there are two additional practical steps that can be implemented to improve the overall QC process.

Firstly, greater oversight should be provided by the quality assurance staff member to ensure that the QC team has met minimum sampling sizes per forest type before allowing these teams to return to Vientiane. This can be done in a similar way to what was done for the main inventory teams.

Secondly, the tablet form for the QC team should be adjusted to require this team to answer a question as to whether the QC team actually found the center of the plot and take a picture of the metal pole to confirm this.

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7. References

- JICA(2014):Validation and Registration of the Project on REDD plus through Participatory Land and Forest Management for Avoiding Deforestation in Lao PDR(Technical Cooperation Report)

- JICA(2014):Lao PDR NFI Standard Operating Procedure (SOP) Manual for Terrestrial Carbon Measurement

- Kiyono et al(2007):Predicting chronosequential changes in carbon stocks of pachymorph bamboo communities in slash-and-burn agricultural fallow, northern Lao People's Democratic Republic

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8. Attachment

8.1 Activity photos

Team members (After classroom training)

On-Site discussion

Plot setting

Measure of tree DBH

Dead wood measurement

Data inputting

8.2 Equipment list

	Equipment	Quantity
Field Sampling Crew		
	Machete	2
	First Aid Kit	1
	Chalk sticks	many
	Durable plastic tarp ~2 m x 2 m	1
	Tablet	1
	Tablet charging cable/cord	1
	Internet SIM	1
	Telephone card(50000kip)	1
	Extra battery for tablet	1
	Camera (or use Tablet)	1
	GPS	1
	GPS memory	1
	AA batteries for GPS	many
	clip board	1
	Compass	1
	Bright colored spray paint	many
	DME distance measuring unit (grey box)	At leaset 1
	DME pole	1
	DME transponder (yellow piece)	1
	AA batteries for transponder	many
	9V batter for DME grey box	many
	Clinometer (slope)	1
	Measuring Tape - 50 m	2
	Flagging tape	2
	Diameter tape measure	2
	Backpack or hipsack	2
	Pens	many
	Pencils	many
	Pencil sharpeners	many
	Erasers	many
	small notebooks	1/person
NTV and bamboo		
	Small calipers	1
	hanging scale - 500 g	1
	hanging scale - 5 kg	1
	Weight for caliburation(250g)	1
	Weight for caliburation(1kg)	1
	Cloth bags.	Number of plot
	Clip Plot (pvc)	1

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8.3 Survey Plot Information

Plot ID	Forest Type	Province	Coordination		AGB		BGB	
			X	Y	tB/ha	tC/ha	tB/ha	tC/ha
1	MCB	Xiengkhouang	102.861580	19.546220	162.39	76.32	38.40	18.05
4	MCB	Xiengkhouang	103.004645	19.604862	70.22	33.00	13.28	6.24
6	MCB	Xiengkhouang	103.025930	19.599873	60.25	28.32	11.62	5.46
7	CF	Xiengkhouang	103.145601	19.621843	90.40	42.49	28.48	13.39
8	EF	Houaphan	103.302370	20.212317	157.04	73.81	35.05	16.47
18	MDF	Houaphan	104.357649	20.402886	47.95	22.53	4.07	1.91
22	MDF	Houaphan	104.976315	20.088335	42.25	19.86	7.67	3.61
30	CF	Xekong	107.059537	15.405704	116.25	54.64	35.69	16.78
31	CF	Xekong	107.131844	15.786707	126.23	59.33	35.07	16.48
32	CF	Xekong	107.171301	15.297576	171.47	80.59	42.70	20.07
33	MCB	Xekong	107.168997	15.329152	87.35	41.05	18.36	8.63
34	MDF	Xekong	107.263676	15.358765	217.32	102.14	51.04	23.99
35	CF	Xekong	107.293143	15.281495	169.70	79.76	44.33	20.83
37	CF	Xekong	107.326202	15.265665	53.00	24.91	17.17	8.07
40	CF	Xekong	107.533807	15.275099	219.06	102.96	49.72	23.37
41	CF	Xekong	107.528225	15.293464	214.66	100.89	48.20	22.65
44	CF	Xekong	107.562756	15.246793	225.19	105.84	51.17	24.05
45	CF	Xekong	107.553581	15.262137	165.07	77.58	42.53	19.99
46	CF	Xekong	107.556271	15.284201	156.04	73.34	39.39	18.51
47	CF	Xekong	107.567383	15.180835	215.15	101.12	48.71	22.89
48	MCB	Xekong	107.575978	15.289522	143.10	67.26	33.09	15.55
50	MDF	Xekong	107.606253	15.321665	185.05	86.98	41.38	19.45
59	MDF	Xekong	106.630043	15.481175	148.74	69.91	32.19	15.13
75	MCB	Khammouan	105.231763	17.911057	303.15	142.48	72.31	33.98
81	MDF	Khammouan	105.765902	17.615302	182.28	85.67	43.14	20.28
85	MDF	Khammouan	105.902624	17.085786	307.52	144.54	73.25	34.43
112	MDF	Xiengkhouang	104.036501	18.887641	118.80	55.84	26.60	12.50
121	MDF	Xiengkhouang	102.824663	19.561147	200.98	94.46	46.13	21.68
124	MDF	Xiengkhouang	102.887330	19.592515	146.59	68.90	32.95	15.49

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125	MDF	Xiengkhouang	102.899625	19.660923	132.59	62.32	29.85	14.03
126	MDF	Xiengkhouang	102.928983	19.524534	100.28	47.13	21.12	9.93
127	MCB	Xiengkhouang	102.944905	19.585697	127.32	59.84	29.17	13.71
129	MDF	Xiengkhouang	102.982996	19.625935	97.01	45.59	20.84	9.80
130	MDF	Xiengkhouang	103.010271	19.533423	113.65	53.41	26.08	12.26
131	MDF	Xiengkhouang	103.047633	19.563296	91.27	42.90	19.17	9.01
132	MDF	Xiengkhouang	103.085553	19.580500	76.68	36.04	16.07	7.55
133	MDF	Xiengkhouang	103.151735	19.563781	82.83	38.93	16.11	7.57
134	MDF	Xiengkhouang	103.157109	19.585729	165.94	77.99	35.57	16.72
138	MDF	Xiengkhouang	NA	NA	73.40	34.50	14.50	6.81
141	MDF	Houaphan	103.691826	20.365434	101.06	47.50	16.24	7.63
149	MDF	Houaphan	104.836084	20.029768	102.40	48.13	19.73	9.27
150	EF	Khammouan	104.877342	17.983054	379.67	178.45	90.68	42.62
151	MDF	Khammouan	104.903191	17.870948	159.89	75.15	36.69	17.25
152	EF	Khammouan	104.889810	17.983508	285.43	134.15	68.10	32.00
154	EF	Khammouan	104.910074	17.951765	356.56	167.58	84.95	39.93
156	MDF	Khammouan	104.963973	17.807493	140.17	65.88	30.96	14.55
157	MDF	Khammouan	104.941219	17.832798	309.83	145.62	33.50	15.74
158	MDF	Houaphan	104.955967	20.055737	79.01	37.14	14.43	6.78
159	MDF	Houaphan	104.956637	20.069965	81.53	38.32	15.11	7.10
161	MDF	Khammouan	105.003523	17.837602	157.57	74.06	35.68	16.77
163	EF	Khammouan	105.085014	17.880278	182.53	85.79	42.48	19.97
165	MCB	Khammouan	105.119541	17.857652	310.80	146.08	73.85	34.71
167	MDF	Khammouan	105.176082	17.691201	131.32	61.72	29.03	13.64
168	MDF	Khammouan	105.190520	17.836454	157.90	74.21	35.36	16.62
169	EF	Khammouan	105.204264	17.646003	474.60	223.06	113.23	53.22
170	MDF	Khammouan	105.220014	17.666018	409.12	192.29	97.60	45.87
171	MDF	Khammouan	105.223324	17.664973	283.09	133.05	67.53	31.74
173	MDF	Khammouan	105.256528	17.641225	189.03	88.84	43.82	20.59
175	MDF	Khammouan	105.322100	17.675219	242.75	114.09	57.83	27.18
176	MCB	Khammouan	105.320423	17.694333	555.55	261.11	132.95	62.49
179	MCB	Khammouan	105.337551	17.676272	376.68	177.04	89.95	42.28

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180	MCB	Khammouan	105.344738	17.743016	797.20	374.68	190.97	89.75
183	MCB	Khammouan	105.407935	17.659994	414.39	194.76	99.16	46.61
184	MDF	Khammouan	105.466206	17.648313	297.42	139.79	70.60	33.18
185	MDF	Khammouan	105.470142	17.676218	177.00	83.19	39.78	18.70
186	MDF	Khammouan	105.453612	17.687139	164.74	77.43	37.99	17.85
191	CF	Xekong	107.068030	15.524276	240.91	113.23	56.24	26.43
194	CF	Xekong	107.086542	15.777687	239.82	112.72	54.79	25.75
197	MDF	Xekong	107.096196	15.776649	250.15	117.57	59.30	27.87
200	MDF	Xekong	107.172994	15.450349	154.92	72.81	33.87	15.92
202	MCB	Xekong	107.170293	15.645163	323.81	152.19	76.59	36.00
205	MDF	Xekong	107.173237	15.797745	149.48	70.26	32.65	15.35
206	MDF	Xekong	107.177307	15.805447	139.15	65.40	31.66	14.88
207	CF	Xekong	107.188300	15.384795	165.84	77.95	40.81	19.18
208	CF	Xekong	107.180850	15.403843	156.66	73.63	37.89	17.81
210	CF	Xekong	107.184975	15.814050	220.38	103.58	52.01	24.45
211	MDF	Xekong	107.230162	15.598500	289.02	135.84	68.20	32.06
212	MDF	Xekong	107.208160	15.737491	120.32	56.55	27.36	12.86
213	MDF	Xekong	107.249900	15.380986	192.93	90.67	44.29	20.82
214	MDF	Xekong	107.269531	15.405673	242.23	113.85	57.39	26.98
215	MCB	Xekong	107.277672	15.436179	60.71	28.53	11.63	5.47
222	MDF	Xekong	107.311098	15.440749	98.95	46.51	19.90	9.35
223	MDF	Xekong	107.299623	15.450793	158.27	74.39	34.49	16.21
224	MDF	Xekong	107.305429	15.546496	76.67	36.04	14.84	6.98
225	MDF	Xekong	107.333904	15.395353	143.22	67.31	32.88	15.45
228	MDF	Xekong	107.384621	15.259960	114.53	53.83	23.68	11.13
233	MDF	Xekong	107.477106	15.401440	146.72	68.96	34.07	16.01
237	MDF	Xekong	107.511873	15.217384	201.71	94.80	44.41	20.87
239	MCB	Xekong	107.588667	15.300231	160.55	75.46	37.01	17.40
240	MDF	Xekong	107.594436	15.301672	165.66	77.86	38.59	18.14
243	MCB	Xiengkhouang	103.073469	19.348793	90.79	42.67	19.61	9.22
244	MCB	Xiengkhouang	103.081990	19.346119	93.61	44.00	20.00	9.40
245	CF	Xiengkhouang	103.497458	19.458570	133.91	62.94	37.31	17.54

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246	MCB	Xiengkhouang	103.527772	19.455092	94.68	44.50	18.59	8.74
247	MCB	Xiengkhouang	103.540970	19.462064	85.35	40.12	16.72	7.86
248	CF	Xiengkhouang	103.677852	19.338900	119.23	56.04	35.19	16.54
249	CF	Xekong	107.077702	15.569196	168.40	79.15	47.15	22.16
251	MDF	Xekong	107.274408	15.316121	221.24	103.98	51.21	24.07
252	CF	Xekong	107.317244	15.371531	141.83	66.66	38.30	18.00
253	MDF	Xekong	106.614818	15.475413	158.02	74.27	31.13	14.63
254	MDF	Xekong	106.680546	15.547480	185.57	87.22	42.76	20.10
255	EF	Khammouan	105.163808	17.911059	361.50	169.91	86.09	40.46
257	EF	Khammouan	105.227464	18.000654	212.70	99.97	50.71	23.83
258	EF	Khammouan	105.300039	17.954555	455.45	214.06	108.86	51.16
260	MDF	Houaphan	103.238200	20.185431	109.27	51.36	23.81	11.19
261	MDF	Houaphan	103.258916	20.214880	148.58	69.83	23.88	11.23
262	MDF	Houaphan	103.821754	20.374000	54.86	25.78	10.32	4.85
265	EF	Xekong	107.194865	15.685005	468.82	220.35	112.07	52.67
266	MCB	Xekong	107.219195	15.631434	199.20	93.62	45.04	21.17
267	MCB	Xekong	107.230406	15.638338	328.88	154.58	77.49	36.42
269	MCB	Xekong	107.250015	15.638508	349.05	164.06	82.26	38.66
270	MDF	Xekong	107.262288	15.369821	214.12	100.64	49.81	23.41
271	MDF	Xekong	107.269713	15.494192	163.92	77.04	37.50	17.62
272	MDF	Xekong	107.294527	15.507252	154.64	72.68	34.66	16.29
273	MDF	Xekong	107.375753	15.424759	187.10	87.94	42.65	20.04
274	MDF	Xekong	107.417512	15.383131	139.63	65.63	23.72	11.15
279	MDF	Xiengkhouang	103.066105	19.538434	88.89	41.78	17.54	8.24
280	MCB	Xiengkhouang	103.153548	19.623260	119.46	56.14	25.24	11.86
281	CF	Xiengkhouang	102.923484	19.579447	71.66	33.68	24.03	11.30
282	MCB	Xiengkhouang	103.060836	19.575400	72.04	33.86	14.00	6.58
283	MCB	Xiengkhouang	103.142366	19.533213	62.62	29.43	12.24	5.75
284	MDF	Xiengkhouang	103.151075	19.586632	118.11	55.51	26.58	12.49
289	MCB	Khammouan	105.300546	17.637771	281.23	132.18	66.87	31.43
290	MCB	Khammouan	105.330111	17.619282	374.51	176.02	89.34	41.99
1016	DD	Khammouan	104.886137	17.277617	98.02	46.07	20.90	9.82

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1018	DD	Khammouan	105.105520	17.185933	84.48	39.70	16.64	7.82
1019	DD	Khammouan	104.962052	17.166338	48.13	22.62	9.40	4.42
1020	DD	Khammouan	105.079041	17.096986	90.80	42.68	18.94	8.90
1022	DD	Savannakhet	105.187246	17.029228	99.12	46.59	21.10	9.92
1024	MDF	Savannakhet	104.800627	16.838619	63.19	29.70	12.42	5.84
1025	DD	Savannakhet	105.380758	16.794906	70.55	33.16	14.89	7.00
1026	DD	Savannakhet	105.442307	16.776112	76.09	35.76	14.83	6.97
1027	DD	Savannakhet	105.578400	16.766879	50.55	23.76	9.31	4.38
1028	DD	Savannakhet	105.262199	16.751928	54.40	25.57	10.52	4.94
1029	DD	Savannakhet	105.365709	16.739138	40.32	18.95	7.52	3.54
1030	MDF	Savannakhet	105.160785	16.720831	63.04	29.63	12.13	5.70
1033	DD	Savannakhet	NA	NA	78.56	36.92	16.21	7.62
1034	MDF	Savannakhet	104.893107	16.647424	92.20	43.34	17.59	8.27
1035	DD	Savannakhet	105.036420	16.643663	44.30	20.82	8.47	3.98
1036	MDF	Savannakhet	104.850760	16.589447	111.40	52.36	25.26	11.87
1037	DD	Savannakhet	105.366086	16.563460	61.55	28.93	11.71	5.50
1038	DD	Savannakhet	105.567477	16.545999	73.68	34.63	13.87	6.52
1039	DD	Savannakhet	NA	NA	67.42	31.69	12.63	5.93
1040	DD	Savannakhet	105.883342	16.549293	47.07	22.12	8.65	4.07
1041	DD	Savannakhet	105.383694	16.529345	78.58	36.93	16.76	7.88
1042	DD	Savannakhet	105.849004	16.531053	49.75	23.38	9.26	4.35
1043	DD	Savannakhet	105.908849	16.522572	76.76	36.08	14.57	6.85
1044	DD	Savannakhet	105.387707	16.514013	81.58	38.34	16.93	7.96
1045	DD	Savannakhet	105.951571	16.499726	55.19	25.94	10.08	4.74
1046	DD	Savannakhet	106.090781	16.505579	81.11	38.12	15.68	7.37
1047	DD	Savannakhet	105.793915	16.433142	110.58	51.97	22.55	10.60
1048	DD	Savannakhet	105.899387	16.382925	99.88	46.94	21.16	9.95
1049	DD	Savannakhet	105.864160	16.363666	61.76	29.03	11.47	5.39
1050	DD	Savannakhet	105.480772	16.337466	141.20	66.37	32.97	15.50
1051	DD	Savannakhet	105.531422	16.327940	86.02	40.43	16.51	7.76
1053	DD	Savannakhet	106.192825	16.308423	80.01	37.61	15.27	7.18
1054	DD	Savannakhet	105.017947	16.294039	105.12	49.41	21.64	10.17

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1055	DD	Savannakhet	105.772922	16.274888	72.84	34.23	13.82	6.50
1056	DD	Savannakhet	105.824091	16.295832	87.83	41.28	18.44	8.66
1057	DD	Savannakhet	105.661040	16.250538	45.42	21.35	8.37	3.93
1058	DD	Savannakhet	105.828533	16.259560	87.01	40.89	16.96	7.97
1059	DD	Savannakhet	105.747569	16.250517	126.71	59.55	29.04	13.65
1060	DD	Savannakhet	105.771204	16.242666	55.42	26.05	10.59	4.98
1061	DD	Savannakhet	105.966364	16.231927	55.65	26.16	10.78	5.07
1062	DD	Savannakhet	105.917729	16.206057	75.31	35.40	16.13	7.58
1063	DD	Savannakhet	105.465043	16.177195	97.77	45.95	21.67	10.18
1064	MDF	Savannakhet	105.823007	16.163619	136.37	64.10	29.34	13.79
1065	DD	Savannakhet	105.429921	16.143298	63.42	29.81	11.97	5.63
1066	DD	Savannakhet	105.483140	16.161195	78.40	36.85	14.98	7.04
1068	DD	Salavan	106.252344	16.051810	101.61	47.76	19.76	9.29
1069	DD	Savannakhet	105.917701	16.017968	92.43	43.44	18.04	8.48
1070	DD	Savannakhet	105.836041	15.997700	104.63	49.18	23.26	10.93
1071	DD	Salavan	105.462886	15.951427	91.96	43.22	17.74	8.34
1072	DD	Salavan	106.422690	15.950304	74.97	35.23	14.36	6.75
1073	DD	Salavan	105.565290	15.924968	28.55	13.42	5.15	2.42
1074	DD	Salavan	105.990572	15.931162	47.24	22.20	8.92	4.19
1075	DD	Salavan	106.281827	15.803093	82.47	38.76	15.76	7.41
1076	DD	Salavan	106.497648	15.727624	108.15	50.83	24.82	11.67
1077	DD	Salavan	106.224042	15.670159	107.77	50.65	23.41	11.00
1078	DD	Salavan	106.437978	15.693031	46.54	21.87	8.61	4.05
1079	DD	Salavan	106.510302	15.686945	46.58	21.89	8.67	4.08
1080	DD	Salavan	105.794010	15.646131	53.29	25.04	9.93	4.67
1081	DD	Salavan	106.434184	15.668522	58.24	27.37	11.25	5.29
1082	DD	Salavan	106.469820	15.665401	73.48	34.54	15.43	7.25
1083	DD	Salavan	106.121172	15.620215	170.16	79.97	39.54	18.58
1084	DD	Salavan	106.160132	15.598421	123.31	57.95	27.03	12.70
1085	DD	Salavan	106.603092	15.573755	90.33	42.46	19.71	9.27
1089	DD	Xekong	106.733295	15.454282	68.72	32.30	13.53	6.36
1090	MDF	Xekong	106.890392	15.344593	67.84	31.89	13.19	6.20

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1092	DD	Xekong	106.779970	15.256799	106.81	50.20	22.37	10.51
1093	DD	Attapeu	106.783326	15.243000	33.90	15.93	6.54	3.07
1094	DD	Attapeu	106.774824	15.222438	90.86	42.70	17.52	8.24
1095	DD	Attapeu	106.827490	15.170409	46.35	21.78	8.95	4.21
1098	DD	Attapeu	106.901822	15.067131	47.37	22.26	8.54	4.01
1099	DD	Attapeu	106.863443	14.992629	97.33	45.74	21.66	10.18
1102	DD	Champasak	105.615145	14.937732	39.83	18.72	7.16	3.37
1103	DD	Champasak	106.132949	14.929911	47.60	22.37	7.63	3.59
1106	DD	Attapeu	106.850127	14.901653	63.28	29.74	12.01	5.65
1109	DD	Champasak	106.126079	14.851103	83.53	39.26	18.10	8.51
1112	DD	Champasak	105.601525	14.815744	42.56	20.00	7.89	3.71
1113	DD	Champasak	105.645741	14.828500	44.66	20.99	8.18	3.84
1117	DD	Attapeu	106.350799	14.638119	65.55	30.81	12.55	5.90
1118	DD	Attapeu	106.426295	14.627253	59.40	27.92	11.35	5.33
1119	DD	Attapeu	106.405887	14.576591	47.89	22.51	8.81	4.14
1120	DD	Champasak	105.611726	14.555894	62.14	29.21	11.78	5.54
1121	DD	Champasak	105.590035	14.534359	62.21	29.24	11.81	5.55
1122	DD	Champasak	105.772004	14.518449	49.50	23.27	9.14	4.29
1123	DD	Champasak	105.605327	14.504341	55.94	26.29	10.55	4.96
1124	DD	Champasak	105.706900	14.486924	80.26	37.72	15.37	7.23
1125	DD	Champasak	105.896331	14.486383	54.53	25.63	10.51	4.94
1126	DD	Attapeu	106.382480	14.495250	115.88	54.46	25.44	11.96
1128	DD	Champasak	105.749947	14.302794	18.99	8.93	3.29	1.55
1129	DD	Champasak	105.338755	14.237426	60.21	28.30	11.35	5.33
1130	DD	Champasak	105.380145	14.223548	83.64	39.31	17.51	8.23
1131	DD	Champasak	106.000506	14.126098	99.58	46.80	20.90	9.82
1132	DD	Champasak	106.037950	14.080803	38.90	18.29	7.41	3.48
1133	MDF	Xaignabouly	101.483254	19.609111	167.23	78.60	39.09	18.37
1134	MDF	Xaignabouly	100.547147	19.591166	164.63	77.38	37.62	17.68
1136	MDF	Xaignabouly	101.427288	19.281388	163.49	76.84	37.73	17.73
1138	EF	Xiengkhouang	104.031949	19.203737	621.64	292.17	148.64	69.86
1139	MDF	Vientiane	102.015545	19.112891	156.75	73.67	35.98	16.91

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1140	MDF	Xaignabouly	101.735412	18.973929	96.64	45.42	20.31	9.55
1141	MDF	Xaisomboun	102.795633	18.990984	86.64	40.72	16.38	7.70
1143	MDF	Xiengkhouang	104.207391	19.006559	170.64	80.20	38.43	18.06
1145	MDF	Vientiane	102.596778	18.924405	150.98	70.96	22.15	10.41
1146	MDF	Xaignabouly	101.336240	18.881851	160.59	75.48	35.03	16.46
1147	MDF	Vientiane	102.067945	18.900458	220.76	103.76	35.29	16.58
1149	MDF	Xaisomboun	102.807294	18.862251	108.15	50.83	20.01	9.40
1150	MDF	Bolikhamxai	103.837966	18.836523	178.64	83.96	41.51	19.51
1151	DD	Xaignabouly	101.425165	18.781267	253.14	118.98	59.75	28.08
1156	MDF	Bolikhamxai	103.944222	18.660989	246.98	116.08	58.83	27.65
1159	MDF	Bolikhamxai	104.050561	18.646196	193.47	90.93	43.06	20.24
1160	EF	Bolikhamxai	103.921415	18.549585	260.22	122.31	60.93	28.64
1161	EF	Bolikhamxai	104.770488	18.567517	355.28	166.98	84.87	39.89
1163	MDF	Bolikhamxai	103.166801	18.517008	161.24	75.78	36.11	16.97
1164	EF	Bolikhamxai	103.379985	18.531759	289.54	136.08	69.12	32.48
1165	EF	Bolikhamxai	104.094794	18.459323	302.02	141.95	72.08	33.88
1166	EF	Bolikhamxai	104.208753	18.464275	439.63	206.63	105.21	49.45
1167	MDF	Bolikhamxai	102.991901	18.271972	187.09	87.93	41.74	19.62
1169	MDF	Bolikhamxai	104.351644	18.148531	107.37	50.46	22.56	10.60
1170	EF	Bolikhamxai	104.862023	18.114405	408.14	191.83	97.55	45.85
1171	MDF	Bolikhamxai	104.978834	18.003651	195.21	91.75	46.23	21.73
1174	MDF	Khammouan	105.228048	17.909333	306.96	144.27	72.92	34.27
1175	MDF	Khammouan	105.324519	17.111390	191.53	90.02	42.90	20.16
1176	MDF	Khammouan	105.327575	17.112805	254.84	119.78	60.08	28.24
1177	MDF	Savannakhet	105.904396	17.035136	243.00	114.21	56.16	26.39
1178	MDF	Savannakhet	106.096338	16.924257	191.68	90.09	43.13	20.27
1180	MDF	Savannakhet	105.999223	16.602939	134.74	63.33	26.35	12.38
1181	MDF	Savannakhet	106.208124	16.521916	194.65	91.49	45.31	21.30
1182	MDF	Salavan	106.563141	16.133962	192.26	90.36	43.39	20.39
1183	MDF	Savannakhet	105.972055	16.102979	172.74	81.19	40.51	19.04
1184	MDF	Savannakhet	105.546765	16.073165	168.42	79.16	39.41	18.52
1185	MDF	Salavan	105.917637	15.820016	116.11	54.57	24.29	11.42

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1189	MDF	Louangnamtha	101.387997	21.196884	165.21	77.65	38.67	18.17
1190	MDF	Louangnamtha	101.473964	21.218247	157.18	73.88	36.37	17.10
1191	MDF	Louangnamtha	101.524420	21.205782	169.30	79.57	38.92	18.29
1192	MDF	Louangnamtha	101.382756	21.177060	118.91	55.89	25.96	12.20
1193	MDF	Louangnamtha	101.516063	21.179210	141.85	66.67	32.65	15.35
1195	MDF	Louangnamtha	101.601856	21.133190	143.48	67.44	33.10	15.56
1196	MDF	Louangnamtha	101.141969	21.107340	248.17	116.64	58.14	27.33
1197	MDF	Oudomxai	101.800833	21.103877	124.37	58.45	26.42	12.42
1199	MDF	Louangnamtha	101.301684	21.048890	168.18	79.04	39.34	18.49
1200	MDF	Oudomxai	101.782095	21.038833	195.64	91.95	46.60	21.90
1201	MDF	Oudomxai	101.851678	21.051906	227.70	107.02	53.99	25.38
1202	MDF	Louangnamtha	101.565495	20.940487	179.91	84.56	42.73	20.08
1203	MDF	Louangnamtha	101.427080	20.805325	168.45	79.17	36.85	17.32
1204	MDF	Louangnamtha	101.168667	20.773179	230.65	108.41	55.04	25.87
1205	MDF	Louangnamtha	101.278562	20.789072	234.16	110.05	55.72	26.19
1206	MDF	Louangnamtha	101.277560	20.702904	201.39	94.65	46.45	21.83
1207	MDF	Bokeo	100.641774	20.632361	138.05	64.88	32.88	15.45
1208	MDF	Louangnamtha	100.909367	20.594611	173.29	81.45	37.27	17.52
1209	MDF	Bokeo	NA	NA	283.42	133.21	63.99	30.08
1210	MDF	Bokeo	100.711492	20.548843	164.26	77.20	36.54	17.17
1211	MDF	Bokeo	100.811460	20.557694	264.78	124.44	62.52	29.38
1212	MDF	Louangnamtha	101.080541	20.462055	194.89	91.60	46.30	21.76
1213	MDF	Louangnamtha	101.165374	20.467242	187.71	88.22	43.68	20.53
1215	EF	Houaphan	104.323852	20.278423	235.87	110.86	56.20	26.41
1218	EF	Houaphan	104.329941	20.111899	252.78	118.81	60.21	28.30
1219	MDF	Houaphan	103.435475	20.025422	267.45	125.70	63.53	29.86
1220	MCB	Khammouan	105.172788	17.857024	198.77	93.42	47.49	22.32
1221	MCB	Khammouan	105.201193	17.830771	258.95	121.71	61.55	28.93
1222	MCB	Khammouan	105.243811	17.761611	272.23	127.95	65.01	30.56
1223	MDF	Khammouan	105.338543	17.718139	155.64	73.15	35.65	16.76
1224	MCB	Khammouan	105.358369	17.657128	284.52	133.72	67.68	31.81
1225	CF	Khammouan	105.434766	17.637088	89.47	42.05	28.17	13.24

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1228	MCB	Xekong	107.167969	15.410287	170.00	79.90	39.81	18.71
1229	MDF	Champasak	105.392558	14.376110	36.91	17.35	6.72	3.16
1230	MDF	Champasak	NA	NA	51.83	24.36	9.93	4.67
1231	MCB	Xiengkhouang	103.091225	19.683629	49.88	23.44	9.23	4.34
1232	MCB	Xiengkhouang	103.124845	19.684794	83.45	39.22	15.97	7.50
1234	MCB	Xiengkhouang	103.002920	19.631112	88.76	41.72	16.91	7.95
1235	MCB	Xiengkhouang	103.035423	19.645080	125.52	58.99	28.31	13.31
1236	MCB	Xiengkhouang	103.062756	19.637288	74.60	35.06	14.18	6.66
1237	MCB	Xiengkhouang	102.880317	19.590796	93.25	43.83	18.14	8.52
1239	MDF	Xiengkhouang	102.819785	19.429896	165.04	77.57	36.98	17.38
1240	MCB	Xiengkhouang	103.038078	19.340413	125.77	59.11	28.68	13.48
1241	MCB	Xiengkhouang	103.184611	19.350885	105.33	49.51	23.53	11.06
1242	MDF	Vientiane	102.781011	18.402988	149.95	70.48	32.12	15.10
1243	MCB	Khammouan	105.155310	17.861510	239.57	112.60	56.65	26.63
1244	MCB	Khammouan	105.175939	17.836577	140.99	66.27	31.60	14.85
1245	MCB	Khammouan	105.313838	17.691004	268.88	126.37	64.17	30.16
1246	MCB	Khammouan	105.233339	17.634634	160.79	75.57	37.43	17.59
1247	MCB	Salavan	106.706312	15.924735	82.31	38.68	15.20	7.15
1250	CF	Xekong	107.076009	15.412495	93.72	44.05	29.67	13.94
1257	EF	Houaphan	104.677685	20.139508	394.27	185.31	94.37	44.36
1258	MDF	Xaignabouly	101.195053	19.824752	216.32	101.67	50.76	23.86
1261	MDF	Louangphabang	102.372266	19.850181	174.92	82.21	34.51	16.22
1264	MDF	Xaignabouly	100.753295	19.774917	81.92	38.50	17.43	8.19
1266	MDF	Louangphabang	102.575504	19.782328	122.32	57.49	26.90	12.64
1267	MDF	Xaignabouly	101.202400	19.754820	143.55	67.47	29.28	13.76
1268	DD	Xaignabouly	100.468390	19.730798	52.93	24.88	9.62	4.52
1271	MDF	Xiengkhouang	102.881514	19.706040	246.26	115.74	58.73	27.60
1272	MDF	Xaignabouly	100.928349	19.665357	110.53	51.95	23.44	11.02
1273	MDF	Xaignabouly	101.052597	19.668283	134.55	63.24	28.47	13.38
1274	MDF	Xaignabouly	101.036740	19.628933	193.58	90.98	44.62	20.97
1275	MDF	Louangphabang	102.317722	19.631968	99.21	46.63	19.59	9.21
1277	MDF	Xaignabouly	101.141617	19.597620	143.72	67.55	32.89	15.46

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1278	MDF	Xaignabouly	101.751313	19.580928	150.50	70.73	34.27	16.11
1279	MDF	Louangphabang	101.924442	19.601986	139.34	65.49	29.69	13.95
1283	MDF	Xaignabouly	NA	NA	169.63	79.73	29.19	13.72
1285	MDF	Xaignabouly	101.650167	19.511585	126.93	59.66	16.61	7.80
1286	MDF	Xaignabouly	101.711824	19.508657	86.17	40.50	16.82	7.91
1287	MDF	Xaignabouly	101.454970	19.464518	115.57	54.32	25.45	11.96
1289	MDF	Xaignabouly	101.739615	19.450533	194.05	91.20	34.42	16.18
1295	DD	Xaignabouly	101.670825	19.350137	109.41	51.42	21.87	10.28
1296	MDF	Xaignabouly	101.796620	19.324702	121.20	56.97	26.15	12.29
1298	DD	Xaignabouly	101.769606	19.306921	85.42	40.15	18.62	8.75
1303	DD	Xaignabouly	101.419494	19.202066	142.06	66.77	32.59	15.32
1305	DD	Xaignabouly	101.602615	19.120159	106.47	50.04	22.20	10.44
1306	DD	Xaignabouly	101.654992	19.117414	89.58	42.10	16.83	7.91
1308	MDF	Xaignabouly	101.592717	19.081139	123.07	57.84	21.30	10.01
1311	MDF	Xaisomboun	103.507085	19.080946	180.48	84.83	41.18	19.35
1312	DD	Xaignabouly	101.789739	18.975677	52.19	24.53	6.26	2.94
1314	MDF	Xaisomboun	NA	NA	101.59	47.75	20.07	9.43
1315	MDF	Xaisomboun	103.670499	18.974937	111.36	52.34	22.65	10.65
1319	MDF	Xaignabouly	101.651742	18.845377	156.06	73.35	36.06	16.95
1320	MDF	Xaignabouly	101.475540	18.743289	200.76	94.36	42.60	20.02
1322	MDF	Xaignabouly	101.532588	18.696529	169.33	79.58	36.60	17.20
1323	EF	Bolikhamxai	104.129135	18.727584	432.66	203.35	103.49	48.64
1325	MDF	Vientiane	102.489253	18.671343	169.61	79.72	31.26	14.69
1329	MDF	Bolikhamxai	104.778412	18.679988	177.51	83.43	40.67	19.11
1330	MDF	Bolikhamxai	104.821921	18.678192	173.58	81.58	39.19	18.42
1331	MDF	Vientiane	102.207054	18.629444	133.64	62.81	27.38	12.87
1336	MDF	Vientiane	102.083558	18.568245	101.19	47.56	17.89	8.41
1337	MDF	Xaignabouly	101.379051	18.501322	141.19	66.36	27.65	12.99
1342	EF	Bolikhamxai	104.141300	18.461799	422.07	198.37	100.75	47.35
1343	MDF	Xaignabouly	101.263588	18.339835	207.60	97.57	48.85	22.96
1345	MDF	Bolikhamxai	103.123254	18.335643	132.01	62.04	28.29	13.29
1346	MDF	Phongsaly	NA	NA	126.19	59.31	27.89	13.11

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1353	MDF	Vientiane Capital	102.319683	18.103153	135.24	63.56	24.92	11.71
1354	MDF	Xaignabouly	101.091628	17.735138	229.41	107.82	37.55	17.65
1356	MDF	Xaignabouly	101.173218	17.600014	125.38	58.93	27.68	13.01
1357	MDF	Savannakhet	105.341274	17.055546	198.17	93.14	45.37	21.32
1362	DD	Savannakhet	105.312759	16.565511	61.33	28.82	11.55	5.43
1363	DD	Savannakhet	105.262529	16.447671	81.15	38.14	15.36	7.22
1364	MDF	Savannakhet	105.257108	16.424883	120.57	56.67	26.76	12.57
1366	DD	Savannakhet	105.821695	16.339014	45.62	21.44	8.29	3.89
1368	MDF	Savannakhet	105.587922	16.132234	106.72	50.16	20.39	9.58
1369	MDF	Salavan	106.496314	16.003064	136.59	64.20	21.50	10.11
1370	MDF	Salavan	105.656464	15.901519	146.47	68.84	31.73	14.91
1371	MDF	Salavan	106.548246	15.905007	136.00	63.92	11.30	5.31
1372	MDF	Salavan	106.608173	15.889448	199.42	93.73	33.66	15.82
1373	MDF	Salavan	106.591577	15.861685	109.11	51.28	21.06	9.90
1374	MDF	Salavan	106.612126	15.843008	182.64	85.84	30.99	14.56
1375	DD	Salavan	105.734110	15.702256	72.21	33.94	11.74	5.52
1376	MDF	Salavan	106.671238	15.655920	160.23	75.31	36.53	17.17
1377	MDF	Champasak	106.027941	15.344579	161.83	76.06	36.89	17.34
1378	MDF	Phongsaly	NA	NA	109.40	51.42	24.16	11.36
1383	MDF	Attapeu	106.975268	15.028344	134.21	63.08	28.89	13.58
1384	MDF	Champasak	106.041424	14.982391	72.17	33.92	13.93	6.55
1387	MDF	Attapeu	107.315577	14.809543	111.06	52.20	24.20	11.38
1388	MDF	Attapeu	107.195218	14.769506	46.87	22.03	6.96	3.27
1390	MDF	Attapeu	106.864079	14.575450	104.99	49.34	15.22	7.15
1391	MDF	Champasak	105.569864	14.540468	74.37	34.95	15.73	7.39
1392	MDF	Attapeu	106.883850	14.533315	84.70	39.81	16.32	7.67
1394	EF	Champasak	105.974781	14.366909	158.09	74.30	36.36	17.09
1397	MDF	Champasak	105.730550	14.225998	95.72	44.99	19.86	9.34
1398	DD	Champasak	105.483465	14.143479	48.66	22.87	9.27	4.36
1399	MDF	Louangnamtha	101.199216	21.507748	128.58	60.43	27.57	12.96
1402	MDF	Phongsaly	NA	NA	188.52	88.60	44.63	20.98
1403	MDF	Phongsaly	NA	NA	93.52	43.95	18.39	8.64

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1405	MDF	Louangnamtha	101.376809	21.212317	195.80	92.03	46.55	21.88
1406	MDF	Phongsaly	NA	NA	80.20	37.69	15.79	7.42
1410	MDF	Phongsaly	NA	NA	116.35	54.68	24.50	11.51
1411	MDF	Louangnamtha	101.603630	20.960588	189.37	89.00	42.73	20.08
1416	MDF	Louangnamtha	101.620555	20.892823	200.23	94.11	45.95	21.60
1418	MDF	Louangnamtha	100.836495	20.801849	70.21	33.00	13.00	6.11
1424	MDF	Louangnamtha	100.845405	20.786642	118.84	55.86	19.07	8.96
1426	MDF	Bokeo	NA	NA	100.35	47.16	18.19	8.55
1428	MDF	Oudomxai	101.577101	20.723369	82.94	38.98	14.28	6.71
1433	MDF	Louangnamtha	100.902209	20.652739	247.17	116.17	57.65	27.10
1435	MDF	Louangnamtha	100.892352	20.606185	178.52	83.90	37.66	17.70
1438	MDF	Louangnamtha	101.400574	20.571857	169.72	79.77	35.93	16.89
1439	MDF	Louangnamtha	101.541308	20.549926	140.73	66.14	14.62	6.87
1441	MDF	Oudomxai	101.914825	20.541029	164.84	77.48	39.13	18.39
1443	MDF	Oudomxai	102.012696	20.526258	201.28	94.60	48.06	22.59
1444	MDF	Louangnamtha	101.045316	20.477798	74.60	35.06	14.30	6.72
1445	MDF	Louangnamtha	101.294528	20.477899	145.81	68.53	33.57	15.78
1446	MDF	Oudomxai	101.866421	20.460149	187.30	88.03	41.78	19.64
1447	MDF	Louangphabang	103.053296	20.469889	220.33	103.56	49.41	23.22
1449	MDF	Bokeo	100.972603	20.407691	226.60	106.50	53.95	25.35
1450	MDF	Louangphabang	102.636631	20.426864	150.32	70.65	29.47	13.85
1451	MDF	Oudomxai	101.765459	20.376610	167.51	78.73	36.56	17.18
1456	MDF	Louangphabang	102.524640	20.327727	155.58	73.12	35.45	16.66
1457	MDF	Bokeo	100.417036	20.294353	91.55	43.03	19.71	9.26
1459	MDF	Bokeo	100.945784	20.244902	104.09	48.92	21.86	10.28
1463	MDF	Bokeo	100.876220	20.219634	112.75	52.99	25.04	11.77
1464	MDF	Oudomxai	101.935304	20.245237	67.89	31.91	13.34	6.27
1465	MDF	Oudomxai	101.994089	20.234263	65.10	30.60	12.77	6.00
1466	MDF	Bokeo	100.896989	20.117019	78.37	36.84	13.81	6.49
1467	MDF	Bokeo	100.909508	20.093251	37.25	17.51	5.12	2.41
1469	MDF	Oudomxai	101.821066	20.089323	128.33	60.32	27.54	12.94
1471	MDF	Louangphabang	103.014223	20.096353	216.11	101.57	42.62	20.03

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1472	MDF	Oudomxai	101.689503	20.044728	192.36	90.41	44.80	21.06
1473	MDF	Oudomxai	101.730356	20.037054	134.63	63.27	30.82	14.49
1474	MDF	Oudomxai	101.602915	19.948678	185.86	87.35	43.41	20.40
1475	DD	Louangphabang	102.116542	19.948462	149.61	70.32	34.83	16.37
1476	DD	Louangphabang	102.143983	19.950149	59.55	27.99	11.43	5.37
1477	MDF	Oudomxai	101.177632	19.894294	111.60	52.45	17.67	8.31
1478	MDF	Oudomxai	101.423788	19.920546	120.64	56.70	26.50	12.45

Draft

8.4 QC Survey Plot Information

			QC Sampling				Normal sampling				
Plot number	**Province Name**	**Forest type**	**C stock (t/ha)**	**S.D.**	**S.E.**	**CI (95%)**	**C stock (t/ha)**	**S.D.**	**S.E.**	**CI (95%)**	**p value**
1039	Savannakhet	DD	36.96	26.50	15.30	29.98	28.94	29.08	14.54	28.49	0.764
1042	Savannakhet	DD	39.17	11.86	5.93	11.62	33.20	10.61	5.30	10.40	0.446
1046	Savannakhet	DD	50.66	18.98	10.96	21.48	34.59	26.66	13.33	26.13	0.545
1053	Savannakhet	DD	54.28	25.96	12.98	25.44	50.84	18.49	9.25	18.12	1
1058	Savannakhet	DD	53.74	21.93	10.96	21.49	50.94	19.06	9.53	18.68	0.632
1062	Savannakhet	DD	36.49	37.01	18.51	36.27	41.67	38.22	19.11	37.45	1
1064	Savannakhet	MDF	80.01	31.49	18.18	35.63	57.75	51.26	25.63	50.24	0.538
1069	Savannakhet	DD	66.08	33.44	16.72	32.77	54.34	26.24	13.12	25.72	0.446
1070	Savannakhet	DD	58.05	27.52	13.76	26.97	62.83	31.15	15.58	30.53	0.8
1121	Champasak	DD	35.05	17.91	8.96	17.55	35.82	24.93	12.47	24.43	1
1124	Champasak	DD	48.42	27.07	13.54	26.53	44.00	30.22	15.11	29.62	0.632
1130	Champasak	DD	56.13	27.48	13.74	26.93	46.84	24.12	12.06	23.64	0.6
1140	Xaignabouly	MDF	62.86	24.29	12.15	23.81	57.18	15.01	7.50	14.71	0.816
1159	Bolikhamxai	MDF	87.57	60.49	30.24	59.28	120.71	101.26	50.63	99.23	0.6
1160	Bolikhamxai	EF	91.26	43.22	21.61	42.35	151.32	80.11	40.05	78.51	0.258
1164	Bolikhamxai	EF	129.76	35.34	17.67	34.63	169.55	22.72	11.36	22.26	0.187
1167	Bolikhamxai	MDF	109.08	39.30	19.65	38.52	109.68	40.47	20.23	39.66	1

1180	Savannakhet	MDF	45.34	11.46	5.73	11.23	74.49	36.78	18.39	36.04	0.187
1181	Savannakhet	MDF	102.32	21.15	10.57	20.72	117.45	29.34	14.67	28.75	0.632
1184	Savannakhet	MDF	98.66	37.27	18.64	36.53	98.45	27.24	13.62	26.70	0.816
1201	Oudomxai	MDF	139.17	40.89	20.45	40.08	135.58	45.32	22.66	44.42	1
1228	Xekong	MCB	114.36	49.50	28.58	56.01	98.59	13.35	7.71	15.10	0.644
1229	Champasak	MDF	52.82	24.86	12.43	24.36	9.83	10.92	5.46	10.70	0.073
1231	Xiengkhouang	MCB	17.60	13.77	6.89	13.50	20.83	16.64	8.32	16.31	0.694
1236	Xiengkhouang	MCB	36.49	9.15	4.58	8.97	41.26	10.37	5.18	10.16	0.446
1250	Xekong	CF	99.93	33.73	16.87	33.06	57.61	26.46	13.23	25.93	0.258
1283	Xaignabouly	MDF	96.14	69.72	34.86	68.33	83.67	47.99	24.00	47.03	0.8
1286	Xaignabouly	MDF	52.83	14.28	7.14	13.99	47.97	14.93	7.46	14.63	0.258
1308	Xaignabouly	MDF	0.02	0.04	0.02	0.04	63.68	37.65	21.74	42.60	0.973
1319	Xaignabouly	MDF	85.67	44.52	22.26	43.63	91.33	54.83	27.42	53.74	1
1320	Xaignabouly	MDF	85.58	52.87	26.43	51.81	108.53	81.28	40.64	79.65	0.6
1368	Savannakhet	MDF	58.11	8.30	4.15	8.14	60.32	5.30	2.65	5.20	0.8
1391	Champasak	MDF	52.76	36.31	18.15	35.58	41.14	33.77	16.89	33.09	0.6
1411	Louangnamtha	MDF	129.28	74.48	37.24	72.99	109.07	69.74	34.87	68.34	0.313
1428	Oudomxai	MDF	51.24	2.87	1.66	3.25	45.43	5.67	3.27	6.41	0.191

Separate Volume

2-5 Summary Report Lao PDR NFI DASH

SUMMARY REPORT
LAO PDR NFI DASH

SUMMARY REPORT ON THE NFI DASH TOOL TO COMPILE, ANALYZE AND PRESENT THE 2ND LAO NFI INVENTORY DATA

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Date: July 2017

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Notice: This report was prepared by Forest Carbon on behalf of Kokusai Kogyo Company.

About Forest Carbon: Founded in 2007 in Jakarta, Forest Carbon is a Southeast Asian-based firm that addresses the need for a regionally focused team capable of providing technical services for carbon forestry projects in tropical rainforest countries. Our team of experts work one-on-one with governments, non-profits and private sector clients across Asia, Africa and South America on the development of field-level projects and jurisdictional programs for reducing emissions from deforestation and degradation including reforestation, conservation and sustainable management of forests (REDD+). Forest Carbon is the wholly owned subsidiary of Equator Group PTE LTD, Singapore.

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INTRODUCTION

BACKGROUND

The Lao National Forest Inventory and Planning Division (FIPD) of the Department of Forestry (DoF) conducted its second ever National Forest Inventory (NFI) during the dry seasons of 2016 and 2017 with financial and technical support from the JICA funded Sustainable Forest Management and REDD+ Support project. The purpose of the NFI was to update biomass and carbon stock values for five forest classes: evergreen forest (EG), mixed deciduous forest (MDF), mixed coniferous broadleaf (MCB), coniferous forest (CF) and dry dipterocarp forest (DD). The resulting carbon stock values will be used in combination with carbon stock values determined separately for a final forest class, regenerating vegetation (RV), and all non-forest classes to calculate the emission factors to be used in the Lao PDR's FREL/FRL submissions to the UNFCCC and other performance based REDD+ payment schemes, such as the Carbon Fund (CF) of the Forest Carbon Partnership Facility (FCPF).

Forest Carbon was retained by Kokusai Kogyo Company (KKC) to provide technical and advisory support to the NFI process, specifically to train and supervise FIPD staff during the implementation of the NFI, as well as compile and analyze the results of the data collection.

To support the data analysis and visualization, Forest Carbon developed NFI – Dash, a web based data analysis system, to monitor and verify the data collection and reporting of the results. The following report has been prepared to support understanding of this tool for future iterations. While the report provides summaries of the overall way in which the NFI – Dash tool works, this report is primarily written for future technical experts with a deep understanding of the statistical program language R and the R package shiny. This is to enable these technical experts to better understand how the data was analyzed under the current NFI and how this may be amended/updated for future iterations of the NFI in Lao PDR.

SUMMARY OF NFI – DASH DATA ANALYSIS AND VISUALIZATION PROCESS

NFI – Dash is the final component of the NFI data collection and analysis process as shown in Figure 1 below. It both calculates the necessary results of the NFI and presents these results graphically in an easy to manipulate interface. The NFI – Dash is a script based web application written in the statistical program language R and the R package shiny.

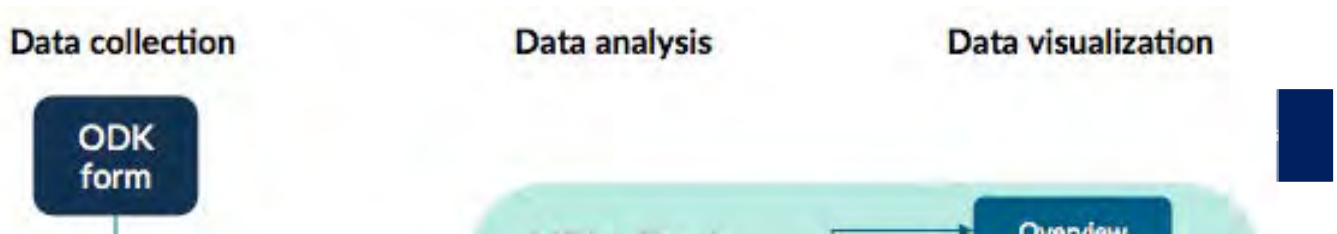

Figure 1: Overview of the data collection and analysis process

In the first step of the data collection and analysis process, field data for each plot in the inventory are collected using the ODK form on an android tablet. After all measurements for a plot are collected the form is automatically submitted to the Ona cloud-based server once the tablet comes into range of either a 3G or Wi-Fi signal. At the server level, all the data collected from the various teams is aggregated into a single CSV file and made available for download.

When the NFI – Dash application is opened in a browser, it automatically retrieves the raw data from the Ona server, uses the script "NFI – Calc" to preform various analyses and automatically generates an overview of the data collected to date. Two additional scripts (NFI – Server and NFI – Interface) then allow for various summary tables and graphs to be produced and display the plot locations on a map.

The "NFI – Calc" script is the backbone of the application and was developed and thoroughly tested during the NFI piloting phase in 2015, to ensure all possible quality issues were automatically flagged before moving to the full NFI implementation in 2016 and 2017. The first version of NFI – Calc during piloting stage essentially scripted the equivalent of all the calculations conducted in an excel spreadsheet that was used for the data analysis. Thus, each step of the "translation" process from excel to the script was verified by comparing the results of the script with the results of the spreadsheet. During testing of the script, it was shown that copy and paste errors in the excel files lead to differences with the results of the script, indicating that the script based analysis was much less error prone. The two additional scripts to help better visually present the results (NFI – Server and NFI – Interface) were subsequently developed and refined during the first stage of the 2016/17 field season.

There are several distinct advantages of using such an automated system for data analysis, instead of the previous Microsoft Excel approach. First, it reduces significantly the time required to conduct the data analysis. Using Excel, data cleaning, data sorting, and data analysis could take upwards of three weeks, whereas the NFI – Calc completes the same process in less than 10 seconds. The automation also means that the calculations can be repeated quickly and repeatedly over the course of the field season, instead of only once at the very end of the field season. Second, the data cleaning and sorting happens automatically, thus eliminating a large source of potential human error. Third, the fact that results can be re-run each time the NFI – Dash application is opened allows the project manager to verify field implementation progress as well as the live results whenever she/he wants and act immediately if issues arise, such as if field teams are entering data incorrectly or forgetting to upload their data files. Additionally, the project manager can redirect field teams or call them back early once minimum accuracies per forest type are achieved. Finally, the NFI – Dash automatically generates all necessary graphs and tables needed for reporting purposes, thus reducing the time required of project managers even further.

The NFI was designed to include a quality control (QC) component, in which a sub-sample of the sampling plots was automatically generated and re-measured. NFI – Calc processed the QC-data in the same manner as the field data, and automatically did significance tests on various levels to ensure that the pre-defined quality standards were met. This automated process again reduced overall time of the NFI, making it more cost-effective.

NFI DASH OVERVIEW

The web application NFI – Dash consists of three different components: (i) a script for the data analysis (NFI – Calc); (ii) a script for handling the analyzed data on the server (NFI - Server); and (iii) a script for the user interface (NFI – Interface). Details on how each of these three scripts work are provided below and the entire scripts can be found as Supplement 1 (NFI – Calc), Supplement 2 (NFI – Server) and Supplement 3 (NFI – Interface). All the scripts and data described below need to be in one main folder, in order to run the script successfully. Within this main folder are the 3 main scripts, NFI - Calc (NFI-Calc.R), NFI - Server (server.R), NFI - Interface (ui.R). These scripts cannot be renamed; otherwise the app does not work. Also, there is one secondary folder called "data", in which all preprocessed data are stored that are needed for the analysis (see Table 1).

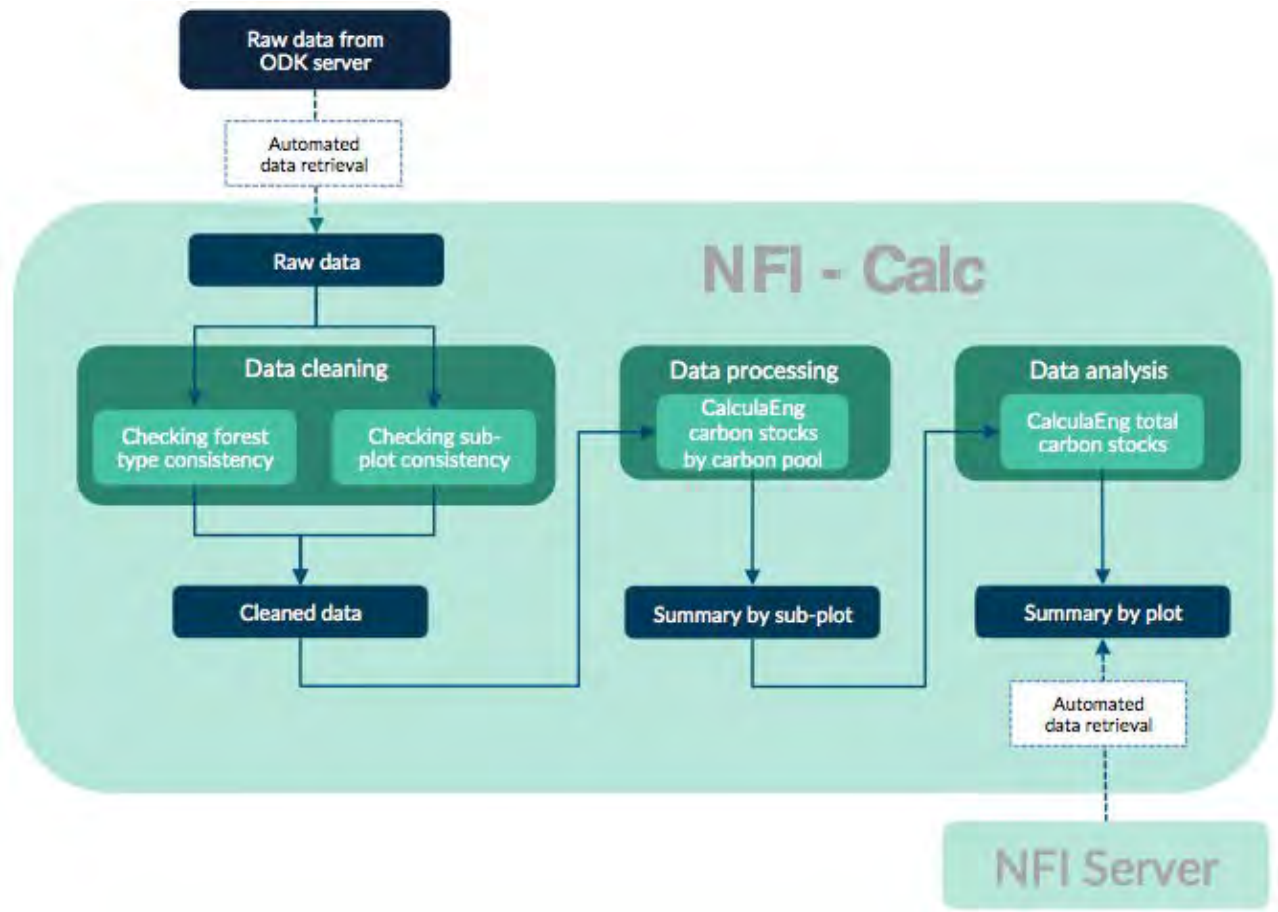

Figure 2: Overview of the 3 components of the NFI Dash

NFI CALC

The NFI Calc is structured in different blocks, i.e. a general, data cleaning, data processing and data analysis (see Figure 3). It retrieves the raw data from the Ona server, cleans the data by applying different predefined rules, and calculates the C stock of the different C pools and finally calculates the C stocks at the plot level. The technical details of each of these blocks are presented in further detail below. Furthermore, the NFI Calc uses various inputs at different stages of the analysis. These are summarized in Table 1 below.

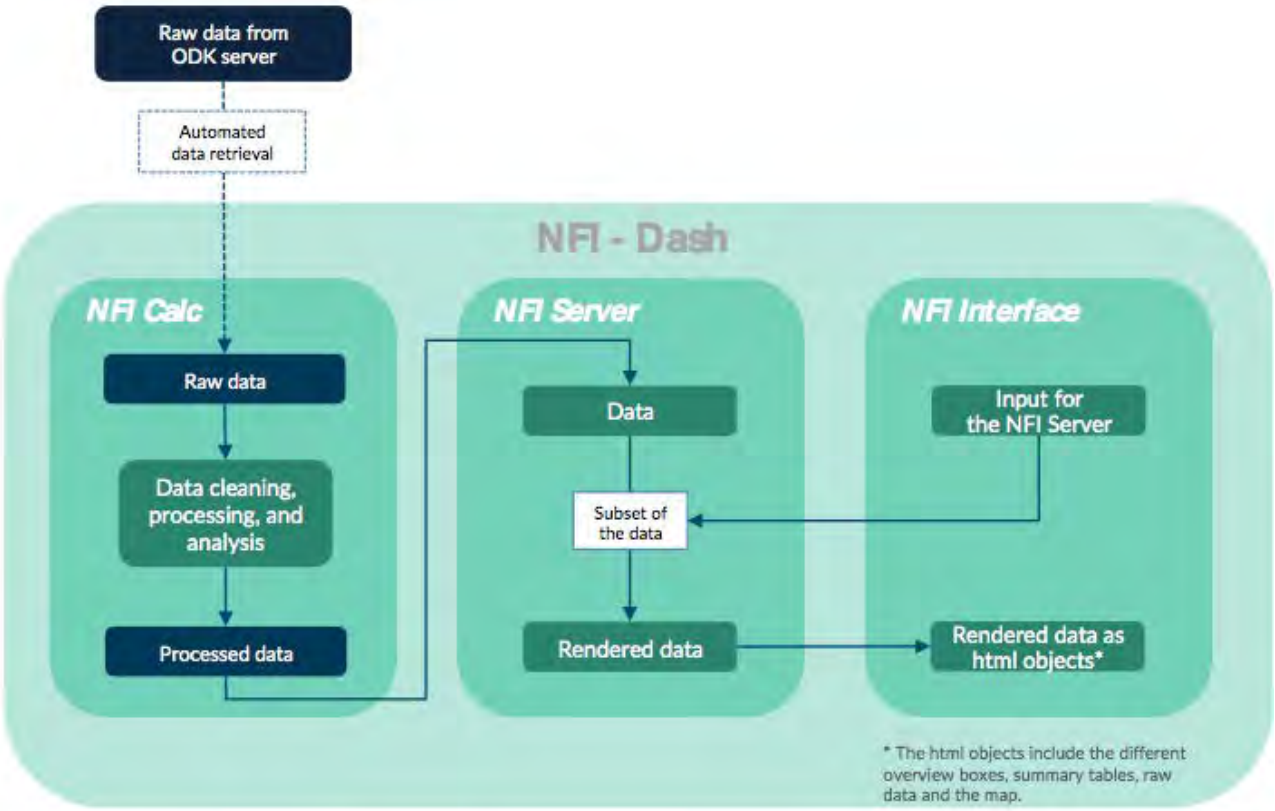

Figure 3: Flowchart of NFI – Calc

Table 1: Overview on the different inputs for NFI Calc

Used in line	Input-file name	Description
242	tree_carbon2.sub1st.csv	Preprocessed data set of the average C stocks (tC/ha) of each C poll at the subplot level of the 1st field season
243	saplings_carbon.sub1st.csv	
244	bamboo_carbon.sub1st.csv	
245	dead_tree_carbon.sub1st.csv	
246	stump_carbon.sub1st.csv	
247	ldw_carbon.sub1st.csv	
267	province_code.csv	List of plots with province name
324	N_plot1st.csv	Number of finished and remaining plots of the 1st field season
503	explot1st.csv	Number of excluded plots of the first field season
1423	NTVplot.csv	Average C stock of non-tree vegetation (NTV) by plot (tC/ha)
1437	meanNTV.csv	Average C stock of NTV by forest type (tC/ha)
1549	living_trees1st.csv	"Raw" biomass data of living trees in which only included plots are listed and biomass is already calculated
1632	saplings1st.csv	
1632	bamboo1st	
1633	dead_tree1st.csv	
1634	stump1st.csv	
1635	ldw.class1st.csv	
1636	NTV1st.csv	

GENERAL

The general block loads the different R packages required for the computations, defines custom functions, and retrieves the raw data from the Ona sever. It also creates an index of all plots, and a preprocessed progress list.

The general block starts by loading the required packages (lines 2 - 9). This is followed by defining customized functions (lines 10 - 240), which are functions that calculate summaries while sub setting by group variables. "summarySE" and "summarySE90", calculates sample sizes, means, standard deviations (SD), standard error (SE), and confidence intervals with 0.95 and 0.90 levels, respectively. "summarySUM" calculates sample sizes and sums, and

"summarySUMse" calculates sample sizes, sums and errors from already summarized data (e.g. taking the output from summarySE output).

In a next step the data from the 1st field season are loaded (lines 241 - 248). These preprocessed data from the 1st phase are loaded from the data folder (Table 1)

These data sets were created using the script “NFI-Calc for the first phase”, which is similar to NFI Calc (see section on other scripts used below). In a next step the data from the Ona server are retrieved (lines 249 - 256), by using the "onaDownload" function to download the data from the Ona server. This data set is then converted into a data frame, and a parent index is created.

The following step of the computation creates an index of the data with plot numbers, subplot description, land cover class, land cover type, and parent index (lines 257 - 265). Also, the land cover types “NA” are reassigned to "OTH" in order to ease the computation process.

The last section of the general computing block creates a progress list (by province/ total; lines 266 - 360). The first step of this section loads the list that indicates in which province the different subplots were sampled in the 2nd field season (line 267). Then only unique plots are saved (line 268) and a summary by plot is created that indicates the initial list of plots (line 269). In the second step the province list is attached to the index data frame (lines 270 - 290), and a similar data frame is created (lines 291 - 294). These two data frames are then merged and saved as a table indicating the number of plots by province of the initial sample size and the actual sample size (lines 295 - 300). In the third step the list of plots by province from the 1st field season is loaded (lines 301 - 322) and combined with the list of plots from the 2nd field season (line 323). Then the progress list of the first field season is loaded and the number of initial plots attached (lines 324 - 325). Lines 327 - 335 then include the progress of the 1st field season to the progress of the 2nd field season. In the next step the remaining number of plots (line 337) and the percentages of remaining plot to the initial number of plots are calculated by province (line 338). A vector of the total number of plots is created in lines 340 - 346 and attached to the data frame indicating progress of both field seasons by province (line 347). Lines 349 - 360 compute a similar data frame of the progress of the 2nd field season only.

DATA CLEANING

The data-cleaning block is divided into 2 sections. Firstly, subplots that were initially flagged as invalid, because of conflicting subplots descriptions were erroneously entered by the field teams, were edited. Secondly a set of predefined rules are applied to the plots to ensure only valid plots were used in the analysis.

MANUALLY ADJUST CERTAIN SUB-PLOTS (LINES 361 - 436)

This section adjusts the index data frame according to the findings of the manual screening of the results of plot exclusion. The manual screening was needed in order to reduce the number of excluded plots due to conflicting subplot description. The assessment showed that most of the plots excluded because a conflicting subplot descriptions were due to minor mistakes in the form entry. Therefore it was possible to include those plots in the analysis after revision.

APPLY RULES FOR INCLUSION/ EXCLUSION (LINES 437 - 536)

In this NFI, 3 different rules were applied for ensuring that only valid plots are included in the analysis. Rule 1 ensures all plots were excluded that had less than 2 plots in natural forest (lines 440 - 442). Rule 2 ensures that only plots with a dominant forest type are included in the analysis (e.g. MCB, MCB, MCB, CF would be included, while EF, EF, SHBB, DD, would not). This is done in a two-step process. In the first step each subplot gets the forest type attached of the other subplots of the plot (lines 444 - 453), and then assigning "NA" to plots in which no single forest type is dominant (lines 454 - 470). For example, for a plot with 4 subplots (EF, EF, CF, MDF) the code would first create 3 additional columns for the other subplots, so that each subplot would have the 4 forest type attached to it (EF, EF, CF, MDF) and than check if at least 2 forest type are similar, while the remaining forest types are different, and create a new

column with the dominant forest type. If the same plot had had EF, CF, MDF, and MCB as forest types the code would have assigned “NA” as dominant forest type. Lines 472 - 474 then simplify and update the index data frame. The next part (lines 476 - 491) creates a data frame that indicates how many plots were excluded because of conflicting forest types in the plot or because of being non-forest. Rule 3 is then applied (line 494), in which the index data frame is a check of duplicates of plots, indicating non-unique subplot descriptions (e.g. subplot A, subplot B, subplot B, subplot D). This information is then stored in a data frame (lines 494 - 498), and combined with the data frame containing the information on plots with conflicting forest types and non-forest plot (line 499).

The next part of this section loads the data from the 1st field season on plot exclusion (line 503) that applied the same rules as described above, and combines it with the data frame of the 2nd field season (line 504). This data frame is then merged with the province list (line 506). The numbers of plots are than summed up by reason of exclusion (line 508), the individual numbers of the two field seasons are attached (lines 509 - 513), and the sum of the total numbers of excluded plots by reason is calculated (line 515). In the final part of this section the index is updated, in which all excluded plots are excluded (line 518), all plots that are "NA", or have an "empty" forest type (i.e. forest type description is ""), or are some kind of shrub vegetation (i.e. "SH" or "SHBB", lines 520 - 523), and only plots with a forest type equal to "EF", "DD", "MCB", "CF", and "MDF" are included (line 525).

PLOT PROGRESS AFTER APPLICATION OF RULES (LINES 527 - 571)

This section uses similar computations as the final section of the General block, and therefore needs no further explanation here.

DATA PROCESSING

The next sections compute the C stocks at the subplot level of each C pool (Living trees (AGB), Saplings, Bamboo, Deadwood standing trees, Deadwood stumps, Deadwood lying) are conceptually similar and are explained in broad terms once in the case of the section "Living trees". In the subsequent sections only the differences are explained.

LIVING TREES (LINES 572 - 660)

The first part of this section extracts all relevant information of the raw data set downloaded from the Ona server. The way the Ona file is structured, i.e. creating a new column for each repetition of a group (e.g. add trees in nest 2), it was necessary to use a somewhat convoluted code to extract relevant information. In case of living trees, each nest had to be extracted separately. First, the DBH data were extracted along with the parent index (line 575). Second, the status of the trees (either alive or dead) was extracted along with the parent index (line 576). Line 577 removes the logical vector that is now needed for the further analysis. Lines 579 - 582 are a selection process to ensure compatibility between the data frames holding the DBH data and the status. Third, both data frames are converted into a single data frame separately (lines 584 - 587), merged together (line 589) and not relevant rows removed (i.e. rows without a DBH; line 590). The same process is repeated for nest 3 (lines 593 - 608) and nest 4 (lines 609 - 626), and all 3 data frames merged into a single data frame (lines 627 - 630). Then the forest type, plot, and subplot information are added to the data frame (line 633) and excludes dead trees (line 653).

The second part first calculates the biomass in kg for each tree by applying the appropriate allometric equations to the trees in different forest types (lines 637 - 642). The allometric equations for EF, MDF and DD forest type were recently developed in Laos, and the allometric equations for CF and MCB forests were developed in Vietnam. Secondly, the biomass per tree is then converted into biomass per ha (lines 644 - 646), and summed up by subplots (lines 649 - 651). Lastly, the C stock is calculated by applying the conversion factor of 0.47 (line 655), the data frame stored as 2nd field season data only (line 657), and then combined with the data from the 1st field season (line 659).

Table 2: List of allometric equation for calculating tree AGB.

C pool		Equation	Source
AGB (living trees)	Evergreen Forest (EF)	AGB (kg/tree) =0.3112 x DBH^2.2331	JICS Forest Preservation Programme TA6 Final report
	Dry Deciduous Forest (DD)	AGB (kg/tree) =0.2137 x DBH^2.2575	
	Mixed Deciduous Forest (MDF)	AGB (kg/tree) =0.523081 x DBH^2	
	Coniferous Forest (CF)	AGB (kg/tree) =0.1277xDBH^2.3944	UN-REDD Programme, Hanoi, Viet Nam(2012)
	Mixed Coniferous and Broadleaf Forest (MCB)	AGB (kg/tree) =0.1277xDBH^2.3944	
AGB (dead standing trees class 1)	All forest types	AGB (kg/tree) =exp(-1.499 + 2.148 * log(DBH) + 0.207 * log(DBH)^2 - 0.0281 * log(DBH)^3	Chave et al. (2005)

SAPLINGS (LINES 661 - 686)

The sapling biomass is calculated as the number of sapling in the first nest multiplied by the average weight of a sapling in the forest type of the plot (666 - 669). Average weights could only be obtained from the EF, MDF and DD forests. For the remaining forest types the average value of the 3 forest types were used (Table 3).

Table 3: Average dry weight of sapling by forest type

Forest type	Average dry weight	Source
EF	113 g	"Development of specific allometric equations in Lao PDR"(2017)
DD	252 g	
MDF	191 g	
Others	184 g	

BAMBOO (LINES 687 - 750)

For calculating the bamboo pole biomass, the average diameter of all five bamboo poles sampled per sub-plot was calculated and a bamboo specific allometric equation used (Equation 1). Then the individual pole biomass was multiplied by the number of poles of the clump and an expansion factor to arrive at the bamboo biomass per ha.

Equation 1: Allometric equation for bamboo biomass (kg) from Hung et al. (2012), where D is the diameter of the bamboo pole (cm)

DEADWOOD STANDING TREES (LINES 751 - 1178)

Dead standing trees were separated into 2 categories (class 1: dead trees with twigs and branches vs. class 2: dead standing trees without branches), of which class 2 was further separated into short trees and tall trees. Class 2 trees were treated as conical cylinders (lines 1096 - 1135), and the biomass of class 1 trees was calculated with a general allometric equation for tropical forests (see Table 2) and applying a conversion factor of 0.6 to it (line 1137).

DEADWOOD STUMPS (LINES 1179 - 1275)

The biomass of stumps was calculated assuming a cylindrical shape times wood density (Equation 2).

Equation 2: Equation to calculated stump biomass (B_{stump} in kg), where D_{mean} is the mean diameter (cm), H_{stump} is the height of the stump, and WD is the wood density (0.57 g/cm^3)

DEADWOOD LYING (LINES 1276 - 1369)

Lying dead wood was separated into 2 categories, i.e. hollow and solid, and further separated by 3 density classes (i.e. sound, intermediate, and rotten; Table 4). The volume of solid dead wood was calculated as a cylinder, whereas hollow dead wood was calculated as the difference between the outer cylinder and inner cylinder.

Table 4: Lying deadwood densities (g/cm^3) by density class and forest type

Forest type	Density class	Density (g/cm^3)	Source
EF	Sound	0.39	"Development of specific allometric equations in Lao PDR"(2017)
	Intermediate	0.34	
	Rotten	0.26	
DD	Sound	0.44	
	Intermediate	0.35	
	Rotten	0.32	
MDF	Sound	0.45	
	Intermediate	0.3	
	Rotten	0.29	
Other	Sound	0.44	
	Intermediate	0.33	
	Rotten	0.3	

DATA ANALYSIS

This section uses the processed data frames to compute the C stock summaries by plot, province and forest type and also adds the C stock data of the BGB and NTV pools. It further creates the data frames needed for the raw data download and the data frame for the graph.

SUMMARY BY PLOT AND PROVINCE (LINES 1369 - 1629)

The summaries are divided into two parts, i.e. one part for the data of both seasons (lines 1369 - 1529) and another part for the data of the 2nd season only (lines 1530 - 1629). Because the computations are very similar in both parts, only the code of the first part is explained in detail.

In the first step (lines 1371 - 1406) the data frames of each C pool (except BGB and NTV) at the subplot level is merged with the data frame that relates each plot to the province in which the plot was sampled, calculates the average and errors at the plot level (with a CI levels of 0.95 and 0.90) and renames the "mean" variable to "carbon".

In the second step (lines 1407 - 1421) the BGB C pool is calculated by relating the Root-to-Shoot (R/S) ratios for the different forest types and biomass averages to the AGB C stock (Table 5), and the summary is calculated as described above.

Table 5: Root-to-Shoot rations by forest type and AGB threshold

Forest type	AGB threshold	Root to Shoot ratio (R/S)	Source
EF, DD, MDF, and MCB	AGB < 125t/ha	R/S = 0.20	2006 IPCC Guidelines for National Greenhouse Gas Inventories (Chapter 4: Forest land, Table 4.4)
	AGB > 125t/ha	R/S = 0.40	
CF	AGB < 50t/ha	R/S = 0.46	2003 IPCC Good Practice Guidance for LULUCF (Chapter 3: LUCF Sector Good Practice Guidance, Table 3 A.1.8)
	AGB = 50 - 150t/ha	R/S = 0.32	
	AGB > 150t/ha	R/S = 0.23	

In a third step (lines 1422 - 1482) the summary for the NTV C pool is calculated. First, the data file is loaded and SE's and CIs are calculated (lines 1423 - 1427). Than the NTV data frame is merged with the AGB data frame to include the province names and forest types (lines 1429 - 1432). Then all plots that do not have NTV values are extracted from the AGB data frame (lines 1434 - 1435) and mean NTV C stocks and errors by forest type are assigned to each plot (Table 6; lines 1441 - 1479). The last 2 lines (1481 and 1482) combine the two data frames (i.e. individual NTV C stocks and mean NTV C stocks).

Table 6: Average C stocks tC/ha) of the non-timber vegetation (NTV) plots by forest type

Forest type	Sample size	C stock (tC/ha)	S.D.	Source

EF	78	1.12	1.06	"Development of specific allometric equations in Lao PDR"(2017)
MDF	358	1.09	0.58	
DD	84	0.5	0.31	
CF	133	0.75	0.68	
MCB	764	0.57	0.49	

In a final step (lines 1484 – 1529) the data frames of the C pools are combined and a new data frame is generated that includes the total C value by plot (line 1528).

RAW-DATA FOR DOWNLOAD (LINES 1630 - 1645)

This section generates the files to be downloaded as "raw data", and is divided into 2 steps. In the first step (lines 1631 - 1636) loads the different C pool data from the 1st field season, and the 2nd part combines these with the data of the 2nd field season (lines 1638 - 1644), with the only exception being NTV, where "NTV_1st.csv" already included the data sets of both field seasons (line 1644)

DATA SET FOR THE GRAPH (LINES 1646 - 1672)

This section uses the data frames of each C pool on the plot level. In the first step (lines 1647 - 1653) it subsets these data frames to include only the relevant forest types (i.e. EF, MDF, CF, MCB, and DD). In the second step (1655 - 1661) it merges the data frames sequentially starting with the AGB data frame. In a third step (lines 1663 - 1669) BGB data are added by applying the different R/S-ratios to the AGB column. In the final step (line 1627) the total C stock by plot is calculated by summing the C stocks of all C pools.

NFI - SERVER

NFI Server (server.R) is divided into 4 sections, named after the items of the sidebar in the user interface of the app, i.e. "Summary", "Tables" (including the sub items "Summary Table" and "Excluded plots"), "Raw data", and "Map" (Figure 4). The NFI Server code takes the input form NFI Interface to produce the different summaries, graphs, tables, and the map, and renders them as output, which in NFI Interface will be converted into html objects.

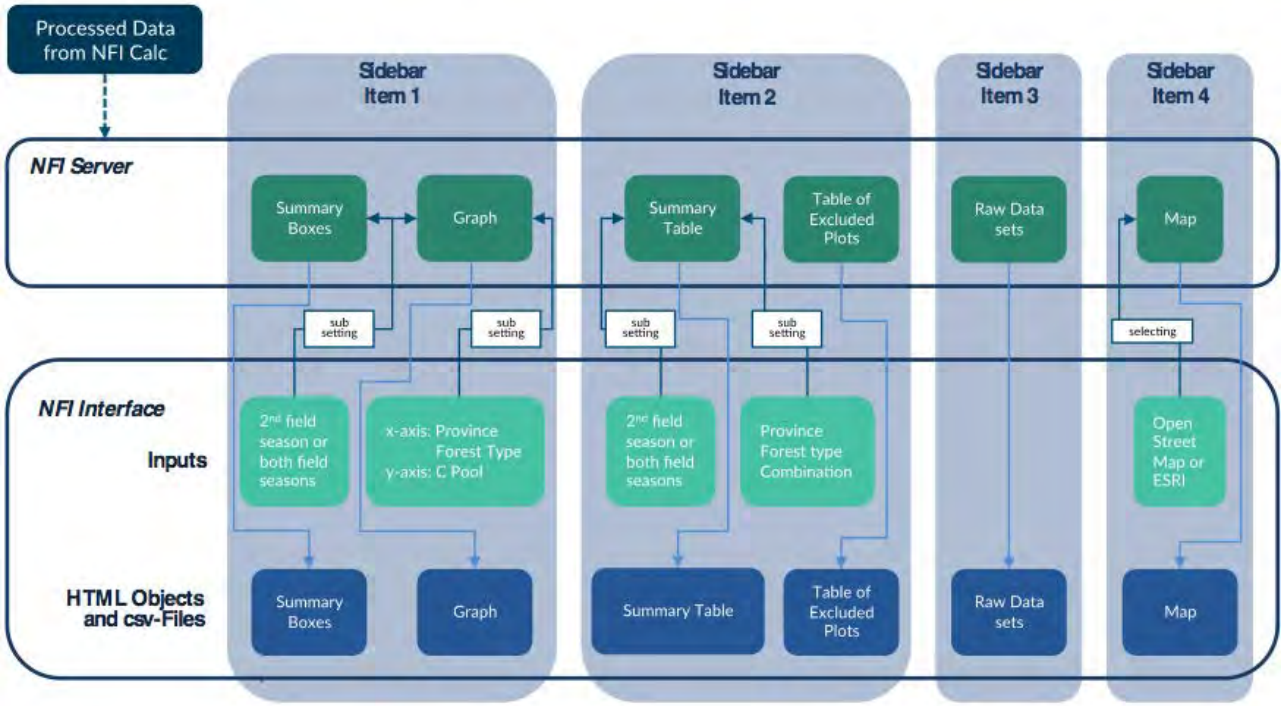

Figure 4: Flowchart of NFI Server and NFI Interface

As a first step in NFI Server the data frames produced by NFI Calc (see Table 7) have to be sourced via line 4.

Table 7: Input files from NFI Calc to NFI Server

Sidebar location	Data frame name	Description
Sidebar Item 1 (“Summary”)	N.prov.new	Input for boxes displaying the sampling progress
	dat.graph1	Input for the graph
Sidebar Item 2, sub item 1 (“Summary Table”)	carbon.new	Input for the summary table
	carbon.new.90	
	carbon.mima	
	carbon.new16	
	carbon.new16.90	
	carbon.mima16	
Sidebar Item 2, sub item 2 (“Excluded Plots”)	ex.plot.end	Input for the table of excluded plots
Sidebar Item 3 (“Raw Data”)	ldw1st	Raw data (lying dead wood)
	stum1st	Raw data (stumps)
	deadT1st	Raw data (dead standing trees)
	bamb1st	Raw data (bamboo)
	livT1st	Raw data (living trees)
	living_trees_co	Pre-processed data (lying dead wood)
	dead_trees.co	Pre-processed data (stumps)
	bamboo_co	Pre-processed data (dead standing trees)
	stump_co	Pre-processed data (bamboo)
	ldw.class_co	Pre-processed data (living trees)

SIDEBAR ITEM 1 (“SUMMARY”; LINES 6 - 104)

Sidebar Item 1 renders the output to render the current progress of the sampling either using the data of both field seasons or the data of the current field season only. It is structured into 2 parts.

The first part ("Boxes") uses the data frame "N.prov.new" to render the progress of the sampling in 3 boxes. The outputs “finished” and “finished16” render a box that shows how many plots were used to calculate the results as a fraction and percentage of the initial number of plots (lines 8 - 29), The outputs “remaining” and “remaing16” render a box that shows how many plots have not been sampled yet, also as fraction and percentage of the initial number of plots (lines 30 - 51). The outputs “excluded” and “excluded16” render a box that shows the number of plots excluded from the analysis as fraction and percentage of the sampled number of plots (lines 52 - 73).

The second part ("Graph") uses the data frame "dat.graph1". In the first step it pulls the 2 selected input variables from NFI Interface (lines 75 - 78) and subsets the data frame accordingly (lines 79 - 82). Lines 83 - 104 are than used to render the output “figure1” for NFI Interface by loading the required packages (lines 84 and 85), assigns the color palette used in the graph (line 87), and uses the ggplot function to produce the graph as boxplots with error bars (lines 89 - 103).

SIDEBAR ITEM 2 (“TABLES”; LINES 105 - 418)

Sidebar Item 2 is divided into two sub item: sub item 1 ("Summary Table"; lines 106 - 397) and sub item 2 ("Excluded Plots"; lines 398 - 418).

The first section of sub item 1 renames the variable inputs from NFI Interface (lines 108 - 116), defines a variable to show either the analysis of both field seasons or the analysis of the 2nd field season only (lines 118 - 124), stores this variable as text to be used in NFI Interface (lines 126 - 128) and hides the output when displayed in the app (line 129). The latter is necessary otherwise the user would get unwanted text displayed.

The second section ("Summary table both seasons"; lines 131 - 269) and the third section ("Summary table 2nd season only"; lines 270 - 397) of sub item 1 are essentially the same, but take the data from both field season and the 2nd field season only, respectively, as input from NFI Calc. Thus, only the calculations for the second section are explained. In the first step (lines 132 - 134) the sample sizes are calculated using the custom function "summarySE", which uses the user defined input variable from lines 108 - 116. In the second step the average C stocks and corresponding SDs are calculated by input variables and C pool (lines 136 - 138). In the third step the averages are summed up by input variable, summed SDs, SEs, CIs, and Uncertainties with a level of 0.95 are calculated (lines 140 - 151) using the custom function "summarySUMse". In a forth step minimum and maximum of the C stock by input variable are calculated (lines 153 - 176), which needs to take into account that in certain provinces the C stock are zero. Lines 178 - 193 do the same calculations as step 2 and 3 with the difference that a level of 0.90 is used to calculate the CI and uncertainty. Lines 195 - 212 and lines 214 - 230 combine the summaries with the 2 confidence levels, for two input variables ("carbon.new.summary.2", a combination of forest type and province) and one input variable (“carbon.new.summary.1", either forest type or province), respectively. Lines 233 - 240 define a hidden variable, which is used as input for the conditional display in NFI Interface of either summary. Lines 243 - 248 render the two summaries as tables (“table2” and “table1”), and lines 250 - 252 renders a text that would be displayed if no input variable is selected. Lines 254 - 268 create csv-versions of the two summaries.

The first part of sub item 2 renders the text explaining the rules for plots exclusion (lines 399 - 411), and the second part (lines 413 - 417) render the excluded plots table (“explotTable”) using the input "ex.plot.end" from NFI Calc.

SIDEBAR ITEM 3 (“RAW DATA”; LINES 419 - 538)

Sidebar Item 3 is divided into 2 parts (raw data and pre-processed data), where the first 3 lines of each part (lines 420 - 422 and lines 479 - 481) render the text explaining the data, and the subsequent lines (423 - 477 and 483 - 538) create the csv-files of the raw data of each C pool and creation of csv-files of the pre-processed data of each C pool, respectively.

SIDEBAR ITEM 4 (“MAP”; LINES 539 - 563)

Sidebar Item 4 is divided into 2 parts. In the first part, line 541 loads the data frame that includes the coordinates, plot number and subplot description from the 1st field season and line 542 removes rows of the dataset that are "NA". Lines 543 - 548 uses the downloaded data set from the Ona server to create a similar data frame for the 2nd field season to the one above and also removes rows with "NA", and line 550 combines the two data frames. In the second part (lines 553 - 563), the map is rendered using the Leaflet package by using Open Street Map as base layer and satellite imagery from ESRI as an alternative base layer and adds circular markers displaying the sub plot location, including a pop-up window and a clustering option to ease visibility of the different subplots.

NFI – INTERFACE

NFI Interface (ui.R) is the part of the app that supplies inputs to NFI Server in order to subset the data accordingly, and transforms the processed and rendered outputs from NFI Server (i.e. summary boxes, graph, summary tables, table of excluded plots, raw data, and the map) into html object that are displayed in the app (Figure 4). It is structured in the same manner as NFI Server including sections for all items of the sidebar and takes the output defined in NFI - Server as input to be displayed in the different sections. The differences include the loading of the required packages (lines 2 - 7), and loading of predefined inputs (i.e. province names, forest types, and the variable input for the x- and y - axis of the graph; lines 8 - 10).

APPEARANCE (LINES 12 - 27)

The appearance section defines the layout of the user interface (UI). This includes the overall style (line 13), the header ("Laos NFI dash", line 16), and the structure of the sidebar, including the items and sub items (lines 17 - 27).

SIDEBAR ITEM 1 ("SUMMARY"; LINES 31 - 78)

The sidebar item 1 is structured into 2 parts in which the user can look at the progress of both seasons combined or only the progress of the 2nd field season. Each of these parts displays the current progress in 3 boxes (i.e. Calculated plots, Remaining plots, and Excluded plots; lines 32 - 51) as number of plots or as percentage.

Below the boxes the graph is displayed (lines 52 - 77), with 2 dropdown menus in which the user can select the variables he would like to display on the x - and y - axes of the graph.

SIDEBAR ITEM 2 ("TABLES"; LINES 79 - 173)

The sidebar item 2 does have 2 sub items ("Summary Table" and "Excluded Plots"). Line 81 assigns this item to the corresponding item in the Appearance section cross-referenced by the tabName.

The sub item 1 ("Summary Table"; lines 82 - 159) has 3 different parts. The upper part displays 2 rows of radio buttons, from which the user can select the input variables for the table (lines 84 - 104). These input variables are fed back to NFI server to select the user-defined variables, which are used to calculate the summaries.

Lines 106 - 117 are used to display the download buttons for the table defined by the user. There are 4 different combinations coded as conditional panels, i.e. only 1 input variable (either Forest Type or Province) or 2 input variables (either Forest Type and Province or Province and Forest Type), which uses either data from both field seasons or data from the 2nd field season only.

Lines 119 - 138 are CSS code that defines the style of the table, and lines 140 - 158 are again conditional panels to display the table.

The sub item 2 ("Excluded Plots"; lines 160 - 173) has 2 parts, i.e. a description on the rules for excluding certain plots from the analysis (lines 164 - 167), and the table itself (line 170).

SIDEBAR ITEM 3 (RAW DATA) (LINES 174 - 226)

The sidebar item 3 is structured into 2 parts, one part for the raw data (lines 175 - 207), and one part for the preprocessed data (lines 209 - 241). Both parts have a short description on the data ("textOutput") and a download button for each individual C pool.

SIDEBAR ITEM 4 (MAP) (LINES 243 - 247)

The sidebar item 4 displayed the output from the leaflet function ("leafletOutput"; line 246).

OTHER SCRIPTS USED

Beside the 3 scripts described above we used 3 other scripts, i.e. “NFI-Calc for the first phase”, “QC data and analysis”, and “ER PD data only” were also used. The scripts can be found as Supplement 4, 5, and 6, respectively, of this report.

“NFI-Calc for the first phase” is an earlier version of NFI-Calc used in the first phase of the data collection process. Essentially is does the same as NFI-Calc with 2 minor differences. Firstly, it does not download the raw data directly from the Ona server, but one has to manually download the data from the Ona website as “CSV ZIP” and unpack the file. Secondly, the field teams in the first phase of the data collection made a substantial amount of error while entering plot numbers, subplot descriptions, and sometimes forest types. These were corrected in the script (lines 121 – 215) rather then on the Ona website to save time.

“QC data and analysis” also uses a substantial amount of code from “NFI-Calc” (lines 9 – 921) to compute average C stock of the different C pools by province, forest type, and subplot. It then combines data frames by C pool into a single data frame (lines 924 – 949). Lines 952 – 978 create a similar data frame using the data frames of each C pool from “NFI-Calc”, and subset it to include only the plots sampled in the QC process. Further, the forest types of the QC sample plots are changed to the forest types of the normal sampling (line 885). Than the Shapiro-Wilks test is used to test for normality (untransformed, log-transformed, and the Box-Cox transformation) for each plot in the QC data frame (lines 986 – 1001) and each plot in the “normal” data frame (lines 1002 – 1014). Than the 2 data frames are combined while also creating a column for "treatment", i.e. “qc” for the QC data, and “norm” for normal data (lines 1017 -1024). In order to test significant differences between QC and “normal” data by province and forest type, two additional variables were created (“treat.type” in line 1027). Finally, the significance tests to check for significant differences between forest types of the QC and normal sampling was carried out a using non-parametric multiple contrasts test with “Tukey”-contrasts, because no normal distributed data were encountered while testing for normality (line 1036), and non-parametric t-test for plot by plot comparison (lines 1038 - 1074).

“ER PD data only” was used to calculate means and errors for the provinces included in the “ER-PD” process by using all C pools and by excluding C pools of dead trees and litter form the analysis because the only made up for less than 10% of the total biomass (determined by the FREL/FRL).

ADAPTING NFI DASH FOR FUTURE NFI

The different scripts can easily modified by users who have a proficient knowledge of R and in particular of the R-package shiny, which differs in parts from R. However, depending on the gravity of the changes, different parts, sections, or the entire script would have to be modified. Table 8 summarizes the changes that would need to be made if certain parts of the NFI would change in the future.

The main types of changes considered include potential changes to the SOP, changes to the surveying tool, as well as changes to the ODK form (Table 8). Changes to the surveying tool would have the highest impact on the current app, because regardless of the tool, the raw data output will be hugely different to the current output, thus substantial changes would have to be made in all scripts. However, the current script could be used as some sort of template. Changes to the SOP in terms of sampling design, plot design, different rules, land types and C pools would also have a fairly large impact on the app, not only because the different sections would have to be revised, but also the ODK form would be changed and thus the variable names. Changes in input names and slight structural changes would have the least impact on the app of the three types of changes considered.

Provide below are approximations of the time required to implement the changes listed above. As a rule of thumb on can generally assume that very small changes in the SOP/ODK form would only require very few changes, but changing the surveying tool would make it very hard to change the code of the different scripts.

Table 8: List of changes to the current version of the NFI and the effect the NFI – Dash scripts including approximations of time required to implement these changes

Item	Changes to current NFI	Changes to the section of scripts (script name)	Time required (approximately)
SOP	Sampling design	Revise calculations of all C pools (NFI-Calc)	1 - 5 days
	Plot design	Revise calculations of all C pools (NFI-Calc)	1 - 5 days
	Rules to include/ exclude plots	Revise section “apply rules for inclusion/ exclusion” (NFI-Calc)	1 - 5 days
	Land types included	Revise section “apply rules for inclusion/ exclusion” and revise calculations of all C pools (NFI-Calc); all tables and plots (Server)	1 - 5 days
	C pool included	Revise calculations of all C pools (NFI-Calc); all tables and plots (Server)	1 - 5 days
ODK form	Input names and structure	Revise all input variable names (NFI-Calc)	1 - 5 days
Surveying tool	New system other than ODK	Consider total rewrite (NFI-Calc)	10 – 20 days

APPENDIX

Table 9: Specific equations and values used in NFI-Calc to calculate the different C pools included in the current NFI that are not listed in the SOP

C pool	Forest type	Equation/ Value	Source
AGB (living trees, kg/tree)	Evergreen Forest (EF)	AGB=0.3112 x DBH^2.2331	JICS Forest Preservation Programme TA6 Final report
	Dry Deciduous Forest (DD)	AGB=0.2137 x DBH^2.2575	JICS Forest Preservation Programme TA6 Final report
	Mixed Deciduous Forest (MDF)	AGB=0.523081 x DBH^2	JICS Forest Preservation Programme TA6 Final report
	Coniferous Forest (CF)	AGB=0.1277xDBH^2.3944	JICS Forest Preservation Programme TA6 Final report
	Mixed Coniferous and Broadleaf Forest (MCB)	AGB=0.1277xDBH^2.3944	JICS Forest Preservation Programme TA6 Final report
BGB (Root-to-Shoot Ratio, RS)	EF, DD, MDF, and MCB; AGB < 125t/ha	R/S = 0.20	2006 GL(V4_04_Ch4_Table4.4)
	EF, DD, MDF, and MCB; AGB > 125t/ha	R/S = 0.40	2006 GL(V4_04_Ch4_Table4.4)
	CF; AGB < 50t/ha	R/S = 0.46	2003 GPG(Anx_3A_1_Data_Tables3A.1.8)
	CF; AGB = 50 - 150t/ha	R/S = 0.32	2003 GPG(Anx_3A_1_Data_Tables3A.1.8)
	CF; AGB > 150t/ha	R/S = 0.23	2003 GPG(Anx_3A_1_Data_Tables3A.1.8)
Saplings (Dry weight (g) of average sapling)	EF	112 ± 99 (35)	"Development of specific allometric equations in Lao PDR"(2017)
	DD	252 ± 171 (34)	"Development of specific allometric equations in Lao PDR"(2017)
	MDF	191 ± 119 (35)	"Development of specific allometric equations in Lao PDR"(2017)
	Other	184 ± 143 (104)	"Development of specific allometric equations in Lao PDR"(2017)
Bamboo (single pole, kg/pole)	All forest types	AGB=0.1006xD2.222	Huang et al. (2012)
Dead standing trees (class 1, kg/tree)	All forest types	AGB=exp (-1.499 + 2.148 * log(DBH) + 0.207 * log(DBH)^2 - 0.0281 * log(DBH)^3	Chave et al. (2005)
Stumps (kg/stump)	All forest types	AGB=(((Dmean/2)2xπ)xH)Xx0.57x0.001	
Lying dead wood (wood density, g/cm3)	EF, Sound	0.39 ± 0.18 (8)	"Development of specific allometric equations in Lao PDR"(2017)

	EF, Intermediate	0.34 ± 0.09 (15)	"Development of specific allometric equations in Lao PDR"(2017)
	EF, Rotten	0.26 ± 0.10 (10)	"Development of specific allometric equations in Lao PDR"(2017)
	DD, Sound	0.44 ± 0.14 (17)	"Development of specific allometric equations in Lao PDR"(2017)
	DD, Intermediate	0.35 ± 0.19 (8)	"Development of specific allometric equations in Lao PDR"(2017)
	DD, Rotten	0.32 ± 0.13 (15)	"Development of specific allometric equations in Lao PDR"(2017)
	MDF, Sound	0.45 ± 0,14 (17)	"Development of specific allometric equations in Lao PDR"(2017)
	MDF, Intermediate	0.3 ± 0.09 (10)	"Development of specific allometric equations in Lao PDR"(2017)
	MDF, Rotten	0.29 ± 0.13 (7)	"Development of specific allometric equations in Lao PDR"(2017)
	Other, Sound	0.44 ± 0.14 (42)	"Development of specific allometric equations in Lao PDR"(2017)
	Other, Intermediate	0.33 ± 0.09 (33)	"Development of specific allometric equations in Lao PDR"(2017)
	Other, Rotten	0.30 ± 0.12 (32)	"Development of specific allometric equations in Lao PDR"(2017)
Non timber vegetation (average dry weight; tC/ha)	EF	1.12 ± 1.06 (78)	"Development of specific allometric equations in Lao PDR"(2017)
	MDF	1.09 ± 0.58 (358)	"Development of specific allometric equations in Lao PDR"(2017)
	DD	0.5 ± 0.31 (84)	"Development of specific allometric equations in Lao PDR"(2017)
	CF	0.75 ± 0.68 (133)	"Development of specific allometric equations in Lao PDR"(2017)
	MCB	0.57 ± 0.49 (764)	"Development of specific allometric equations in Lao PDR"(2017)

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Separate Volume

2-6 Development of Lao specific prediction equation of biomass for regenerating vegetation and establishment of a threshold number of years since abandonment, as Regenerating Vegetation, before becoming “forest”

Development of Lao specific prediction equation of biomass for regenerating vegetation

and

establishment of a threshold number of years since abandonment, as Regenerating Vegetation, before becoming “forest”

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March 2017

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Abbreviation

Abbreviation	Name
AGB	Above Ground Biomass
BGB	Blow Ground Biomass
CCR	Crown Cover Rate
DAFO	District Agriculture and Forest Office
DBH	Diameter at Breast Height
DOF	Department of Forestry
EF	Evergreen Forest
FIPD	Forestry Inventory and Planning Division
MD	Mixed Deciduous Forest
NUoL	National University of Laos
PAFO	Provincial Agriculture and Forest Office
REDD+	Reducing Emissions from Deforestation and Forest Degradation and the role of conservation of forests and enhancement of forest carbon stock
RV	Regenerating Vegetation
SOP	Standard Operation Procedure

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1. Executive Summary

Background

In Lao P.D.R, each year around 100~150 thousand ha of forest areas are affected by shifting cultivation. The area is cultivated for a short period, often one year, and then left to regenerate as "Regenerating Vegetation (RV)" which covered around 25% of the total area of Laos in 2015. Quantifying tree biomass in this landscape is limited by the availability of reliable allometric models. Furthermore, distinguishing between Regenerating Vegetation and "forest" through remote sensing is very difficult. We therefore developed a new predicting model of biomass for the prediction of biomass in Regenerating Vegetation based on the number of years since abandonment after upland cropping (sometimes herein referred to as "fallowed age") and also clarified the threshold number of years since abandonment, that is, the "threshold age" as RV, before becoming "forest" through drone surveys.

Survey method

Survey clusters are selected by Hansen Tree loss data, with further verification carried out in interview with residents to check whether the value for years since abandonment is appropriate. One cluster is laid out in each 1st year to 8 years in the 5 provinces. One cluster is composed of three plots. In each plot (10 m*10 m), for developing predicting model of biomass, the trees DBH (Diameter at Breast Height) (≧5 cm) are recorded and all vegetation is cut at the base except trees with DBH of more than 5 cm in each sub-plot (2 m*2 m). At the same time, a drone is used to take an aerial photograph of the plot in order to identify the crown cover rate. The crown cover rate is used for identifying the threshold number of years since abandonment, as RV, before becoming "forest".

Results

We found that a general model, including the number of abandoned years since cropping, is the best for estimating aboveground biomass (AGB= AGB = $1.7573e^{0.4107Y}$) of Regenerating Vegetation. Furthermore, the threshold number of years since abandonment, as RV, before becoming forest, is concluded as 7 years.

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2. Introduction

2.1 Background

In the upland of Laos, shifting cultivation is a major cause of disturbance in Laos's forest. Each year around 100~150 thousand ha of forest areas are affected by slash and burn agriculture. The area is cultivated for a short period of mainly one year and afterwards left as "Regenerating Vegetation (RV)," which covered around 25% of Laos's total land area in 2015. Figure 1 gives an overview of the extent of the RV area in Laos.

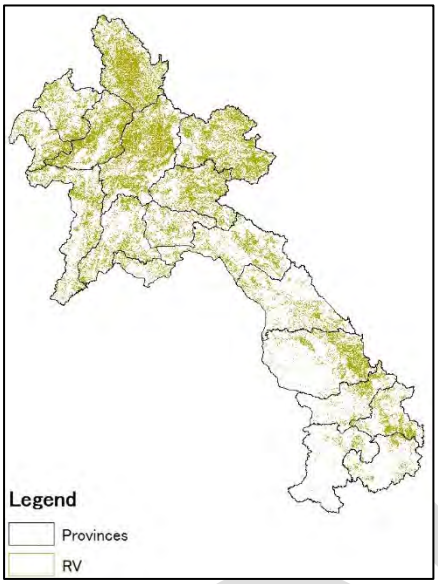

Figure 1: RV area in Laos (2015)

To implement Reducing Emissions from Deforestation and Forest Degradation and the role of conservation of forests and enhancement of forest carbon stocks (REDD+), knowledge of the amount of carbon in each land cover type is needed. The estimate of carbon stock in RV, however, has a large degree of uncertainty due to the variety of tree species, the difference of amount of bamboo dominant and geographical elements. In northern Lao P.D.R, predicting modes of biomass was successfully developed, which established the relationship between fallow age and fallow-age-average carbon stocks (Kiyono, *et.al.* 2007).

On the other hand, it was found that distinguishing RV and "forest" (mostly Mixed Deciduous Forest (MD)) through remote sensing results in high uncertainty. As supplemental information to classify the RV and forest, recording the number of abandoned years since cropping of upland fields can be helpful. The threshold age of fallowed upland crop field to regenerate to "forest" (MD) is assumed to be around 6 years according to forestry experts. Forest definition in Lao P.D.R is shown in Table 1. In the field, it is not difficult to identify the DBH size and area. On the other hand, the crown

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cover rate is difficult to judge from the field level. Thus, a drone is used in this survey to identify the crown cover rate of the survey site.

Table 1: Forest definition in Lao P.D.R

Minimum Threshold of Forest Definition		
DBH	Crown Cover Rate	Minimum Area
10 cm	20%	0.5ha

2.2 Objectives

This survey contributes to the following two objectives.

I. To develop the fallowed age based on predicting model of biomass for RV

II. To clarify the threshold age of abandoned years between RV and "forest".

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3. Preparation

3.1 Survey sites

For the estimation of carbon stocks in the trees, non-woody vegetation and bamboo, sampling should take place across an RV area. Regenerating vegetation is mainly found in the northern part of Laos. Thus, the breakdown of survey sites is as follows: three in the northern region, one in the central region and one in the southern region. RV periods used in the shifting cultivation were about 20 years in the 1970s, but decreased to 5 years in the 1990s, mainly due to increased population density (Roder 1997). Thus, in each survey site, a total of eight clusters, one cluster in each 1st year to 8th year, are distributed. Table 2 and figure 2 show the number of clusters and their locations.

For selecting proper survey sites, that is, ones which have passed the proper number of year since being abandoned as crop land, Hansen Tree loss data is used. This data shows time-series analysis of Landsat images in characterizing the global forest area and change from 2000 through 2014. Surveyor conducts double checks in interviews with residents as to whether the number of abandoned years is appropriate.

Table 2: Number of cluster in each region

Region	Province	Age of abandoned year	Number of Cluster	Subtotal
North	Bokeo	1,2,3,4,5,6,7,8	1	8
North	Xayabouly	1,2,3,4,5,6,7,8	1	8
North	Xiengkhouang	1,2,3,4,5,6,7,8	1	8
Central	Bolikhamxay	1,2,3,4,5,6,7,8	1	8
South	Xekong	1,2,3,4,5,6,7,8	1	8
			Total	**40**

Figure 2: Cluster location

3.2 Equipment & permission letter

The equipment list is shown on Attachment 8.3. This describes the process of acquiring permission to use drones in Lao P.D.R. Phantom 3 (specification can be confirmed in the following link_ http://www.dji.com/phantom-3-standard/info#specs) was used for this survey. The survey institution, (Forest Investment Planning Division (FIPD) /Department of Forestry (DOF)), made a request letter and submitted it to the Ministry of Defense and Ministry of Aviation. In total, it took four weeks to get permission. The staff

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from Ministry of Defense accompanied the entire survey. The following shows the contents of the letter.

- Purpose of the survey
- Survey sites (provinces)
- Survey method

3.3 Preliminary survey & trainings

Before starting the full survey implementation, preliminary surveys were conducted in the Thai Heua district (three-hour drive from central Vientiane) to test survey site selection, plot setting and drone activities. At the same time, trainings for a surveyor were implemented by the expert from KOKUSAI KOGYO. Furthermore, supplementary trainings were also given to the survey team just before the departure in December 2016.

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4. Survey method

Regenerating Vegetation (RV) grows mainly in abandoned fields of slash and burn farming and has not yet reached the forest definition as the Crown Cover Rate (CCR). The CCR of forests is defined as trees with DBH ≥10 cm in diameter are 20% or more of a minimum area > 0.5 ha. However, RV will become a forest in the future. The biomass of RV can be estimated by two survey components; tree measurement and vegetation cutting. Tree biomass is estimated by applying allometric equation of trees and other biomass is estimated by using a wet-to-dry weight ratio of RV's sub-samples. On the other hand, the result of the CCR is utilized for identifying boundary year after abandoned field of shifting cultivation between RV and forest. The details of survey manual are described in "SOP (Standard Operation Procedure) Regenerating Vegetation Survey"

4.1 Establishment of plot

GPS is used to navigate to the predetermined latitude and longitude of the primary sampling location. The center point of the first plot is chosen so that three plots can be set in the uniform RV area (Figure 3). Three square Regenerating vegetation plots will be set at each cluster. If the sampling area is not large enough for making a range of three plots, a cluster shall have only two plots and/or have plots 30 m apart.

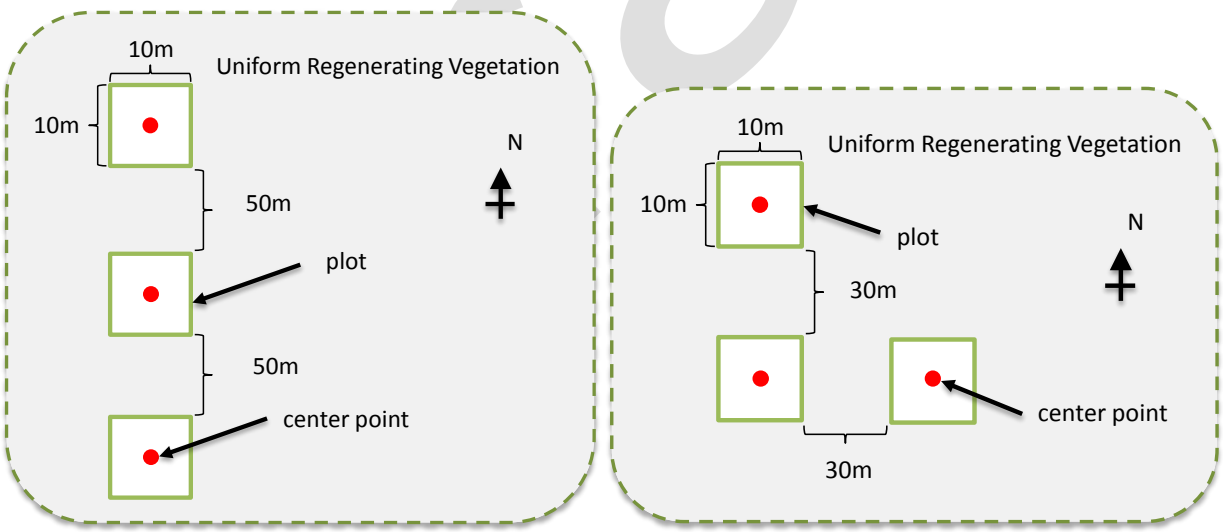

Figure 3: Clusters with three ranged square plots

Establish subplots

Subplots are used to sample all vegetation except trees with DBH ≥ 5 cm.

1) Starting at a corner of the plot, a sub-plot is located at 1 m x 1 m inside of the Plot (Figure 4).
2) The size of sub-plot is dependent on average height of vegetation. If the height is lower than 1 m, the size of sub-plot is 1 m*1 m. If the height is more than 1 m, the size of sub-plot is 2 m*2 m.
3) This is repeated three more times, starting from the other corners of the plot. In sub-plots, the following vegetation types will be sampled: Trees < 5 cm DBH, Saplings, Standing Dead Trees, Grass and Bamboo. The methods for sampling each of these vegetation types in the sub-plots are described in the following 'RV cutting'.

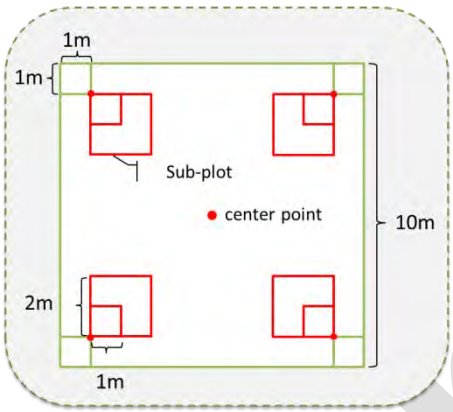

Figure 4: A plot with four square sub-plots.

4.2 Field measurement

Measurement of Trees

For each plot, the following are recorded: trees with DBH ≥ 5 cm, the position of measured trees on the data sheets for CCR analysis and the name of the trees.

Sample collecting

For each sub-plot:

a. All above ground vegetation including trees with DBH < 5 cm is cut at the base. Grass and bamboo inside of the sub-plots are completely cut down at the base.
b. All harvested vegetation are placed on plastic sheeting and weighed.
c. A representative sub-sample of vegetation is selected, including trees, grass and bamboo and is cut into small pieces.
d. The sub-sample (~500g) is weighed and recorded.

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e. Later, the sub-sample will be oven dried to a constant weight at 100°C, weighed, and the ratio of the dry weight of fresh weight will be calculated.

Crown Cover Rate (CCR) survey

For each plot:

a. Four poles at each corner of each plot are set, all of which must be exposed from the tree canopy.
b. Drone is used.
c. Pictures are taken at different elevations (20 m, 25 m, 30 m) at the center of the plot
d. The direction of the plot is recorded in the pictures.

4.3 Analysis method

Predicting equation of biomass

Tree biomass (DBH≥ 5 cm) is estimated by applying the following Lao specific allometric equation for Mix Deciduous Forest and other biomass using a wet-to-dry weight ratio of sub-samples.

AGB=0.407*DBH^2.069

On the other hand, biomass of vegetation (DBH<5 cm) are estimated by using dry-wet ratio, which are estimated from sample drying in the oven. Around 4 samples were collected in the field for each plot in order to obtain the dry-wet ratio for estimating whole dry weight of vegetation. Thus, more than 480 samples must be dried in the oven. There is no oven with sufficient capacity to dry such large amounts of samples in Laos. Therefore, samples were dried in the oven of NUoL as a first step at 80 °C. One sample from each plot was selected in order to be dried in the oven at more than 100°C. The 80-100°C ratio contributes to the estimate of absolute dry mass of biomass in each plot. The total biomass of each plot is summed by the two above-mentioned methods. The average biomass of each cluster is obtained by the average of the three plots. A predicting equation of biomass was developed by using the number of abandoned years since cropping as a parameter.

Crown Cover Rate (CCR)

Trees with DBH≧10 cm are identified by referring to the data sheet. The crown for each tree on the GIS software is digitized and the area percentage of CCR in the plot is calculated. Average CCR of each cluster is estimated and plotted on the graph in order to identify the age of abandoned year between RV and forest.

Draft

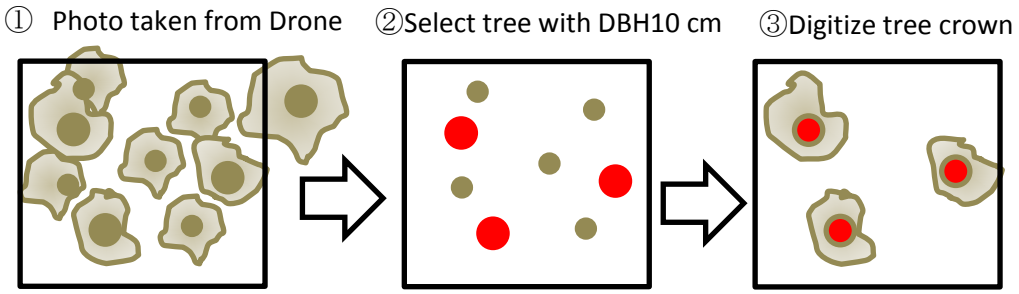


Figure 5: Analysis process for CCR survey

Draft

5. Survey implementation

5.1 Implementation structure (team organization)

Survey team is organized with the following members.

Table 3: Survey team member

Institution	Number of staff
FIPD (Forest Inventory and Planning Division)	2
Driver	2
PAFO (Provincial Agriculture and Forest Office)	1
DAFO (District Agriculture and Forest Office)	1
Villager	1
Drone expert	1
Ministry of defense	1

5.2 Schedule

The survey was implemented in a total of 31 days, not including traveling and coordinating days. Details of the schedule can be confirmed in the following table.

Table 4: Schedule

Province	Schedule
Xayabouly	27-Nov-2016 to 7-Dec-2016 (11 days)
Bokeo	9-Dec-2016 to 13-Dec-2016 (5 days)
Xiengkhouang	17-Dec-2016 to 22-Dec-2016 (5 days)
Xekong	24-Dec-2016 to 29-Dec-2016 (5 days)
Bolikhamxay	7-Jan-2017 to 12-Jan-2017 (5 days)

Draft

6. Results

6.1 Predicting equations of biomass

Figure 6 shows the relationship between the number of abandoned years since cropping and the amount of carbon (assuming that carbon fractions account for 0.49 of biomass (IPCC National Greenhouse Gas Inventories Programme 2006)).

$$AGB = 1.7573e^{0.4107Y}$$

Y represents the number of abandoned years since cropping. This equation can be used for RV areas that have been fallow for 1-7 years.

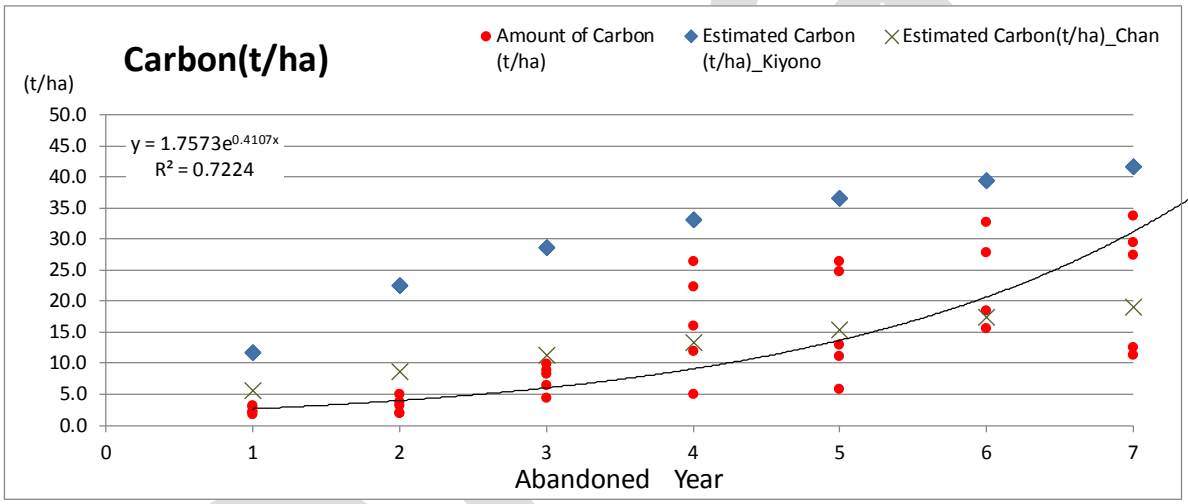


Figure 6: Relationship between the number of abandoned years since after cropping and the amount of carbon. Filled circle shows the carbon in this survey. Filled diamond shows the estimated carbon by Kiyono equation. Cross shows the estimated carbon by Chan equation.

Kiyono equation, shown below, was developed in carbon stocks of pachymorph bamboo communities in slash and burn agriculture fallow, northern Laos. In figure 6, the estimated carbon by Kiyono equation is shown as filled diamond. Kiyono equation is as follows (Kiyono *et al.* (2007))

$$C_{b+d+l} = 15.378[\ln(Y)] + 11.815 \qquad (n = 6, R2 = 0.9327, p = 0.0017)$$

Where; C_{b+d+l} is the sum of C stocks in the community's biomass, deadwood and litter (MG C /ha/year), Y is the number of years since the last slash-and-burn cropping

Chan equation, shown below, was developed in carbon stocks of swidden cultivation fallows in mixed deciduous forest of the Bago Mountains, Myanmar. In figure 6, the estimated carbon by Chan equation is shown as a cross mark using IPCC carbon fraction (IPCC, 2006). Chan equation is as follows (Chan *et al.* (2013))

$$Ln(y) = 2.439+0.629Ln(x) \quad (R2=0.721,\ P<0.001)$$

Where; Y is the sum of aboveground biomass (MG/ha), X is the number of fallow age (years)

The variation of carbon is not small, especially in the areas over 4 years. In the RV field, growing vegetation has many kinds of barriers. For example, in the early period of abandoned year, if bamboo dominates the area, tree growing may slow. Thus, the variation of carbon is natural.

Kiyono equation was developed and included BGB, Deadwood and litter. Therefore, biomass accumulation appears to have been faster in northern Laos than in the case of Myanmar (Chan *et al.* 2013). Both predicting models are developed based on Logarithmic approximation, because the target age (year) is more than 25 years. Thus, at an early stage, biomass growth is steep, but after a certain period, the biomass values converge. On the other hand, the RV that is the subject of this survey covers up until seven years, so the biomass volume tends to increase even in the latter period. Therefore, the exponential approximation is adopted in the equation

Since this survey is distributed in 5 clusters for each year, variations in areas for each year are not considered. Thus, although the average carbon calculated in this survey is estimated with uncertainty to some extent, it is 13.6 t/ha and the standard deviation is 11.1.

Draft

6.2 Crown Cover Rate

Table 5 shows the average Crown Cover Rate (CCR) of each cluster. And Figure 7 shows average CCR of each cluster and approximate curve on the graph. According to this figure, at the site where the DBH and the minimum area satisfy the forest definition, CCR achieves 20 % after 7.4 years on average. Thus, the threshold age of abandoned years between RV and "forest" is concluded as **7 years**.

Table 5: Average Crown Cover Rate in each cluster

Bokeo			Xayabouly			Xiengkhouang			Bolikhamxay			Xekong		
Cluster	Year	%	Cluster	Year	%	Cluster	Year	%	Cluster	Year	%	Cluster	Year	%
Bk1	1	0.0	Xa1	1	0.0	Xi1	1	0.0	Bl1	1	0.0	Xe1	1	0.0
Bk2	2	0.0	Xa2	2	0.0	Xi2	2	0.0	Bl2	2	0.0	Xe2	2	0.0
Bk3	3	0.0	Xa3	3	0.0	Xi3	3	0.0	Bl3	3	0.0	Xe3	3	0.0
Bk4	4	5.0	Xa4	4	1.3	Xi4	4	0.0	Bl4	4	3.6	Xe4	4	0.0
Bk5	5	10.8	Xa5	5	0.0	Xi5	5	3.9	Bl5	5	12.6	Xe5	5	1.0
Bk6	6	14.8	Xa6	6	15.2	Xi6	6	7.4	Bl6	6	3.5	Xe6	6	15.0
Bk7	7	31.9	Xa7	7	10.0	Xi7	7	18.0	Bl7	7	34.8	Xe7	7	16.7
Bk8	8	40.4	Xa8	8	5.2	Xi8	8	10.9	Bl8	8	49.4	Xe8	8	4.3

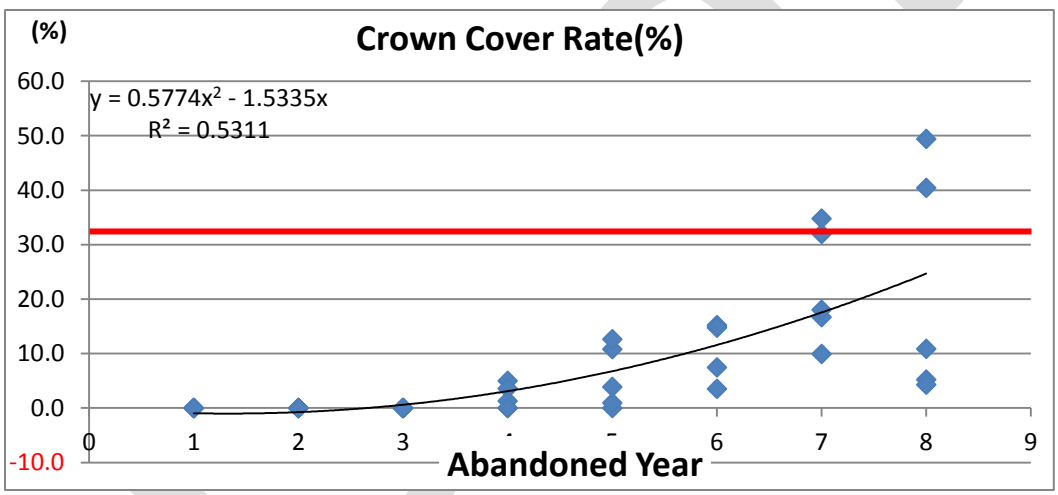


Figure 7: Average Crown Cover Rate in each cluster

The variation of CCR is not small. In RV field, vegetation growing has many kinds of barriers. For example, in the early period of abandoned year, if bamboo dominates the area, tree growing may slow. Thus, the variation of CCR is natural.

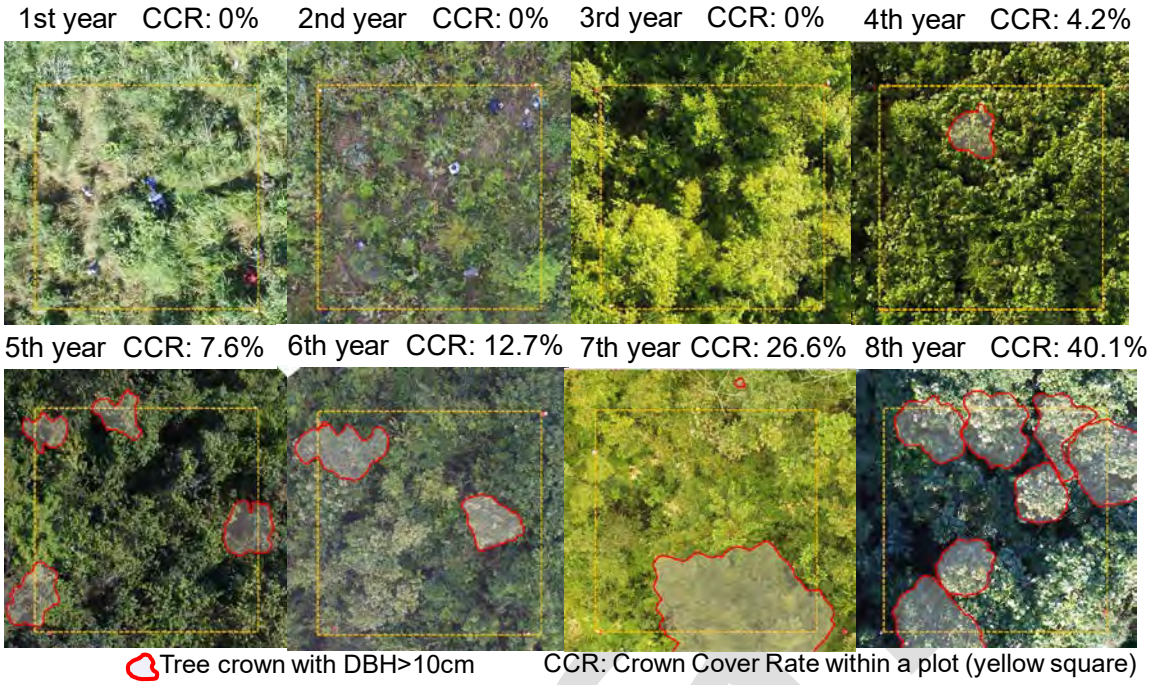


Figure 8 : Example of CCR in each year

7. References

- Kiyono *et al*. (2007) Predicting chronosequential changes in carbon stocks of pachymorph bamboo communities in slash-and-burn agricultural fallow, northern Lao People's Democratic Republic

- Roder W (1997) Slash-and-burn rice systems in transition: challenges for agricultural development in the hills of Northern Laos. Mountain Res Dev 17:1–10

- SOP (Standard Operation Procedure) Regenerating Vegetation Survey

- Nyein Chan *et al*. (2013) Establishment of allometric models and estimation of biomass recovery of swidden cultivation fallows in mixed deciduous forests of the Bago Mountains, Myanmar

8. Attachment

8.1 Result of biomass survey

	Cluster ID	Age	Province	District	Date	Biomass (t/ha)	Carbon (t/ha)
1	BK1	1	Bokeo	Meung	2016/12/11	3.5	1.7
2	BK2	2	Bokeo	Meung	2016/12/9	8.0	3.9
3	BK3	3	Bokeo	Meung	2016/12/11	8.3	4.1
4	BK4	4	Bokeo	Meung	2016/12/12	35.6	17.4
5	BK5	5	Bokeo	Meung	2016/12/12	38.9	19.1
6	BK6	6	Bokeo	Meung	2016/12/12	49.7	24.4
7	BK7	7	Bokeo	Meung	2016/12/11	65.5	32.1
8	BK8	8	Bokeo	Meung	2016/12/10	-	-
9	XA1	1	Xayabouli	Ngeun	2016/12/1	6.4	3.2
10	XA2	2	Xayabouli	Thongmyxai	2016/12/6	3.8	1.9
11	XA3	3	Xayabouli	Ngeun	2016/12/2	13.9	6.8
12	XA4	4	Xayabouli	Thongmyxai	2016/12/6	44.5	21.8
13	XA5	5	Xayabouli	Thongmyxai	2016/12/7	16.2	7.9
14	XA6	6	Xayabouli	Ngeun	2016/11/30	66.9	32.8
15	XA7	7	Xayabouli	Thongmyxai	2016/12/6	18.7	9.1
16	XA8	8	Xayabouli	Thongmyxai	2016/12/6	-	-
17	XI1	1	Xiengkhuang	Khoune	2016/12/12	6.1	3.0
18	XI2	2	Xiengkhuang	Khoune	2016/12/17	6.3	3.1
19	XI3	3	Xiengkhuang	Khoune	2016/12/18	14.3	7.0
20	XI4	4	Xiengkhuang	Khoune	2016/12/22	8.4	4.1
21	XI5	5	Xiengkhuang	Khoune	2016/12/22	9.9	4.9
22	XI6	6	Xiengkhuang	Khoune	2016/12/17	23.9	11.7
23	XI7	7	Xiengkhuang	Khoune	2016/12/19	17.6	8.6
24	XI8	8	Xiengkhuang	Khoune	2016/12/20	-	-
25	XE1	1	Xekong	Lamarm	2016/12/28	4.4	2.1
26	XE2	2	Xekong	Lamarm	2016/12/24	7.2	3.5
27	XE3	3	Xekong	Lamarm	2016/12/25	13.1	6.4
28	XE4	4	Xekong	Lamarm	2016/12/28	18.0	8.8
29	XE5	5	Xekong	Lamarm	2016/12/29	18.5	9.0
30	XE6	6	Xekong	Lamarm	2016/12/25	42.6	20.9
31	XE7	7	Xekong	Lamarm	2016/12/24	46.3	22.7
32	XE8	8	Xekong	Lamarm	2016/12/26	-	-
33	BL1	1	Bolikhamxay	Viengthong	2017/1/9	4.4	2.2
34	BL2	2	Bolikhamxay	Viengthong	2017/1/7	3.9	1.9
35	BL3	3	Bolikhamxay	Viengthong	2017/1/11	13.4	6.6
36	BL4	4	Bolikhamxay	Viengthong	2017/1/8	22.2	10.9
37	BL5	5	Bolikhamxay	Viengthong	2017/1/7	40.3	19.7
38	BL6	6	Bolikhamxay	Viengthong	2017/1/12	24.5	12.0
39	BL7	7	Bolikhamxay	Viengthong	2017/1/9	51.2	25.1
40	BL8	8	Bolikhamxay	Viengthong	2017/1/8	-	-

DRAFT

8.2 Activity photos

MD-RV Team member (Sekong Province)

Drone training (Xayabouly Province)

Field site discussion (Bokeo Province)

Plot and pole setting (Xiengkhouang Province)

Measuring tree's DBH (Bolikhamxay province)

Sample bag preparation (Xayabouly Province)

8.3 Equipment list

Field Equipment:
Chainsaw
Handsaws
Machetes
DBH tape
Tree corer
50 kg scale
1~2 kg scale
Durable, but thin plastic sheeting ~2 m x 2 m
Durable plastic tarp (2 m x 2 m)
Cloth sample bags for sub-samples
Flagging tape
Chalk
Marker (to label bags and samples)
10 m of rope, 1 - 2 cm thick (to tie up scale and to weigh branches)
'Calibration weights' (see below)
< 50 m measure tape

Pole (>10 m)
Drone (Phantom 3 or higher spec one)
Extra drones, if necessary
Extra batteries for drones (At least 6 flights)

Laboratory Equipment:
Drying oven
Laboratory scale

8.4 Field note

RV DESTRUCTIVE SAMPLING DATA SHEET

Cluster _____ Location: _____ Date: _____
Team Leader: _____ GPS: _____ Time start: _____
Lat: _____ Time end: _____
Long: _____ Photo ID (overview): _____

Preparation
Weight of plastic sheet A: _____ g
Weight of plastic sheet B: _____ g
Weight of plastic sheet C: _____ g

Calibrating 50 kg scale:
Object weight: _____ g
Name of object: _____ g

Calibrating 1kg scale:
Object weight: _____ g
Name of object: _____ g

Calibrating 500 g scale:
Object weight: _____ g
Name of object: _____ g

Note:

1. Tree Measurement

Measure DBH and species of trees(DBH ≥ 5cm)

Plot 1
Photo ID Overview: _____
Photo ID North: _____
Photo ID East: _____
Photo ID South: _____
Photo ID West: _____
GPS coordination
Lat: _____
Long:

Tree ID	DBH (cm)	Species
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

Plot 2
Photo ID Overview: _____
Photo ID North: _____
Photo ID East: _____
Photo ID South: _____
Photo ID West: _____
GPS coordination
Lat: _____
Long:

Tree ID	DBH (cm)	Species
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

Plot 3
Photo ID Overview: _____
Photo ID North: _____
Photo ID East: _____
Photo ID South: _____
Photo ID West: _____
GPS coordination
Lat: _____
Long:

Tree ID	DBH (cm)	Species
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

2. Vegetation Cutting
All vegetation including tree < 5 cm DBH, grass and bamboo shall be cut

Plot 1

Weigh all the harvested vegetation in each sub-plot

Sub-plot 1
Size: _____ m x _____ m

	Weight of vegetation (kg)	Sheet
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Sub-plot 2
Size: _____ m x _____ m

	Weight of vegetation (kg)	Sheet
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Sub-plot 3
Size: _____ m x _____ m

	Weight of vegetation (kg)	Sheet
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Sub-plot 4
Size: _____ m x _____ m

	Weight of vegetation (kg)	Sheet
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

weigh bags and sample + bag

bags (g)	sample + bags (g)

bags (g)	sample + bags (g)

bags (g)	sample + bags (g)

bags (g)	sample + bags (g)

Plot 2

Weigh all the harvested vegetation in each sub-plot

Sub-plot 1
Size: _____ m x _____ m

	Weight of vegetation (kg)	Sheet
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Sub-plot 2
Size: _____ m x _____ m

	Weight of vegetation (kg)	Sheet
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Sub-plot 3
Size: _____ m x _____ m

	Weight of vegetation (kg)	Sheet
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Sub-plot 4
Size: _____ m x _____ m

	Weight of vegetation (kg)	Sheet
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

weigh bags and sample + bag

bags (g)	sample + bags (g)

bags (g)	sample + bags (g)

bags (g)	sample + bags (g)

bags (g)	sample + bags (g)

Plot 3

Weigh all the harvested vegetation in each sub-plot

Sub-plot 1
Size: _____ m x _____ m

	Weight of vegetation (kg)	Sheet
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Sub-plot 2
Size: _____ m x _____ m

	Weight of vegetation (kg)	Sheet
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Sub-plot 3
Size: _____ m x _____ m

	Weight of vegetation (kg)	Sheet
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Sub-plot 4
Size: _____ m x _____ m

	Weight of vegetation (kg)	Sheet
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

weigh bags and sample + bag

bags (g)	sample + bags (g)

bags (g)	sample + bags (g)

bags (g)	sample + bags (g)

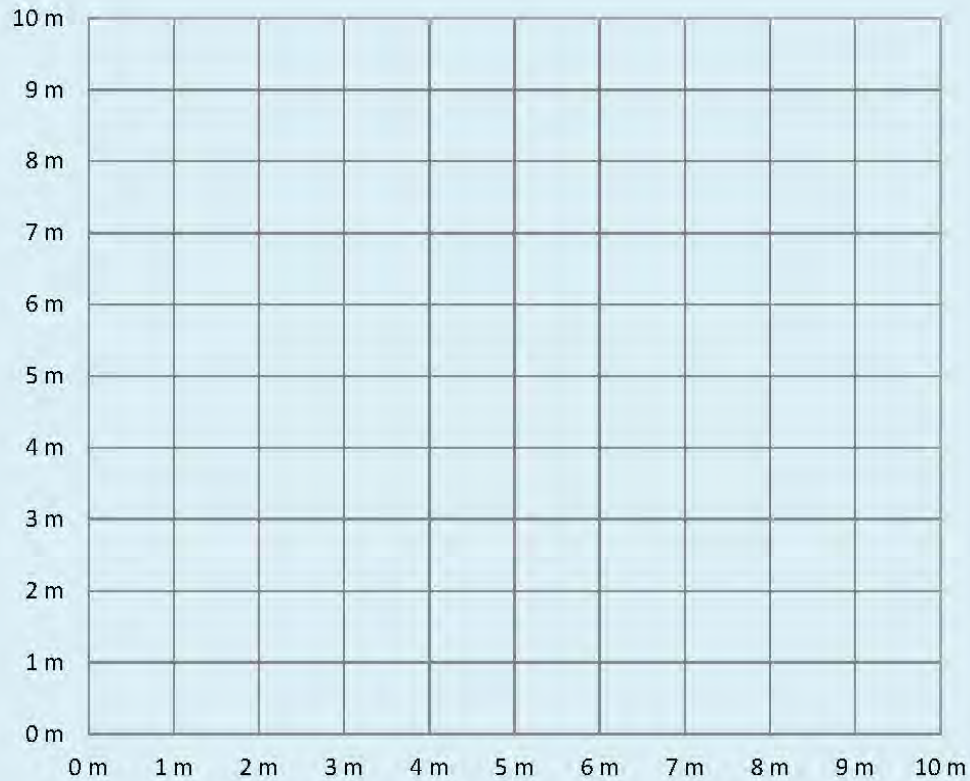
bags (g)	sample + bags (g)

3. Treecover rate
Plot 1
make points as trees with DBH ≥ 10 cm and write "Tree ID" beside the points.

Photo ID (from drone)

_____

*make points of large trees outside of the plots

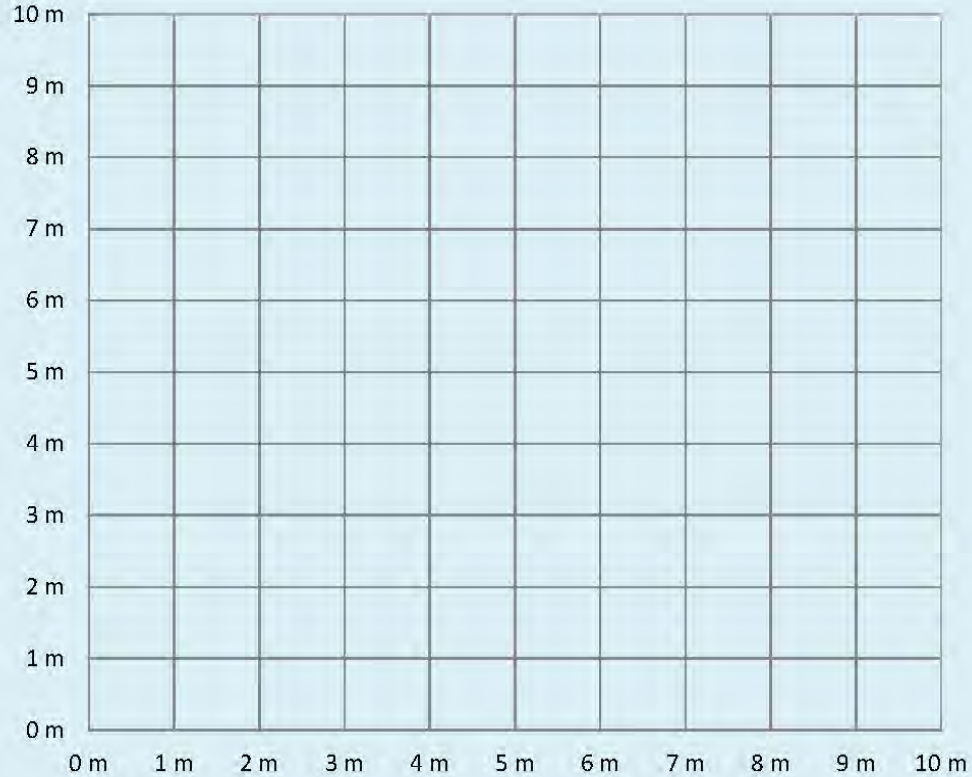


Plot 2
make points as trees with DBH ≥ 10 cm and write "Tree ID" beside the points.

Photo ID (from drone)

_____

*make points of large trees outside of the plots

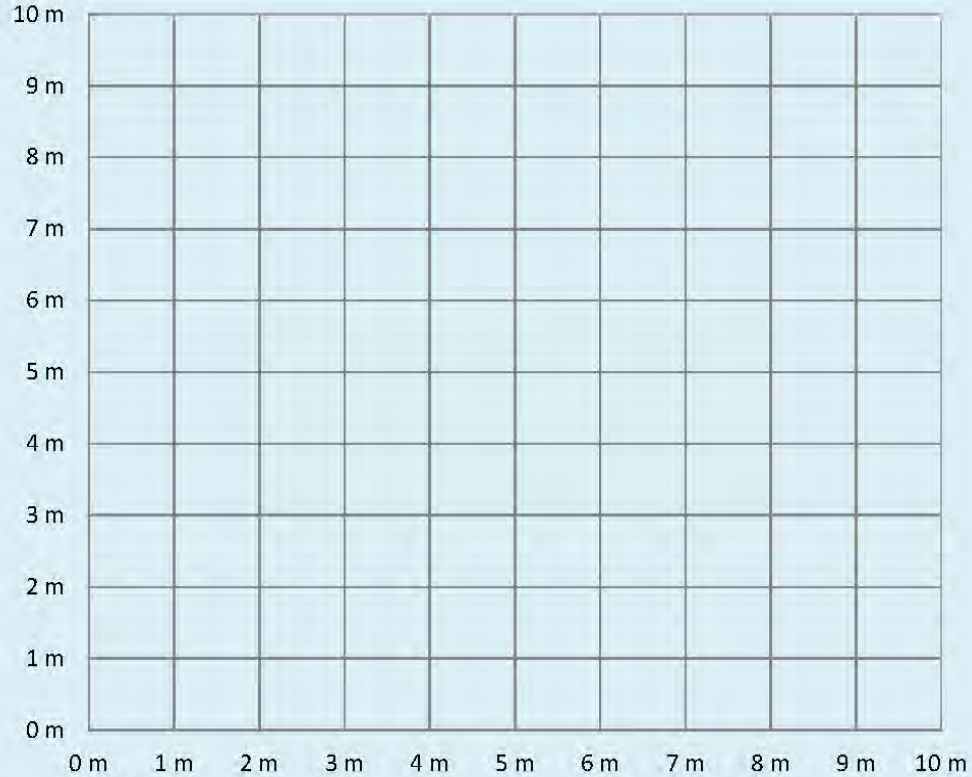


Plot 3
make points as trees with DBH ≥ 10 cm and write "Tree ID" beside the points.

Photo ID (from drone)

_____

*make points of large trees outside of the plots

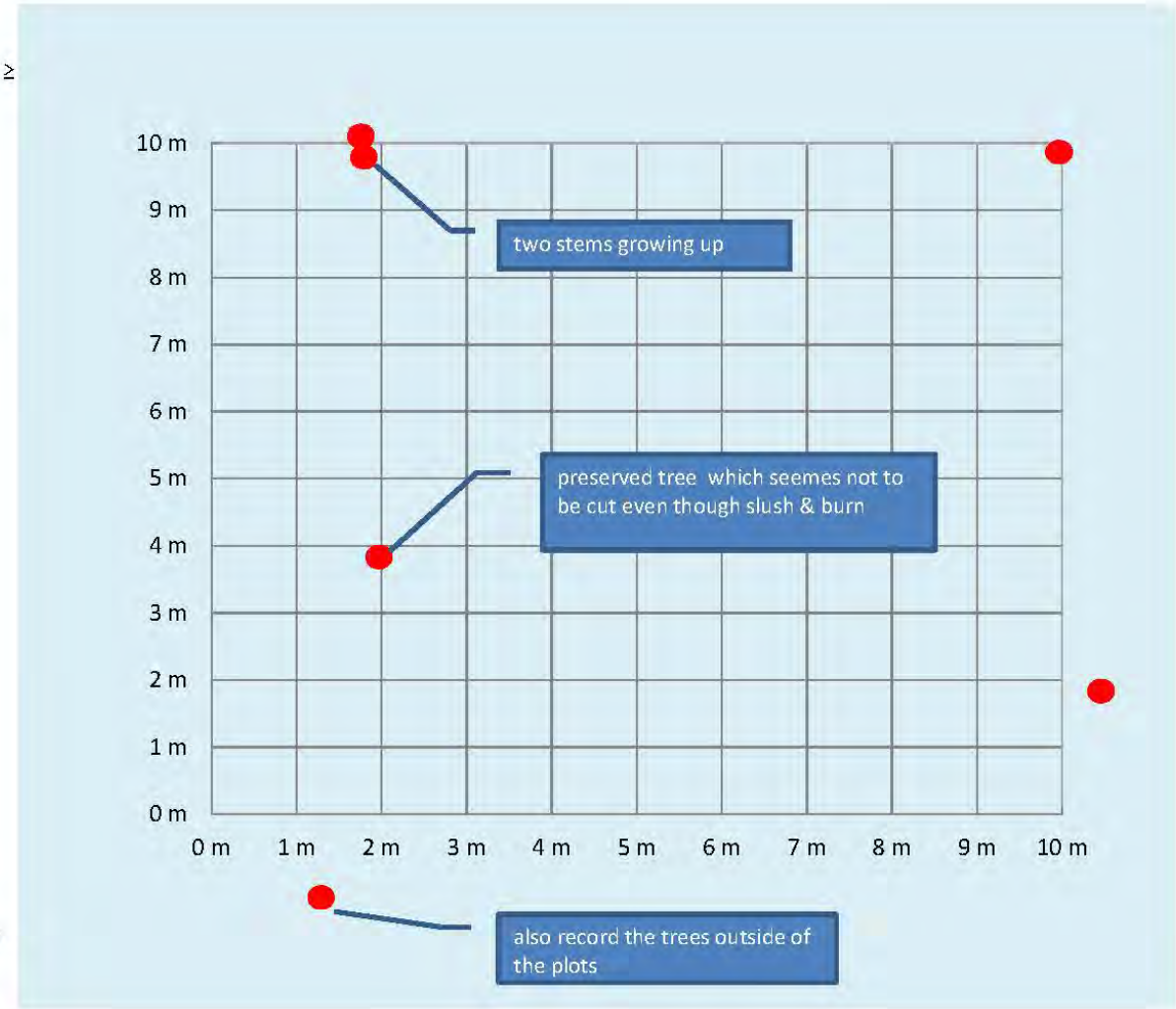


3. Treecover rate
Plot 1
make points as trees with DBH ≥ 10 cm and write "Tree ID" beside the points.

Photo ID (from drone)

_____

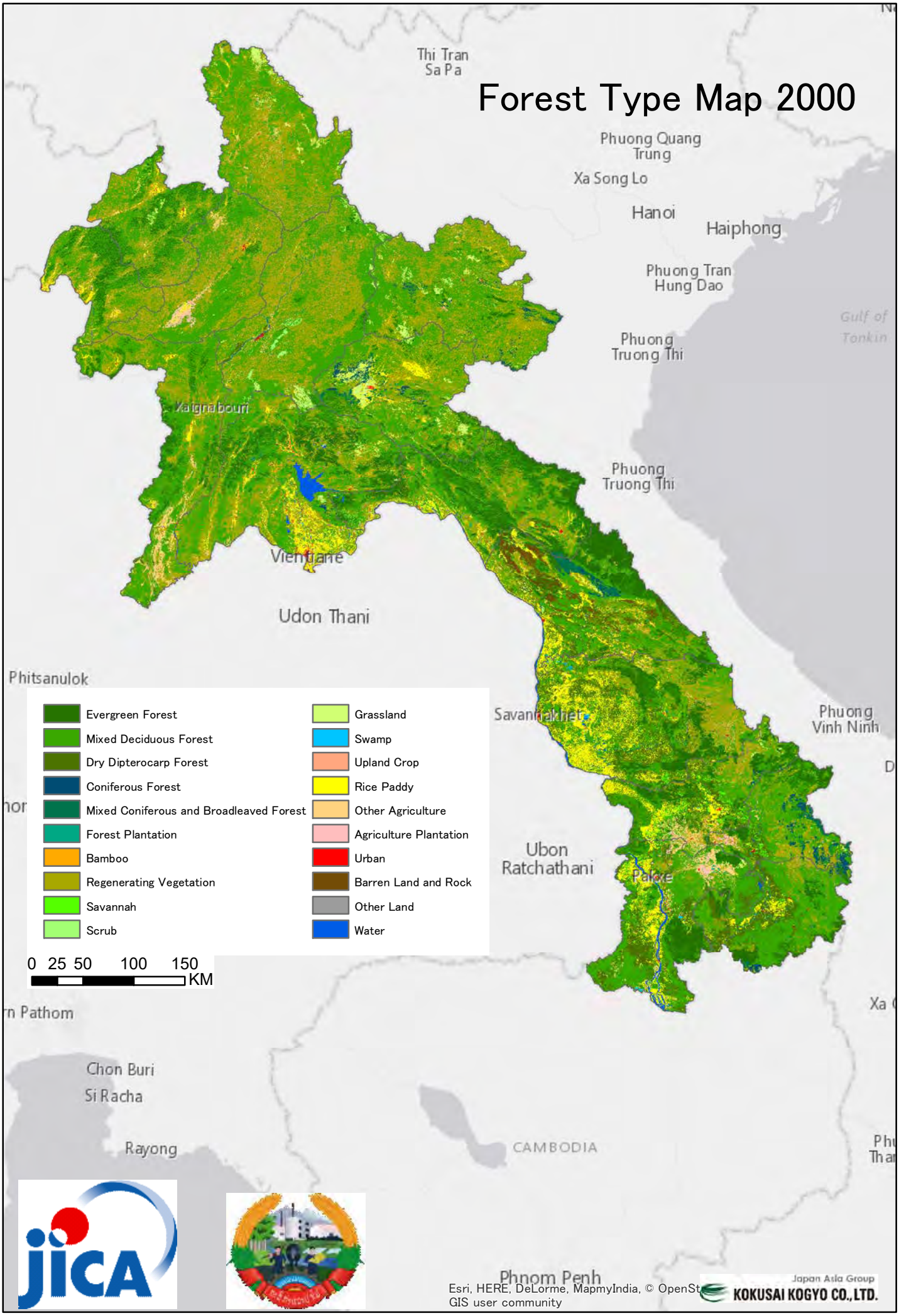
*make points of large trees outside of the plots



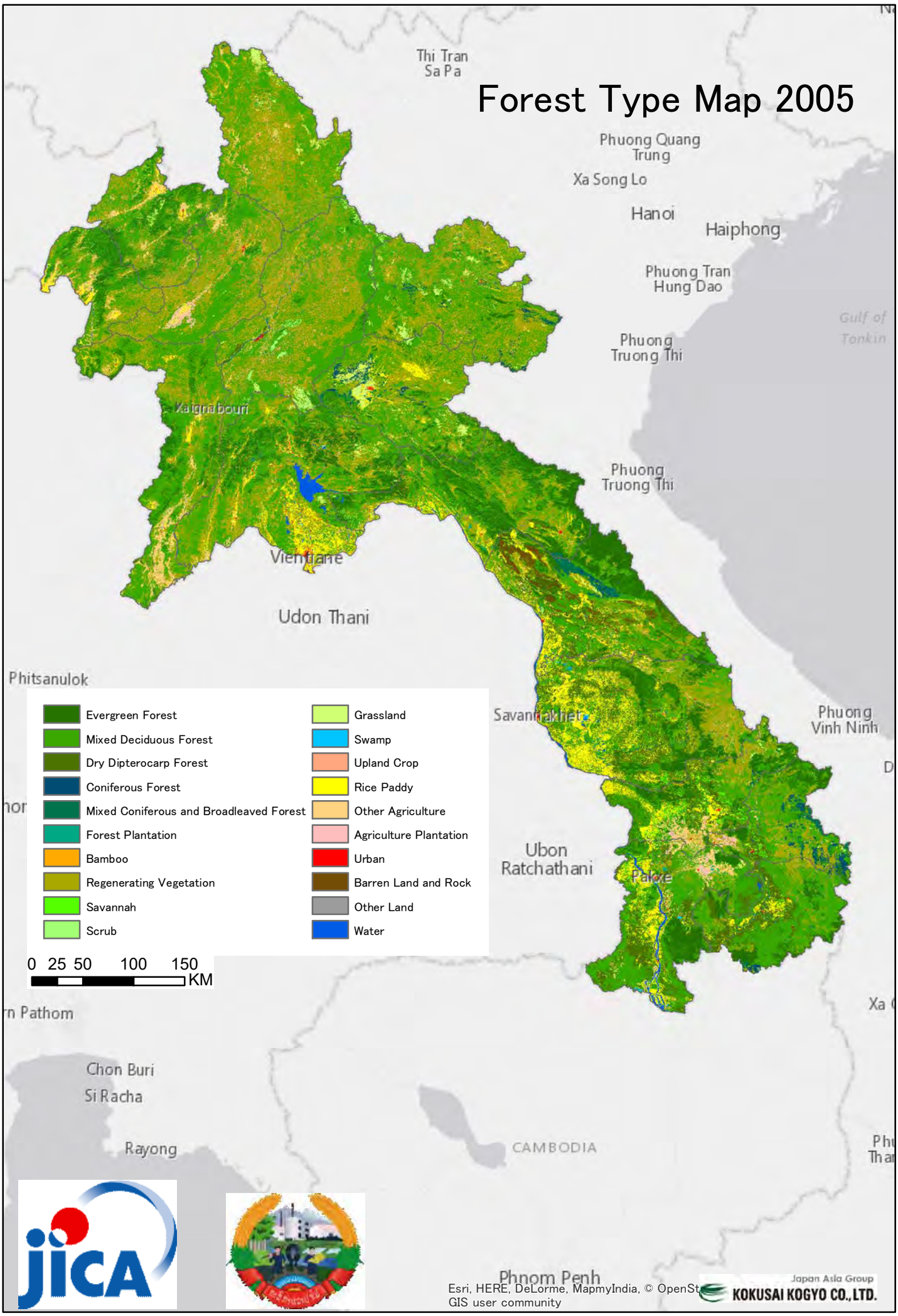
Separate Volume

2-7 Forest Type Maps 2000/2005/2010/2015

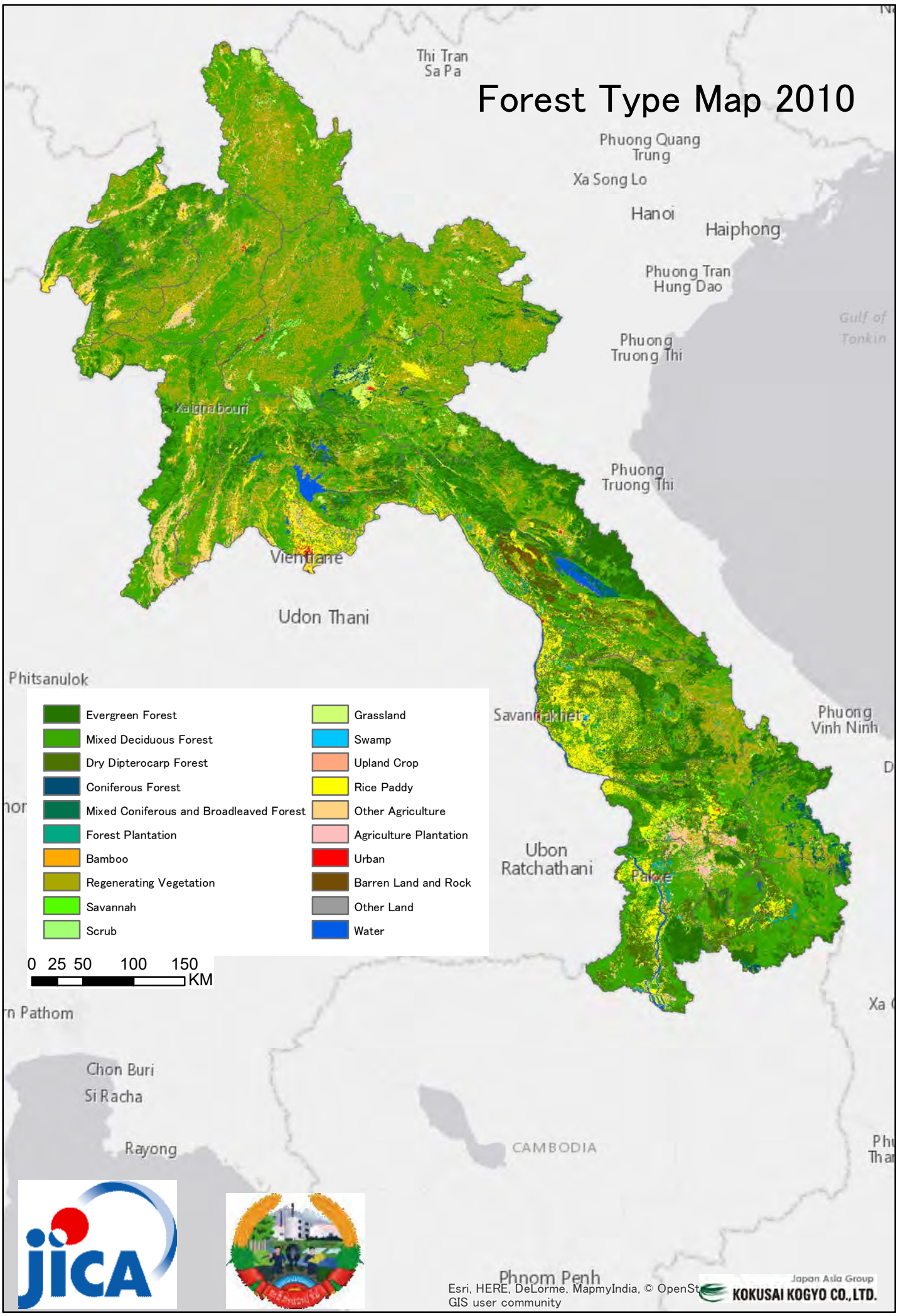
Forest Type Map 2000



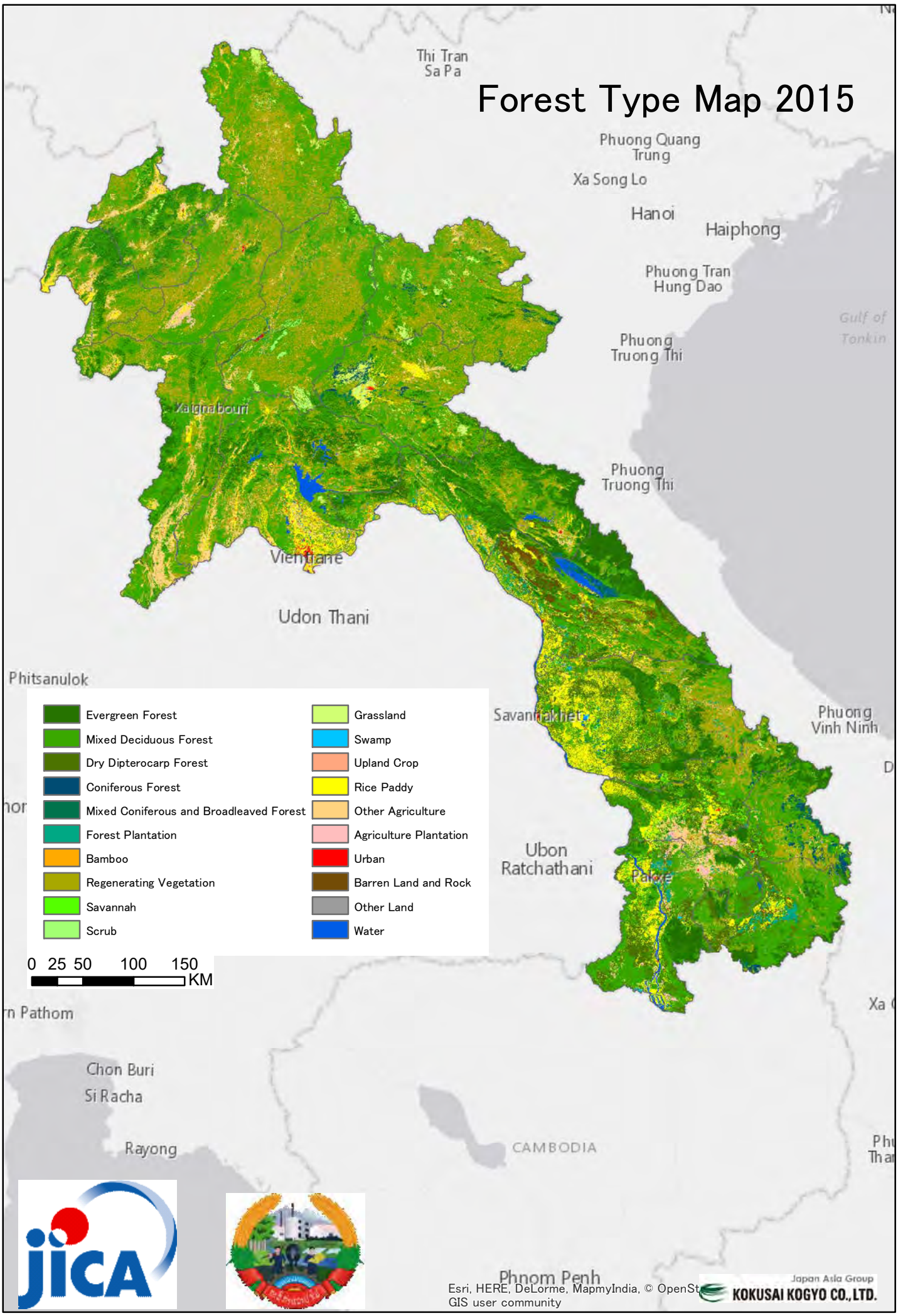
Forest Type Map 2005



Forest Type Map 2010



Forest Type Map 2015



Separate Volume

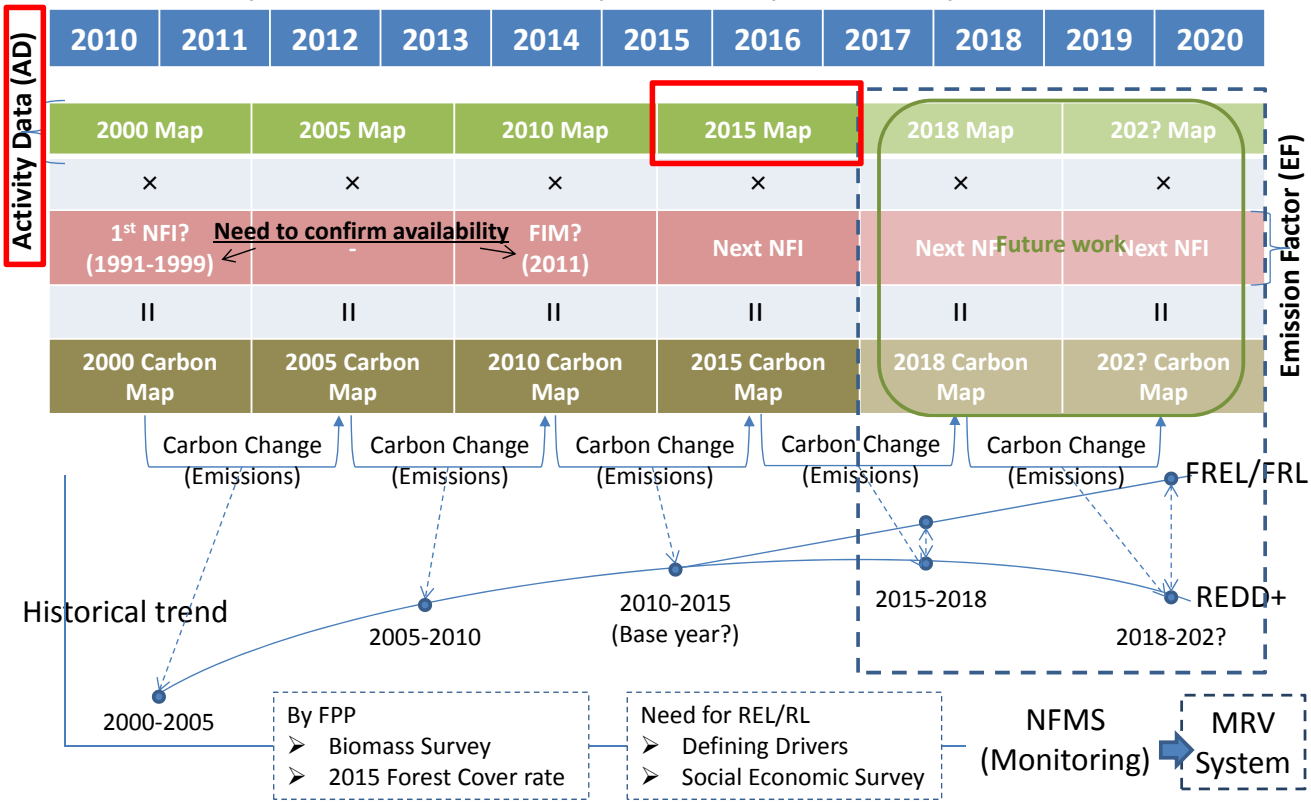
2-8 Data Preparation and Assessment of Forest Type Maps

Development of 2015 forest type map

Detection of Upland Crop (UC)

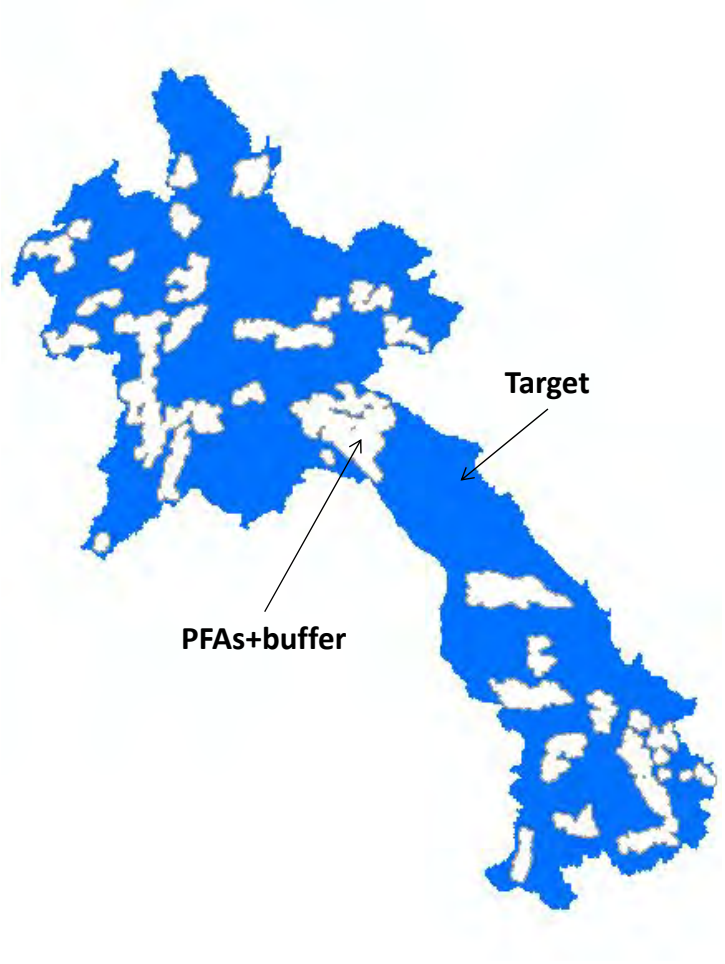
Objective

- To establish FREL/FRL, 2015 forest type map have to be developed. Detection of Upland Crop is 1st step of this.



Mapping area

- Whole country except PFAs (50,000km^2 , SUFORD developped)
  - The result of PFAs will be used.



Outline of methodology

- 2015 forest type map will be developed based on 2015 RapidEye imagery.
- 2015 RapidEye imagery has been preprocessed already.

- The work has been devided to 5 main worksteps:
  1. Detection of Upland Crop (UC) (Today)
  2. Detection of change around Permanent Agriculture (PA) and Forest Plantation (P)
  3. Interpretation of change from Upland Crop (UC) in 2010
  4. Detection of change between Mixed Deciduous Forest (MD) and Regenerating Vegetation (RV)
  5. Detection of the other changes

  The others: Creating reference data, Quality control, etc.

Schedule

	2015			2016								
	10	11	12	1	2	3	4	5	6	7	8	9
Development of 2015 forest type/carbon map							Py Mai					
Preprocessing of RapidEye imagery												
・Color enhancement, mosaic												
・Segmentation												
Change detection and classification												
・Creation of reference data for acuracy assessment												
→Quality check												
・Detection of UC												
→Quality check, Acuracy assessment, Calculation of area												
・Change detection around permanent agriculture and forest plantation												
→Quality check, Acuracy assessment, Calculation of area												
・Change detection between MD and RV												
→Quality check, Acuracy assessment, Calculation of area												
・The other change detections (U, W, etc.)												
→Quality check, Acuracy assessment, Calculation of area												
Check changes between years, Final acuracy assessment, Creation of change matrix												
Report and discussion for final result												

SUFORD	Development of 2015 forest type ma		GT survey (all	Correction of 2010-2005 maps (all)		
FAO/CE		CE training (all)	Initial training (2)	Follow-up training (2)		

Work in Laos with Japanese
Work in Laos without Japanese
Work in Japan

Manager (1): Sombath
Senior (2): Chansamoth, Bounthanoune
Leader (3): Khamkhong, Onkeo, Kongsy
Sub-L (3): Khamsouk, Amphayvang, Yommala
Staff (4): Keovilay, Phouthong, Somxay, Pireya

Outline Flow Chart

1. Detection of Upland Crop (UC) (Today) — **To detect Upland Crop on a mountainous area**

2. Detection of change around permanent agriculture and forest plantation area — **To detect a expansion of permanent agriculture and forest plantation around existing one**

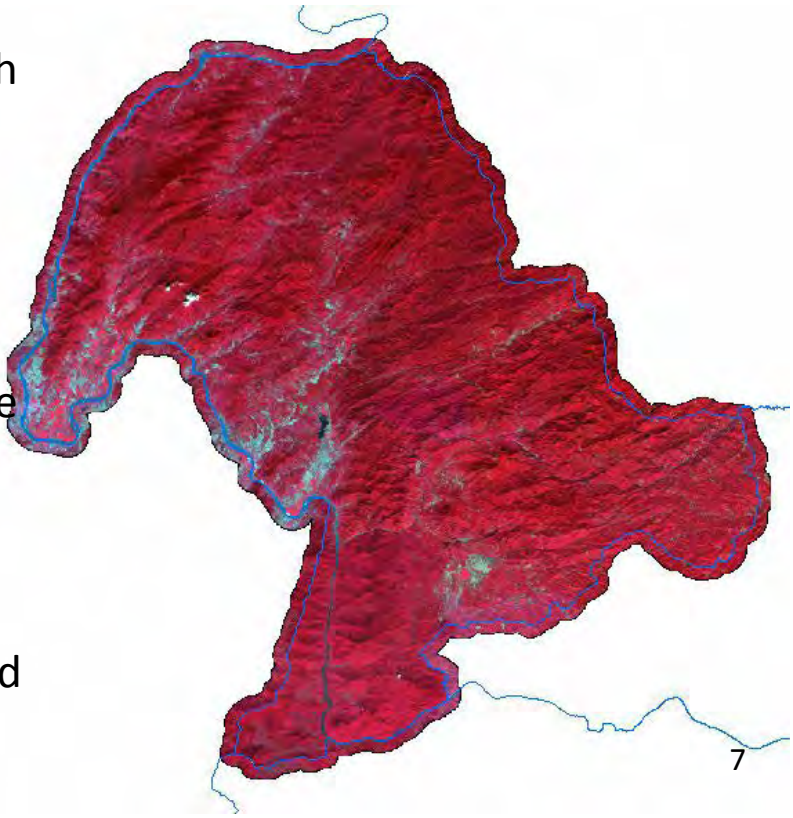
3. Interpretation of change from UC in 2010 — **To interpret after change in 2010**

4. Detection of change between MD and RV — **To detect degradation and improvement of forest**

Note: The methodology is considered again to detect appropriately

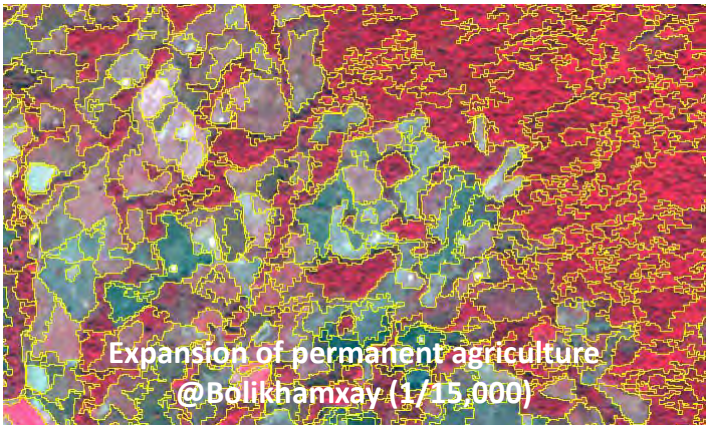
Preprocessing RapidEye imagery (done)

1. Better images which have fewer cloud were selected.
2. The images were enhanced color as false color.
3. Mosaic images were created for each provinces with 2km buffer.
4. Remained large clouds were covered by the other cloud free part of images.



Preprocessing RapidEye imagery (done)

- Data for segmentation
  - 2015 RapidEye imagery (Nir, Red, Green)
  - NDVI (16bit)
  - Slope (GDEM2)
- Compared scale parameters
  - 400, **600 (decided)**, 800
- The other parameters
  - Image layer weights -> Nir:3, Red:1, Green:2, NDVI:2, Slope:0
  - Shape:0.5, Compactness:0.5



Differences of detecting UC between 2015 and previous

Detecting UC for previous

- Boundaries of UC are segmented with eCognition.
- Candedate of UC are classified with eCongnition.
- UC is detected based on satellite imagery.
- Quality control is conducted in only one step.

Detecting UC for 2015

- Boundaries of UC are segmented with eCognition.
- ”Mask of non-UC area” are prepared.
- UC is detected based on satellite imagery.
- Quality control is conducted in several steps.

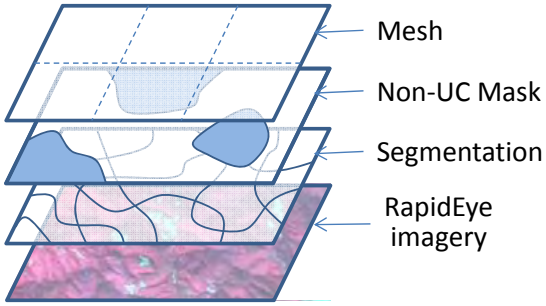
1. Detection of Upland Crop (UC) (Today)

- Boundaries of Upland Crop were segmented with eCognition.
  - ✓ The segmentation was created based on 2015 RapidEye imagery, NDVI and slope.
- ”Mask of non-UC area” are prepared. Upland Crop should be detected outside of the mask area.
  - ✓ The mask area is defined by slope, permanent agriculture, forest plantation and so on in 2010.
- Upland Crop is detected based on 2015 RapidEye imagery.
- Interpretation samples (show later) have to be refered.

Work flow (Outline)

Detection of Upland Crop

- mesh by mesh
- from outside of Non-UC Mask
- based on RapidEye imagery



When a mesh is completed

Enter the information in the management table

When a district is completed

The distribution is checked by yourself

The distribution is checked by senior engineer

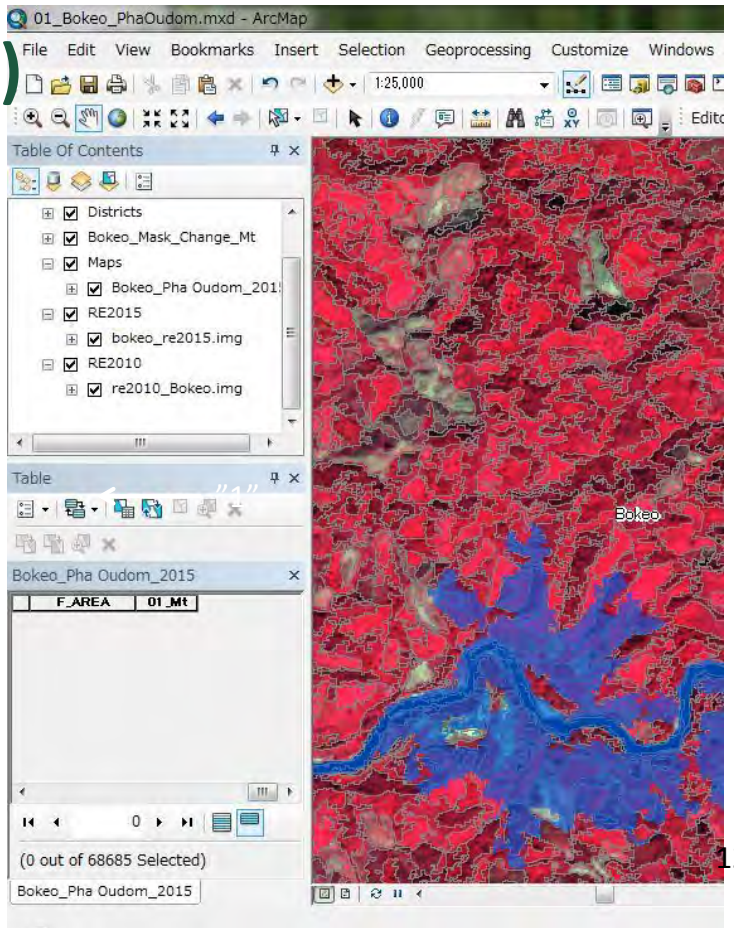
The quality is checked by Japanese expert

When a province is completed

The quality is checked by everyone

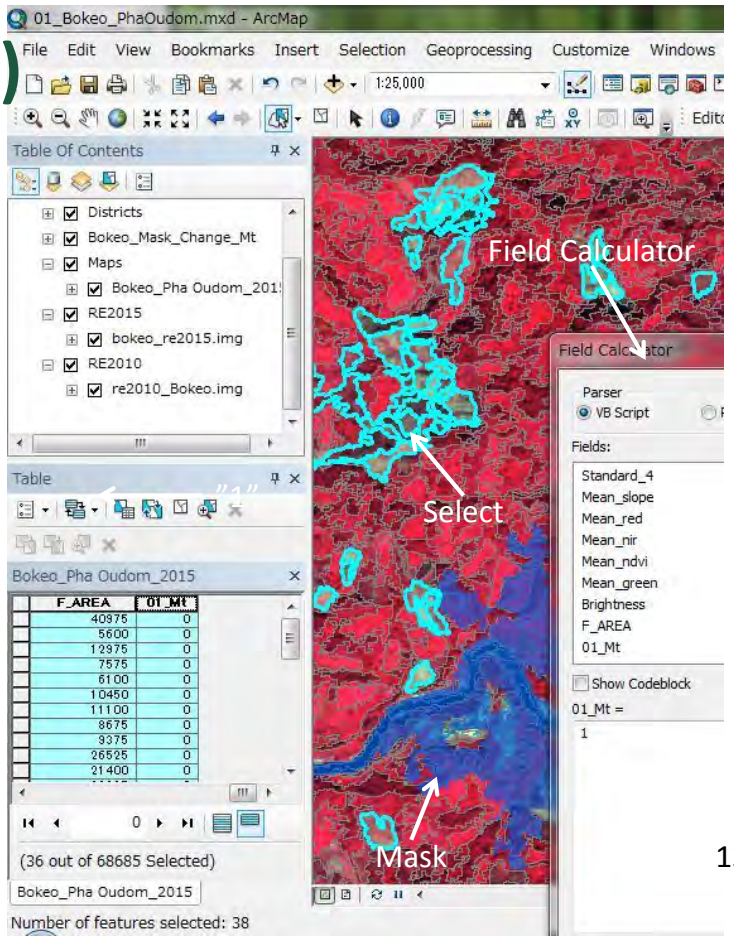
Work flow (1/5)

1. Open the mxd file (each districts).
2. Show attribute table as ”show selected records”.



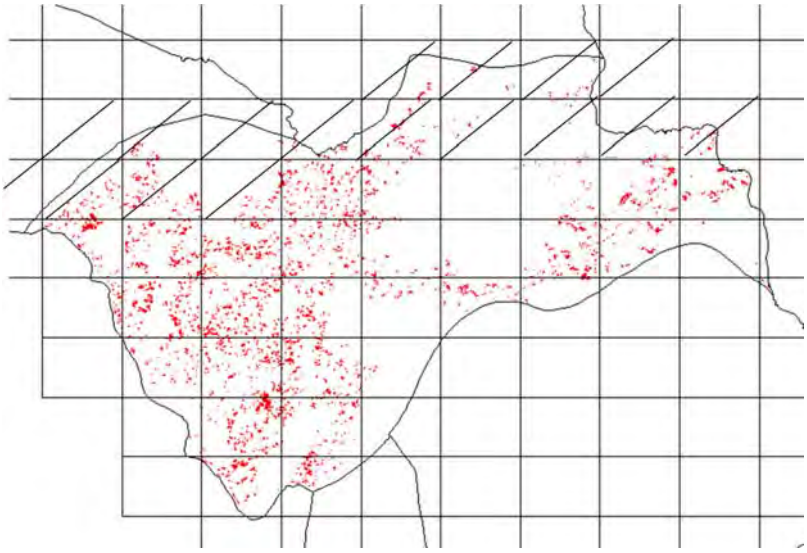
Work flow (2/5)

3. Start to work for mesh by mesh. Scale should be 1/25,000 as max.
4. Select polygons of UC from outside of the mask area based on 2015 RapidEye imagery.
5. Conduct field calculation on ”UC15” field from ”0” (default) to ”1”.



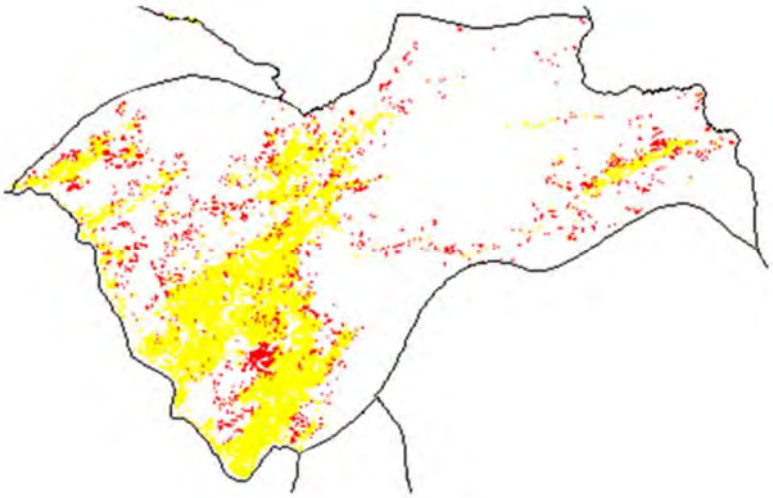
Work flow (3/5)

6. When a mesh is completed, enter the information in the management table.
7. Then, it moves to next mesh.



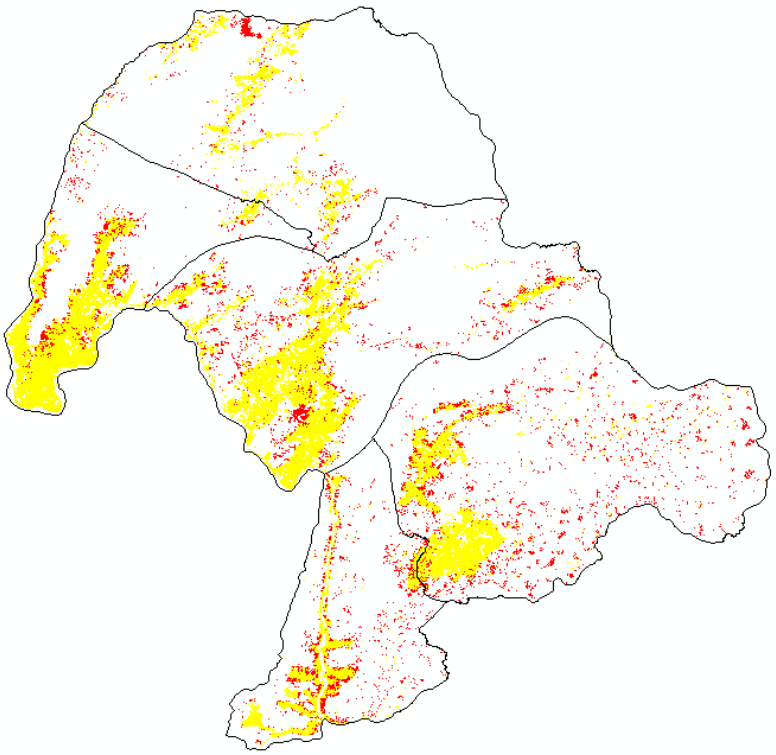
Work flow (4/5)

8. When a district is completed, the distribution of UC should be checked If there is a bias and/or lack of distribution by yourself first.
9. Then, please ask senior engineer to check the distribution again.
10. Finally, please ask Japanese expert to check the quality.



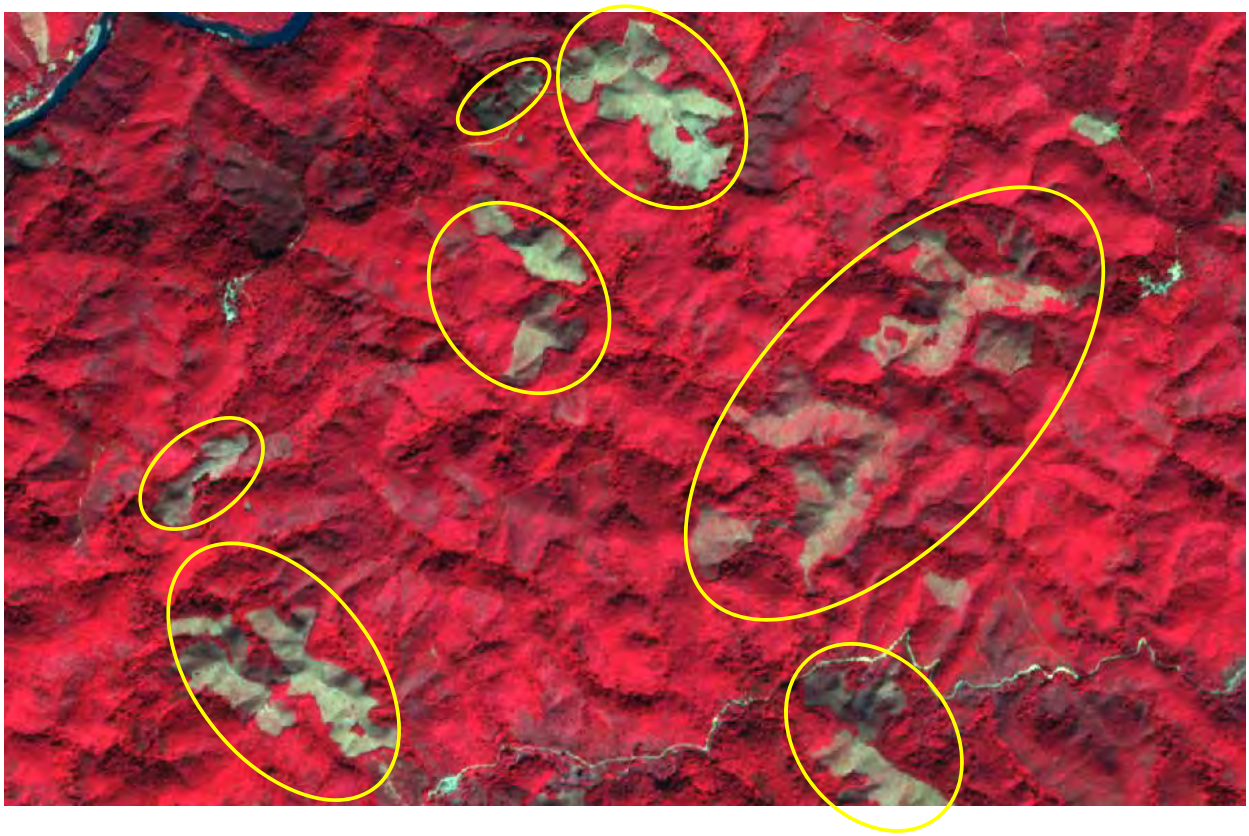
Work flow (5/5)

11. When a province is completed, the quality should be checked by everyone.
12. If there is a bias and/or lack of distribution, it should be corrected.

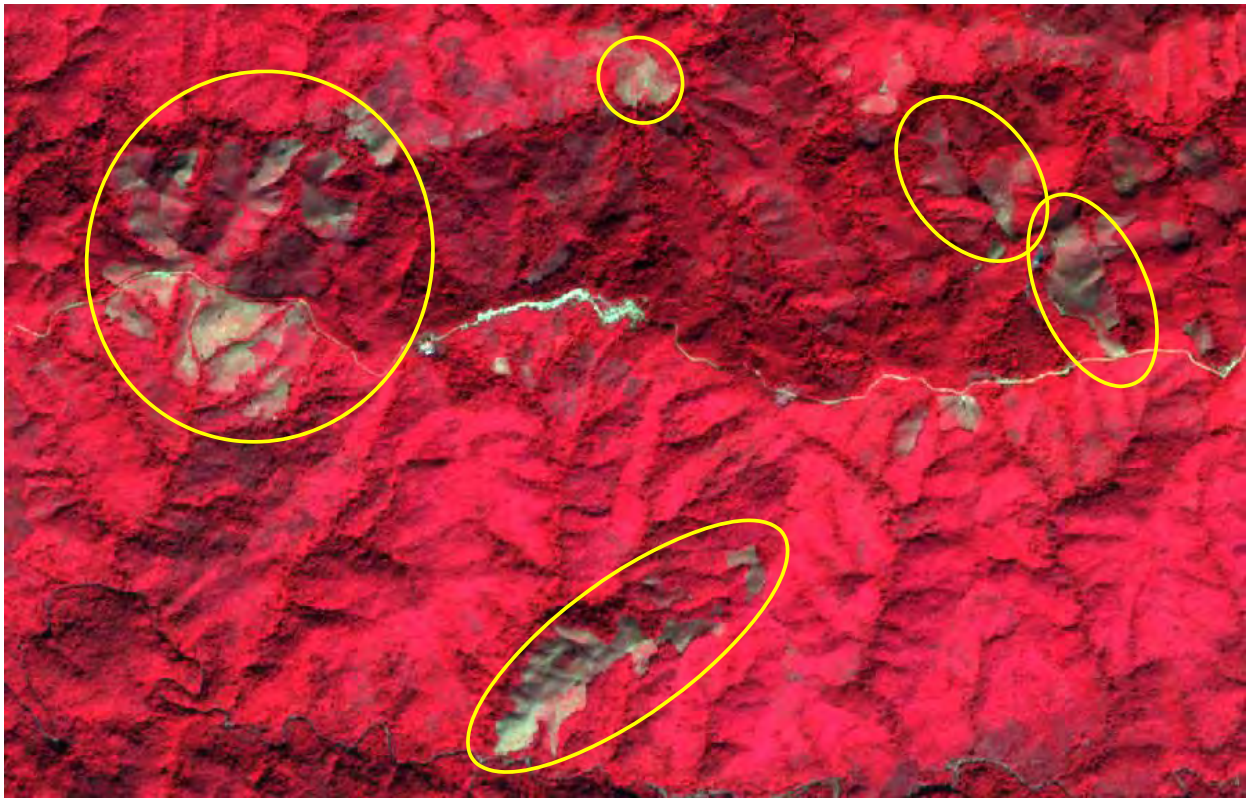


Interpretation samples (Bokeo)

Interpretation samples (Bokeo)

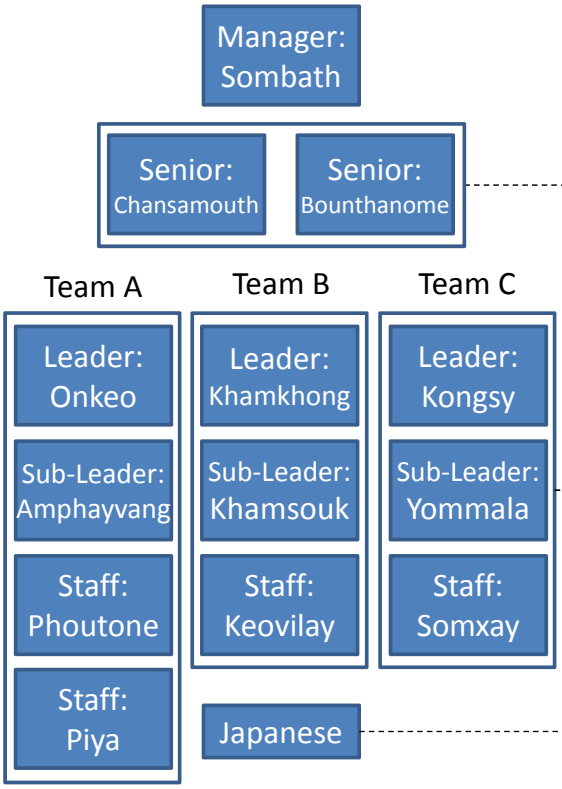


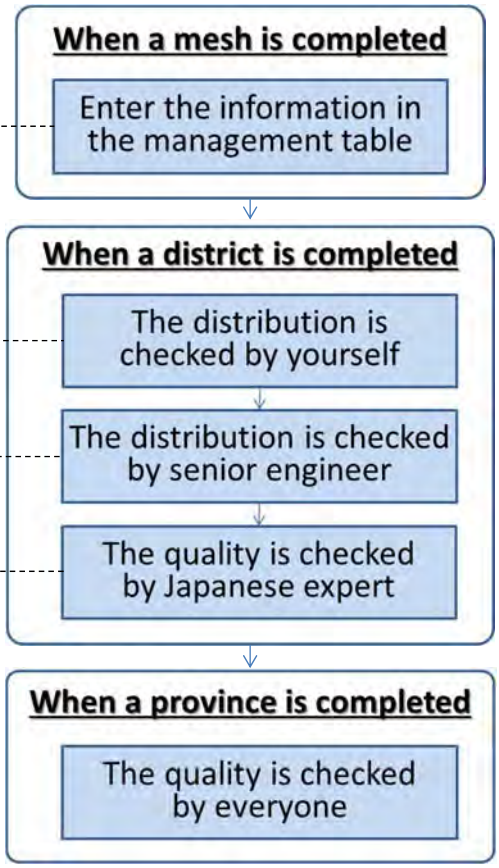
Interpretation samples (Bokeo)



Interpretation samples (Luangnamutha)

Organization (draft)





Development of 2015 forest type map-vr. 2

Detection of change around permanent agriculture and forest plantation area

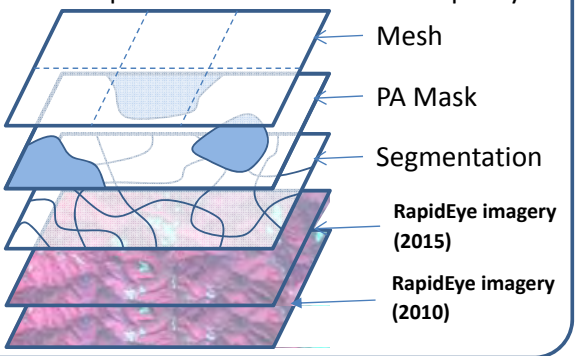
Outline Flow Chart

1. Detection of Upland Crop (UC) (Done) — To detect Upland Crop on a mountainous area
2. (1) : Detection of change around permanent agriculture and forest plantation area — **To detect a expansion of permanent agriculture and forest plantation around existing one**
2. (2): Interpretation of change from UC in 2010 — **To interpret after change in 2010**
3. Correction of forest classes
4. Detection of change between MD and RV — **To detect forest degradation and forest recovery**
5. Identificatiion of permanent agriculture and plantation classes — **To Identify Rice paddy, Other agriculture, Agriculture plantation, Upland crop and Forest plantation.**
6. The other change detection — **To detect the change from Water and Urban in 2010 and the change to Water and urban in 2015.**

Work flow of the 2nd-2 step (Outline)

Interpretation of change from UC in 2010

- mesh by mesh
- from outside of Mask
- Comparison 2010 and 2015 of Rapid Eye



When a mesh is completed

Enter the information in the management table

When a district is completed

The distribution is checked by yourself

The distribution is checked by senior engineer

The quality is checked by Japanese expert

When a province is completed

The quality is checked by everyone

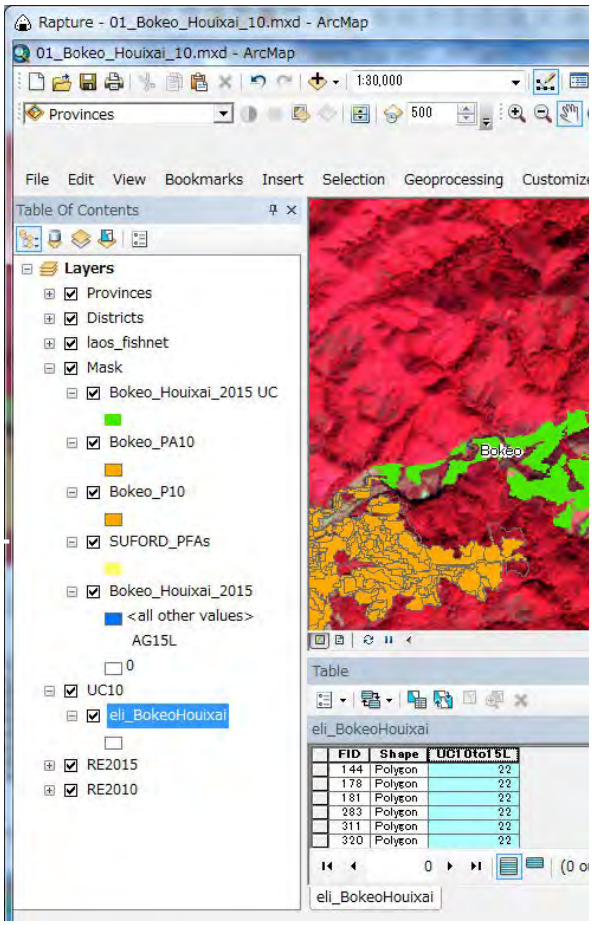
Work flow (1/5)

1. Open the mxd file (each districts).

It is stored in

¥¥Serverfgdb¥01_fimp_data¥04_FREDD_Project¥01_Development_of_2015_Map¥02_AG_Detection

¥00_Workspace_UC10to15



Permanent agriculture and forest plantation area of 2010

UC of 2015

Changed area from 2010 to 2015
(Permanent Agriculture area or Plantation of 2015)

Work flow (2/5)

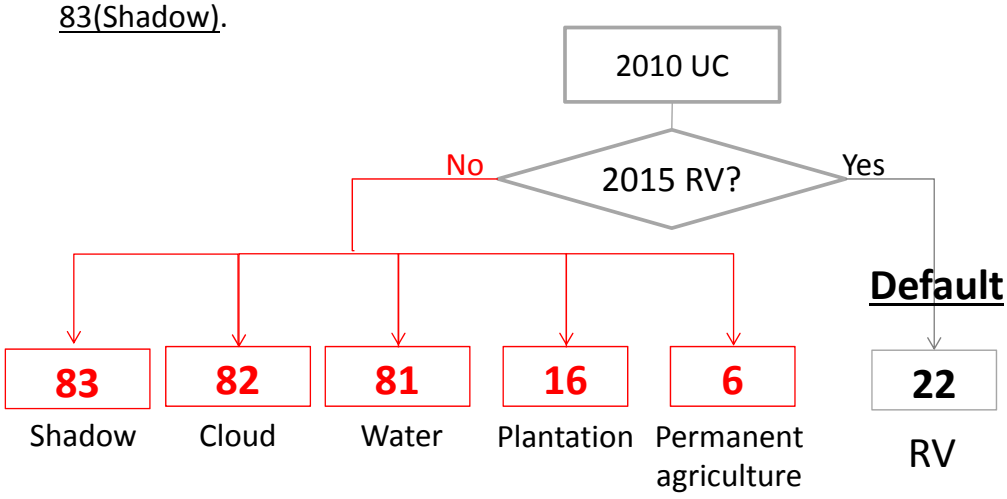
2. Start to work for mesh by mesh. Scale should be 1/25,000 as max.

3. The code "22" (RV) has been entered as a default on "UC10to15L" field. Because, UC change to RV in 5years.

4. **Look for the polygon that is not changed to RV .**

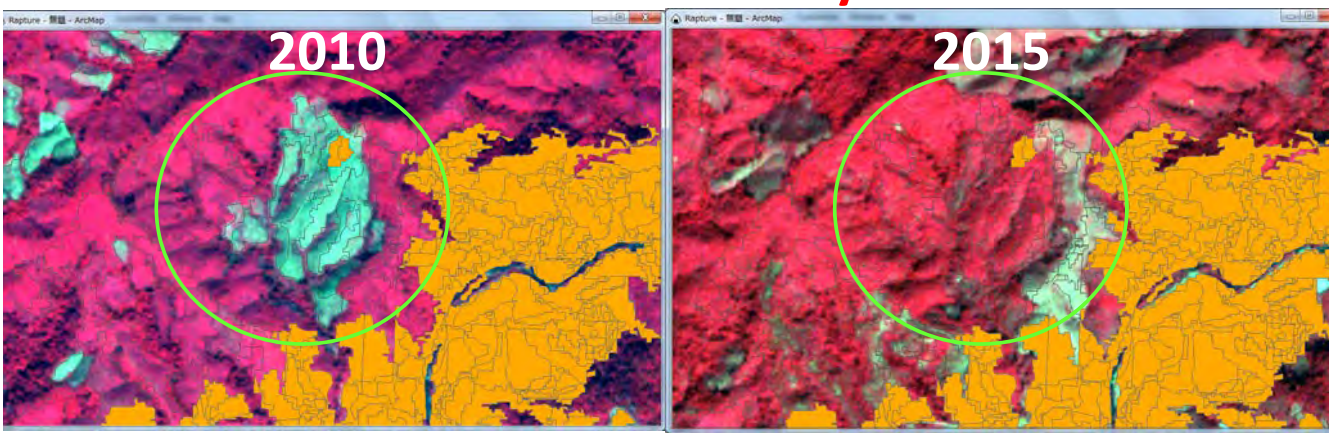
5. When you have found the polygon that is not changed to the RV, select it.

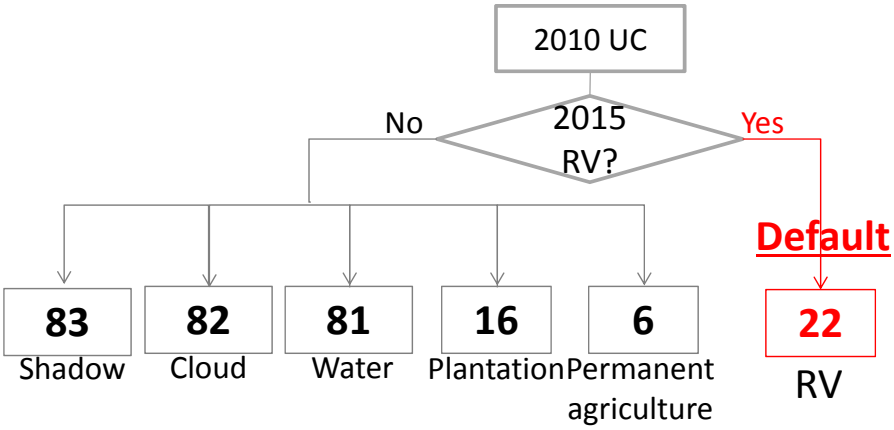
6. Conduct field calculation on "UC10to15L" field from "22" to the correct code. The code should be 6(Permanent Agriculture), 16(Plantation), 81(Water), 82(Cloud) or 83(Shadow).



Example: RV

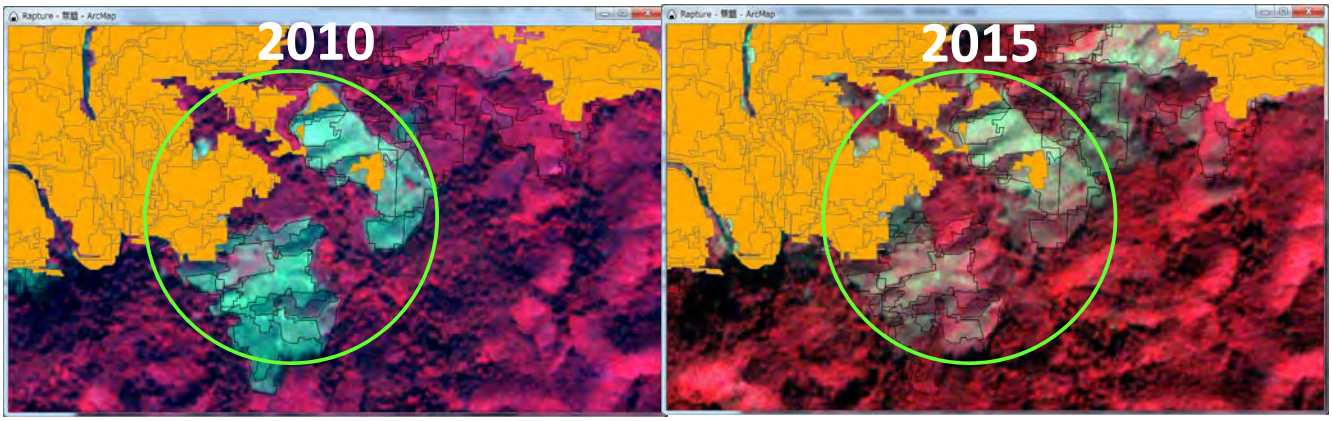
This is Default. Need not enter any the code.

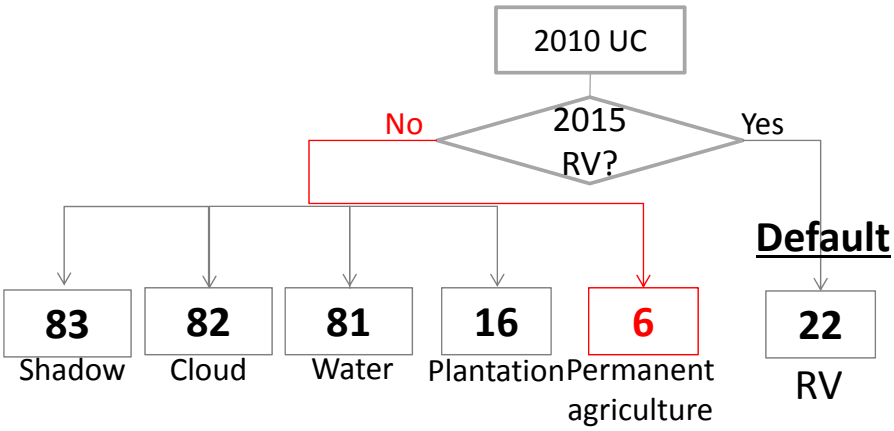




Example: Permanent Agriculture

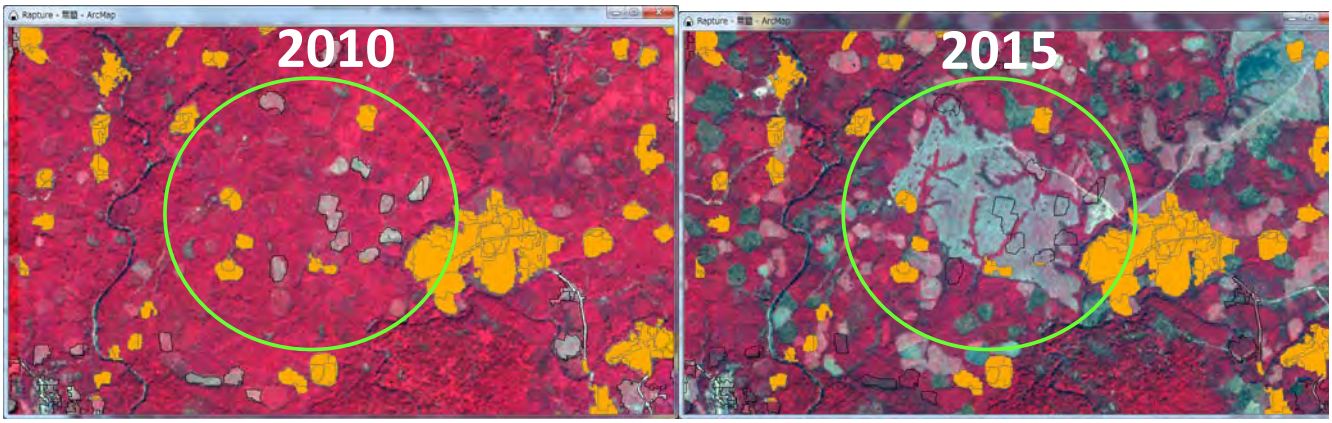
Conduct field calculation on "UC10to15L" field from "22" (default) to "6".

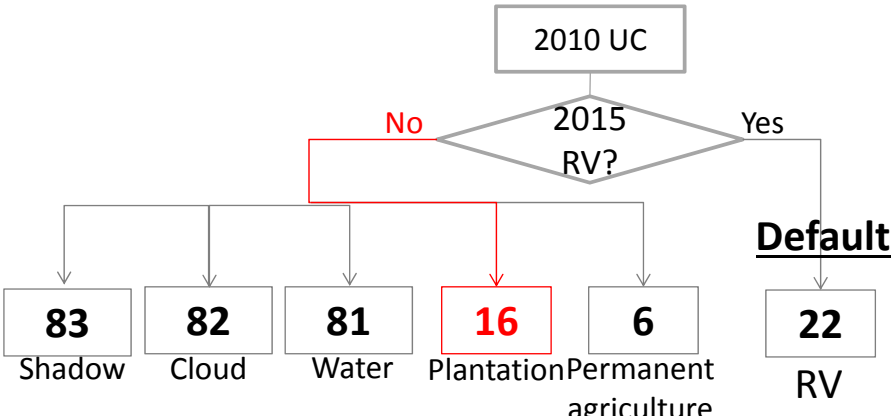




Example: Plantation

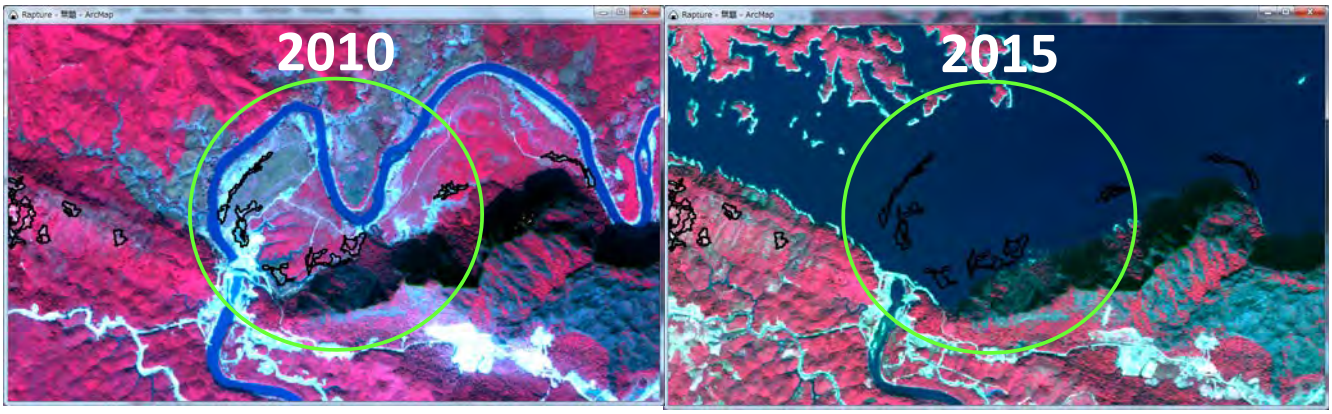
Conduct field calculation on "UC10to15L" field from "22" (default) to "16".

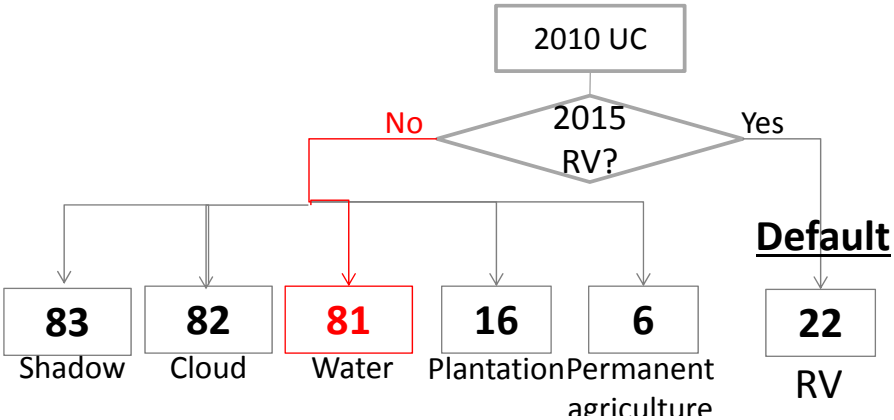




Example: Water

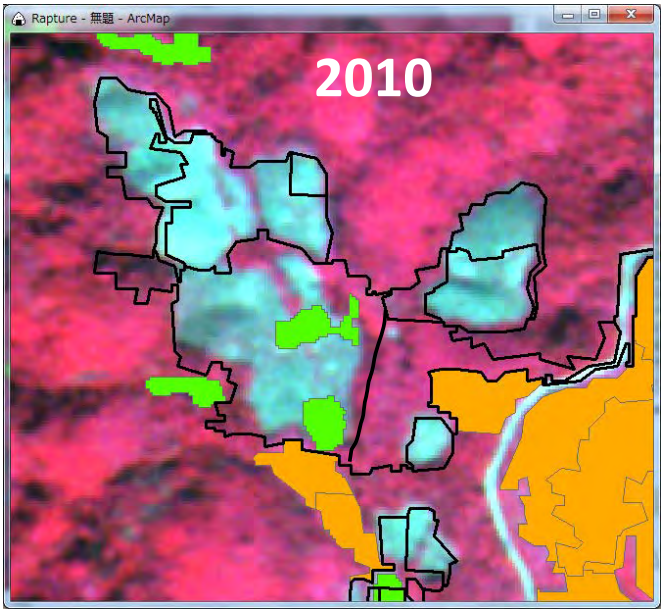
Conduct field calculation on ”UC10to15L” field from ”22” (default) to ”81”.

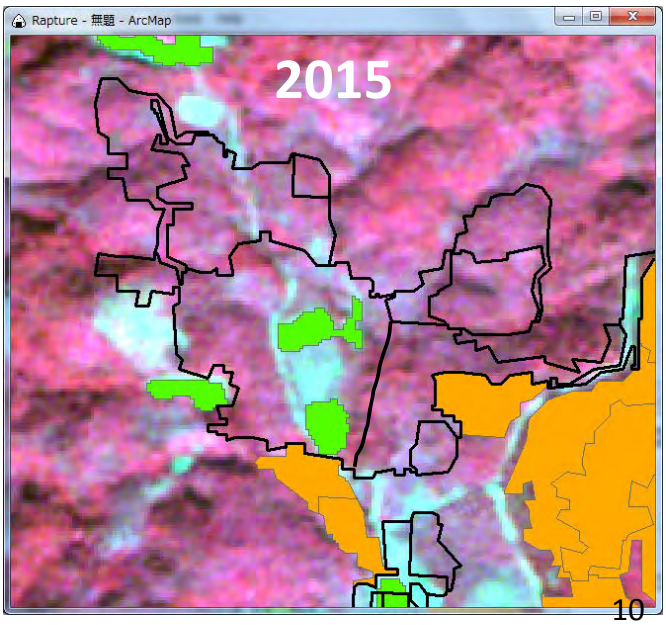




Things to be careful case

Since the interpretation using the UC polygon of 2010 , the shape of the polygon might not match the image in 2015.
At that time , please enter the code that is widely distributed in the polygon.



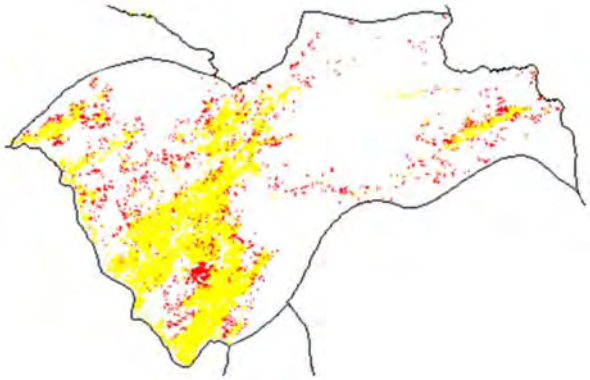


Work flow (3/5)

6. When a mesh is completed, enter the information in the management table.
7. Then, it moves to next mesh.

Work flow (4/5)

8. When a district is completed, the distribution of interpreted UC should be checked If there is a bias and/or lack of distribution by yourself first.
9. Then, please ask senior engineer to check the distribution again.
10. Finally, please ask Japanese expert to check the quality.



CHECK POINT!!!

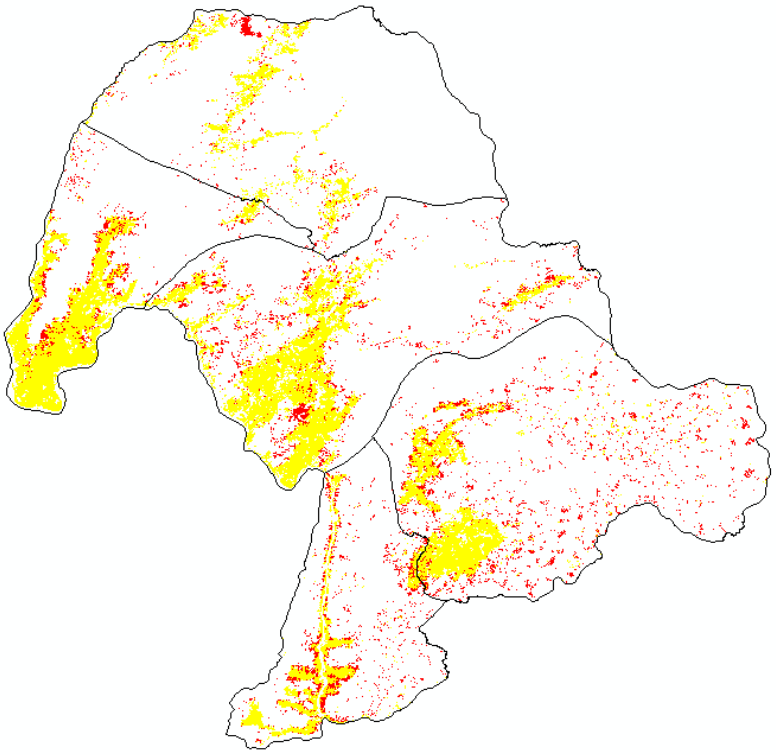
UC around permanent agriculture in 2010 , should be changed to permanent agriculture in 2015.

UC of the mountainous area in 2010, should be changed to the RV in 2015.

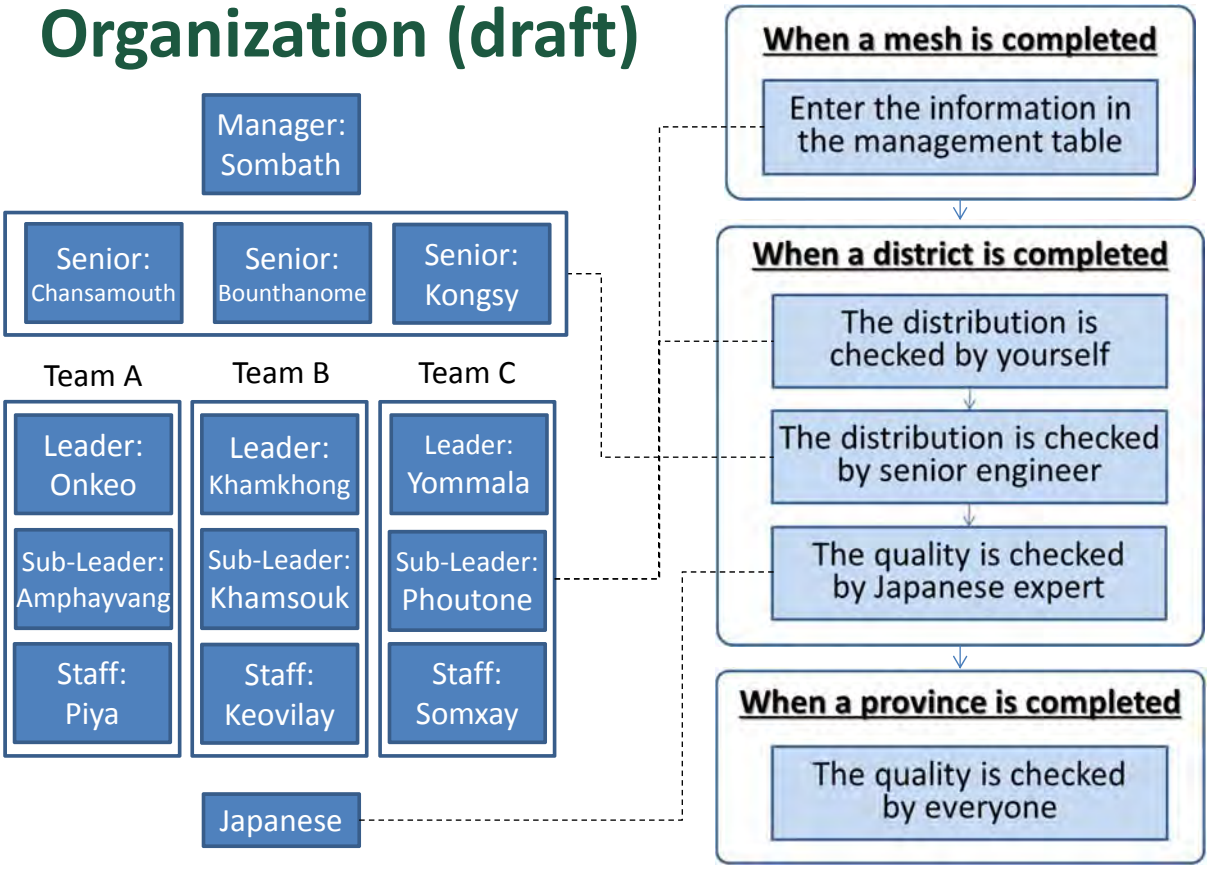
If you find a distribution other than the above cases, please check again because there is a possibility of wrong interpretation.

Work flow (5/5)

11. When a province is completed, the quality should be checked by everyone.
12. If there is a bias and/or lack of distribution, it should be corrected.



Organization (draft)



Development of 2015 forest type map

Correction of Coniferous Forest (CF) and

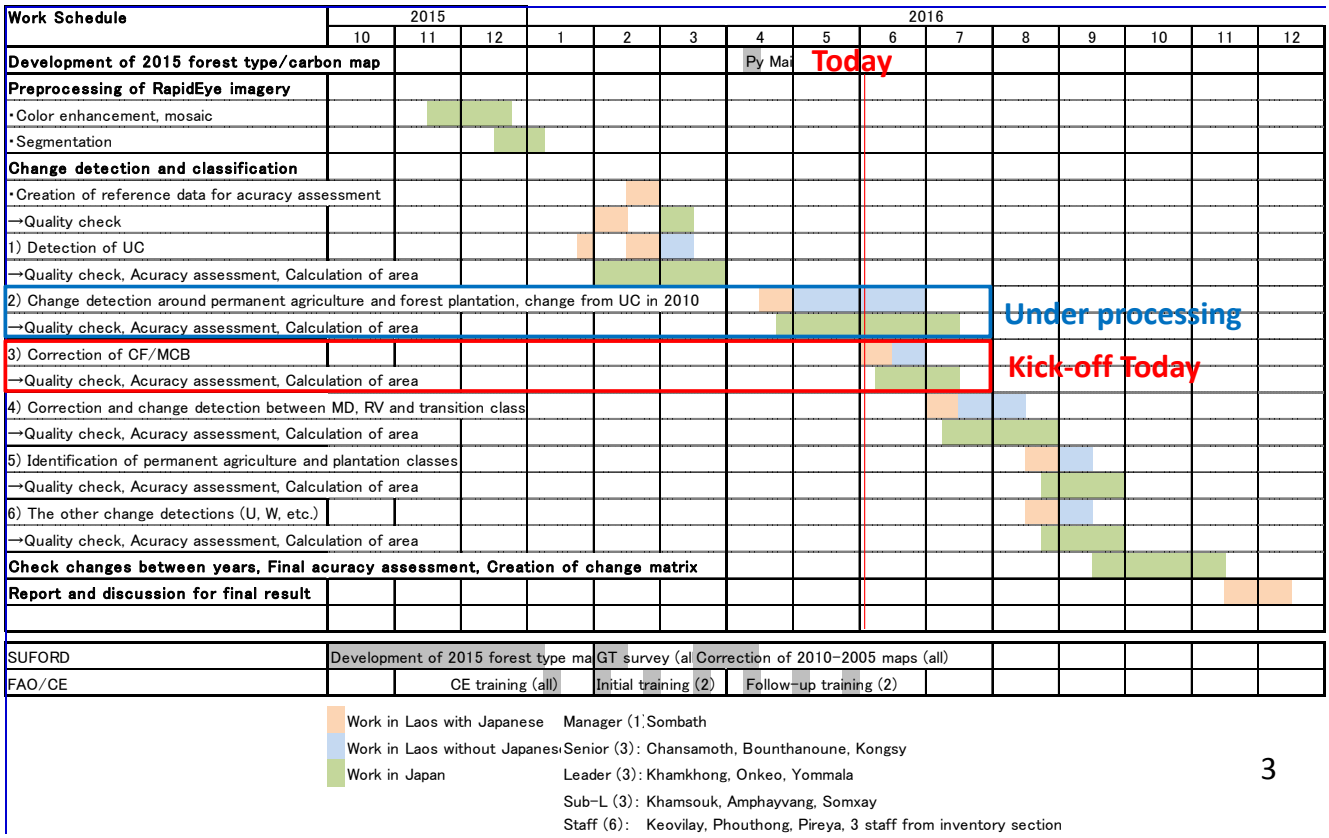
Mixed Coniferous and Broadleaved Forest (MCB)

Outline of methodology

- 2015 forest type map will be developed based on 2015 RapidEye imagery.
- The work has been devided to 6 main worksteps:
  1. Detection of Upland Crop (UC) (Today)
  2. Detection of change around Permanent Agriculture (PA) and Forest Plantation (P) **Under processing**
  3. Interpretation of change from Upland Crop (UC) in 2010
  4. Correction of Coniferous Forest (CF) and Mixed Coniferous and Broadleaved Forest (MCB). **Kick-off Today**
  5. Detection of change between Mixed Deciduous Forest (MD) and Regenerating Vegetation (RV)
  6. Detection of the other changes

  The others: Creating reference data, Quality control, etc.

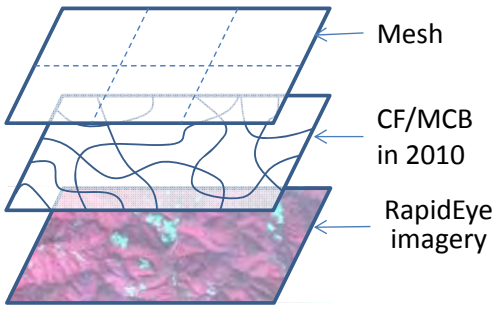
Schedule



Work flow (Outline)

Correction of CF/MCB

- mesh by mesh
- correction on CF/MCB in 2010
- based on RapidEye imagery



When a mesh is completed

Enter the information in the management table

When a district is completed

The distribution is checked by yourself

The distribution is checked by senior engineer

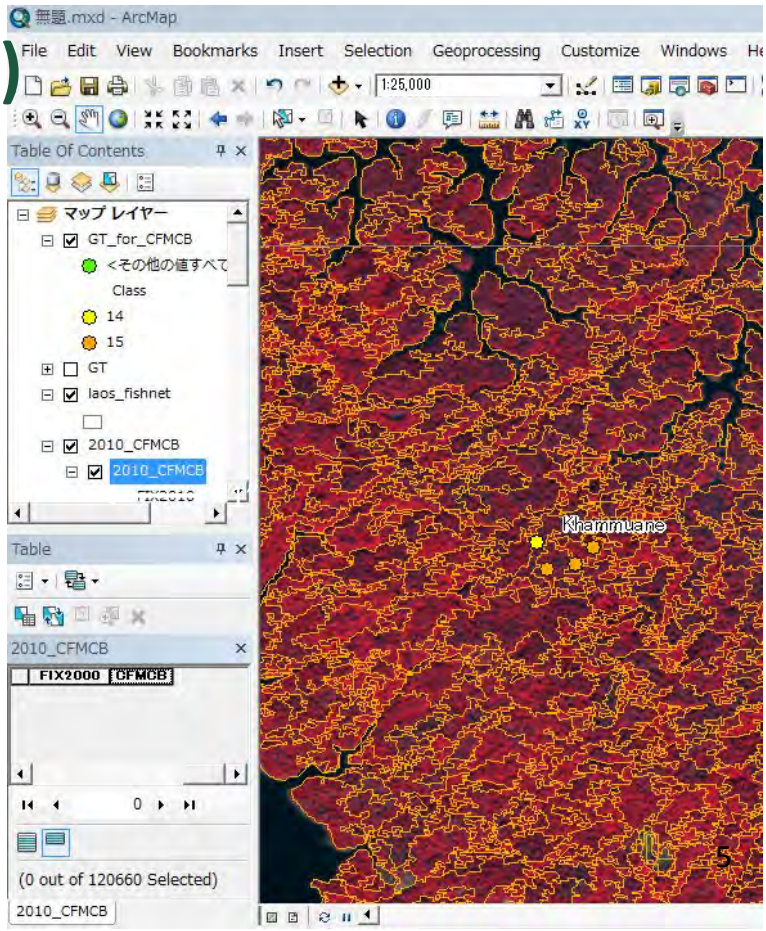
The quality is checked by Japanese expert

When a province is completed

The quality is checked by everyone

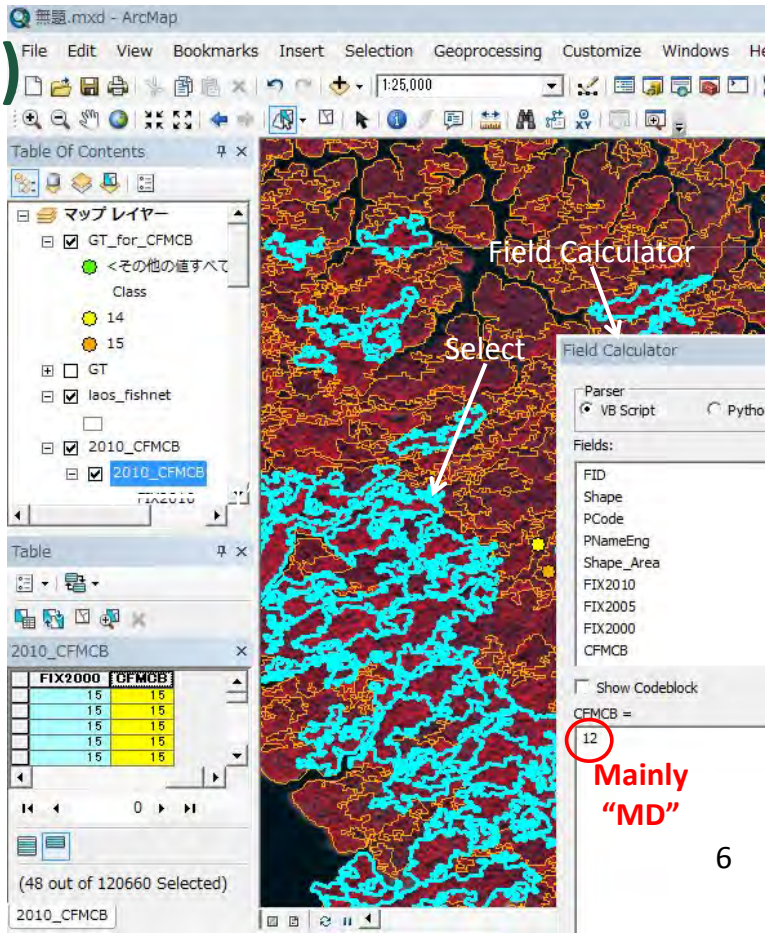
Work flow (1/5)

1. Open the mxd file (each districts).
2. Show attribute table as ”show selected records”.



Work flow (2/5)

3. Start to work for mesh by mesh. Scale should be 1/25,000 as max.
4. Select polygons of ”No CF/MCB” from CF/MCB in 2010 based on 2010 RapidEye imagery, but refre 2015 RapidEye imagery.
5. Conduct field calculation on ”CFMCB” field from ”14” or ”15” (default) to the other classes (mainly MD, ”12”).

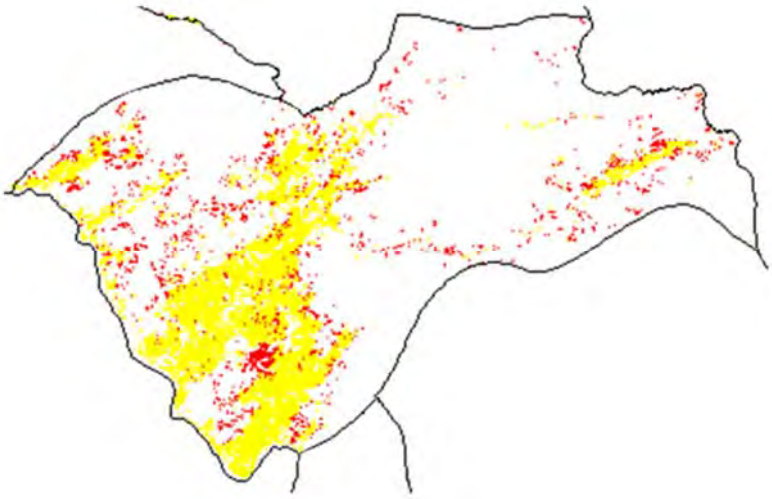


Work flow (3/5)

6. When a mesh is completed, enter the information in the management table.
7. Then, it moves to next mesh.

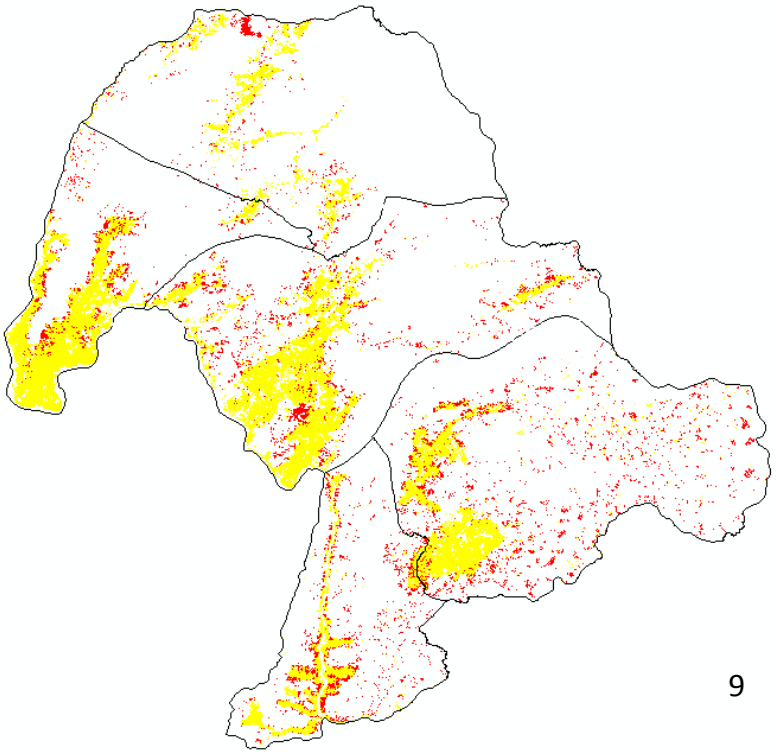
Work flow (4/5)

8. When a district is completed, the distribution of UC should be checked If there is a bias and/or lack of distribution by yourself first.
9. Then, please ask senior engineer to check the distribution again.
10. Finally, please ask Japanese expert to check the quality.

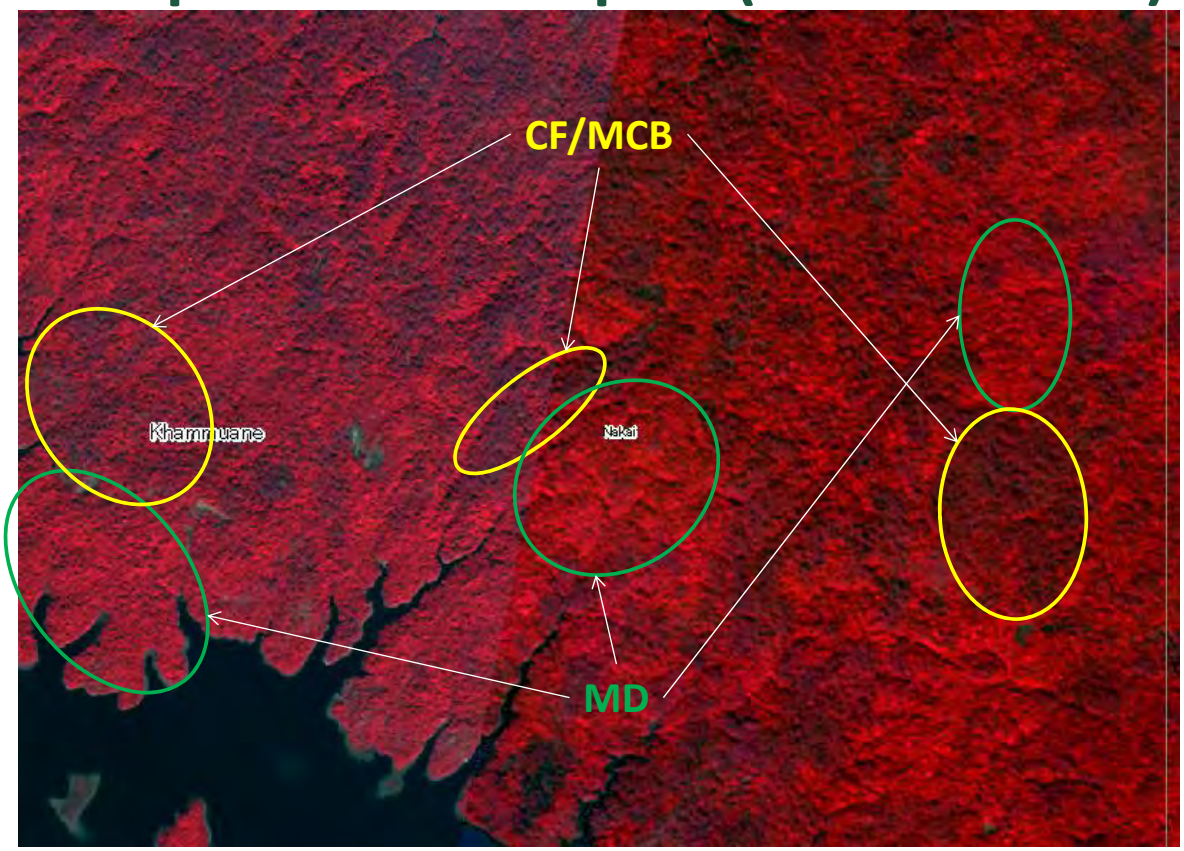


Work flow (5/5)

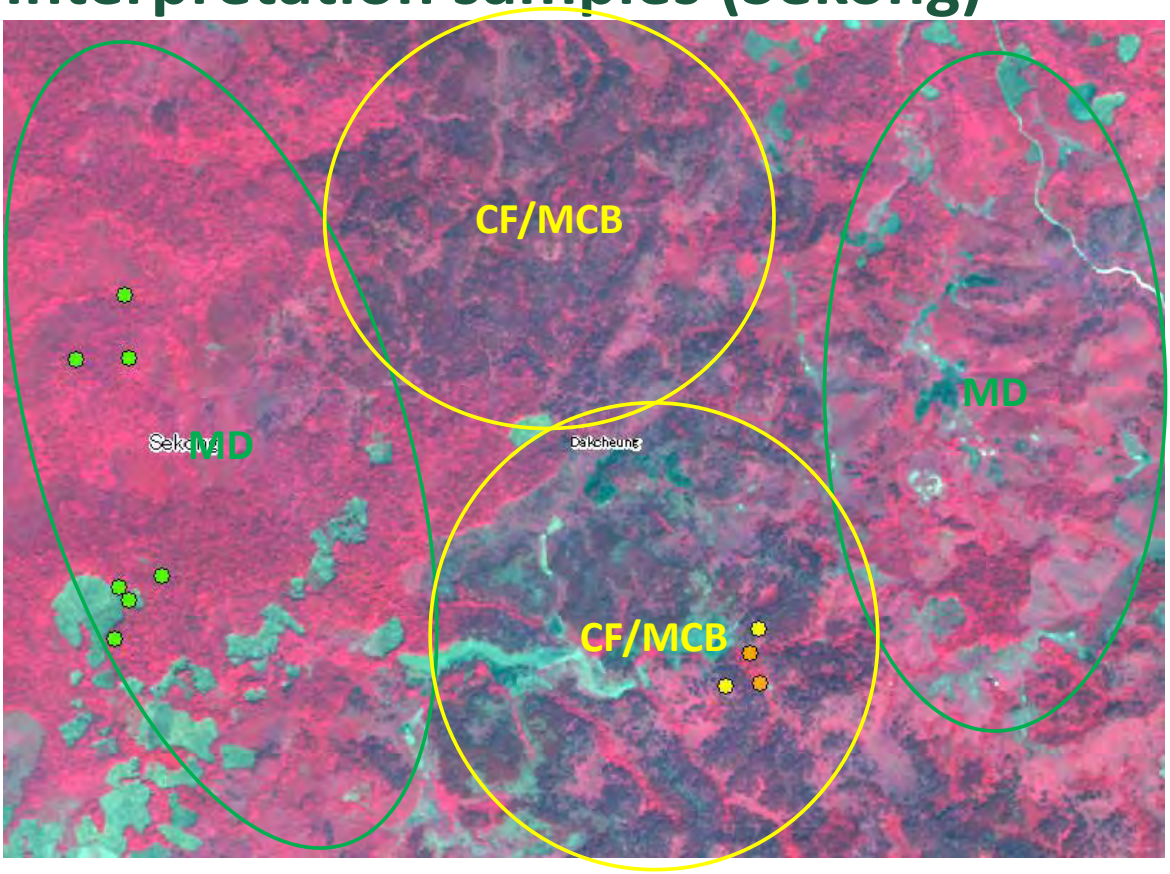
11. When a province is completed, the quality should be checked by everyone.
12. If there is a bias and/or lack of distribution, it should be corrected.



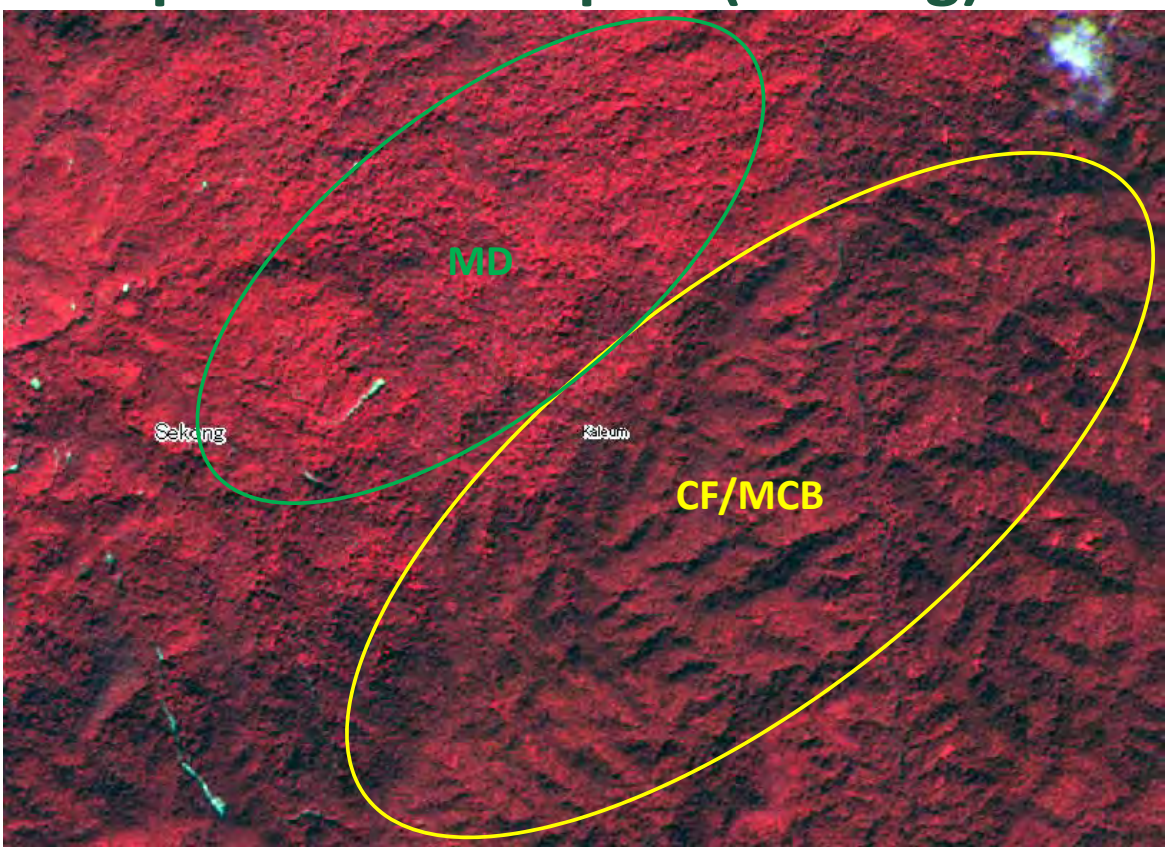
Interpretation samples (Khammuane)



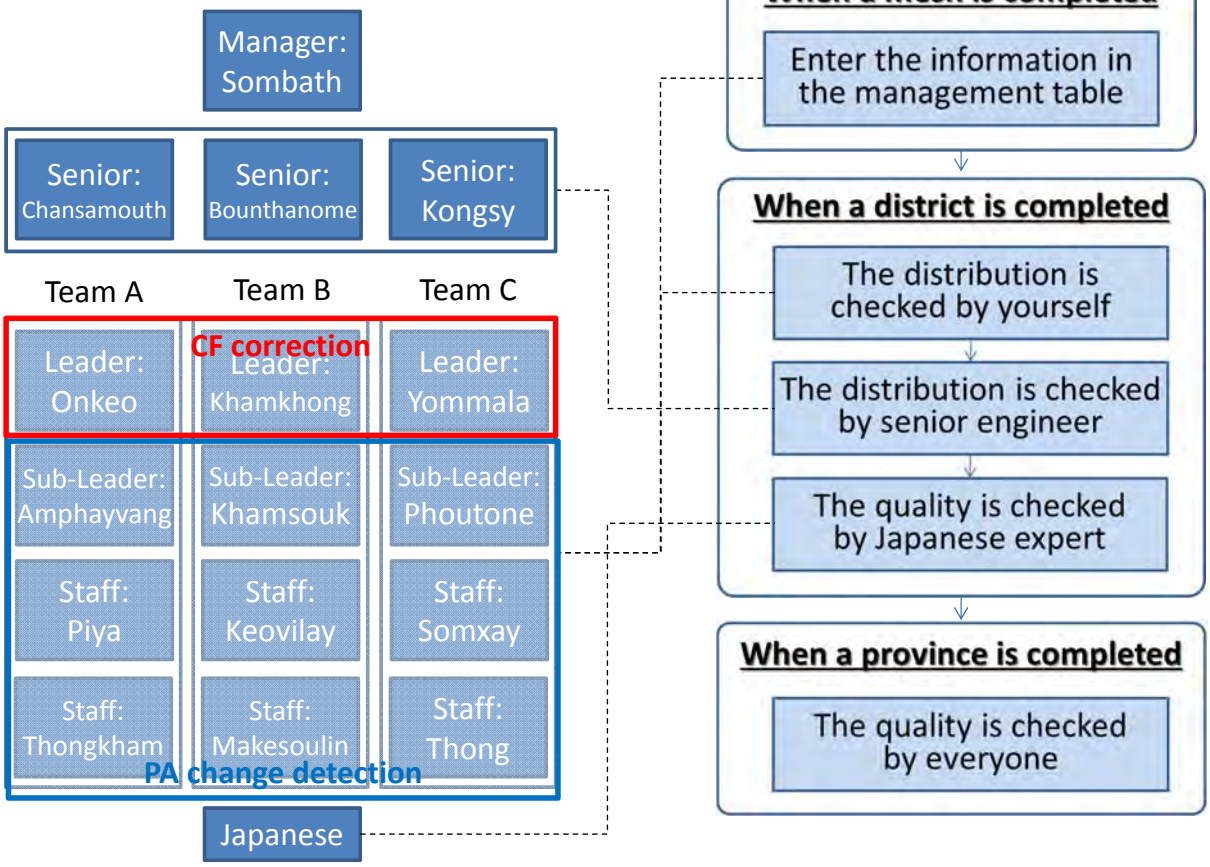
Interpretation samples (Sekong)



Interpretation samples (Sekong)



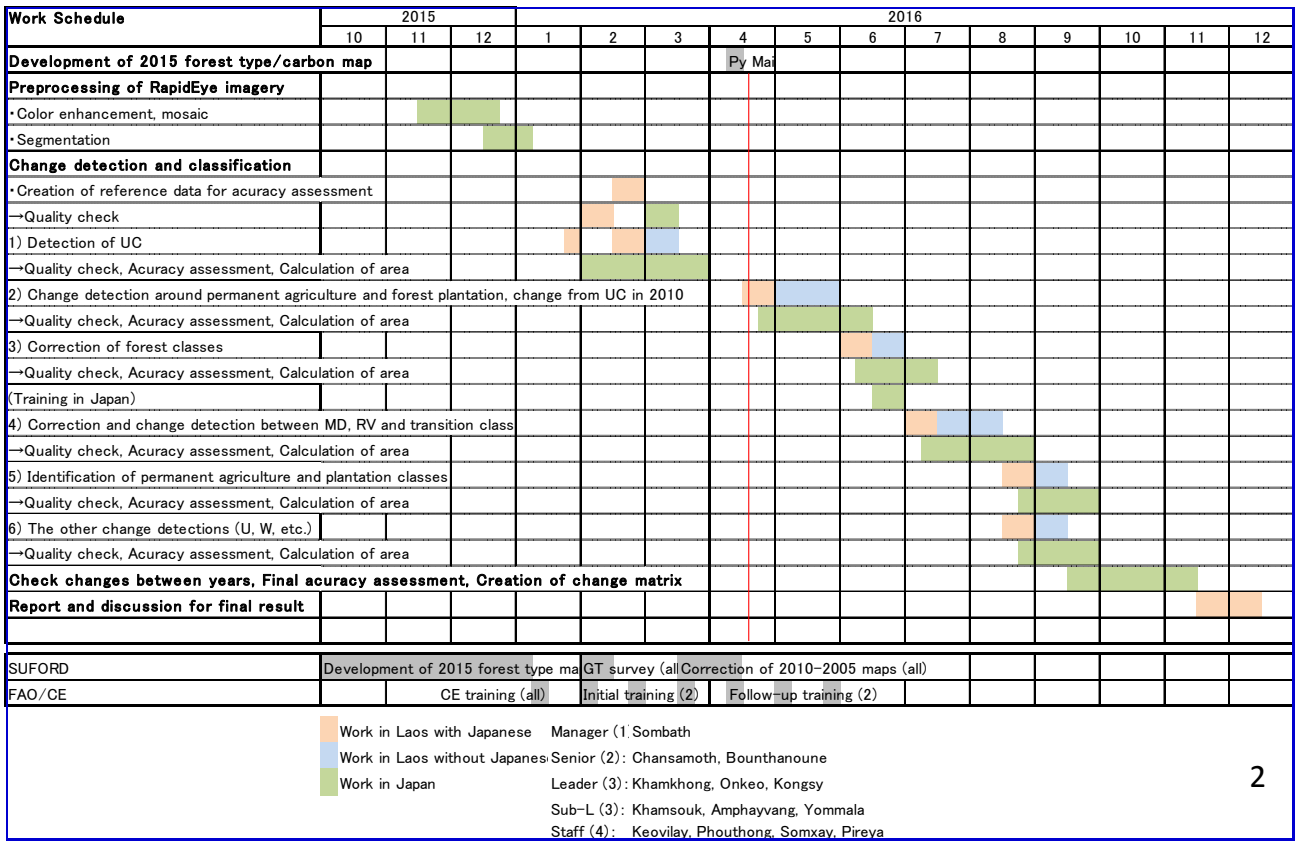
Organization (draft)



Development of 2015 forest type map

Detection of change around permanent agriculture and forest plantation area

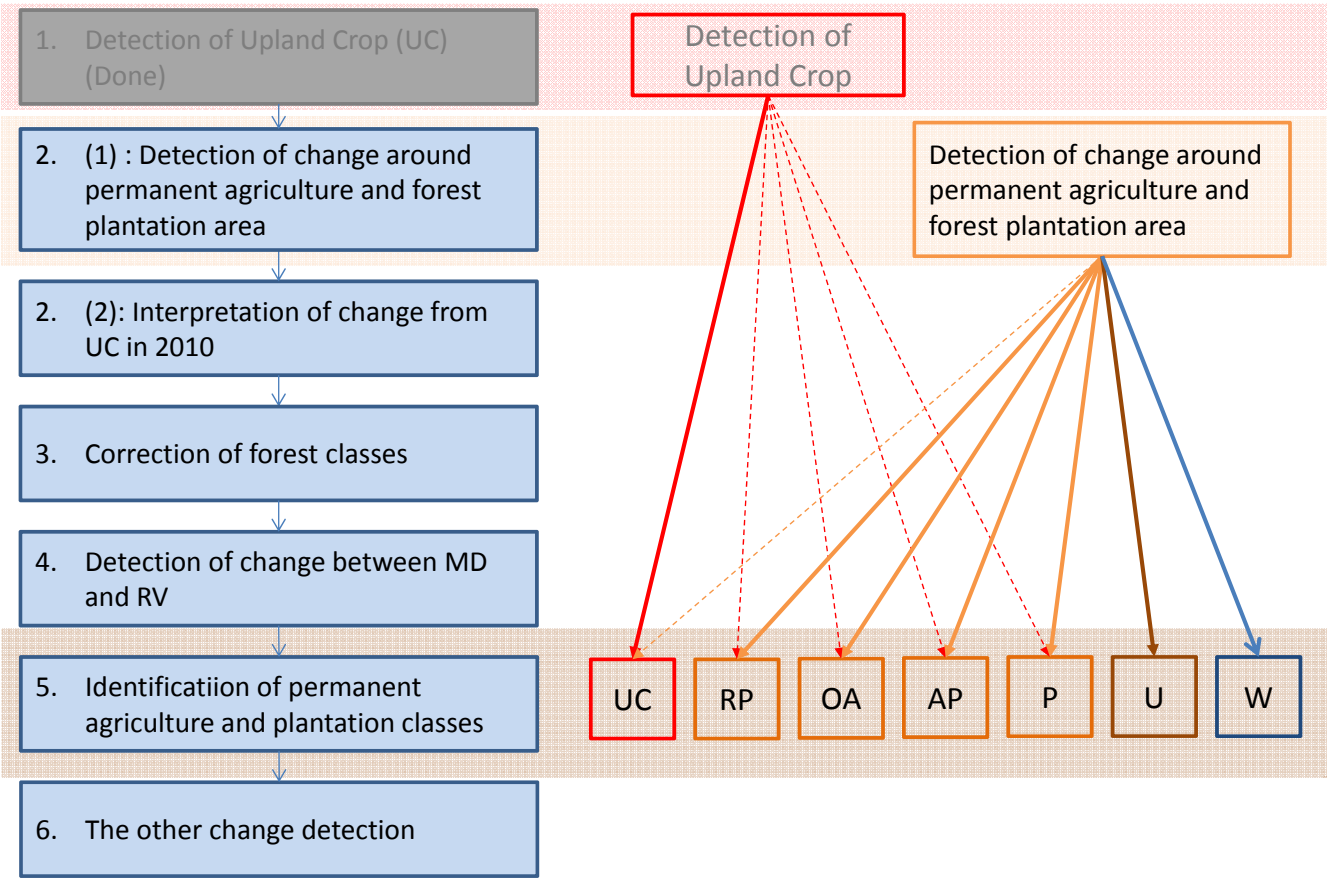
Schedule



Outline Flow Chart

1. Detection of Upland Crop (UC) (Done) — To detect Upland Crop on a mountainous area
2. (1) : Detection of change around permanent agriculture and forest plantation area — **To detect a expansion of permanent agriculture and forest plantation around existing one**
2. (2): Interpretation of change from UC in 2010 — **To interpret after change in 2010**
3. Correction of forest classes
4. Detection of change between MD and RV — **To detect forest degradation and forest recovery**
5. Identificatiion of permanent agriculture and plantation classes — **To Identify Rice paddy, Other agriculture, Agriculture plantation, Upland crop and Forest plantation.**
6. The other change detection — **To detect the change from Water and Urban in 2010 and the change to Water and urban in 2015.**

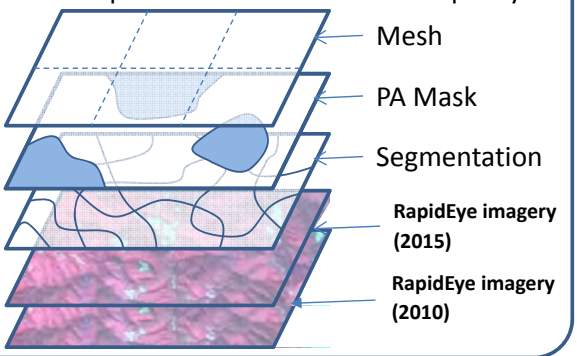
Outline Flow Chart



Work flow of the 2nd step (Outline)

Detection of change around permanent agriculture and forest plantation area

- mesh by mesh
- from outside of Mask
- Comparison 2010 and 2015 of Rapid Eye



When a mesh is completed

Enter the information in the management table

When a district is completed

The distribution is checked by yourself

↓

The distribution is checked by senior engineer

↓

The quality is checked by Japanese expert

When a province is completed

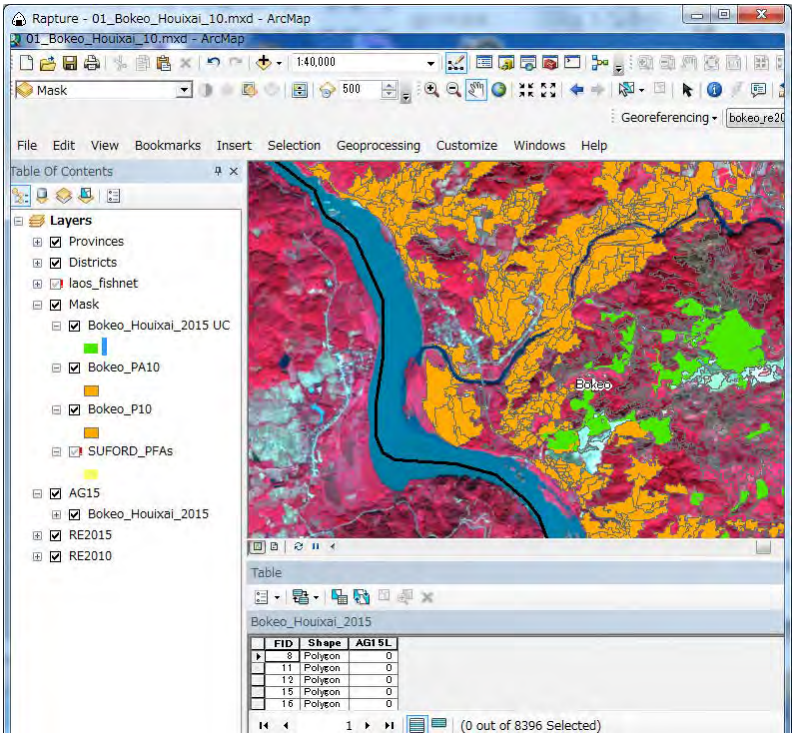
The quality is checked by everyone

Work flow (1/5) Setting

1. Open the mxd file (each districts).

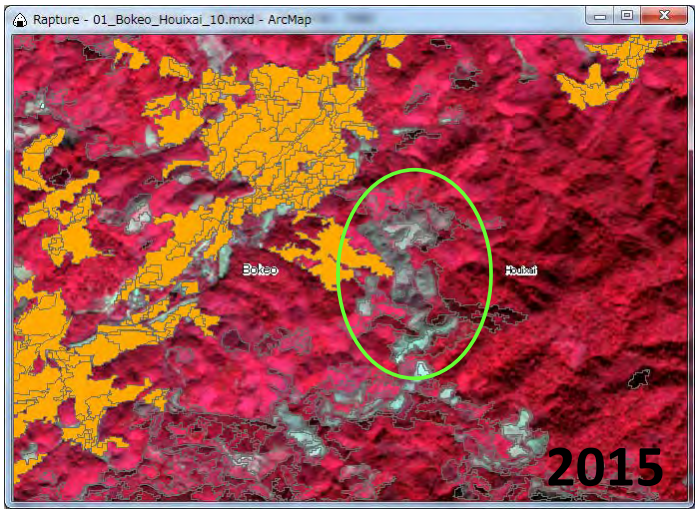
It is stored in

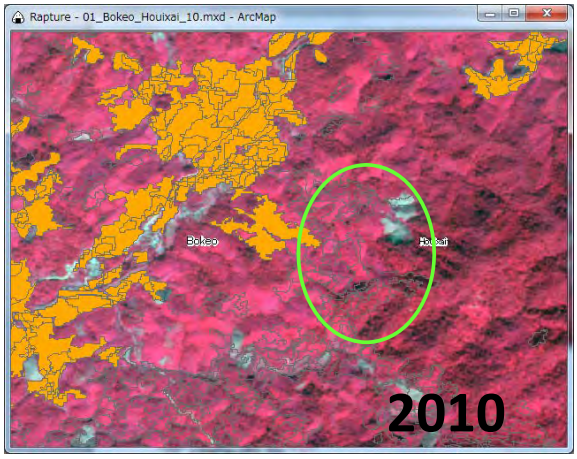
[¥¥Serverfgdb¥01_fimp_data¥04_FREDD_Project¥01_Development_of_2015_Map¥02_AG_Detection¥**00_Workspace**_AG]



Work flow (2/5)

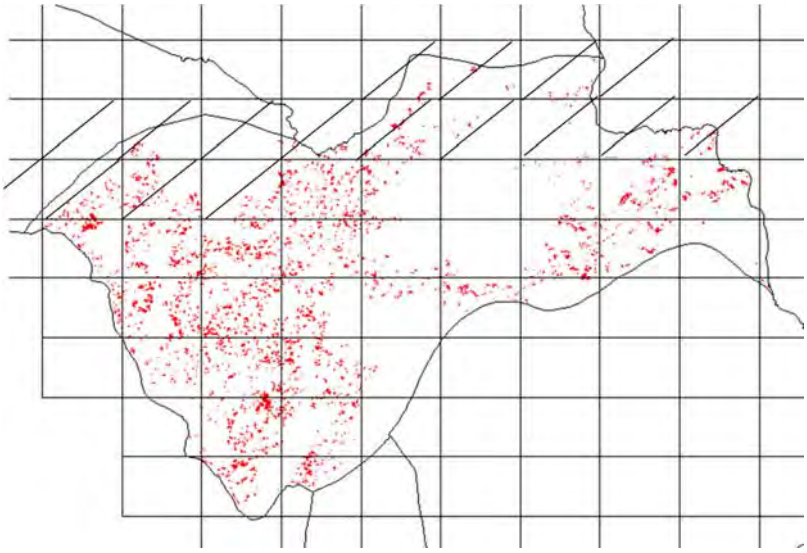
3. Start to work for mesh by mesh. Scale should be 1/25,000 as max.
4. Select changed polygons from forest based on 2010 RapidEye imagery to Non-forest based on2015 RapidEye imagery.
5. Conduct field calculation on ”AG15L” field from ”0” (default) to ”1”.





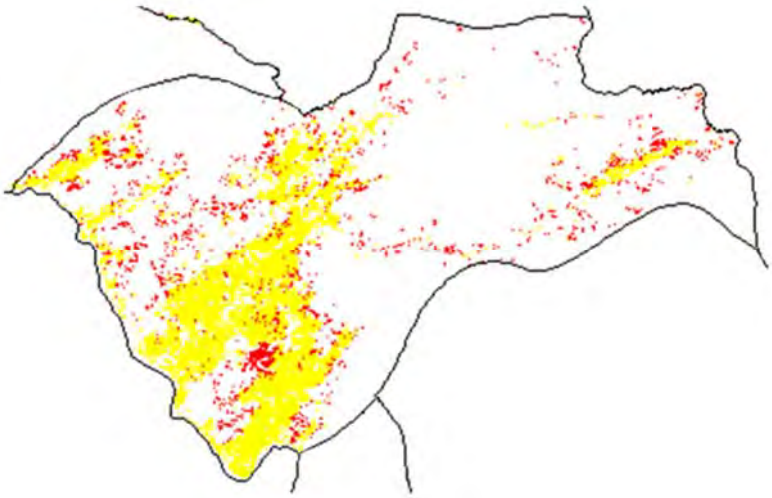
Work flow (3/5)

6. When a mesh is completed, enter the information in the management table.
7. Then, it moves to next mesh.



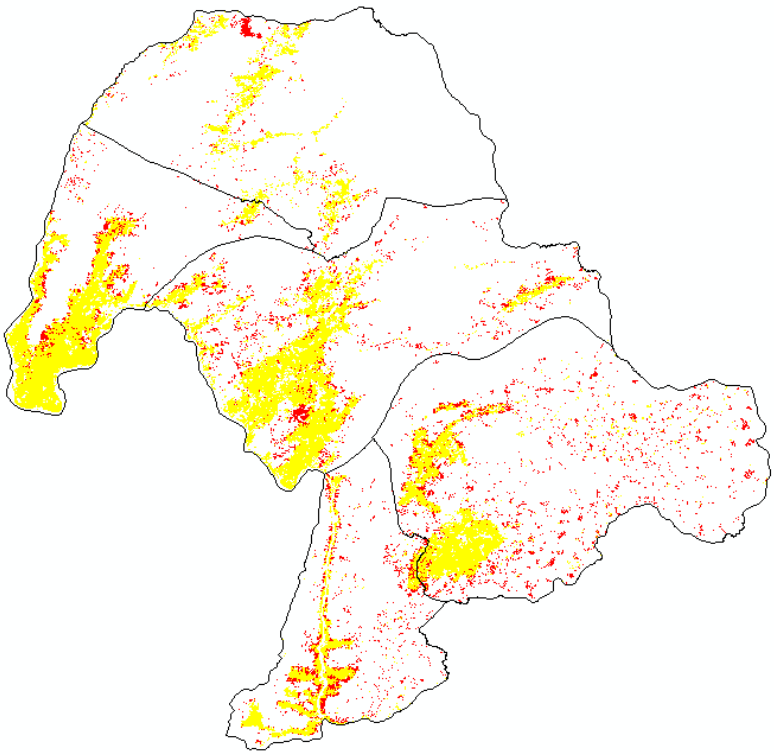
Work flow (4/5)

8. When a district is completed, the distribution of UC should be checked If there is a bias and/or lack of distribution by yourself first.
9. Then, please ask senior engineer to check the distribution again.
10. Finally, please ask Japanese expert to check the quality.

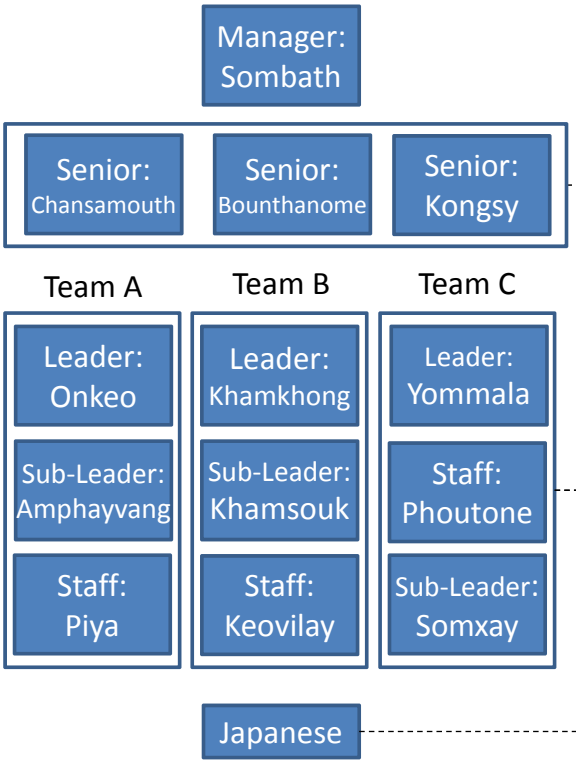


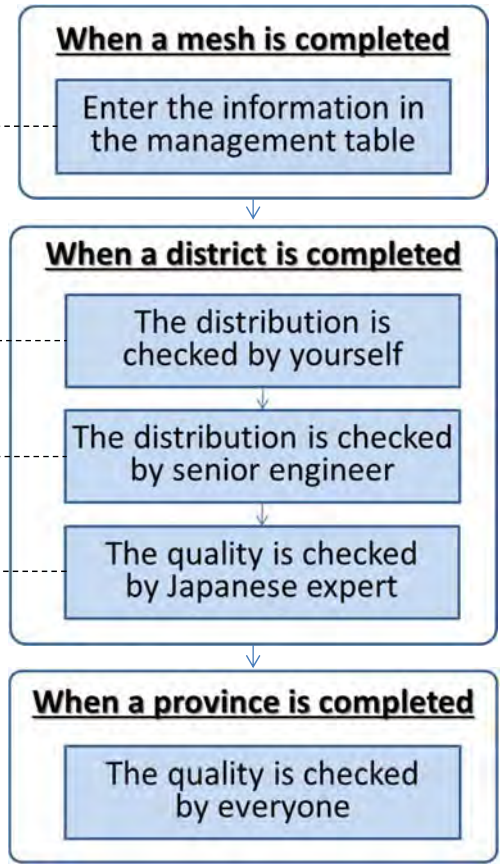
Work flow (5/5)

11. When a province is completed, the quality should be checked by everyone.
12. If there is a bias and/or lack of distribution, it should be corrected.



Organization (draft)

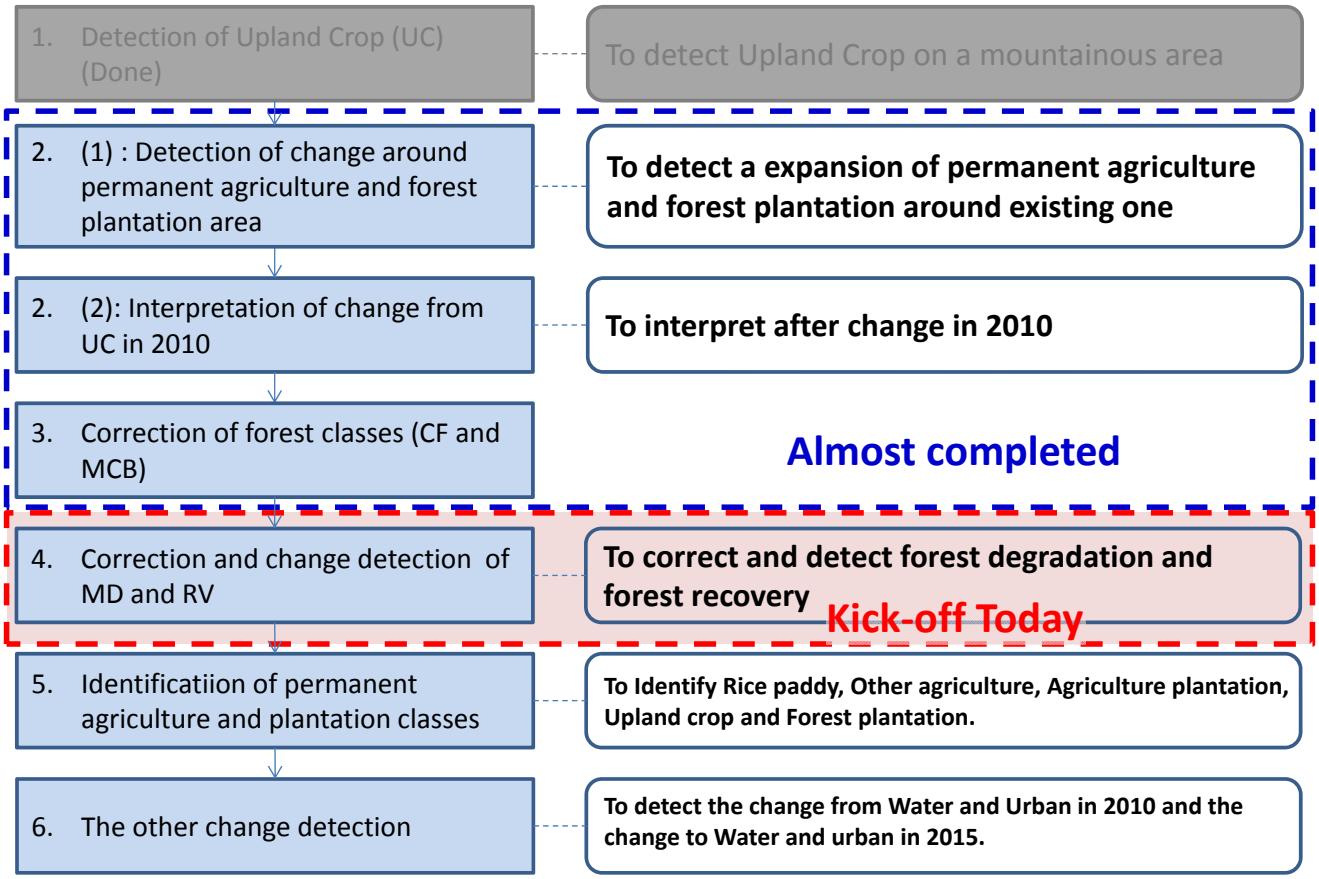




Development of 2015 forest type map

Correction of Mixed Deciduous Forest (MD) and Regenerating Vegetation (RV)

Outline of Flow Chart



Schedule

Work Schedule	2015			2016											
	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Development of 2015 forest type/carbon map							Py Mai			Today					
Preprocessing of RapidEye imagery															
・Color enhancement, mosaic															
・Segmentation															
Change detection and classification															
・Creation of reference data for acuracy assessment															
→Quality check															
1) Detection of UC															
→Quality check, Acuracy assessment, Calculation of area															
2) Change detection around permanent agriculture and forest plantation, change from UC in 2010															
→Quality check, Acuracy assessment, Calculation of area															
3) Correction of CF/MCB											Almost completed				
→Quality check, Acuracy assessment, Calculation of area															
4) Correction and change detection of MD and RV													Kick-off Today		
→Quality check, Acuracy assessment, Calculation of area															
5) Identification of permanent agriculture and plantation classes															
→Quality check, Acuracy assessment, Calculation of area															
6) The other change detections (U, W, etc.)															
→Quality check, Acuracy assessment, Calculation of area															
Check changes between years, Final acuracy assessment, Creation of change matrix															
Report and discussion for final result															

SUFORD	Development of 2015 forest type ma			GT survey (al	Correction of 2010-2005 maps (all)						
FAO/CE		CE training (all)		Initial training (2)		Follow-up training (2)					

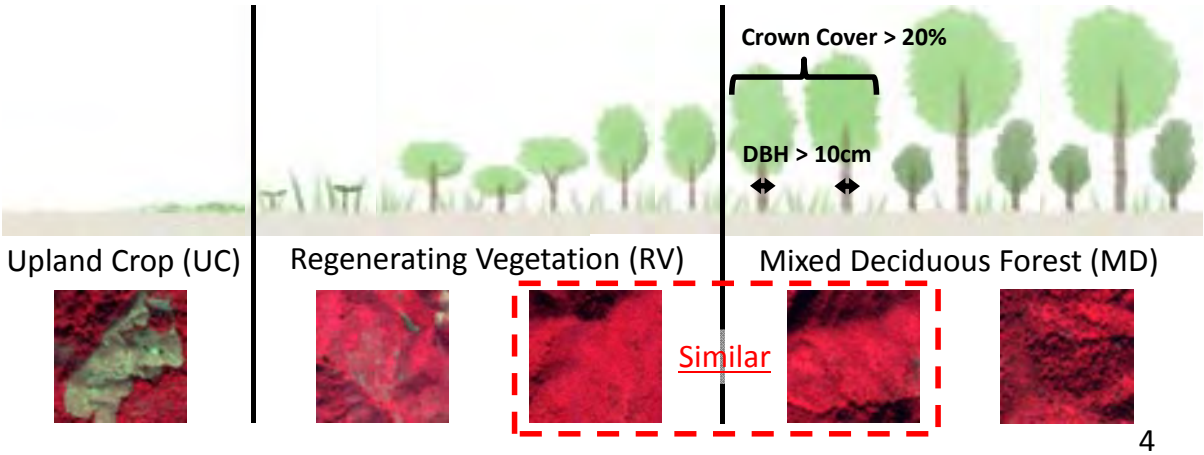
Work in Laos with Japanese
Work in Laos without Japanese
Work in Japan

Manager (1): Sombath
Senior (3): Chansamoth, Bounthanoune, Kongsy
Leader (3): Khamkhong, Onkeo, Yommala
Sub-L (3): Khamsouk, Amphayvang, Phouthong
Staff (6): Keovilay, Somxay, Pireya, 3 staff from inventory section

Correction and change detection of MD and RV

There are two main steps for this work below.

1. Correction for accuracy of MD and RV on 2010 forest type map
2. Change detection of MD and RV between 2010 and 2015 to develop 2015 forest type map



Correction and change detection of MD and RV

- There is a limitation to improve the accuracy of MD/RV through current methods, because the classification criteria based on color and texture information of temporal satellite imagery has a certain amount of fuzziness.
- MD/RV could be classified through alternative methods, for example:
  - If the UC can be detected every year
  - If speed of regrowth (year) from UC to RV and then to MD can be standardized
- UC could be detected every year, for example, by using global multi-temporal data sets already available for free.

New classification criteria based on the abandoned years of UC will be considered

Upland Crop(UC) | Regenerating Vegetation (RV) | Mixed Deciduous Forest (MD)

Correction and change detection of MD and RV

The survey to develop the new classification criteria based on the abandoned years of UC had been conducted.

- However, the result is not good to use for this…
- The additional survey or the other way have to be considered.
- This means the new classification criteria cannot be defined at the moment.

On the other hand, the data ready to be used for the new classification criteria is Hansen data at the moment.

- In the future, original UC data can be developed by the imagery generated by Google Earth Engine (GEE) and so on.
- However, we need more time to consider the feasibility and develop the methodology.

Correction and change detection of MD and RV

With this situation in mind, three steps for this work are proposed as below:

Kick-off Today

1. The work based on Hansen data can be conducted before defining the new classification criteria
2. The work based on Hansen data can be conducted after defining the new classification criteria (semi-automatically)
3. The work based on GEE and so on to improve more in the future

Correction and change detection of MD and RV

Kick-off Today

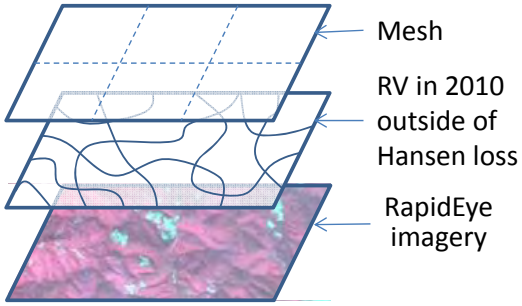
1. The work based on Hansen data can be conducted before defining the new classification criteria

- Correction of MD and RV on 2010 forest type map outside of Hansen loss history.
  - If there is no history (2001 to 2009) of Hansen loss (≒UC) , these area are likely to be MD.
  - Therefore, if there is RV in the area which has no history of Hansen loss, it should be changed to MD based on referring the imagery.

Work flow (Outline)

Correction of CF/MCB

- mesh by mesh
- correction on RV in 2010
- based on RapidEye imagery



When a mesh is completed

Enter the information in the management table

When a district is completed

The distribution is checked by yourself

The distribution is checked by senior engineer

The quality is checked by Japanese expert

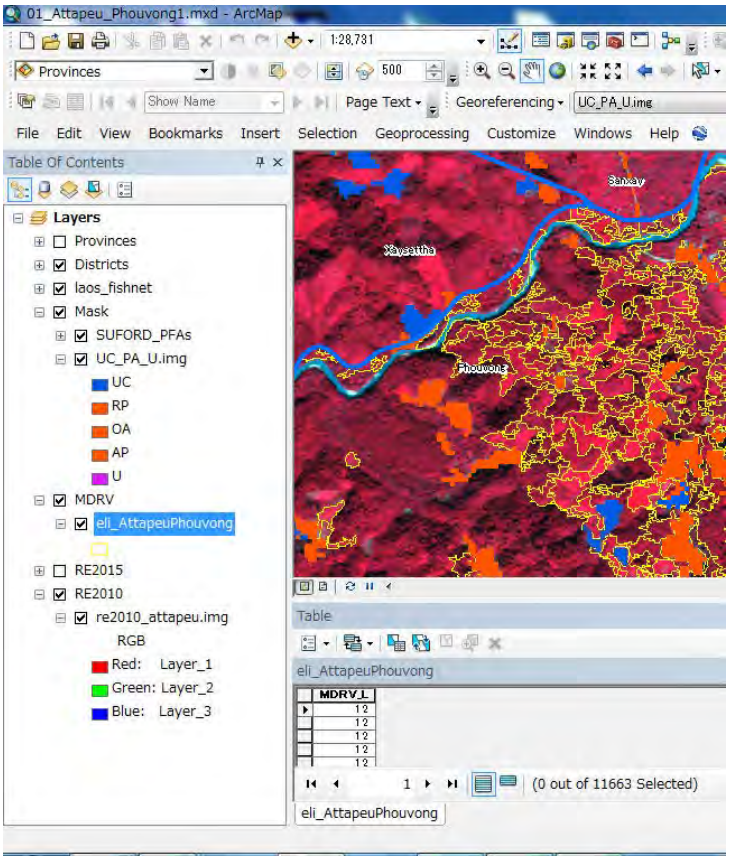
When a province is completed

The quality is checked by everyone

Work flow (1/5) Setting

1. Open the mxd file (each districts).

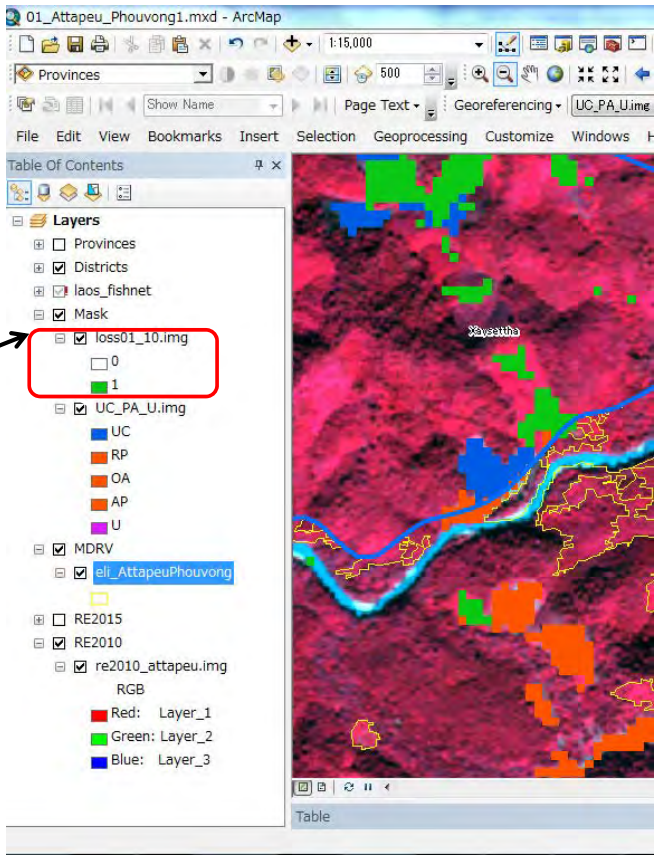
It is stored in ¥¥Serverfgdb¥01_fimp_data¥04_FREDD_Project¥01_Development_of_2015_Map **¥04_MDRV_Correction¥00_Workspace**



A description of each layer

Hansen Loss

From 2001 To 2009



A description of each layer

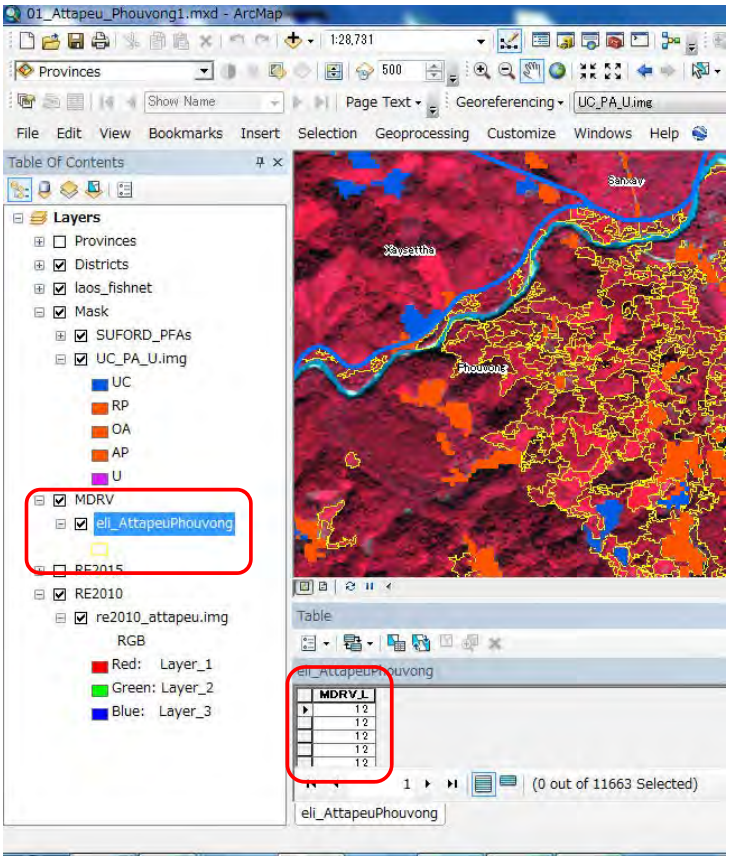
MDRV_L

It is **RV** classified in 2010 map and overlaid on Hansen "treecover2000" except Hansen loss from 2001 to 2009.

This means UC hasn't been happened from 2001 to 2009 in this area.

Then, there is a high possibility that this area recovered to **MD** already.

Thus, MDRV_L field are automatically converted from RV (22) to MD (12).



A description of each layer

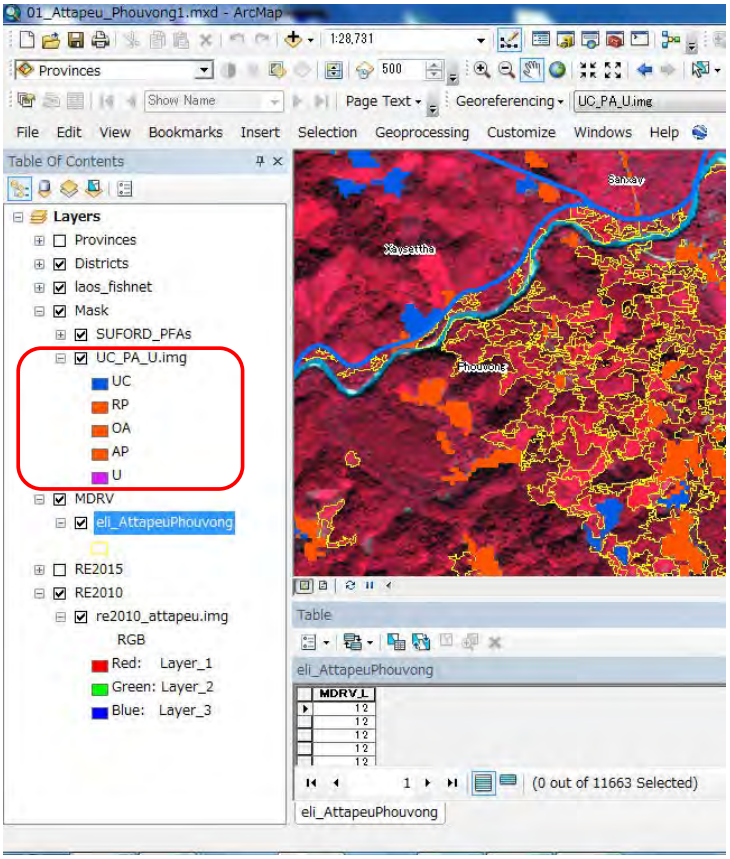
But also **there are some polygons should be interpret as RV**.

Because, Hansen data is not perfect too.

Especially, the polygons with specific color and texture near UC, PA or U should be interpret as RV.

UC_PA_U

Blue: Upland clop
Orang: Rice paddy
:Other Agriculture
:Agricultural plantation
Purple: Urban
Of 2010MAP



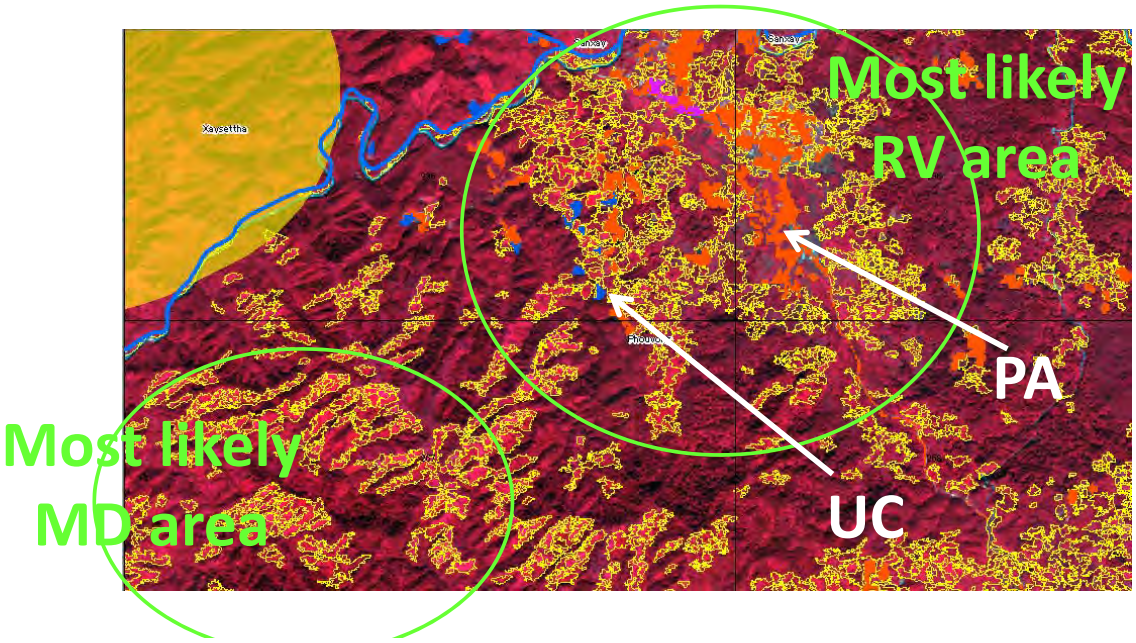
Work flow (2/5)

2. Start to work for mesh by mesh. Scale should be 1/25,000 as max.
3. Select RV polygons based on2010 RapidEye imagery.
4. Conduct field calculation on ”MDRV_L” field from ”12 (MD)” (default) to ”22 (RV)”.

Purpose
To correct from MD near the UC, PA or U to RV

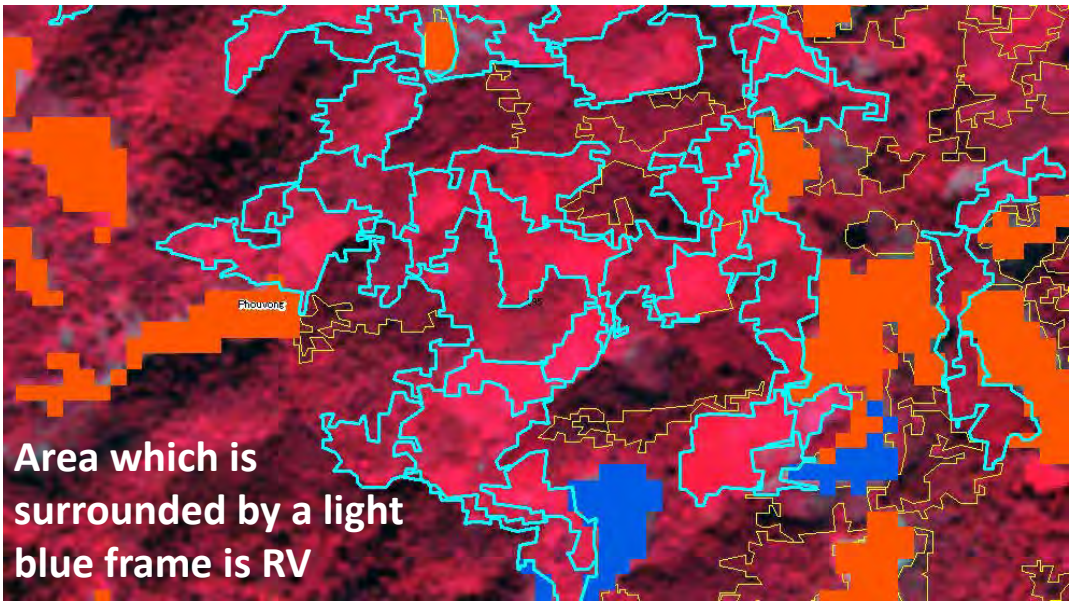
Point

	Texture	Color	Location
MD	○	Dark red	Near Mountain
RV	×	Bright red	Near UC, PA or U



Point

	Texture	Color	Location
MD	○	Dark red	Near Mountain
RV	×	Bright red	Near UC, PA or U

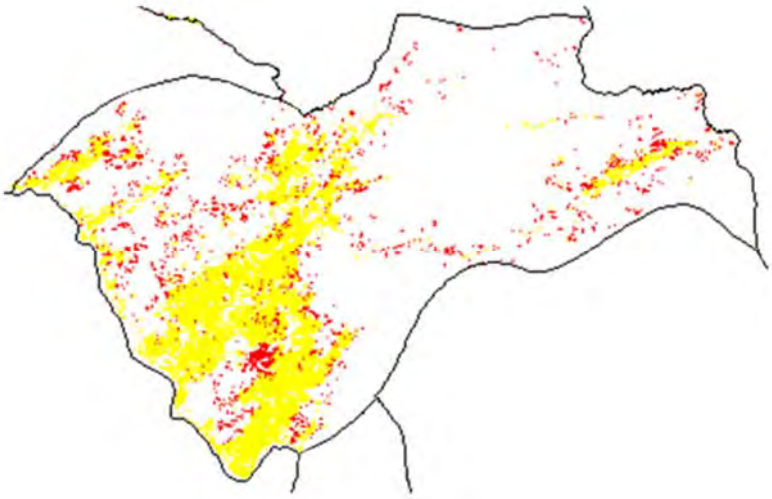


Work flow (3/5)

5. When a mesh is completed, enter the information in the management table.
6. Then, it moves to next mesh.

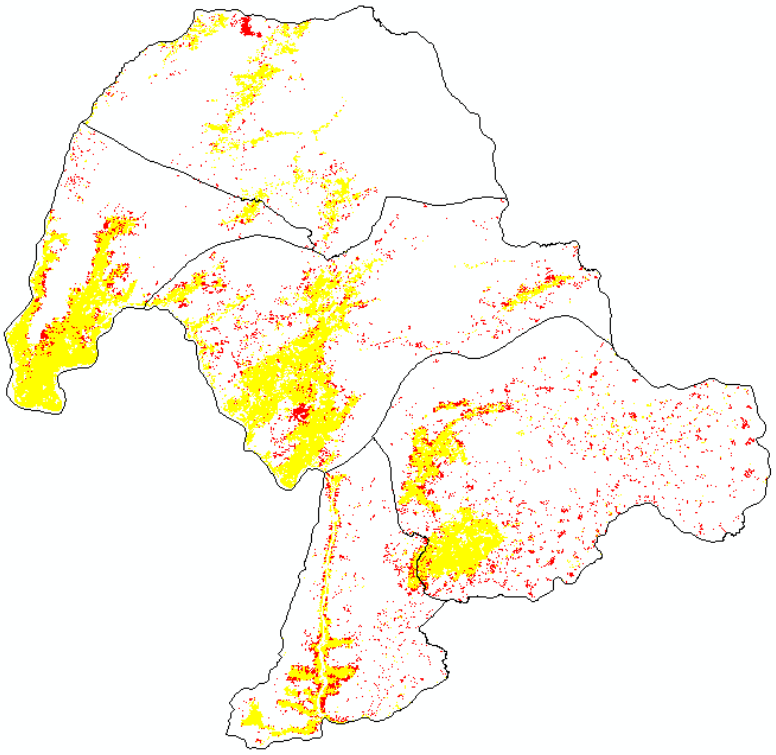
Work flow (4/5)

7. When a district is completed, the distribution of RV should be checked If there is a bias and/or lack of distribution by yourself first.
8. Then, please ask senior engineer to check the distribution again.
9. Finally, please ask Japanese expert to check the quality.

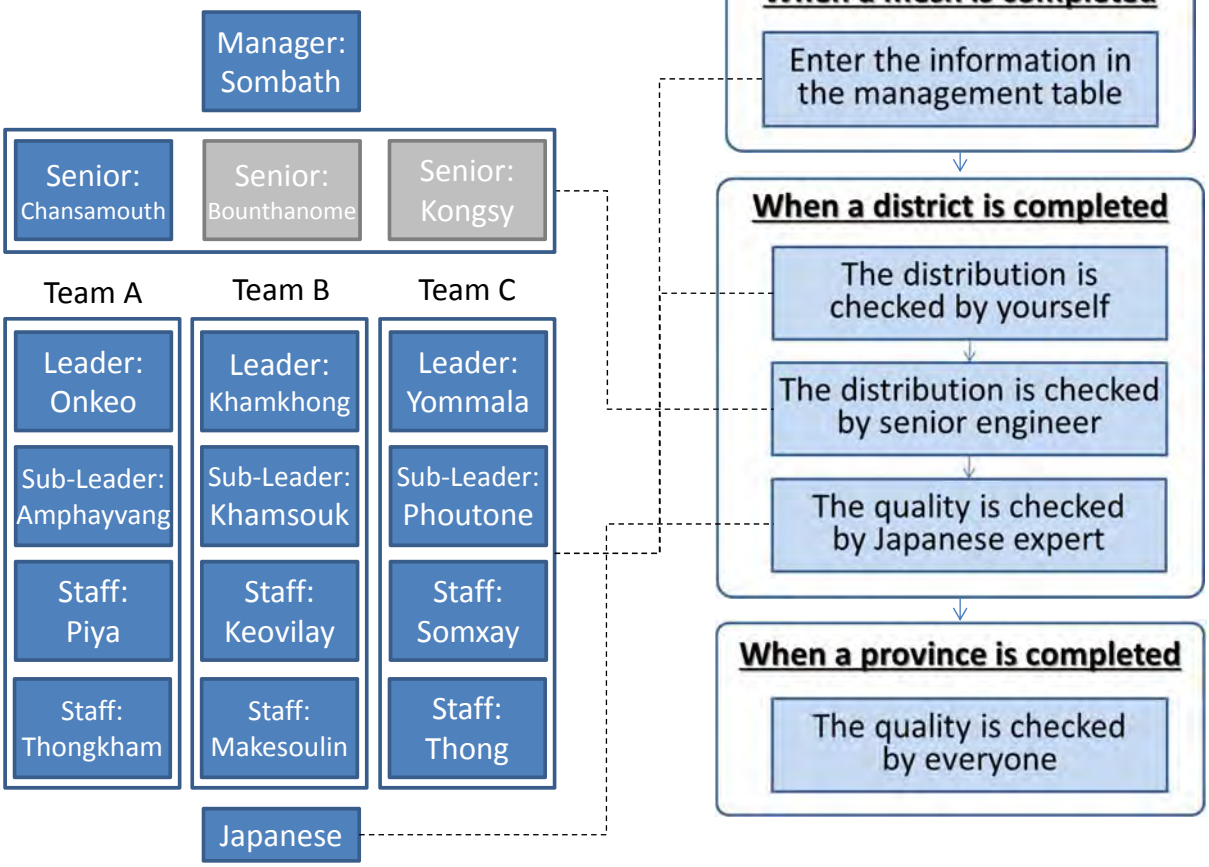


Work flow (5/5)

10. When a province is completed, the quality should be checked by everyone.
11. If there is a bias and/or lack of distribution, it should be corrected.



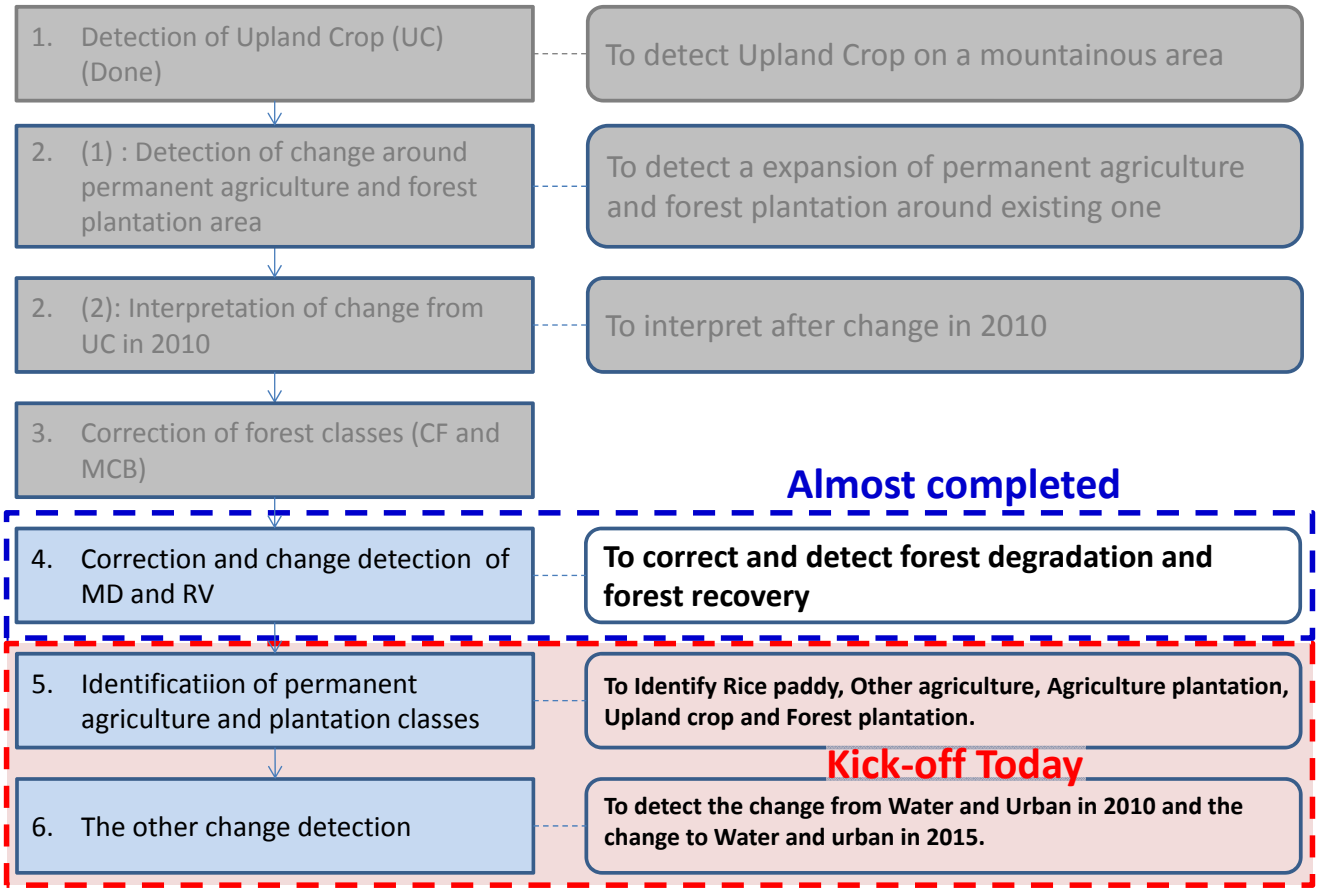
Organization (draft)



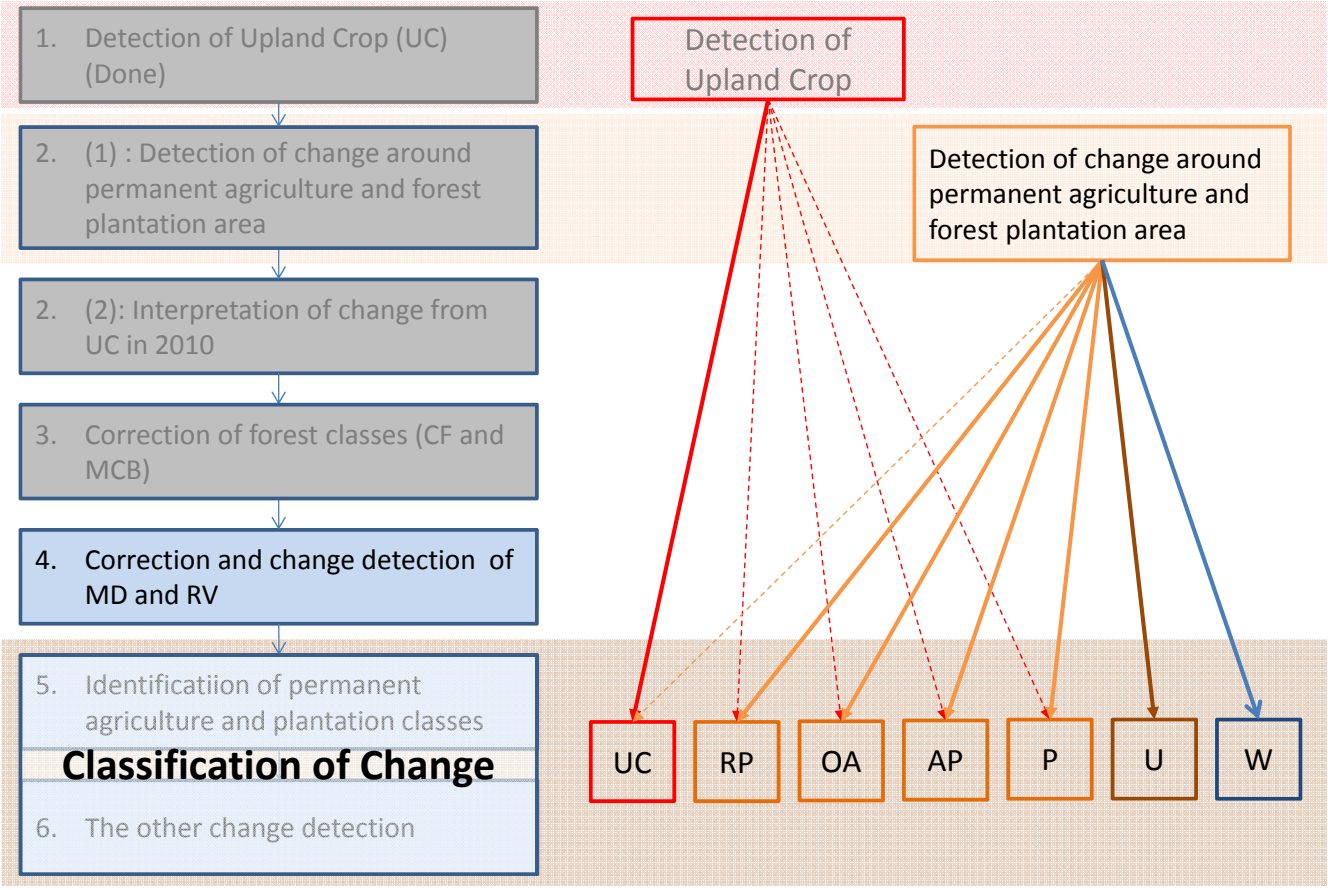
Development of 2015 forest type map

Classification of Change

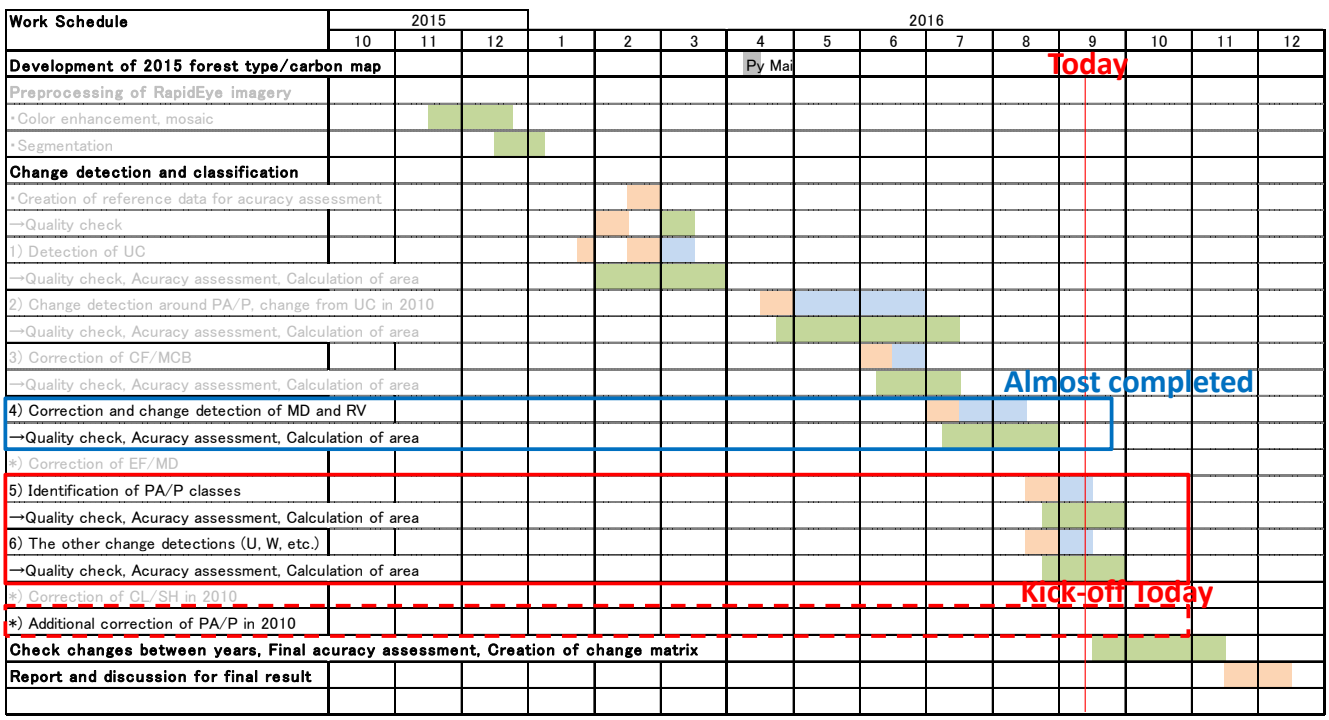
Outline of Flow Chart



Outline of Flow Chart



Schedule



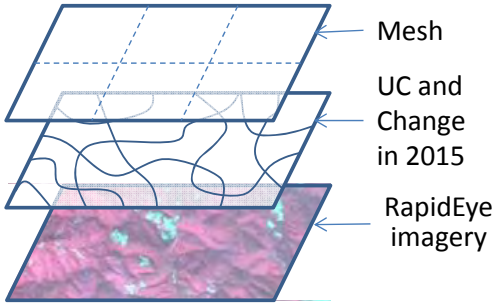
Work in Laos with Japanese
Work in Laos without Japanes
Work in Japan

Manager (1 Sombath
Senior (2): Chansamoth, Kongsy
Leader (3): Khamkhong, Onkeo, Yommala
Sub-L (3): Khamsouk, Amphayvang, Phouthong
Staff (6): Keovilay, Somxay, Pireya, 3 staff from inventory section

Work flow (Outline)

Correction of CF/MCB

- mesh by mesh
- UC and Change in 2015
- based on RapidEye imagery



When a mesh is completed

Enter the information in the management table

When a district is completed

The distribution is checked by yourself

The distribution is checked by senior engineer

The quality is checked by Japanese expert

When a province is completed

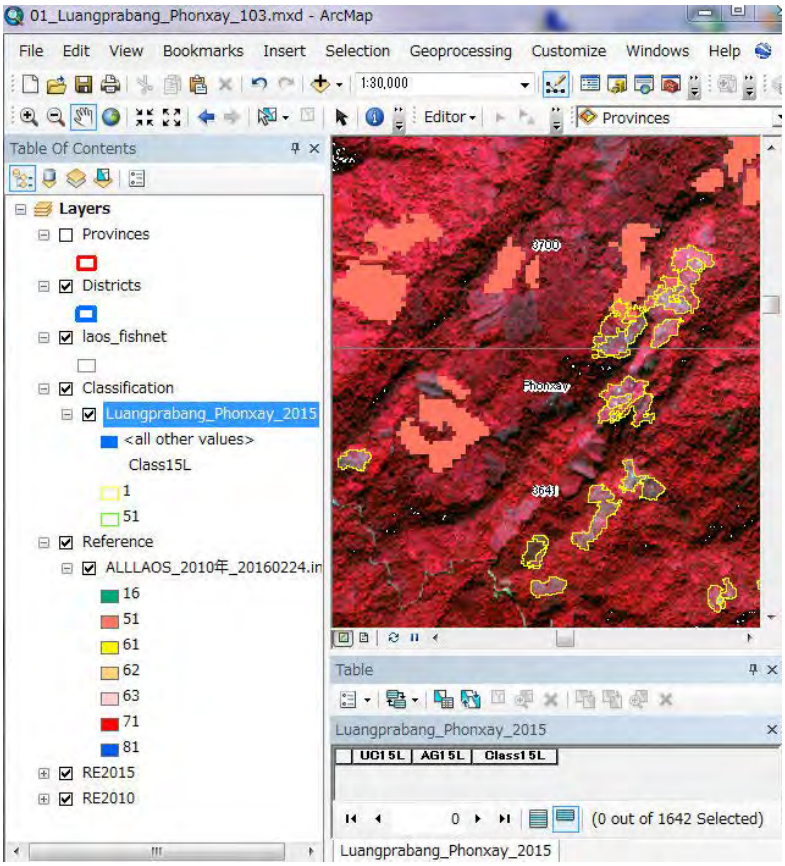
The quality is checked by everyone

Work flow (1/5) Setting

1. Open the mxd file (each districts).

It is stored in

¥¥Serverfgdb¥01_fimp_data¥04_FREDD_Project¥01_Development_of_2015_Map**¥05_Classification_of_Change¥00_Workspace**

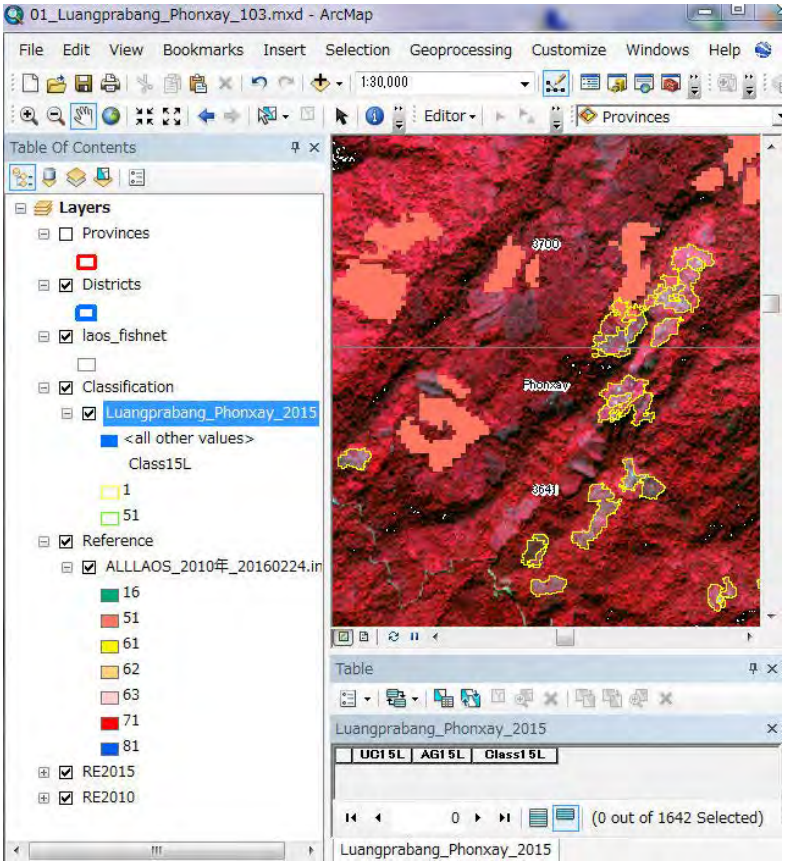


Outline of work

Target is "**Classification**" layer which is **UC and Change** from 2010 to 2015.

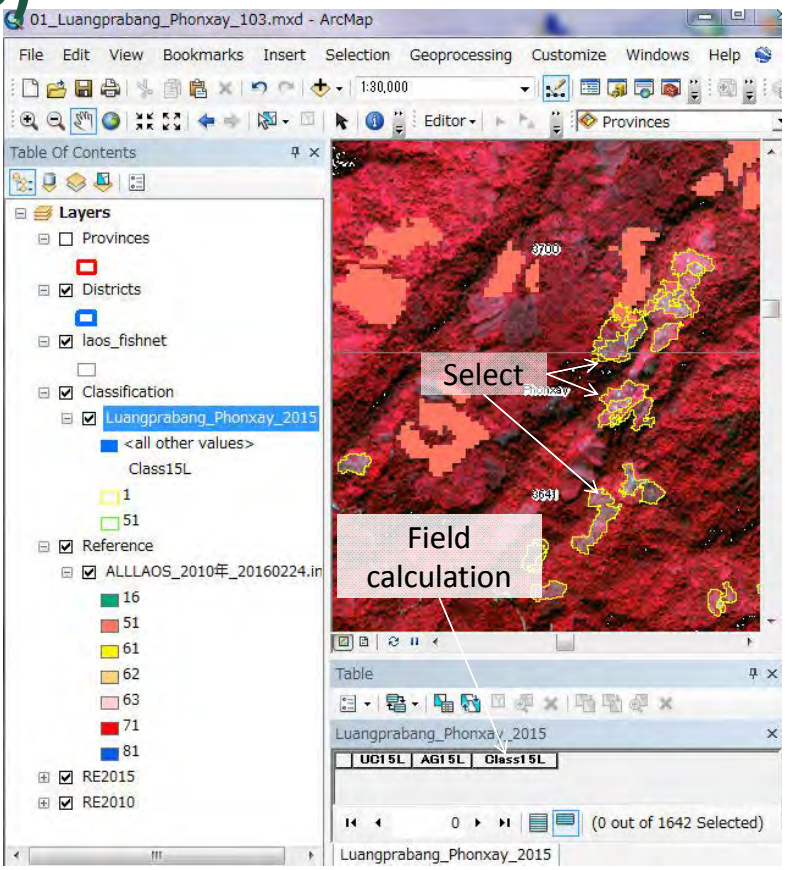
You interpret these polygons on RapidEye in 2015 and enter code of classes into the field "**Class15L**".

If you find miss-detected UC or Change, you also interpret them.



Work flow (2/5)

2. Start to work for mesh by mesh. Scale should be 1/25,000 as max.
3. Select UC or Change polygons.
4. Conduct field calculation on "Class15L" field to the class in 2015.



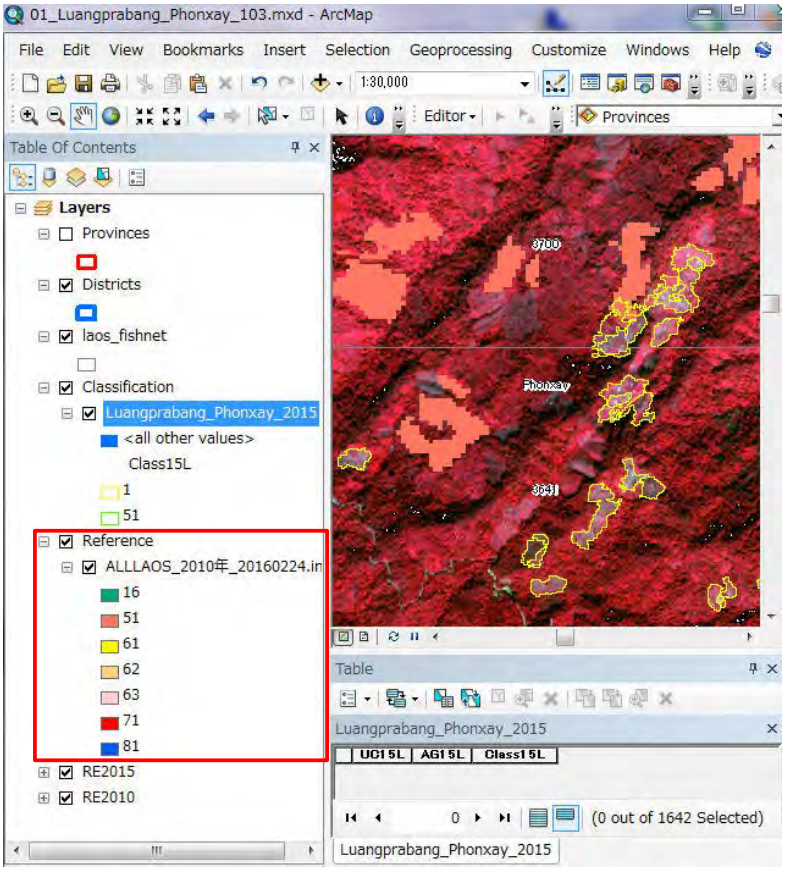
Note

Please refer "**Reference**" layer. This is the part of **Forest Type Map in 2010**.

If there is a specific class around UC or Change polygons, there is a possibility that the class of these polygons is same of the specific class. However, please note there is also a possibility of miss-classification.

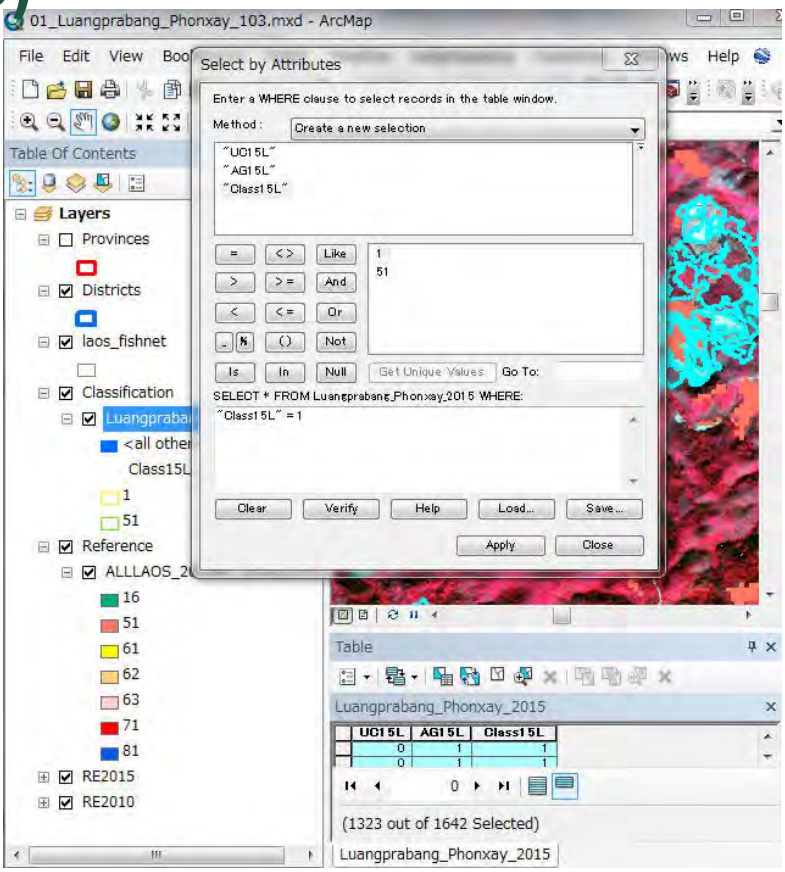
Please note basic criteria is;

UC is located on the **mountain**, **PA/P/U** are located on the **flatland and valley**.



Work flow (3/5)

5. When you complete, please check if there is "1" in "Class15L" field.
6. If there is "1", please interpret this polygon.

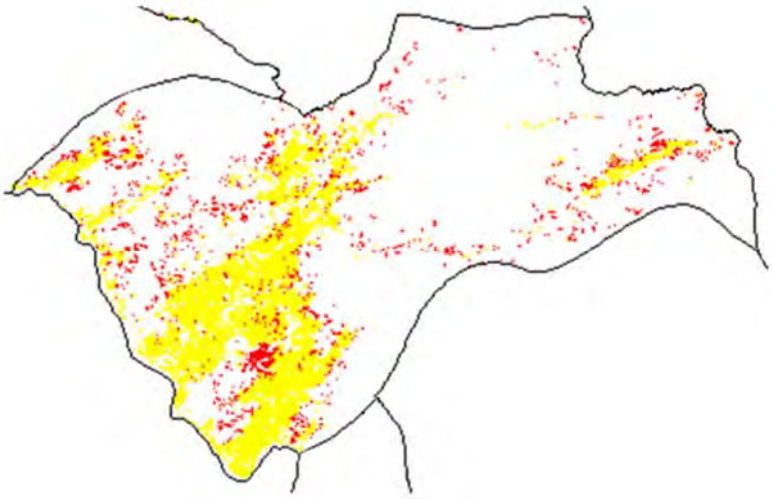


Work flow (3/5)

7. When a mesh is completed, enter the information in the management table.
8. Then, it moves to next mesh.

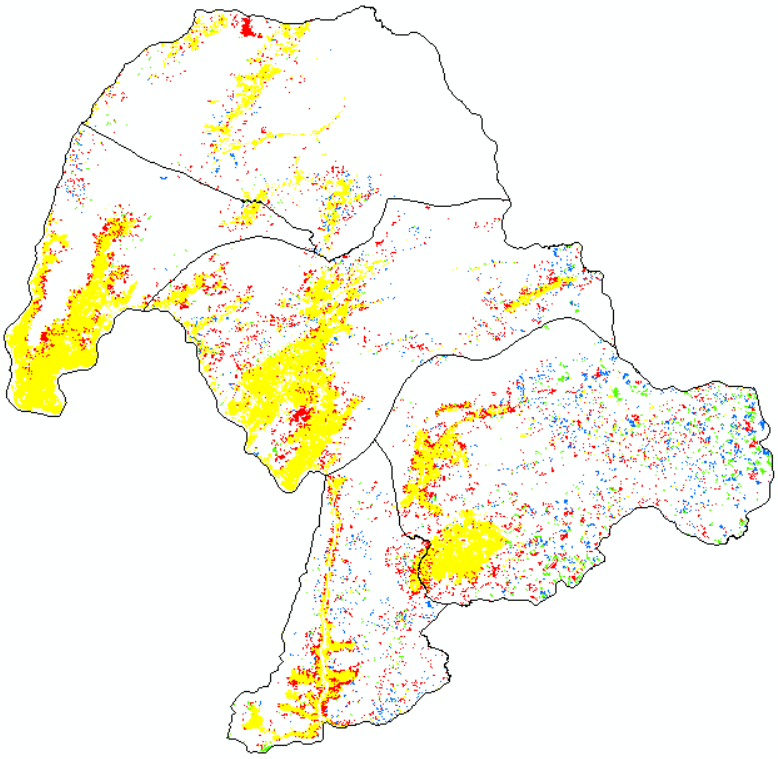
Work flow (4/5)

9. When a district is completed, the distribution of UC and Change should be checked If there is a bias and/or lack of distribution by yourself first.
10. Then, please ask senior engineer to check the distribution again.
11. Finally, please ask Japanese expert to check the quality.

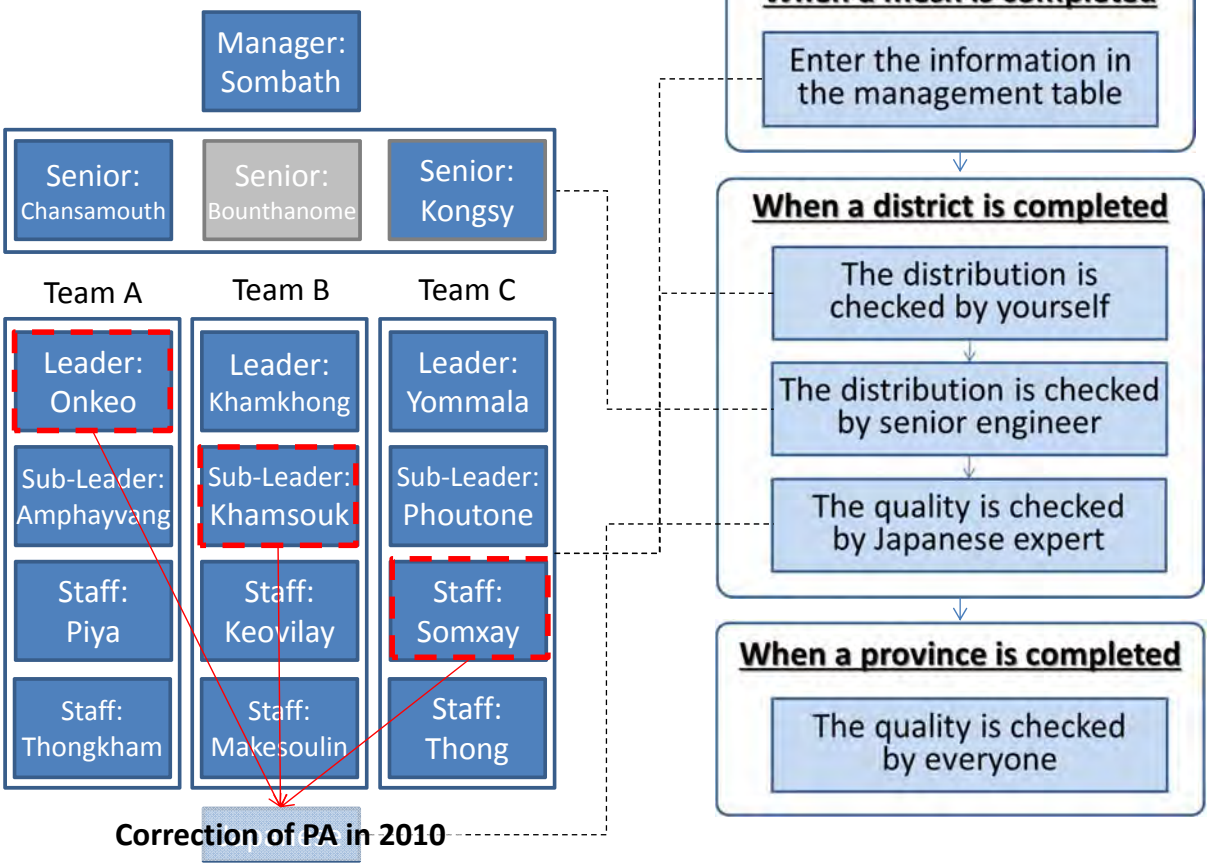


Work flow (5/5)

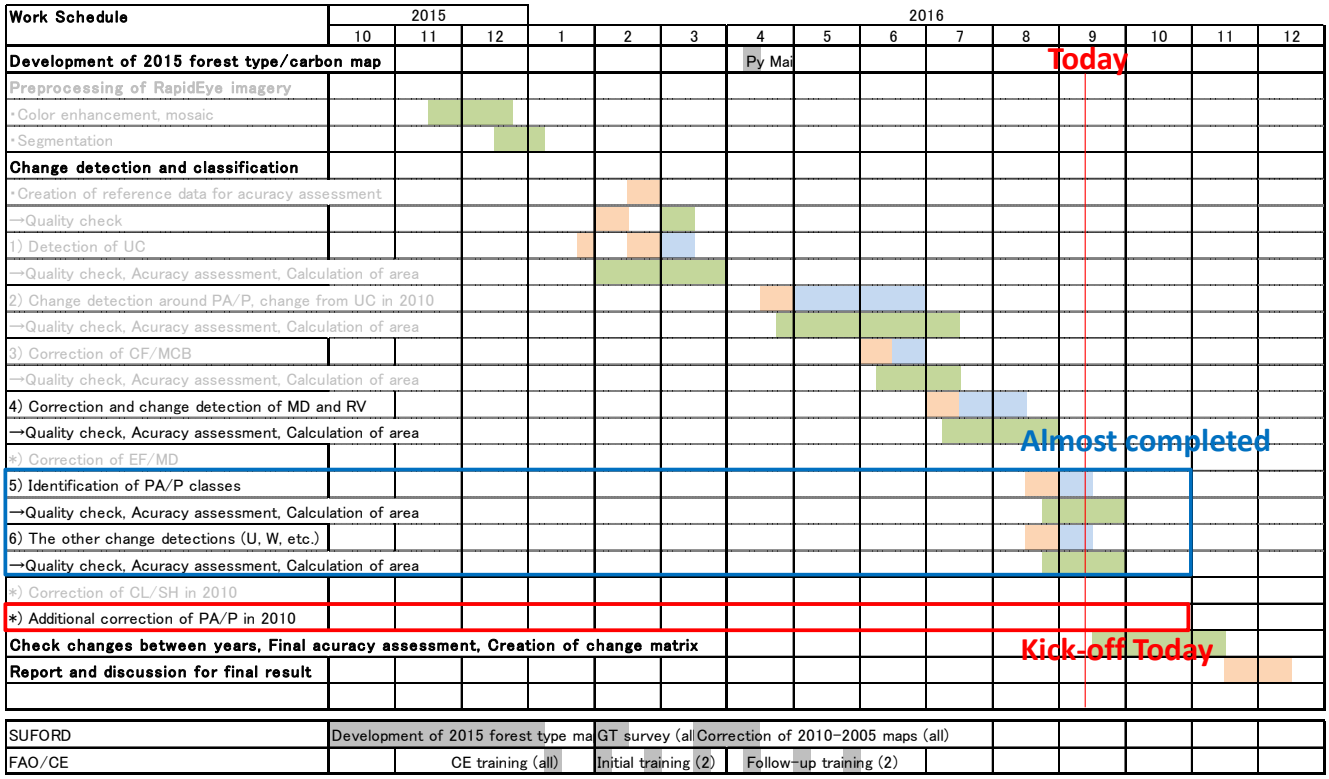
10. When a province is completed, the quality should be checked by everyone.
11. If there is a bias and/or lack of distribution, it should be corrected.



Organization (draft)



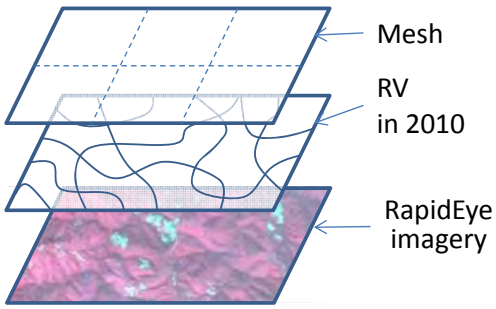
Schedule



Work flow (Outline)

Correction of CF/MCB

- mesh by mesh
- RV in 2010
- based on RapidEye imagery



When a mesh is completed

Enter the information in the management table

When a district is completed

The distribution is checked by yourself

The distribution is checked by senior engineer

The quality is checked by Japanese expert

When a province is completed

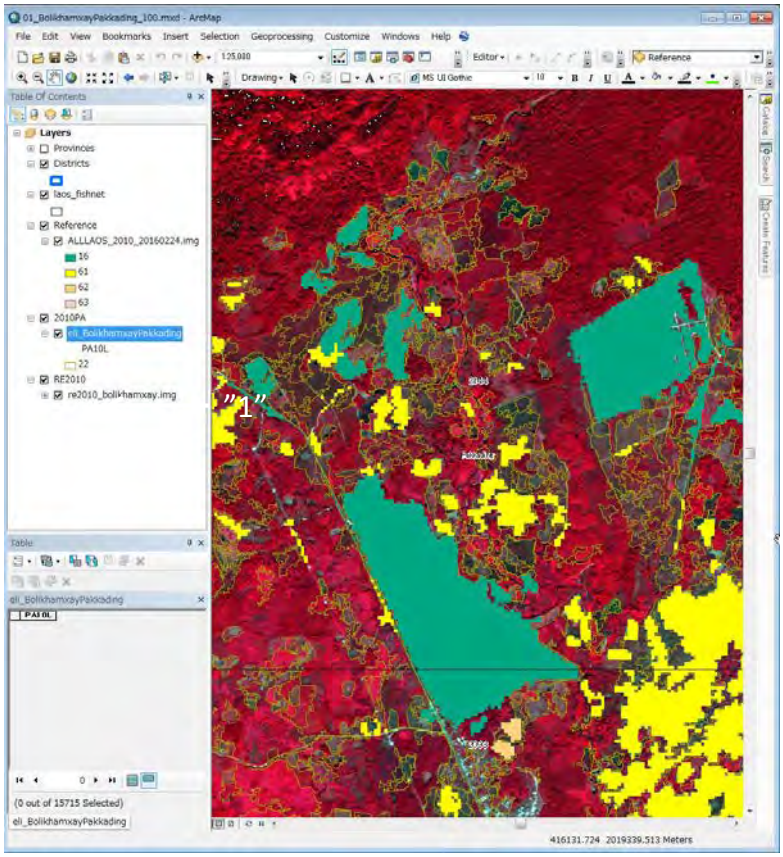
The quality is checked by everyone

Work flow (1/5) Setting

1. Open the mxd file (each districts).

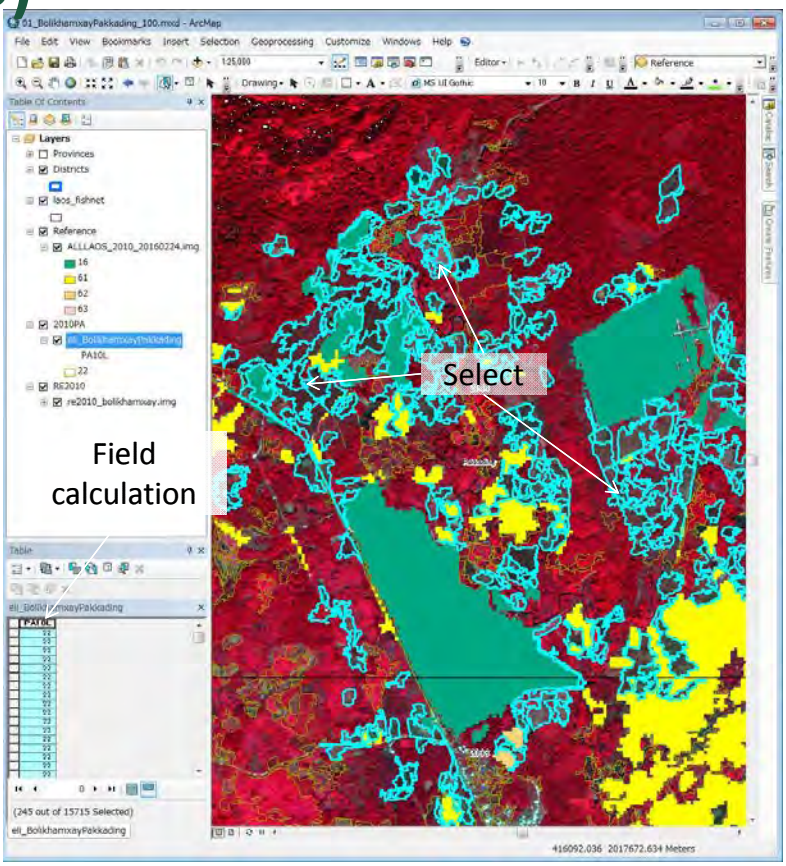
It is stored in

¥¥Serverfgdb¥01_fimp_data¥04_FREDD_Project¥01_Development_of_2015_Map**¥23_2010PA_Correction¥00_Workspace**



Work flow (2/5)

2. Start to work for mesh by mesh. Scale should be 1/25,000 as max.
3. Select RV polygons.
4. Conduct field calculation on "PA10L" field to "61(RP)" or "62(OA)" or "63(AP)" or "16(P)".



Note

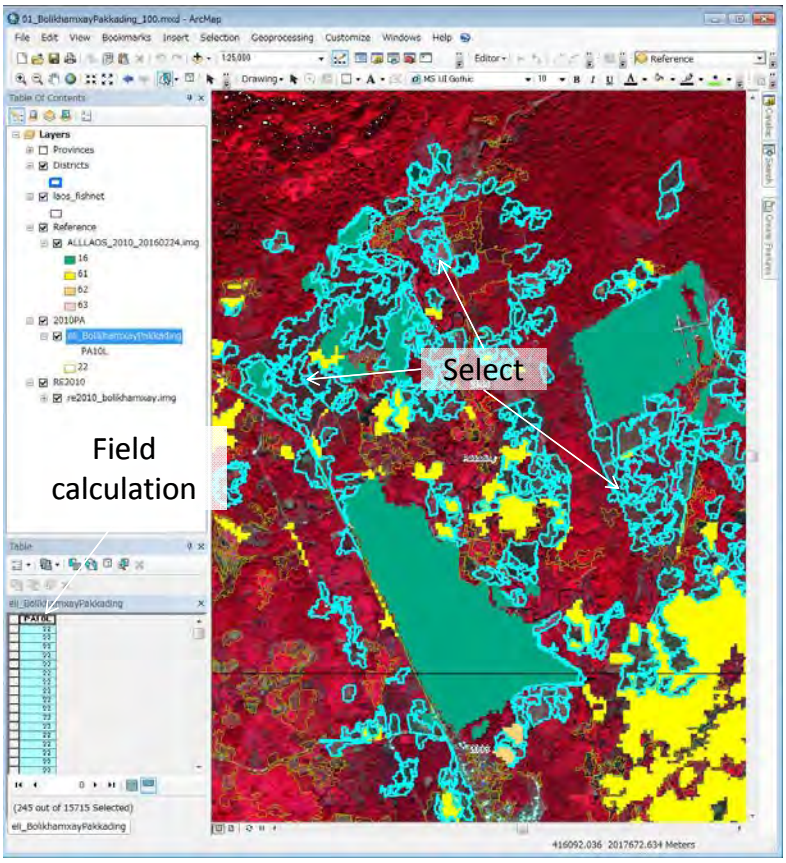
Target is "**2010PA**" layer which is **RV in 2010**.

Please refer "**Reference**" layer which means **"61(RP)" or "62(OA)" or "63(AP)" or "16(P)"**in 2010.

Please check **RVs just around** "**Reference**" layer. These RVs have high possibility of "61(RP)" or "62(OA)" or "63(AP)" or "16(P)".

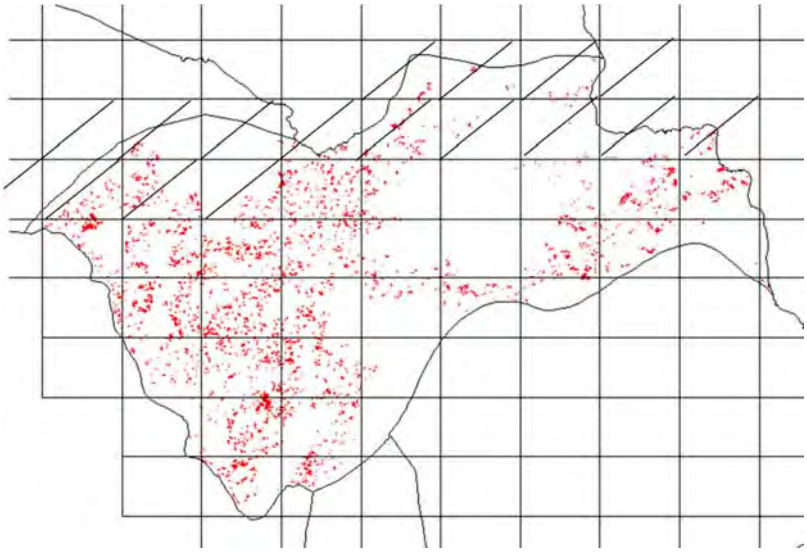
If so, please select them and change to "61(RP)" or "62(OA)" or "63(AP)" or "16(P)".

If you are **not sure**, you **don't need to change** them. You can **focus on only sure one**.



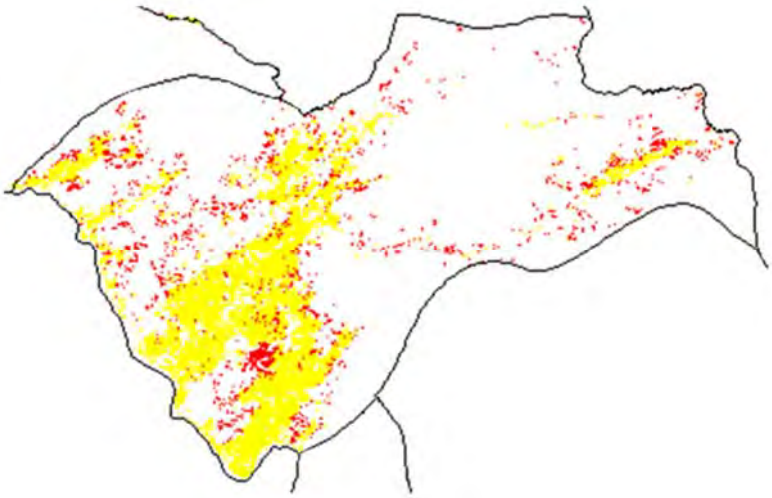
Work flow (3/5)

7. When a mesh is completed, enter the information in the management table.
8. Then, it moves to next mesh.



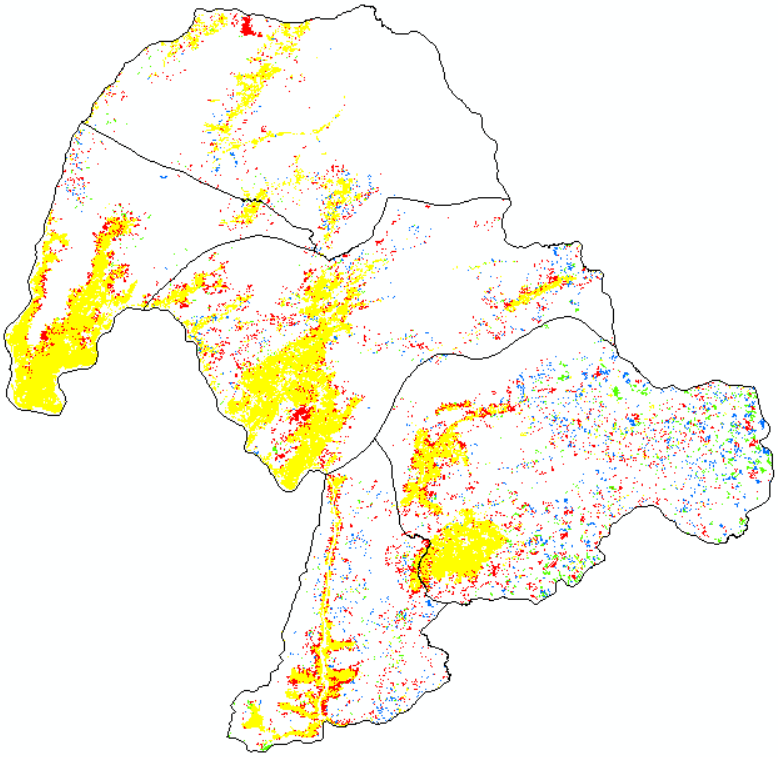
Work flow (4/5)

9. When a district is completed, the distribution of UC and Change should be checked If there is a bias and/or lack of distribution by yourself first.
10. Then, please ask senior engineer to check the distribution again.
11. Finally, please ask Japanese expert to check the quality.

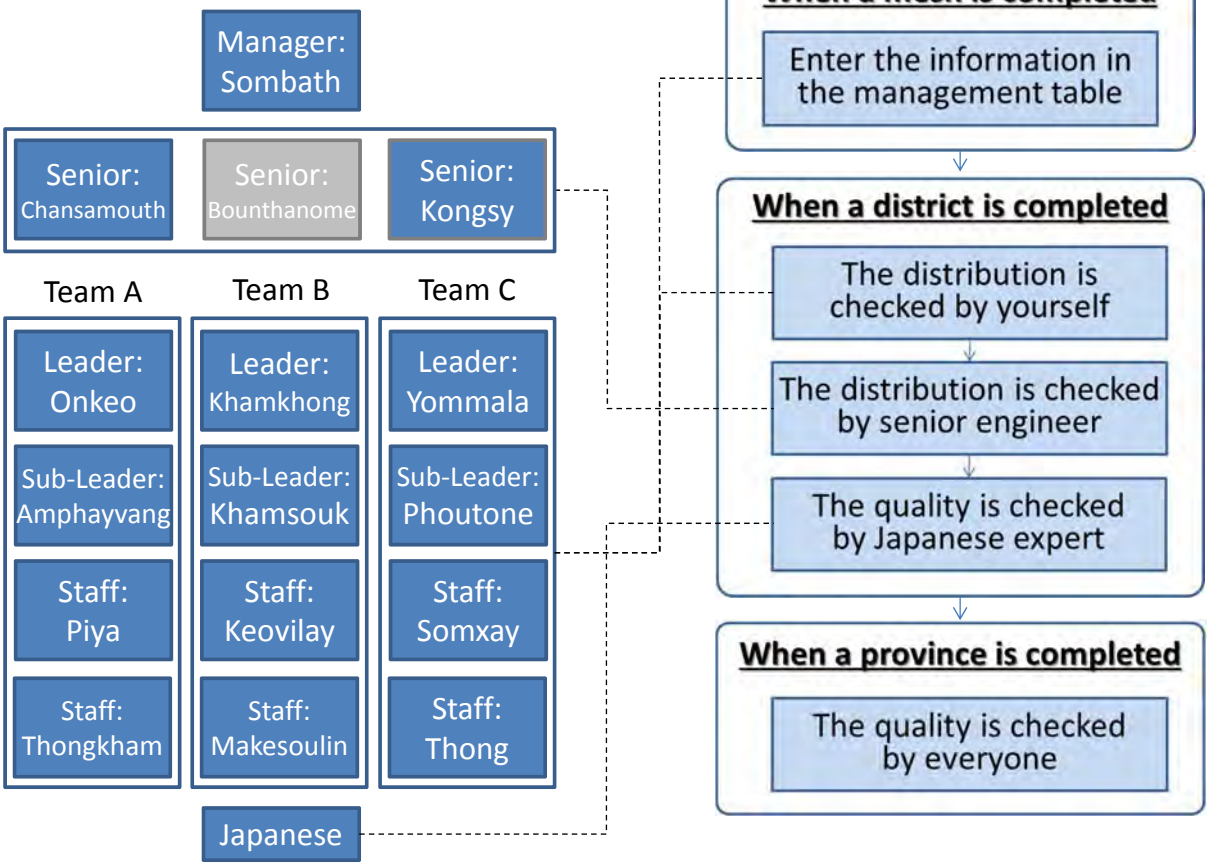


Work flow (5/5)

10. When a province is completed, the quality should be checked by everyone.
11. If there is a bias and/or lack of distribution, it should be corrected.



Organization (draft)



Activity Data:
final products of the Forest Type Maps

May 2017 Vientiane, Laos

Kenichi MATSUBAYASHI
R/S mapping Advisor
F-REDD (Sustainable Forest Management and REDD+ Support Project in the Lao PDR)

Japan Asia Group
KOKUSAI KOGYO CO.,LTD.

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1. Forest Definition and Land/Forest Classification in Laos
2. How to Develop Forest Type Maps for each year
3. Work Flow of Development/Revision
4. Result of Forest Type Maps 2000/2005/2010/2015
5. Summary

Forest Definition and Land/Forest Classification in Laos

Forest definition

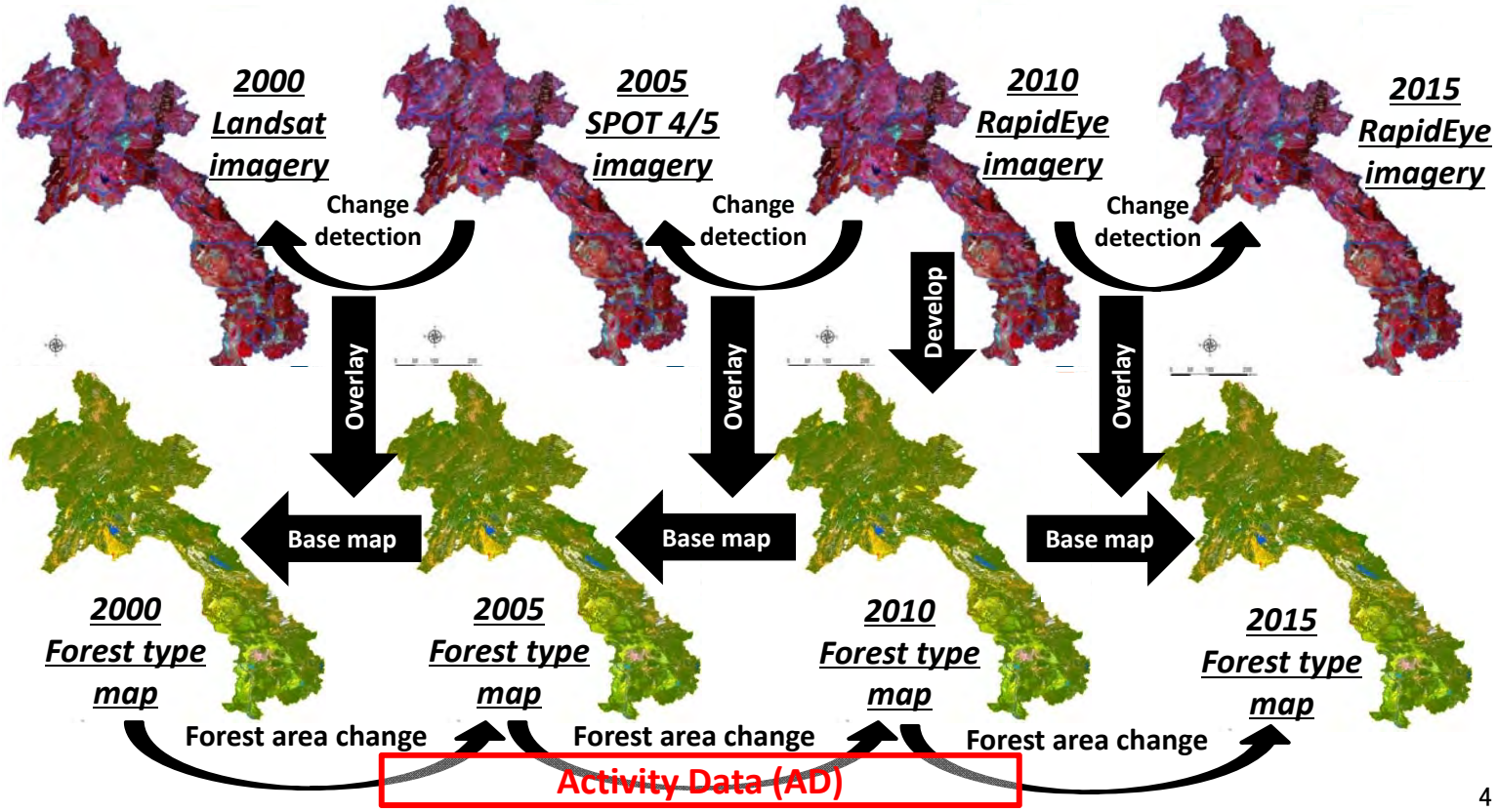
- DBH > 10cm
- Crown cover > 20%
- Area > 0.5ha

IPCC category	National Level Classification System *)		
	Level 1	Level2	
Forest Land	Current Forest	Evergreen Forest	EF
		Mixed Deciduous Forest	MD
		Dry Dipterocarp Forest	DD
		Coniferous Forest	CF
		Mixed Coniferous and Broadleaved Forest	MCB
		Forest Plantation	P
	Regenerating Vegetation	Bamboo	B
		Regenerating Vegetation	RV
Cropland	Cropland	Upland Crop	UC
		Rice Paddy	RP
		Other Agriculture	OA
		Agriculture Plantation	AP
Grassland	Other Vegetated area	Savannah	SA
		Scrub	SR
		Grassland	G
Wetlands		Swamp	SW
Settlements	Non Vegetated Areas	Urban	U
Other Land		Barren Land and Rock	BR
	Other Land	Other Land	O
Wetlands	Water	Water	W

*) Classification system needs final endorsement by the GoL

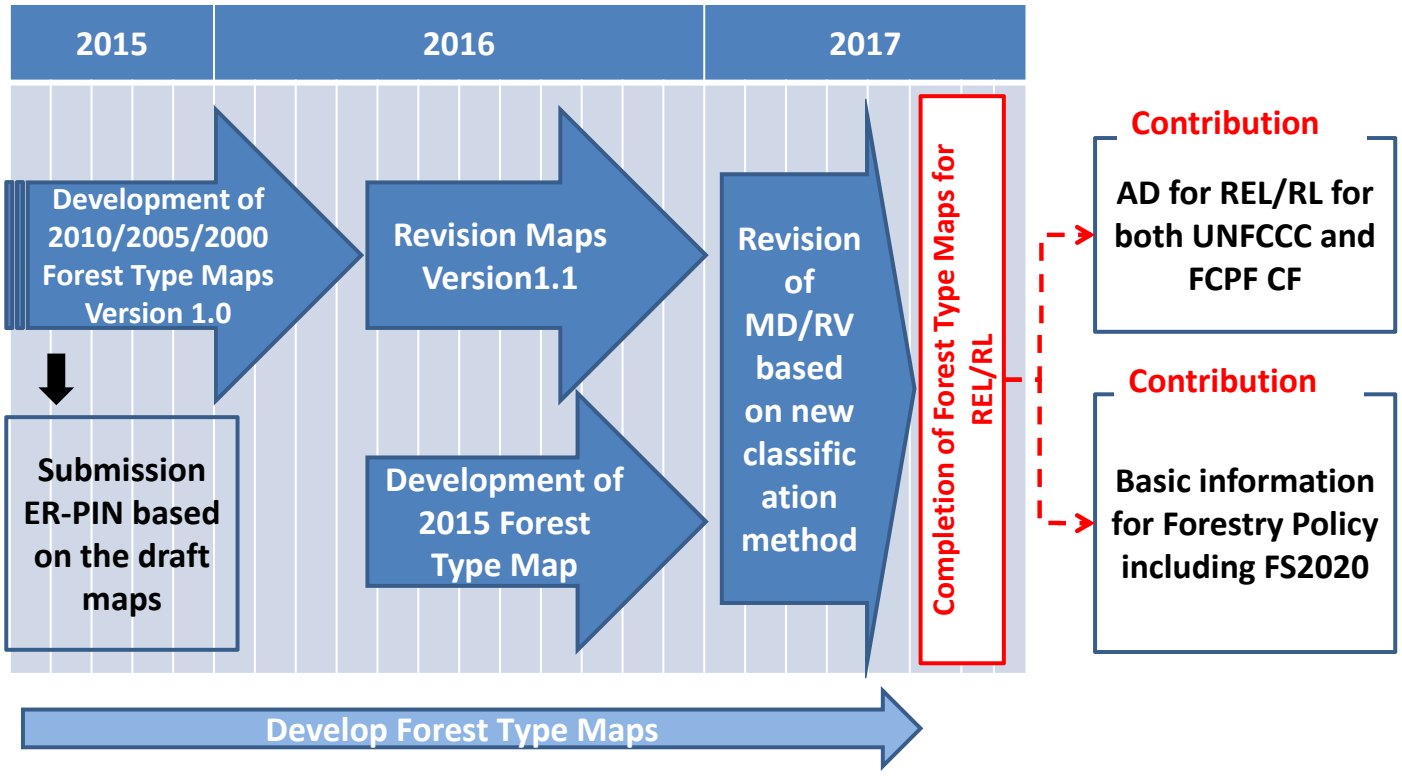
How to Develop Forest Type Maps

At first, 2010 forest type map was developed based on satellite imagery as the base map. Then, the other forest type maps were developed based on change detection from base map.



Schedule of Development

Overview of Schedule



Work Flow for Development/Revision

	Development of 2015 map	Revision of 2000-2010 maps
Preprocessing	Color enhancement, mosaic	
	Segmentation	
Development/Revision	Detection of UC	Correction of CF/MCB
	Detection of changes from 2010	Correction of EF/MD
	Identification of changes	Correction of the others
	Correction of CL/SH	
Compiling	Check illogical changes(MD/RV revise)	
	Calculation of forest areas/changes	
	Accuracy assessment/Estimation of uncertainty	

Progress management & Quality control have been conducted

When a mesh is completed

- Enter the information in the management table

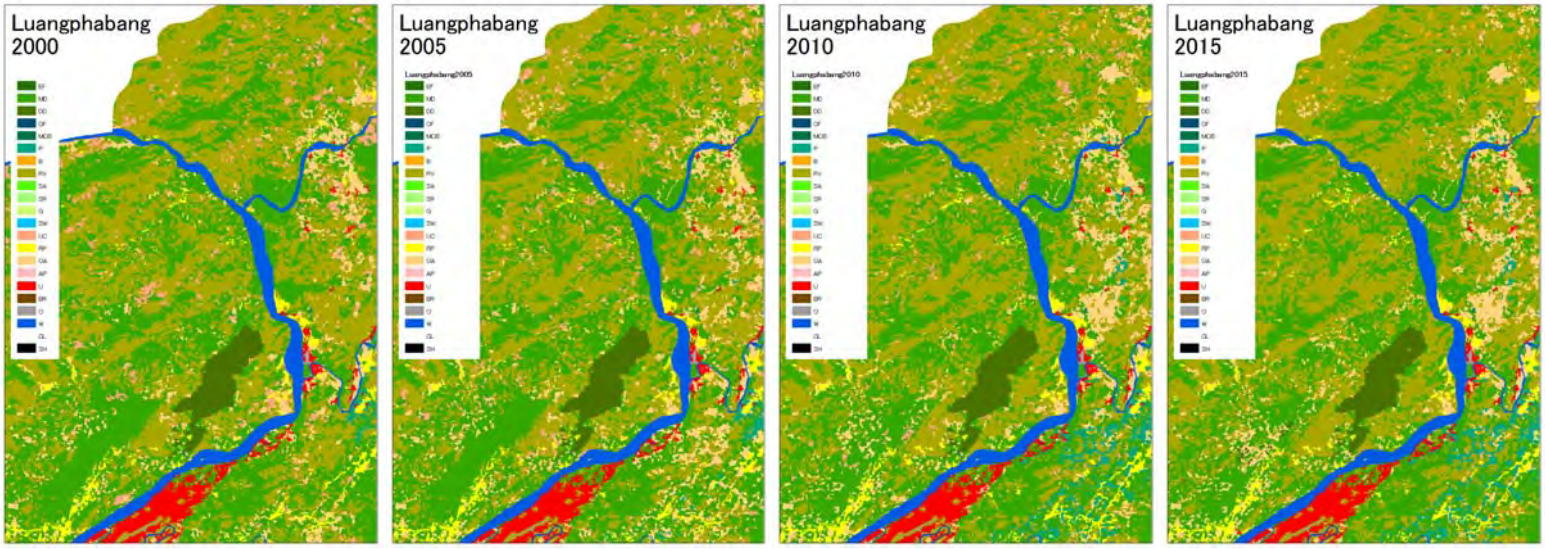
When a district is completed

- The distribution is checked by staff themselves
- The distribution is checked by senior engineer
- The quality is checked by Japanese expert

When a province is completed

- The quality is checked by everyone

Final Result of Forest Type Maps 2000/2005/2010/2015



2000 Forest Type Map | 2005 Forest Type Map | 2010 Forest Type Map | 2015 Forest Type Map

- Evergreen Forest
- Mixed Deciduous Forest
- Dry Dipterocarp Forest
- Coniferous Forest
- Mixed Coniferous and Broadleaved Forest
- Forest Plantation
- Bamboo
- Regenerating Vegetation
- Savannah
- Scrub
- Grassland
- Swamp
- Upland Crop
- Rice Paddy
- Other Agriculture
- Agriculture Plantation
- Urban
- Barren Land and Rock
- Other Land
- Water

Remaining Issues

Main Issue for Classification - MD/RV -

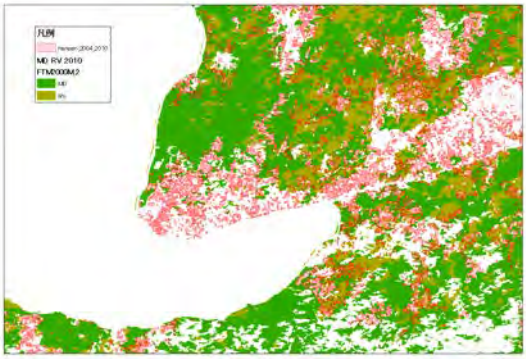
Needs of improvement of classification method for MD/RV

- The visual interpretation of MD/RV, which in total cover 60% of the country, is tremendous amount of work and difficult to maintain consistency
- It was revealed from the result of accuracy assessment of the Ver1.0 maps developed before ER-PIN, the major factor of the low overall accuracy is misclassification of MD/RV
  - This has been improved by interpretation (Ver1.1 rev maps)but there was limitation of improvement with Visual interpretation method.
- it is necessary to develop another detection method between MD/RV, because there is a big impact on the carbon stock changes.
  - By utilizing the Hansen LOSS data, distinguishing MD from RV can be clearer and the emissions/removals can be more correctly estimated.

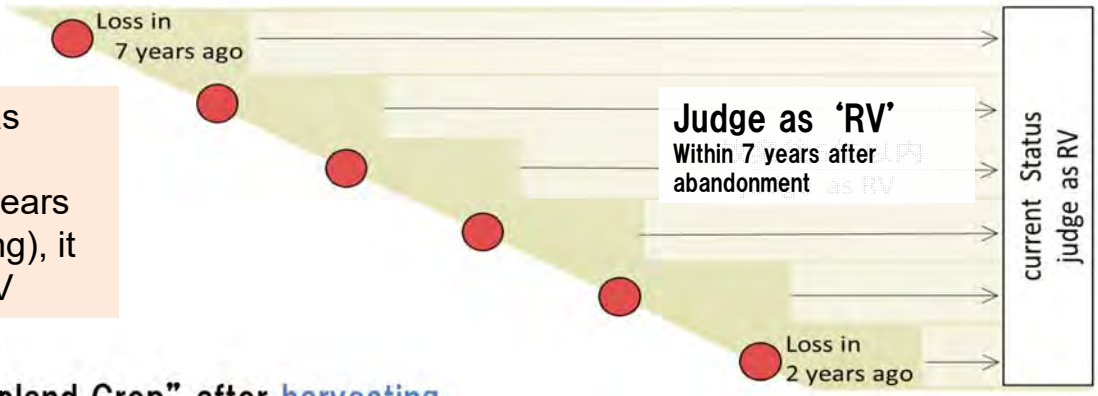
MDRV revise work

- As the result of the field survey, it was found that RV will become MD in 7 years on average after abandonment.
- MD area, which tree loss was recorded in the past 2-7 years according to Hansen loss data, was changed to RV.

Hansen tree loss data(Red) on MD(Green) and RV(Ocher) map



If the area of MD was within 7 years after abandonment (7-2 years past, since harvesting), it is re-classified as RV



※1st year is "Upland Crop" after harvesting

Land cover – national

Area in 2000/2005/2010/2015 (Final)

		ha	2015	%	2010	%	2005	%	2000	%
Current Forest	Evergreen Forest	EF	2,605,557		2,613,226		2,618,169		2,617,238	
	Mixed Deciduous Forest	MD	9,205,036		9,487,839		9,684,854		9,832,953	
	Dry Dipterocarp Forest	DD	1,188,198		1,215,712		1,272,006		1,304,180	
	Coniferous Forest	CF	124,772		125,229		131,055		135,510	
	Mixed Coniferous and	MCB	107,880		108,567		142,458		142,323	
	Forest Plantation	P	137,965	58.0%	110,024	59.3%	23,880	60.2%	17,889	60.9%
Regenerating Vegetation	Bamboo	B	88,900		91,143		68,989		64,662	
	Regenerating Vegetation	RV	6,073,581	26.7%	5,840,908	25.7%	6,090,500	26.7%	6,166,200	27.0%
Other Vegetated Areas	Savannah	SA	102,110		103,253		105,861		107,024	
	Scrub	SR	26,637	0.6%	26,784	0.6%	27,472	0.6%	27,374	0.6%
	Grassland	G	254,376		255,834		269,652		271,819	
	Swamp	SW	9,561	1.1%	9,957	1.2%	10,425	1.2%	10,809	1.2%
Cropland	Upland Crop	UC	150,519	0.7%	205,272	0.9%	208,264	0.9%	192,130	0.8%
	Rice Paddy	RP	1,199,903		1,202,541		1,180,530		1,158,181	
	Other Agriculture	OA	1,052,569		954,666		617,832		413,517	
	Agriculture Plantation	AP	83,306	10.1%	81,981	9.7%	52,297	8.0%	49,526	7.0%
Non Vegetated	Urban	U	75,638		73,296		64,355		63,252	
	Barren Land and Rock	BR	186,157	1.1%	185,956	1.1%	186,088	1.1%	186,386	1.1%
Other Land	Other Land	O	31,289	0.1%	22,204	0.1%	17,673	0.1%	17,833	0.1%
Water	Water	W	350,304	1.5%	339,866	1.5%	278,892	1.2%	275,523	1.2%
Other	Cloud	CL	0		0		0		0	
	Cloud Shadow	SH	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Unknown Agriculture									
	Unknown Change			0.0%		0.0%		0.0%		0.0%
	Sum		23,054,258	100%	23,054,258	100%	23,054,258	100%	23,054,258	100%

Decreasing

Increasing

Land cover – FCPF CF provinces

Area in 2000/2005/2010/2015 (Final - FCPF taget 6 provinces)

【FCPF 6 provinces】
Luangnamtha/Bokeo/Oudomxay/Houaphan/Xayabouly/Luangphabang

		ha	2015	%	2010	%	2005	%	2000	%
Current Forest	Evergreen Forest	EF								
	Mixed Deciduous Forest	MD								
	Dry Dipterocarp Forest	DD								
	Coniferous Forest	CF								
	Mixed Coniferous and	MCB								
	Forest Plantation	P	4,306,872	53.0%	4,426,161	54.5%	4,506,458	55.5%	4,582,167	56.4%
Regenerating Vegetation	Bamboo	B								
	Regenerating Vegetation	RV	2,966,178	36.5%	2,829,069	34.8%	2,842,543	35.0%	2,942,057	36.2%
Other Vegetated Areas	Savannah	SA								
	Scrub	SR	18,699	0.2%	18,729	0.2%	18,660	0.2%	18,399	0.2%
	Grassland	G								
	Swamp	SW	105,495	1.3%	106,434	1.3%	106,500	1.3%	106,522	1.3%
Cropland	Upland Crop	UC	91,964	1.1%	111,662	1.4%	158,420	2.0%	127,806	1.6%
	Rice Paddy	RP								
	Other Agriculture	OA								
	Agriculture Plantation	AP	562,450	6.9%	560,782	6.9%	421,018	5.2%	277,508	3.4%
Non Vegetated	Urban	U								
	Barren Land and Rock	BR	18,114	0.2%	17,399	0.2%	17,071	0.2%	16,642	0.2%
Other Land	Other Land	O	4,709	0.1%	4,261	0.1%	3,950	0.0%	4,058	0.0%
Water	Water	W	48,670	0.6%	48,652	0.6%	48,529	0.6%	47,991	0.6%
Other	Cloud	CL								
	Cloud Shadow	SH	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Sum		8,123,149	100%	8,123,149	100%	8,123,149	100%	8,123,149	100%

Decreasing

Increasing

Analysis of forest area change between 2005 and 2015

Area change matrix shows changes and changed areas between land uses.

1. Conversion of Natural Forest was mostly to Permanent Agriculture Land, Upland Crop and Water. (Main drivers of deforestation)
2. Change of Natural Forest to Forest Plantation and RV is degradation (?) through deforestation. (Main drivers of forest degradation except logging?)
3. A large area of RV was also converted to PAL and Water, and harvested/burnt to UC
4. Regeneration to

2. Degradation of NF is mostly change to RV, is more large than Deforestration volume.

3. Deforestration of RV also mostly change to CropLand and Water.

Area Change Matrix (2005 – whole country)

2005 \ 2015		Change from 2005 to 2015	Natural Forest	Forest Plantation	Regenerating Vegetation	Upland Crop	Permanent Agriculture land	Water	Other Vegetated area	Other Land	Total
			Current Forest			Cropland					
Current Forest	Natural Forest	- 620,101	13,135,621	57,555	397,010	54,198	163,530	34,871	263	8,496	13,851,544
	Forest Plantation	+ 114,085	0	22,721	417	15	718	1	0	8	23,880
Regenerating Vegetation		+ 2,991	95,058	42,912	5,908,968	80,236	397,345	26,771	128	8,070	6,159,489
Cropland	Upland Crop	- 57,745	742	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	155	208,264
	Permanent Agriculture land	+ 485,118	21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	9,189	1,850,659
Water		+ 71,412	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	148	278,892
Other Vegetated area		- 20,726	0	5,099	1,500	695	8,110	5,966	391,387	655	413,411
Other Land		+ 24,967	0	17	630	148	632	320	6	266,363	268,117
Total		+ 0	13,231,443	137,965	6,162,480	150,519	2,335,778	350,304	392,685	293,084	23,054,258

4. Recovering to NF from RV is less than Degradation of NF to RV.

AREA CHANGE IN THE CF AREA

Drivers vary from Region to Region

1. Conversion of Natural Forest was mostly to Permanent Agriculture Land and Upland Crop. (Main drivers of deforestation)
2. Change of Natural Forest to Forest Plantation and RV is degradation (?) through deforestation. (Main drivers of forest degradation)
3. A large area of RV was converted to PAL and UC(harvested/burnt)
4. Regeneration to Natural Forest is small compared with its loss
5. Forest Plantation is relatively small (young plantations are difficult to distinguish from RV and young PAL

Area Change Matrix (2005-2015): PCPF 6 provinces

2005	2015	Change from 2005 to 2015	Current Forest: Natural Forest	Current Forest: Forest Plantation	Regenerating Vegetation	Cropland: Upland Crop	Cropland: Permanent Agriculture land	Water	Other Vegetated area	Other Land	Total
Current Forest	Natural Forest	- 202,578	4,248,711	140	187,749	30,680	32,806	18	26	593	4,500,724
	Forest Plantation	+ 2,991	0	5,499	24	4	206	0	0	2	5,735
Regenerating Vegetation		+ 123,635	48,697	648	2,610,063	51,734	129,785	171	91	1,354	2,842,543
Cropland	Upland Crop	- 66,456	720	0	150,895	4,387	2,224	18	106	69	158,420
	Permanent Agriculture land	+ 141,432	17	2,440	17,035	4,636	396,572	28	0	289	421,018
Water		+ 141	0	0	0	0	102	48,420	0	7	48,529
Other Vegetated area		- 967	0	0	104	462	600	0	123,971	24	125,161
Other Land		+ 1,802	0	0	307	59	156	14	0	20,485	21,021
Total		+ 0	4,298,146	8,726	2,966,178	91,964	562,450	48,670	124,194	22,823	8,123,149

MRDV revise work using hansen data

Difficlity of capture With RS data

Summary

- Forest type maps in 2000/2005/2010/2015 has finished development data
- Next activities: Stratification, Accuracy Assessment and Uncertainty Assessment of area changes
- For Further mapping improvement
  - ✓ Keep Checking and Correction illogical changes(MD/RV) , when creating the next after years map.
  - ✓ Preparation of the manual and training program

AD Report
- about Estimation of uncertainty for carbon stratification -

JICA/F-REDD & FCPF-RP/TA

Objectives of AD report

The objective of AD report is:

To outline the process and result regarding the production of Activity Data (AD) for the estimation of Reference Level (RL) for the Emission Reduction Program Accounting Area (ER-P AA).

The report describes the three main areas of work:

1) Development of Forest Type Maps (FTMs) of the ER-P AA (i.e. Luangnamtha, Bokeo, Oudomxay, Xayaboury, Luangprabang, Houahpanh) for year 2005, 2010 and 2015;

2) Development of Forest Change Maps and Forest Change Matrices of 2005-2010 and 2010-2015 which will be used for the estimation of Emissions and Removals; and

3) Accuracy assessment, area adjustment and uncertainty estimates of the AD.

Contents of the AD report

1. OBJECTIVES OF THE REPORT
2. METHODOLOGY
   - 2.1 Time interval
   - 2.2 Forest definition and land/forest classification system
   - 2.3 Development of the Forest Type Maps
   - 2.4 Generating Forest change maps and forest change matrices
   - 2.5 Post-stratification of land/forest classes
   - 2.6 Sources and sinks selected
   - 2.7 Accuracy assessment
3. RESULTS AND DISCUSSION
   - 3.1 Forest type maps
   - 3.2 Forest Cover Change Maps
   - 3.3 Map accuracy assessment, area adjustment and uncertainty of AD
4. CONCLUSIONS AND AREAS FOR FUTURE IMPROVEMENT

Topics of the AD report

- Map accuracy assessment

  → What is the final strata ?

- Area adjustment and uncertainty of AD

  → Concept and how to calculate area adjustment and uncertainty.

- Conclusions and areas for future improvement

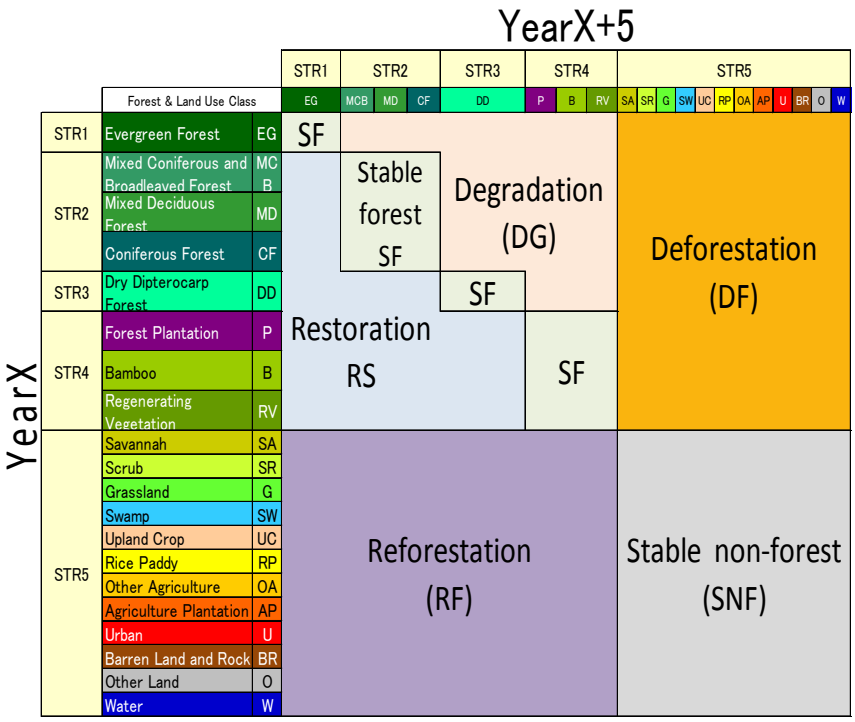
  → Feedbacks from you to

  next FCPF-RP/TA & JICA/F-REDD project

What is final strata?

- Chapter 2.6: Sources and sinks selected

- For the ER Program, the emissions and removals are estimated by taking the differences of the respective value of the four (4) sources and sinks over two different periods (i.e. 2005-2010 and 2010-2015):



Why should we assess not a 'single year map', but changes between 'two years maps'?

- For land cover change, it is necessary to look at the accuracy of forest change between two land cover maps,
- but not at the accuracy of two single land cover maps.
- This is because forest change area usually occupies very small portion of the whole mapping area.
- So 'real 'forest change size is too difficult to estimate.
- We must prevent to estimate lower than the 'real' forest change size.
- It is one of the reason for stratification of map change class.

GIS dissolve function will process to 'aggregate' change classes.

Fundamental purpose of AD accuracy assessment

Step1: Sum up area 'by strata' 'for each period'

Step1-1: Sum up each FTM categories for each 2 periods
(creating 2005-2010 and 2010-2015 change Matrix)

			STR1	STR2			STR3	STR4			STR5											
			EG	MD	CF	MCB	CD	P	B	RV	SA	SR	G	SW	UC	RP	OA	AP	U	BR	O	W
STR1	Evergreen Forest	EG	481,380	147	0	0	0	0	0	316	0	0	0	0	608	0	88	0	1	0	3	3
STR2	Mixed Deciduous Forest	MD	0	3,735,748	0	0	198	6	32	124,829	0	0	18	0	26,485	509	11,414	4	204	0	251	15
	Coniferous Forest	CF	0	0	25,782	0	0	0	0	0	0	0	0	0	83	0	11	0	0	0	0	0
	Mixed Coniferous and Broadleaved Forest	MCB	0	0	0	2,180	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0
STR3	Dry Deterocarp Forest	CD	0	0	0	0	17,095	0	0	149	0	0	0	0	26	0	143	0	0	0	0	0
STR4	Forest Plantation	P	0	0	0	0	0	8,370	0	18	0	0	0	0	8	0	31	0	4	0	2	0
	Bamboo	B	0	3	0	0	0	0	11,601	159	0	0	0	0	337	0	86	0	0	0	2	0
	Regenerating Vegetation	RV	0	45,554	0	0	49	306	80	2,640,234	0	0	81	0	57,729	1,217	30,781	31	509	0	299	59
STR5	Savannah	SA	0	0	0	0	0	0	0	0	229	0	0	0	0	0	0	0	0	0	0	0
	Scrub	SR	0	0	0	0	0	0	0	0	0	38,470	0	0	15	0	14	0	0	0	1	0
	Grassland	G	0	0	0	0	0	0	0	0	0	0	105,980	0	435	17	559	0	20	0	3	0
	Swamp	SW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upland Crop	UC	0	0	0	0	0	0	21	111,547	0	0	4	0	0	0	0	0	67	0	18	7
	Rice Paddy	RP	0	0	0	0	0	17	1	6,987	0	0	0	0	550	104,520	1,116	0	48	0	17	11
	Other Agriculture	OA	0	0	0	0	0	27	0	29,461	0	0	13	0	5,569	482	394,532	0	72	0	51	25
	Agriculture Plantation	AP	0	0	0	0	0	0	0	619	0	0	0	0	40	0	204	16,439	0	0	0	0
	Urban	U	0	0	0	0	0	0	0	103	0	0	0	0	33	31	68	0	15,655	0	2	0
	Barren Land and Rock	BR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,507	0	0
	Other Land	O	0	0	0	0	0	0	0	70	0	0	0	0	36	19	53	0	26	0	4,054	3
	Water	W	0	0	0	0	0	0	0	0	0	0	0	0	0	4	96	0	0	0	6	48,546
	Water	W	0	0	0	0	0	0	0	0	0	0	0	0	0	4	96	0	0	0	6	48,546

Step1-2: Aggregate by each strata

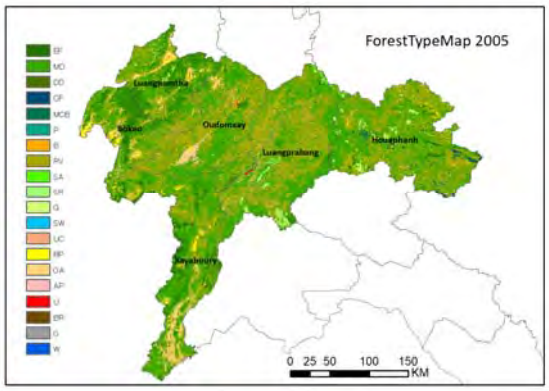
	STR1	STR2	STR3	STR4	STR5
STR1	481380	147.304	8.08842	316.037	702.862
STR2	0	3753711	198.189	124868	38984.9
STR3	0	0	17095.3	148.719	168.851
STR4	0	45557.1	49.0935	2700718	91177.1
STR5	0	0	0	148853	719066

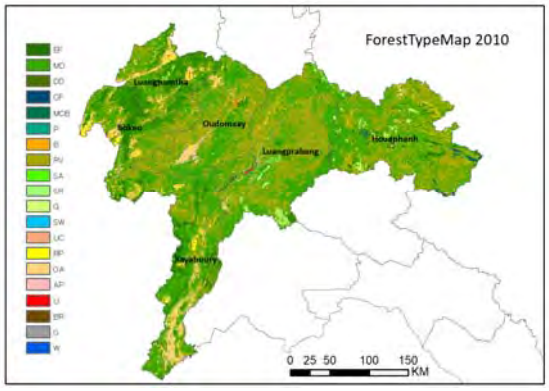
Step1-2: Aggregate strata to cover all forest change patterns.
(By dissolving map classes, reducing from 25 classes to 6 classes)

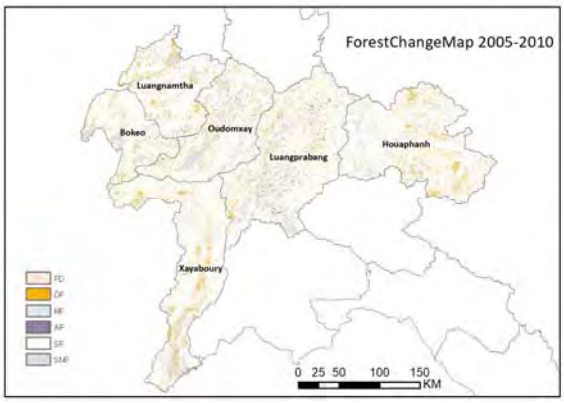
(ha)

		2005-2010	2010-2015
Deforestation	DF	271,972	131,034
Degradation	DG	97,911	125,686
Reforestation	RF	178,200	148,853
Restoration	RS	45,869	45,606
Stable forest	SF	6,933,250	6,952,904
No Change in non-forest type	SNF	595,948	719,066

Step1-2: Aggregating strata to cover all forest change patterns.







Step2: Calculating number of plots for the AD assessment

The sample size was determined by using the formula by Cochran (1977)

$$n = \frac{(\sum W_i S_i)^2}{[S(\hat{O})]^2 + \cancel{(1/N)\sum W_i S_i^2}} \approx \frac{(\sum W_i S_i)^2}{(S(\hat{O}))^2}$$

Very small value which can be ignored

Where the formula variable means

N = total number of sample points for the stratum of interest

we are going to report the result of N as

'970.77' for 2005 - 2010 → set as 970 plots

'953.51' for 2010 - 2015 → set as 954 plots

$S(\hat{O})$ = standard error(SE) of the estimated overall accuracy that we **would like to achieve**

We set SE as **'0.01'** for the overall user accuracy, as the value is set by SEPAL as default.

Wi = mapped proportion of area of stratum i,

6 Strata area

Si = standard deviation of stratum i.

Example of calculation result and the number of sampling plots : 2005-2010

Souce/Sink Category	Degradation	Deforestation	Restoration	Reforestation	Stable forest	No Change	Total
Stratum	DG	DF	RS	RF	SF	SNF	
Area (ha)	97,911	271,972	45,869	178,200	6,933,250	595,948	8,123,149
Expected User's Accuracy	0.70	0.70	0.70	0.70	0.90	0.90	
Wi (Mapped proportion)	0.01	0.03	0.01	0.02	0.85	0.07	
Si (Standard Deviation)	0.46	0.46	0.46	0.46	0.30	0.30	
Wi*Si	0.01	0.02	0.00	0.01	0.26	0.02	0.31

$S(\hat{P})$ (SE overall accuracy)	0.01
$\left(\frac{\sum W_i S_i}{S(\hat{P})}\right)^2$	970.77
Total Number of Samples	970

0.01

'970.77'

970 plts

	Sample size per stratum						Total
equal	161.67	161.67	161.67	161.67	161.67	161.67	970
Proportional	12	32	5	21	828	71	970
Minimum sample size	30	30	30	30	30	30	
Adjusted	30	30	30	30	783	67	970

Excel input formula

Souce/Sink Category	Degradation	Deforestation	Restoration	Reforestation	Stable forest	No Change in non-forest type	Total
Stratum	DG	DF	RS	RF	SF	SNF	
Area (ha)	97911.202674162	271971.829788702	45868.893640318	178200.408389576	6933249.501864412	595947.620502405	=SUM(D34:I34)
Expected User's Accuracy	0.7	0.7	0.7	0.7	0.9	0.9	
Wi (Mapped proportion)	=D34/$J$34	=E34/$J$34	=F34/$J$34	=G34/$J$34	=H34/$J$34	=I34/$J$34	
Si (Standard Deviation)	=SQRT(D35*(1-D35))	=SQRT(E35*(1-E35))	=SQRT(F35*(1-F35))	=SQRT(G35*(1-G35))	=SQRT(H35*(1-H35))	=SQRT(I35*(1-I35))	
Wi*Si	=D36*D37	=E36*E37	=F36*F37	=G36*G37	=H36*H37	=I36*I37	=SUM(D38:I38)

$S(\hat{P})$ (SE overall accuracy)

$$\left(\frac{\sum W_i S_i}{S(\hat{P})}\right)^2$$

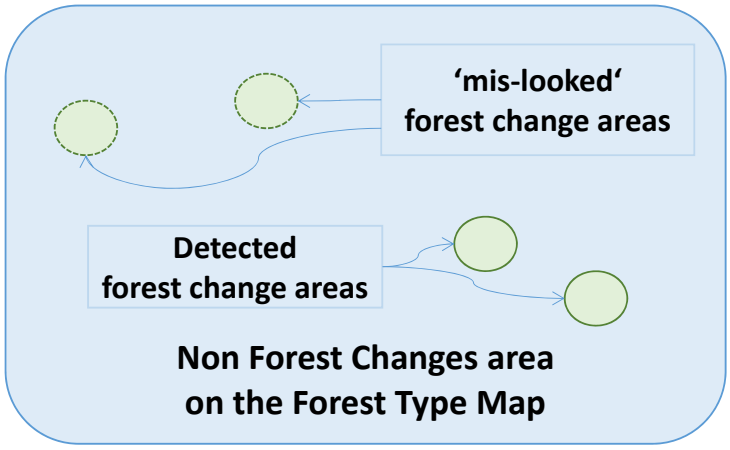
=(SUM(D67:I67)/J69)^

	Sample size per stratum						Total
equal	=($J$42/6)	=($J$42/6)	=($J$42/6)	=($J$42/6)	=($J$42/6)	=($J$42/6)	=SUM(D45:I45)
Proportional	=$J$42*D36	=$J$42*E36	=$J$42*F36	=$J$42*G36	=$J$42*H36	=$J$42*I36	=SUM(D46:I46)
Minimum sample size	30	30	30	30	30	30	
Adjusted	=IF(ROUND(D46,0)<=	=IF(ROUND(E46,0)<=	=IF(ROUND(F46,0)<=	=IF(ROUND(G46,0)<=	=IF(ROUND(H46,0)<=	=IF(ROUND(I46,0)<=	=SUM(D48:I48)

Step3: Area adjustment of AD

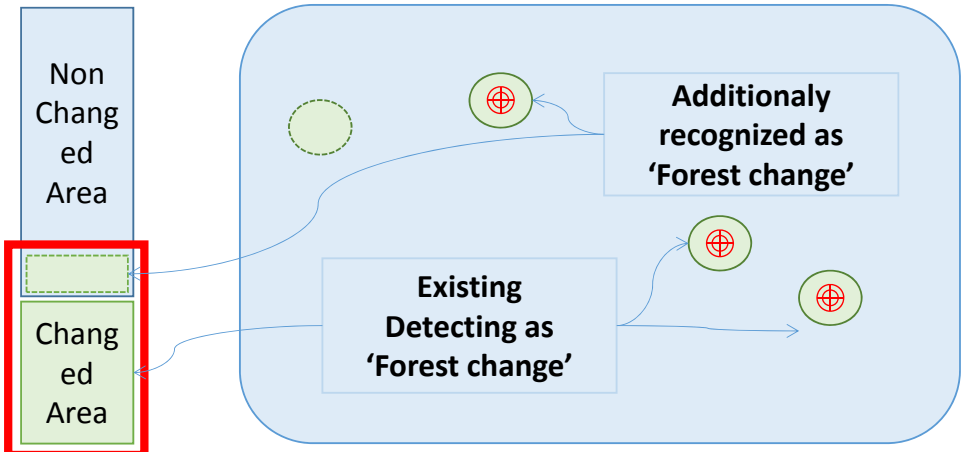
What is a changed area adjustment and why we need to do

- It is very <u>difficult to detect all forest change areas</u> with remote sensing changing detection technology.
- 'Mis-looked' forest change area is contained in a Non Forest Change area.
- Detecting Forest change area on FTM might be smaller than "real" forest change area.



- Calculate * the proportion of the actual changes area and the area that could be additionally confirmed by the survey, and restore the original area size.
- For avoiding underestimate of forest area change detecting, adjust(reallocate) the map area based on the area proportion of reference data(Sampling plot)

*[1]Olofsson et al(2014). Good practices for estimating area and assessing accuracy of land change.



: randomly generated Survey plots

"Adjustment area" based on the area proportion of reference data

The Result of Change Area Adjustment

Source/Sink	Amount MtCO2e	Uncertainty %
DF	4.0	20.0%
DG	6.4	28.4%
RF	1.6	22.4%
RS	2.6	48.0%
Net	6.3	38.1%

Used Original Area as AD

Source/Sink	Amount MtCO2e	Uncertainty %
DF	4.0	19.9%
DG	6.7	27.4%
RF	1.6	22.5%
RS	3.0	42.6%
Net	6.2	38.7%

Used Adjusted Area as AD

	MtCO2	
Source/Sink	Original Area	Adjusted Area
Emission	10.4	10.7
Removal	4.2	4.6
Net	6.3	6.2

Amount of MtCO2 in CF 6 provinces

Step4: Calculation and uncertainty of AD

AD Uncertainty = 1.96* $S(\hat{A}_1)$ * total area ÷ error adjusted area per class (ha)

2005/2010 Reference Class

All	DF	DG	RF	RS	SF	SNF	Map Class Proportion of stratum
Forest change map: DF	0.0290	0.0011	0.0000	0.0000	0.0022	0.0011	0.0335
DG	0.0008	0.0072	0.0004	0.0004	0.0028	0.0004	0.0121
RF	0.0000	0.0000	0.0161	0.0007	0.0037	0.0015	0.0219
RS	0.0002	0.0000	0.0006	0.0038	0.0011	0.0000	0.0056
SF	0.0011	0.0076	0.0055	0.0022	0.8186	0.0185	0.8535
SNF	0.0000	0.0000	0.0000	0.0000	0.0099	0.0635	0.0734
Reference Class Proportion	0.0311	0.0160	0.0225	0.0071	0.8383	0.0850	1.0000
Standard error	0.0024	0.0033	0.0031	0.0018	0.0072	0.0056	
95% CI	0.0048	0.0064	0.0060	0.0036	0.0141	0.0110	
Map Area(ha)	271,972	97,911	178,200	45,869	6,933,250	595,948	8,123,149
Adjusted area esr(ha)	252,620	129,796	182,805	57,492	6,809,802	690,635	8,123,149
95% CI	39,005	52,084	48,856	28,983	114,569	89,655	
AD Uncertainty	15.4%	40.1%	26.7%	50.4%	1.7%	13.0%	
User accuracy	86.7%	60.0%	73.3%	66.7%	95.9%	86.6%	
Producer accuracy	86.7%	69.2%	71.0%	83.3%	96.3%	73.4%	
Overall accuracy	92.3%						

CONCLUSIONS AND AREAS FOR FUTURE IMPROVEMENT of AD

Three areas for future improvement are suggested to aim step-wise improvement as well as to further reduce the uncertainty of AD:

1) Improvement of classification between MD and RV

- The RV study, after **slash and burning found seven years** as the threshold year.
- **But the data of Hansen loss does not detect** repeated slash and burn incidents, which is a typical land-use practice in the ER-P AA.
- For the future forest mapping, Lao PDR will attempt to **explore methods to detect repeated slash and burn practices**.

2) Updating FTM 2015 map and FTMs

- distinguishing **UC and OA was also a challenge**, as they have **very similar** texture on satellite imagery.
- if a land parcel (polygon) is interpreted as UC for more than 10 years (continuously interpreted as UC over the 2 time periods of 2005-2010 and 2010-2015) it was revised as permanent agricultural land (OA) class.
- In the future, Lao PDR may explore using options, such as **the technologies to analyze 'big data', multi-temporal satellite dataset available, and GIS data from different sources** (e.g. land concession data).

3) Further capacity building of the remote sensing, GIS and IT engineers

- FIPD/DOF has been increasing their remote sensing capacity with the technical and financial support from development partners and projects.
- However, under **rapid innovation of remote sensing, GIS and IT technologies,** there is an emerging need for IT engineers who can **manage and operate database systems** which handle large and diverse range of digital data.
- **continuous catch-up with the innovative technologies is needed**, capacity building efforts, training on planning, development and analysis of data, and support the FIPD/DOF staff.

Separate Volume

2-9 NFMS User Manual

Laos - National Forest Management System

Laos NFMS User Manual

Laos NFMS Version 1.0 User's Manual

Laos NFMS Version 1.0 User manual

(Laos_NFMS Version 1.0)

Sept 2017

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1. Overview

Laos National Forest Management System (NFMS) is geographic information system which helps to manage REDD+ related data and support "Measurement" of REDD+ MRV by it's analysis function.

1.1 Function of NFMS

◆ **Map Operation function**

- Display background map (e.g. satellite imagery)
- Display thematic map (e.g. forest type map)
- Zoom-in, zoom-out and move map
- Switch layer
- Measure length and area of map
- Print map

◆ **Analysis Function**

- Calculate forest area and forest area change
- Display emission factor (forest inventory result)
- Calculate carbon stock and carbon stock change

1.2 Operating Environment

Internet browser is required to use NFMS. Below is the list of internet browser which NFMS is compatible with.

◆ **Internet Browser**

- **Microsoft Windows：InternetExplorer11.0, EDGE, Chrome**

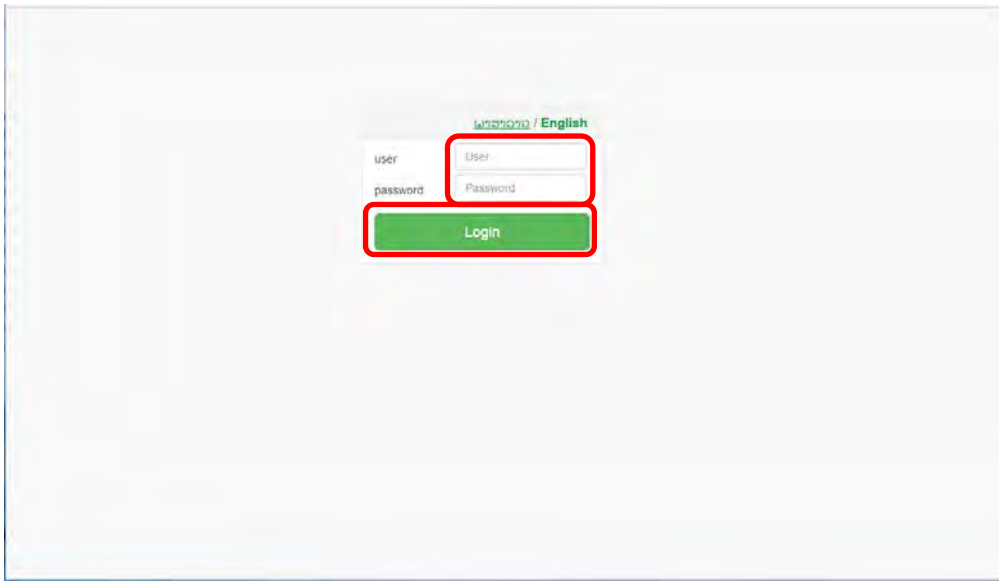
◆ **System Requirements**

- **CPU： Intel Core-i3 or more**
- **Memory： 2GB or more**
- **Display： Resolution 1024 * 768（TrueColor） or more**

2. Launch / Quit

2.1 Launch NFMS

1. Enter [user] and [password] at [Login] screen and click [Login] button.

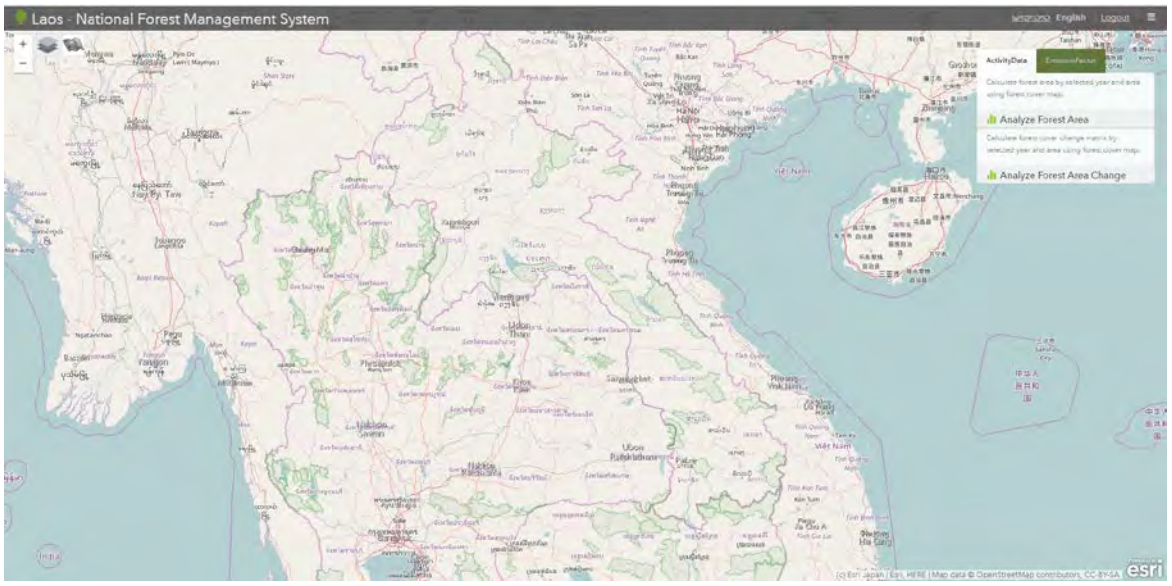


-> If user and password is valid, login will succeed.

Select Language

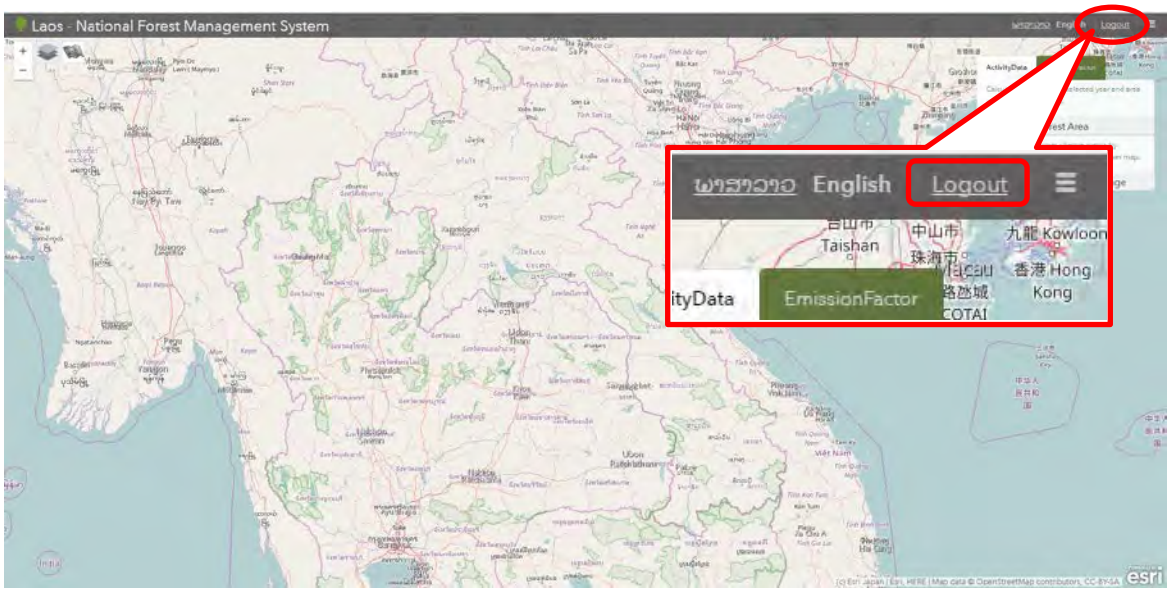
By clicking lanugage button (ພາສາລາວ / English) at login scrren, user can change the display language between Lao and English..

2. **Map screen will be displayed.**



2.2 Quit NFMS

1. **Click [Logout]**



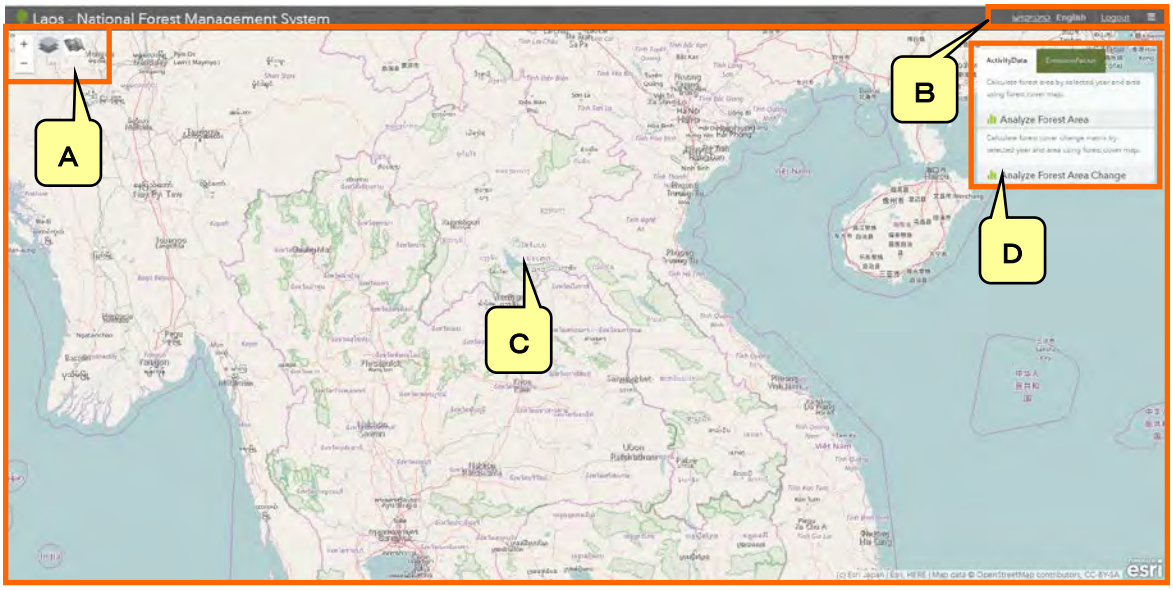
⇒【Logout confirmation dialog】will appear

Click [OK] button

3. Screen Layout and Map Operation

3.1 Screen Layout

Below figure shows screen layout of Laos NFMS



- **A Map operation menu**

  Change background map, thematic map

  Zoom-in / Zoom-out

- **B Basic function menu**

  Change display language

  Measure function

  Print function

- **C Map pane**

  Display map

- **D Analysis dialog**

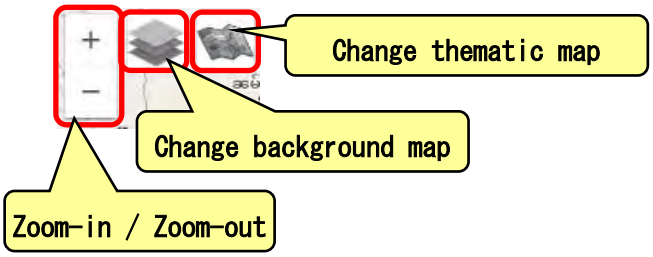
  Analysis of activity data, emission factor and carbon stock.

3.2 Map Operation

3.2.1 Map Operation Menu

Below function can be used in map operation menu.

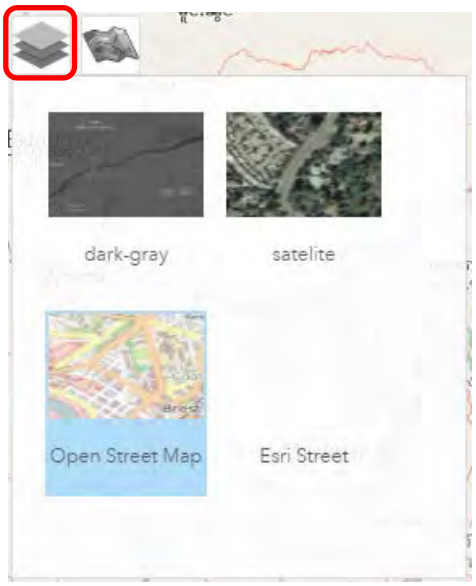
【Zoom-in / Zoom-out】,【Change Background map】,【Change thematic map】



You also can zoom-in and zoom-out using mouse wheel.

◆【Change Background Map】

User can switch background map.



1. **Click [Change Background Map] button**

   Click button to display change background map.

2. **Select background map to display**

   Background map installed in NFMS will be displayed. Click background map to display.

3. **Closing background map change menu**

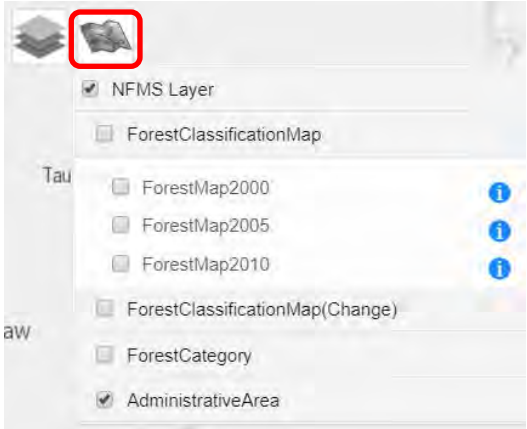
   Click button to close background map change menu

Current background map

Current background map will be displayed with blue frame.

◆【Change Thematic Map】

User can switch thematic map.



1. **Click [Change Thematic Map] button**

   Click button to display thematic map layer tree.

2. **Change thematic map**

   User can change which thematic map to display by checking checkbox on layer tree.

3. **Close thematic map layer tree**

   Click button to close thematic map layer tree.

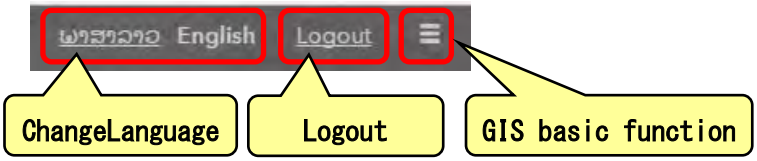
Thematic map layer tree

Initially, layer tree is closed. By clicking category name, user can display/undisplay category or layer under the category. By clicking categy checkbox, you may display/undisplay all the layer under the category.

3.2.2 Basic Function Menu

Below function can be used by using basic function menu.

【Display language change】、【Logout】、【GIS basic function】



◆【Change language】

Display language can be changed using this function.

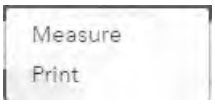
Selectable language：English and Lao

◆【Logout】

User can quit the system by clicking [Logout.]

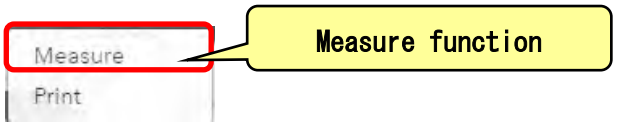
◆【GIS basic function】

User can use measure and print function.



✓ 【Measure function】

By using measure function, user can measure length and area.



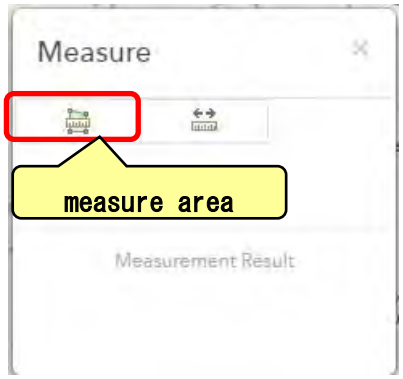
➢ 【Measuring area】

By drawing polygon, user can measure area.

1. **Click [Measure]**

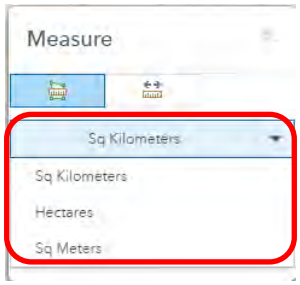
2. **Select [Measure area] from【Measure】dialog**

   Select measure area( ) from【Measure】dialog.



3. **Select measure unit**

   Select measure unit



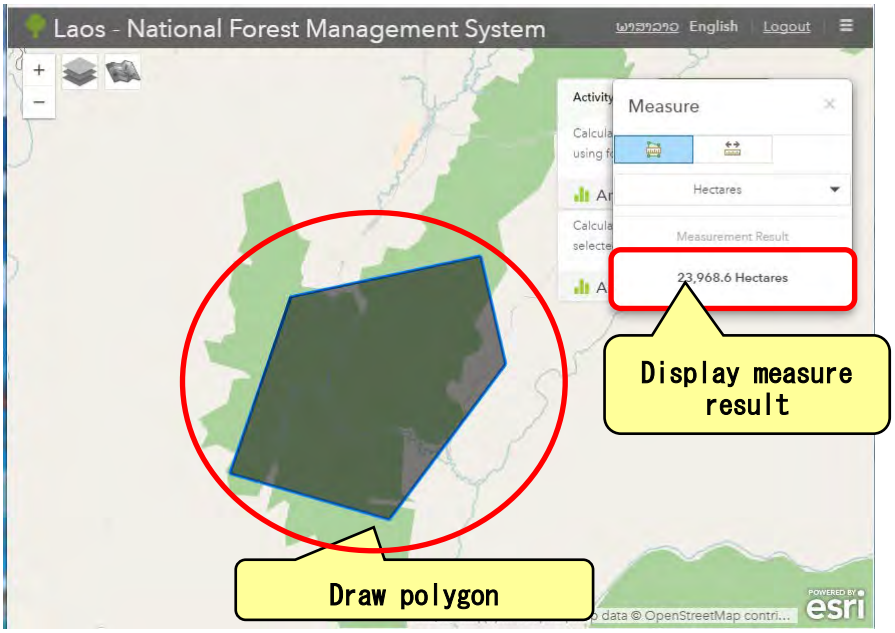
Unit of area measure	Sq. Kilometers
	Hectares

	Sq. Meters

4. **Draw polygon and check measure result**

   Draw polygon（Double-click to finish drawing）。

   Measure result will be displayed in【Measure】dialog.



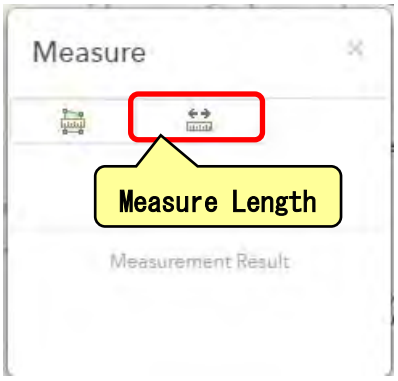
➢ 【Measure length】

User can measure length by drawing line.

1. **Click [Measure]**

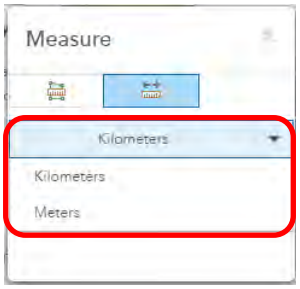
2. **Select [Measure Length] from【Measure】dialog**

   Select measure length（ ）from【Measure】dialog



3. **Select measure unit**

   Select measure unit

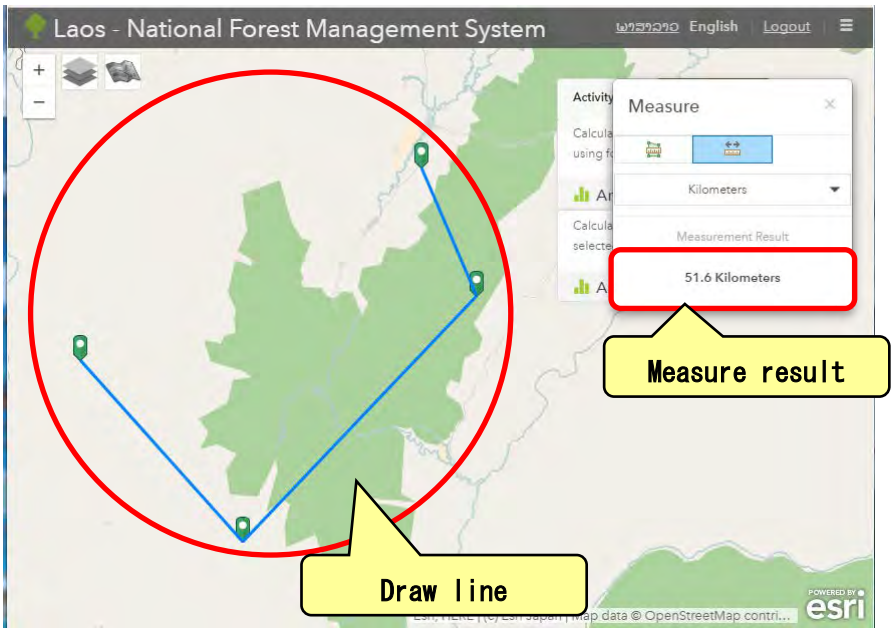


Length measure unit	Kilometers
	Meters

4. **Draw line on map and check measure result**

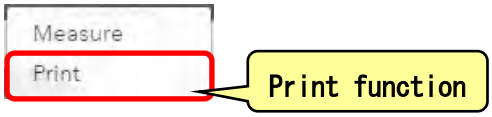
Draw line（Double click to finish drawing）

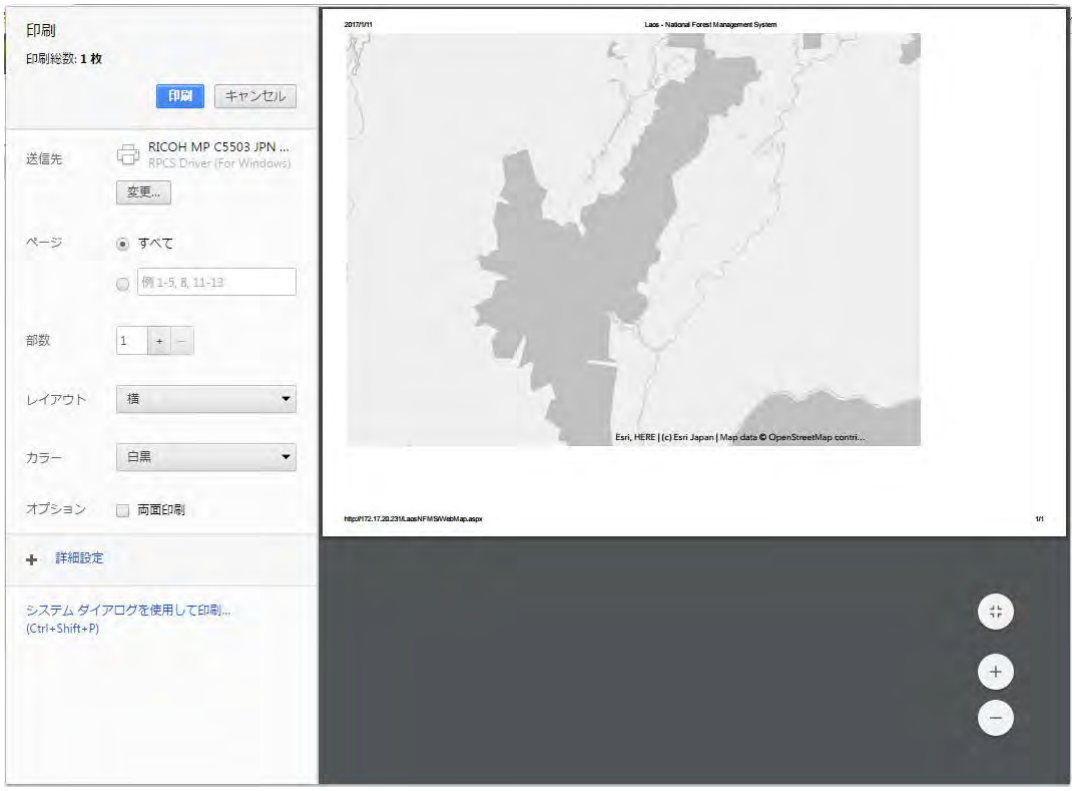
Measure result will be displayed in【Measure】dialog



✓ 【Print function】

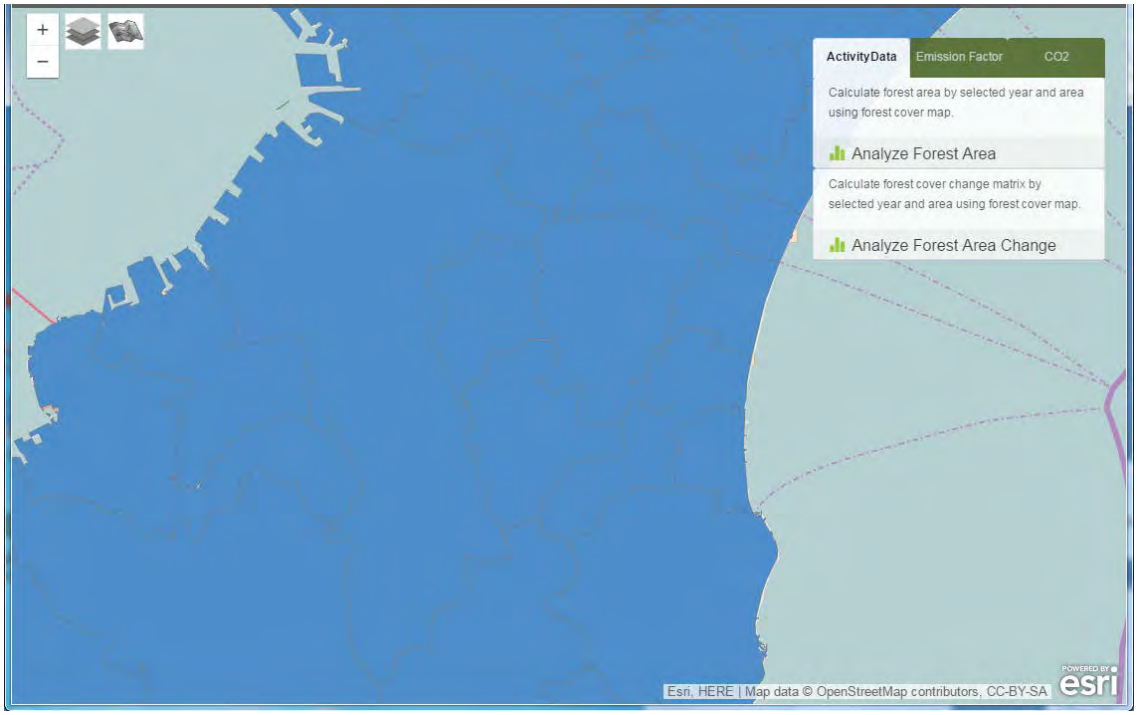
Select [Print] to print map.





3.2.3 Map pane

User can display background map and thematic map on map pane.



◆【**Display attribute**】

User can display feature attribute by clicking feature

4. Analysis function

4.1 Screen Layout of Analysis Function

Below figure shows screen layout of analysis function.

No	Tab	Function Name
1	Activity Data	Analyze Forest Area
2		Analyze Forest Area Change
3	Emission Factor	Analyze Average Carbon Stock
4	CO2	Amount of Carbon/CO2
5		Carbon Stock Change

4.2 Activity Data

4.2.1 Analyze Forest Area

User can analyze forest area using below analysis condition.

No.	Analysis Condition	Note
1	Select Area	User can select "whole country" or selected province.
2	Narrow down analysis area by forest category	User can analyze forest area by forest category
3	Select map year	User can select year of forest type map
4	Select unit to aggregate data	User can select unit to aggregate data.

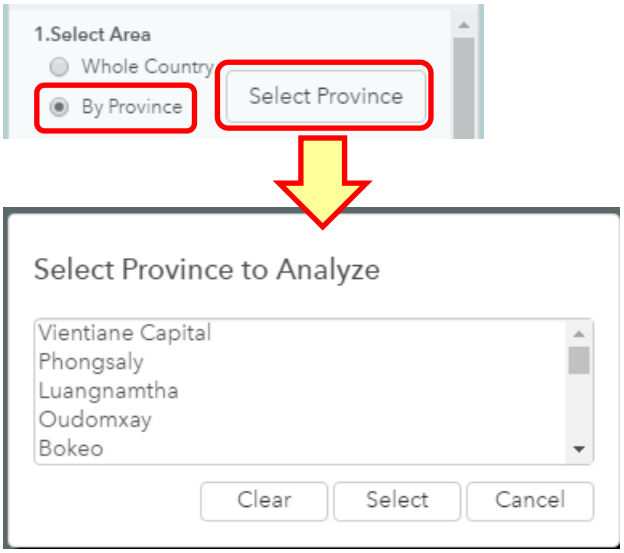
1. **【Select area】**

User can select area to analyze.

・Whole Country

・By Province

When selecting [By Province], click [Select Province]



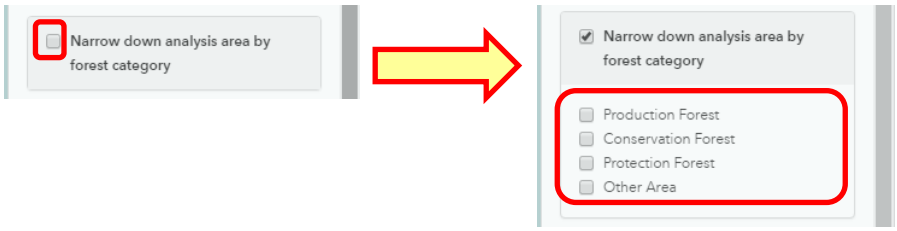
Select province to analyze. Multiple province can be selected.

Selecting multiple province

User can select multiple province by「Shift + Click」 and 「Ctrl + Click」

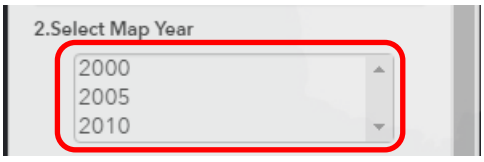
2. **【Narrow down analysis area by forest category】**

User can narrow down analysis area by forest category.



3. **【Select Map Year】**

User can select map year to analyze.

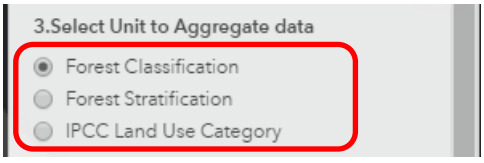


Selecting multiple map year

User can select multiple map year by "Shift + Click" and "Ctrl + Click"

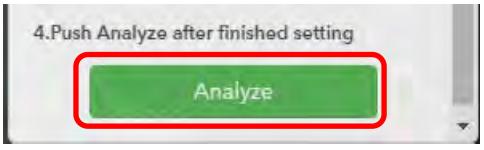
4. **【Select Unit to Aggregate data】**

Select unit to aggregate data.



5. **【Analyze】**

Click [Analyze] button to start analysis.



6. 【Analysis Result】

Analysis result will be displayed.

DownLoad Data

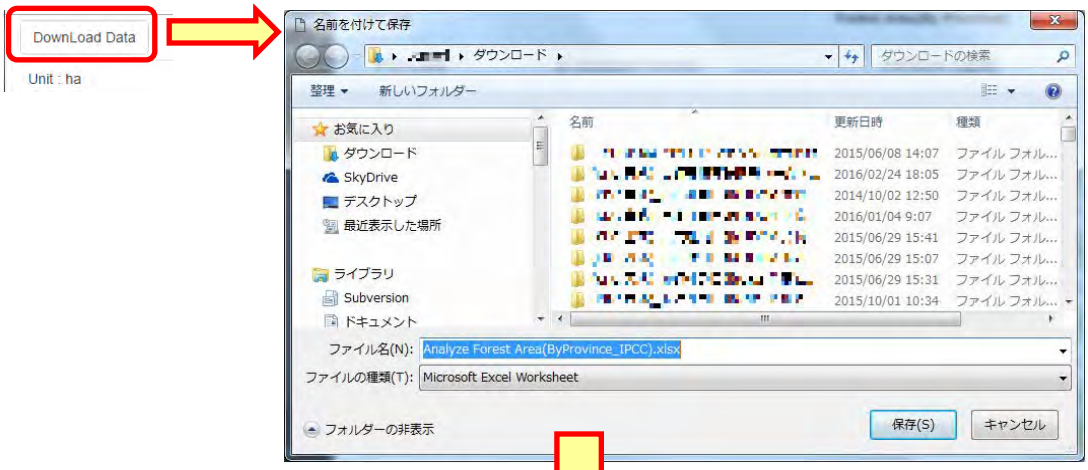
Unit : ha

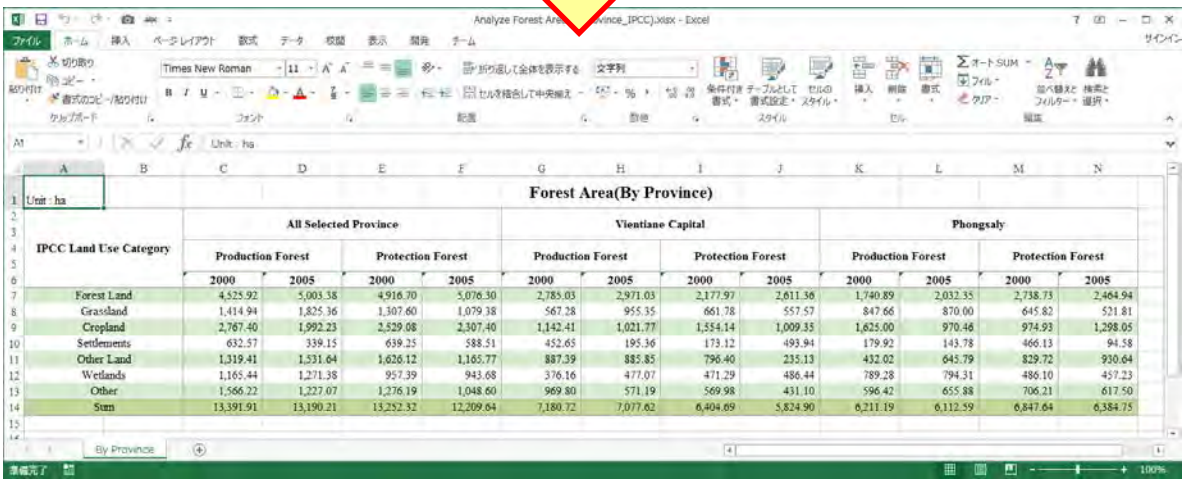
Forest Area(By Province)

IPCC Land Use Category	All Selected Province				Vientiane Capital				Phongsaly			
	Production Forest		Protection Forest		Production Forest		Protection Forest		Production Forest		Protection Forest	
	2000	2005	2000	2005	2000	2005	2000	2005	2000	2005	2000	2005
Forest Land	4,525.92	5,003.38	4,916.70	5,076.30	2,785.03	2,971.03	2,177.97	2,611.36	1,740.89	2,032.35	2,738.73	2,464.94
Grassland	1,414.94	1,825.36	1,307.60	1,079.38	567.28	955.35	661.78	557.57	847.66	870.00	645.82	521.81
Cropland	2,767.40	1,992.23	2,529.08	2,307.40	1,142.41	1,021.77	1,554.14	1,009.35	1,625.00	970.46	974.93	1,298.05
Settlements	632.57	339.15	639.25	588.51	452.65	195.36	173.12	493.94	179.92	143.78	466.13	94.58
Other Land	1,319.41	1,531.64	1,626.12	1,165.77	887.39	885.85	796.40	235.13	432.02	645.79	829.72	930.64
Wetlands	1,165.44	1,271.38	957.39	943.68	376.16	477.07	471.29	486.44	789.28	794.31	486.10	457.23
Other	1,566.22	1,227.07	1,276.19	1,048.60	969.80	571.19	569.98	431.10	596.42	655.88	706.21	617.50
Sum	13,391.91	13,190.21	13,252.32	12,209.64	7,180.72	7,077.62	6,404.69	5,824.90	6,211.19	6,112.59	6,847.64	6,384.75

7. 【Download analysis result】

Click [Download Data] to download analysis result.





Unit : ha

Forest Area(By Province)

IPCC Land Use Category	All Selected Province				Vientiane Capital				Phongsaly			
	Production Forest		Protection Forest		Production Forest		Protection Forest		Production Forest		Protection Forest	
	2000	2005	2000	2005	2000	2005	2000	2005	2000	2005	2000	2005
Forest Land	4,525.92	5,003.38	4,916.70	5,076.30	2,785.03	2,971.03	2,177.97	2,611.36	1,740.89	2,032.35	2,738.73	2,464.94
Grassland	1,414.94	1,825.36	1,307.60	1,079.38	567.28	955.35	661.78	557.57	847.66	870.00	645.82	521.81
Cropland	2,767.40	1,992.23	2,529.08	2,307.40	1,142.41	1,021.77	1,554.14	1,009.35	1,625.00	970.46	974.93	1,298.05
Settlements	632.57	339.15	639.25	588.51	452.65	195.36	173.12	493.94	179.92	143.78	466.13	94.58
Other Land	1,319.41	1,531.64	1,626.12	1,165.77	887.39	885.85	796.40	235.13	432.02	645.79	829.72	930.64
Wetlands	1,165.44	1,271.38	957.39	943.68	376.16	477.07	471.29	486.44	789.28	794.31	486.10	457.23
Other	1,566.22	1,227.07	1,276.19	1,048.60	969.80	571.19	569.98	431.10	596.42	655.88	706.21	617.50
Sum	13,391.91	13,190.21	13,252.32	12,209.64	7,180.72	7,077.62	6,404.69	5,824.90	6,211.19	6,112.59	6,847.64	6,384.75

4.2.2 Analyze Forest Area Change

User can analyze forest area change using below analysis condition.

No.	Analysis Condition	Note
1	Select Area	User can select "whole country" or selected province.
2	Narrow down analysis area by forest category	User can analyze forest area by forest category.
3	Select map year	User can select year of forest type map.
4	Select unit to aggregate data	User can select unit to aggregate data.

1. **【Select area】**

   User can select area to analyze.

   For detail, please refer to "4.2.1 Analyze Forest Area".

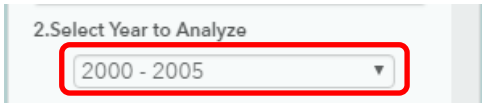
2. **【Narrow down analysis area by forest category】**

   User can narrow down analysis area by forest category.

   For detail, please refer to "4.2.1 Analyze Forest Area".

3. **【Select Map Year】**

   User can select map year to analyze.



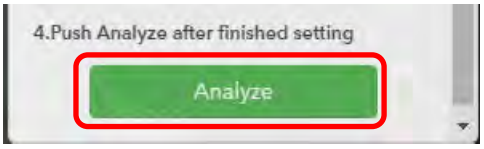
4. **【Select Unit to Aggregate data】**

   Select unit to aggregate data.

   For detail, please refer to "4.2.1 Analyze Forest Area".

5. **【Analyze】**

   Click [Analyze] button to start analysis.

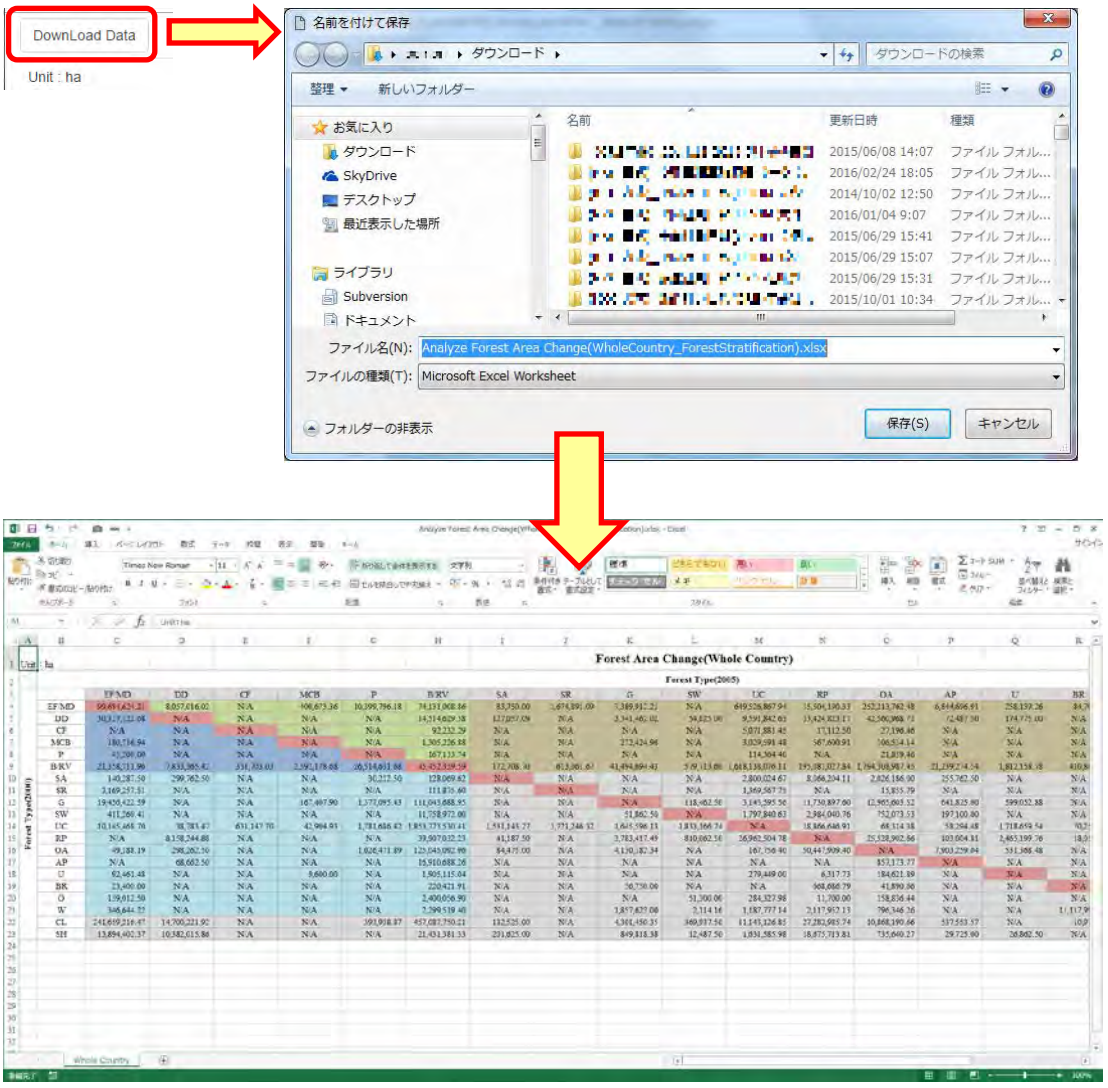


6. 【Analysis Result】

Analysis result will be displayed.

7. 【Download analysis result】

Click [Download Data] to download analysis result.



4.3 Emission Factor

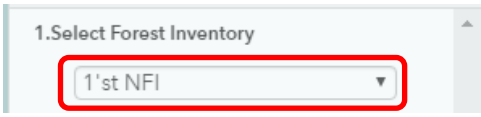
4.3.1 Analyze Average Carbon Stock

User can analyze average carbon stock using below analysis condition.

No.	Analysis Condition	Note
1	Select forest inventory	User can select which forest inventory to display.
2	Select unit to aggregate data	User can select unit to aggregate data.

1. **【Select forest inventory】**

   User can select forest inventory to display.



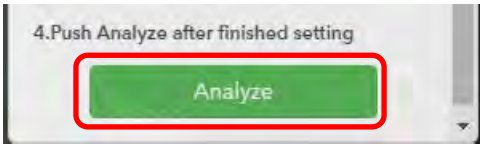
2. **【Narrow down analysis area by forest category】**

   User can narrow down analysis area by forest category.

   For detail, please refer to "4.2.1 Analyze Forest Area".

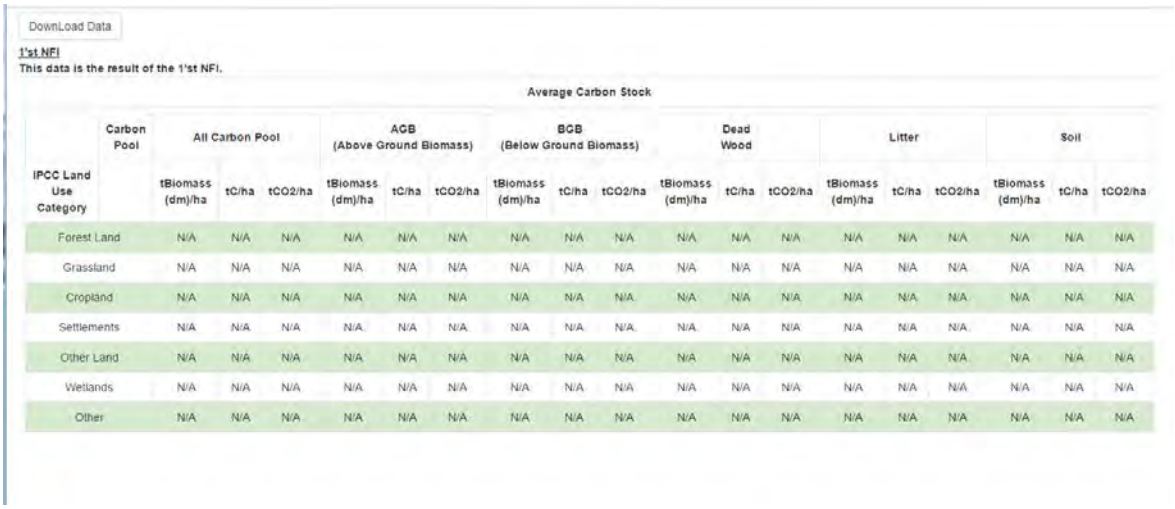
3. **【Analyze】**

   Click [Analyze] button to start analysis.



4. **【Analysis Result】**

   Analysis result will be displayed.



DownLoad Data

1'st NFI

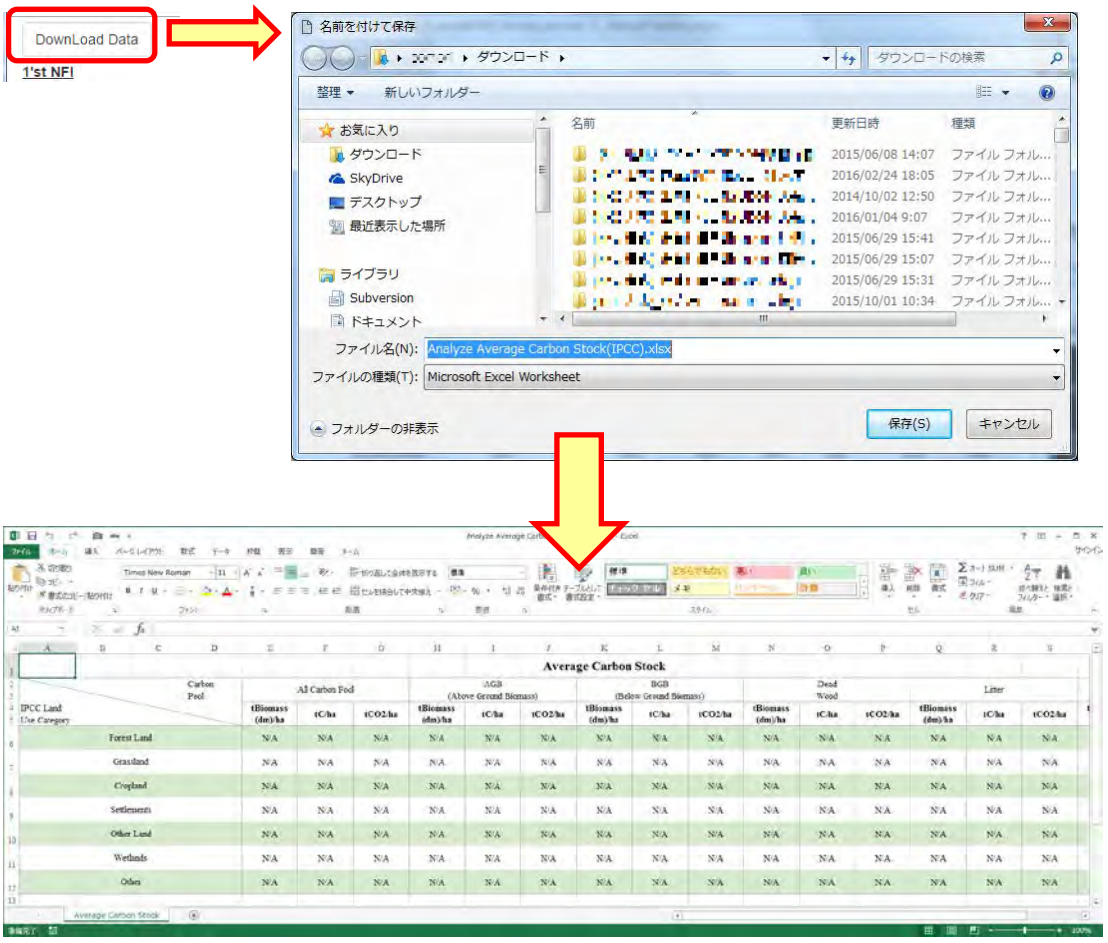
This data is the result of the 1'st NFI.

Average Carbon Stock

IPCC Land Use Category	Carbon Pool	All Carbon Pool			AGB (Above Ground Biomass)			BGB (Below Ground Biomass)			Dead Wood			Litter			Soil		
		tBiomass (dm)/ha	tC/ha	tCO2/ha	tBiomass (dm)/ha	tC/ha	tCO2/ha	tBiomass (dm)/ha	tC/ha	tCO2/ha	tBiomass (dm)/ha	tC/ha	tCO2/ha	tBiomass (dm)/ha	tC/ha	tCO2/ha	tBiomass (dm)/ha	tC/ha	tCO2/ha
Forest Land		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grassland		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cropland		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Settlements		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other Land		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wetlands		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

5. 【Download analysis result】

Click [Download Data] to download analysis result.



4.4 Carbon, CO2

4.4.1 Amount of Carbon/CO2

User can analyze forest amount of carbon/co2 using below analysis condition.

No.	Analysis Condition	Note
1	Select Area	User can select "whole country" or selected province.
2	Narrow down analysis area by forest category	User can analyze forest area by forest category.
3	Select map year	User can select year of forest type map.
4	Select emission factor	User can select which forest inventory result to use for analysis.
5	Select unit to aggregate data	User can select unit to aggregate data.

1. **【Select area】**

   User can select area to analyze.

   For detail, please refer to "4.2.1 Analyze Forest Area".

2. **【Narrow down analysis area by forest category】**

   User can narrow down analysis area by forest category.

   For detail, please refer to "4.2.1 Analyze Forest Area".

3. **【Select Map Year】**

   User can select map year to analyze.

4. **【Select emission factor】**

User can select which forest inventory result to use for analysis.

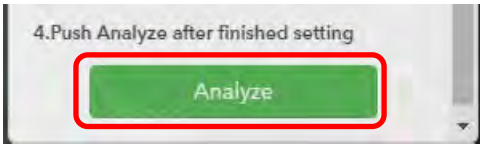
5. **【Select Unit to Aggregate data】**

Select unit to aggregate data.

For detail, please refer to "4.2.1 Analyze Forest Area".

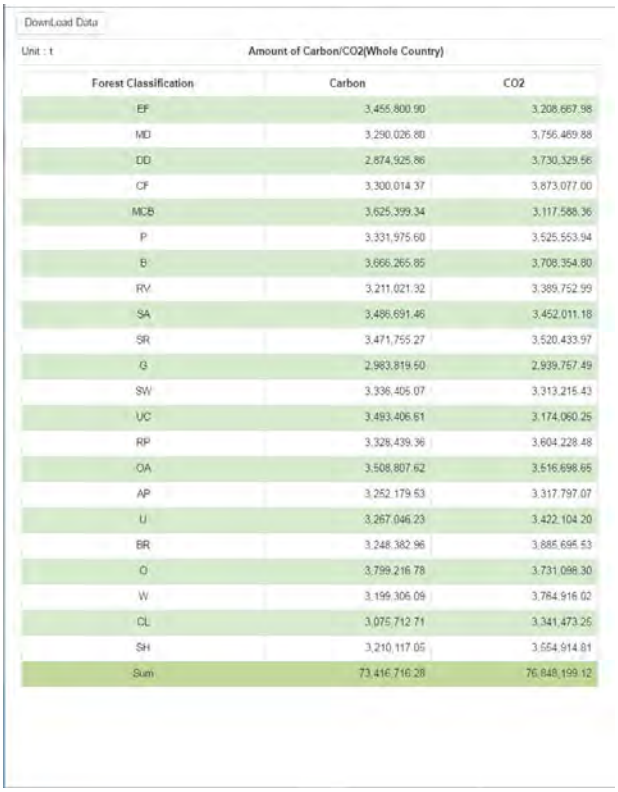
6. **【Analyze】**

Click [Analyze] button to start analysis.



7. **【Analysis Result】**

Analysis result will be displayed.



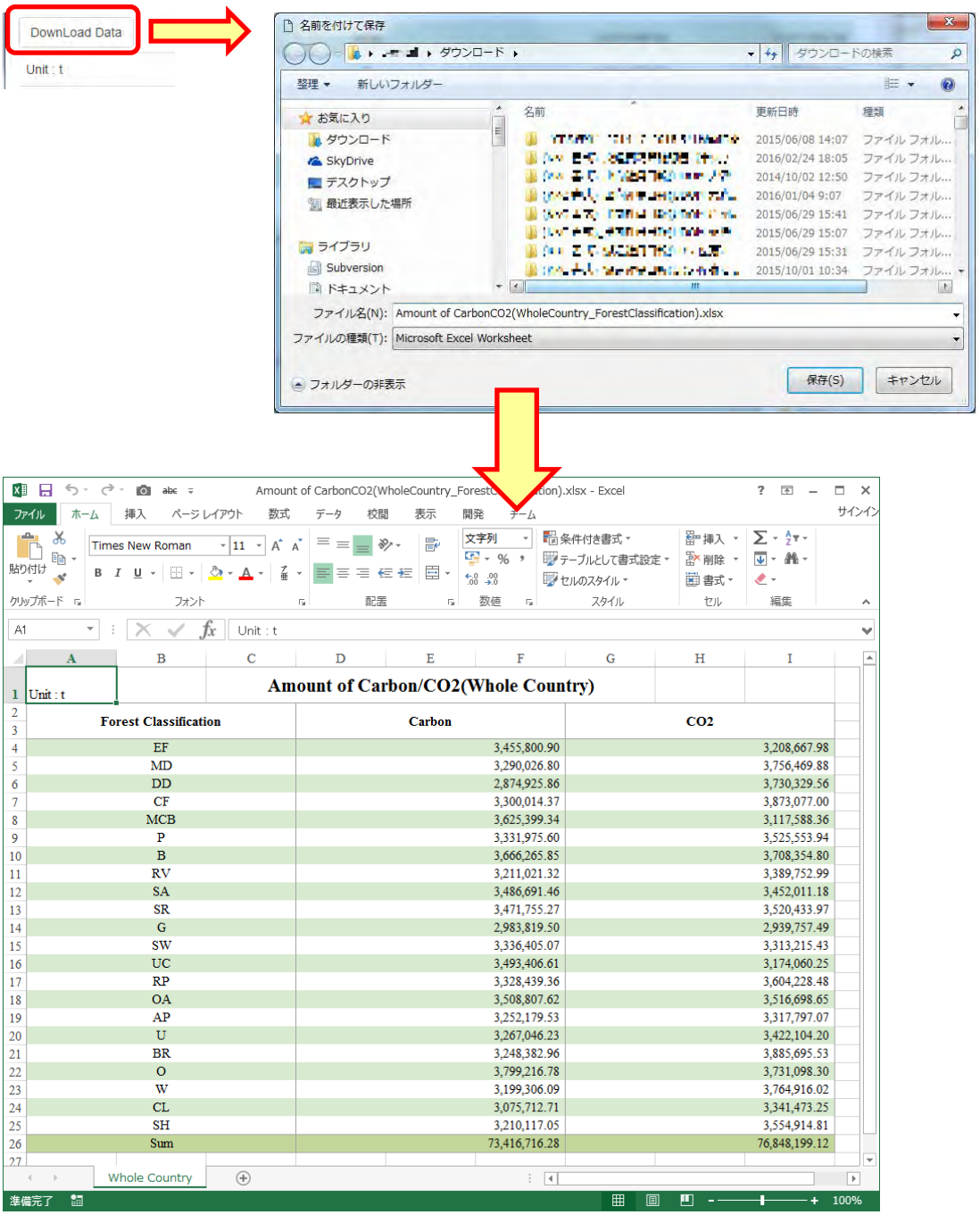
DownLoad Data

Unit : t — Amount of Carbon/CO2(Whole Country)

Forest Classification	Carbon	CO2
EF	3,455,800.90	3,208,667.98
MD	3,290,026.80	3,756,469.88
DD	2,874,925.86	3,730,329.56
CF	3,300,014.37	3,873,077.00
MCB	3,625,399.34	3,117,588.36
P	3,331,975.60	3,525,553.94
B	3,666,265.85	3,708,354.80
RV	3,211,021.32	3,389,752.99
SA	3,486,691.46	3,452,011.18
SR	3,471,755.27	3,520,433.97
G	2,983,819.60	2,939,757.49
SW	3,336,405.07	3,313,215.43
VC	3,493,406.61	3,174,060.25
RP	3,328,439.36	3,604,228.48
OA	3,508,807.62	3,516,698.65
AP	3,252,179.53	3,317,797.07
U	3,267,046.23	3,422,104.20
BR	3,248,382.96	3,885,695.53
O	3,799,216.78	3,731,098.30
W	3,199,306.09	3,764,916.02
CL	3,075,712.71	3,341,473.26
SH	3,210,117.05	3,554,914.81
Sum	73,416,716.28	76,848,199.12

8. 【Download analysis result】

Click [Download Data] to download analysis result.



Forest Classification	Carbon	CO2
EF	3,455,800.90	3,208,667.98
MD	3,290,026.80	3,756,469.88
DD	2,874,925.86	3,730,329.56
CF	3,300,014.37	3,873,077.00
MCB	3,625,399.34	3,117,588.36
P	3,331,975.60	3,525,553.94
B	3,666,265.85	3,708,354.80
RV	3,211,021.32	3,389,752.99
SA	3,486,691.46	3,452,011.18
SR	3,471,755.27	3,520,433.97
G	2,983,819.50	2,939,757.49
SW	3,336,405.07	3,313,215.43
UC	3,493,406.61	3,174,060.25
RP	3,328,439.36	3,604,228.48
OA	3,508,807.62	3,516,698.65
AP	3,252,179.53	3,317,797.07
U	3,267,046.23	3,422,104.20
BR	3,248,382.96	3,885,695.53
O	3,799,216.78	3,731,098.30
W	3,199,306.09	3,764,916.02
CL	3,075,712.71	3,341,473.25
SH	3,210,117.05	3,554,914.81
Sum	73,416,716.28	76,848,199.12

4.4.2 Carbon Stock Change

User can analyze carbon stock change using below analysis condition.

No.	Analysis Condition	Note
1	Select Area	User can select "whole country" or selected province.
2	Narrow down analysis area by forest category	User can analyze forest area by forest category.
3	Select map year	User can select year of forest type map.
4	Select emission factor	User can select which forest inventory result to use for analysis.
5	Select unit to aggregate data	User can select unit to aggregate data.

1. **【Select area】**

   User can select area to analyze.

   For detail, please refer to "4.2.1 Analyze Forest Area".

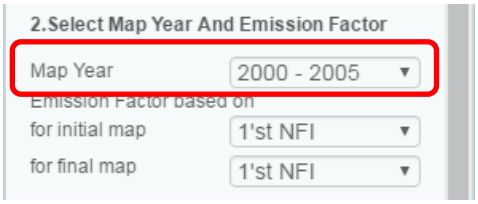
2. **【Narrow down analysis area by forest category】**

   User can narrow down analysis area by forest category.

   For detail, please refer to "4.2.1 Analyze Forest Area".

3. **【Select Map Year】**

   User can select map year to analyze.



4. **【Select emission factor】**

User can select which forest inventory result to use for analysis.

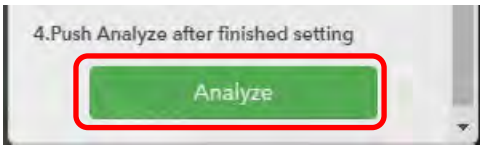
5. **【Select Unit to Aggregate data】**

Select unit to aggregate data.

For detail, please refer to "4.2.1 Analyze Forest Area".

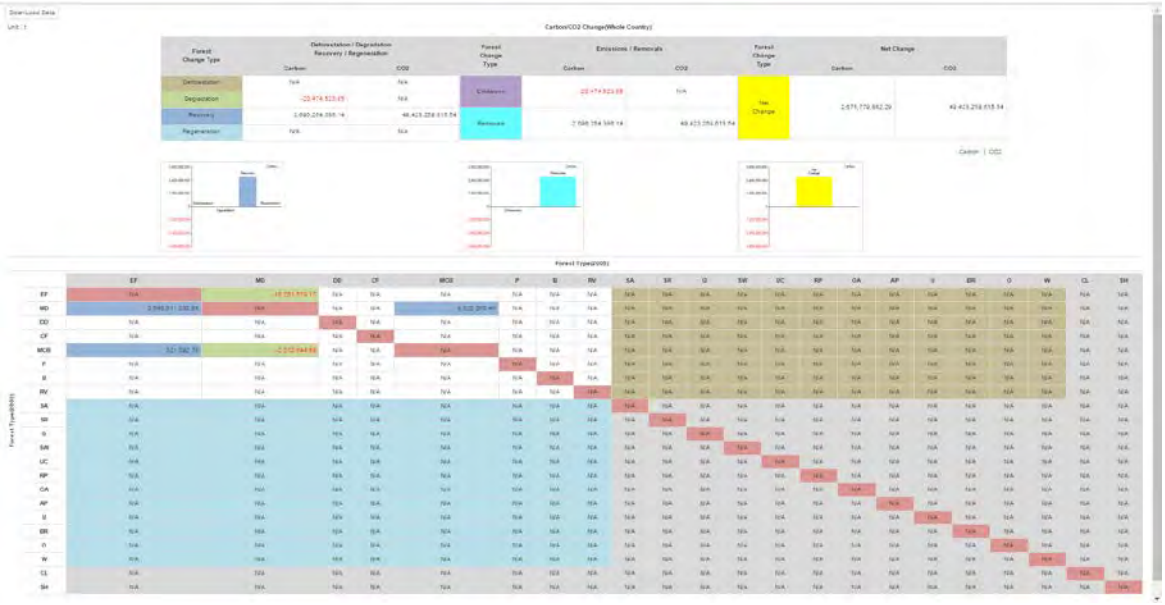
6. **【Analyze】**

Click [Analyze] button to start analysis.



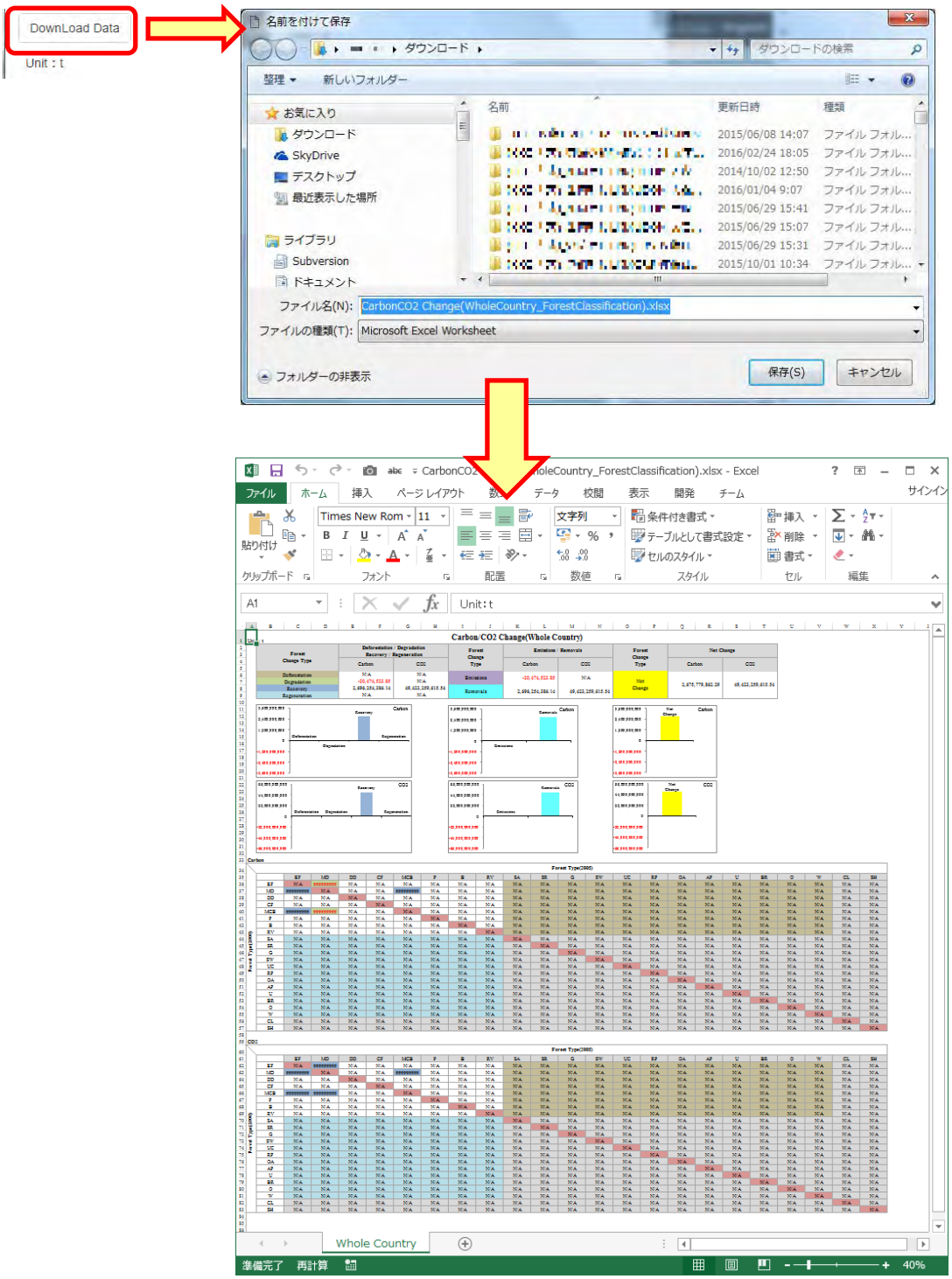
7. **【Analysis Result】**

Analysis result will be displayed.



8. 【Download analysis result】

Click [Download Data] to download analysis result.



Laos - National Forest Management System

ຄູ່ມືນຳໃຊ້ລະບົບຄຸ້ມຄອງປ່າໄມ້ແຫ່ງຊາດ ຂອງ ສປປ ລາວ NFMS

ຄູ່ມືນຳໃຊ້ລະບົບຄຸ້ມຄອງປ່າໄມ້ແຫ່ງຊາດ ຂອງ ສປປ ລາວ

NFMSNFMS ສະບັບ 1.0

ຄູ່ມືນຳໃຊ້ NFMS ຂອງ ສປປ ລາວ ສະບັບ 1.0

(ສປປ ລາວ NFMS ສະບັບ 1.0)

ກັນຍາ 2017

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1. ພາບລວມ

ລະບົບຄຸ້ມຄອງປ່າໄມ້ແຫ່ງຊາດຂອງ ສ ປ ປ ລາວ (NFMS) ແມ່ນລະບົບຂໍ້ມູນຂ່າວສານທາງພູມມີສາດທີ່ຊ່ວຍຈັດການຂໍ້ມູນທີ່ກ່ຽວຂ້ອງກັບວຽກງານ REDD + ແລະ ສະຫນັບສະຫນູນ "ການວັດແທກ" ຂອງ REDD + MRV, ເຊິ່ງມັນມີຟັງຊັ່ນໃນການວິເຄາະ.

1.1 ຟັງຊັ້ນຂອງລະບົບ NFMS

- ຟັງຊັ້ນການດຳເນີນງານຂອງແຜນທີ່
  - ສະແດງຜົນປະຫວັດຂອງແຜນທີ່ (e.g. ພາບຖ່າຍດາວທຽມ)
  - ສະແດງຜົນແຜນທີ່ພາບພື້ນຫຼັງ(e.g. ແຜນທີ່ປະເພດປ່າໄມ້)
  - ຊູມ-ເຂົ້າ, ຊູມ-ອອກ ແລະ ເລື່ອນແຜນທີ່
  - ປ່ຽນຊັ້ນ
  - ວັດແທກຄວາມຍາວ ແລະ ພື້ນທີ່ຂອງແຜນທີ່
  - ປິ້ນແຜນທີ່
- ຟັງຊັ້ນຂອງການວິເຄາະ
  - ຄິດໄລ່ພື້ນທີ່ປ່າໄມ້ ແລະ ການປ່ຽນແປງຂອງພື້ນທີ່ປ່າໄມ້
  - ສະແດງບັດໃຈຂອງການປ່ອຍທາດອາຍພິດ(ຜົນຂອງການສຳຫຼວດປ່າໄມ້)
  - ຄິດໄລ່ປະລິມານ ແລະ ການປ່ຽນແປງຂອງທາດກາກບອນ

1.2 ສະພາບແວດລ້ອມໃນການດຳເນີນງານ

ອີນເຕີເນັດບາງອັນເຊິ່ງແມ່ນມີຄວາມຈຳເປັນເພື່ອຫວີ່ຈະນຳໃຊ້ລະບົບຕິດຕາມກວດກາບ່າໄມ້ແຫ່ງຊາດ NFMS. ລາຍລະອຽດຂ້າງລຸ່ມນີ້ແມ່ນ

ສາມາດນຳໃຊ້ກັບລະບົບ NFMS ໄດ້.

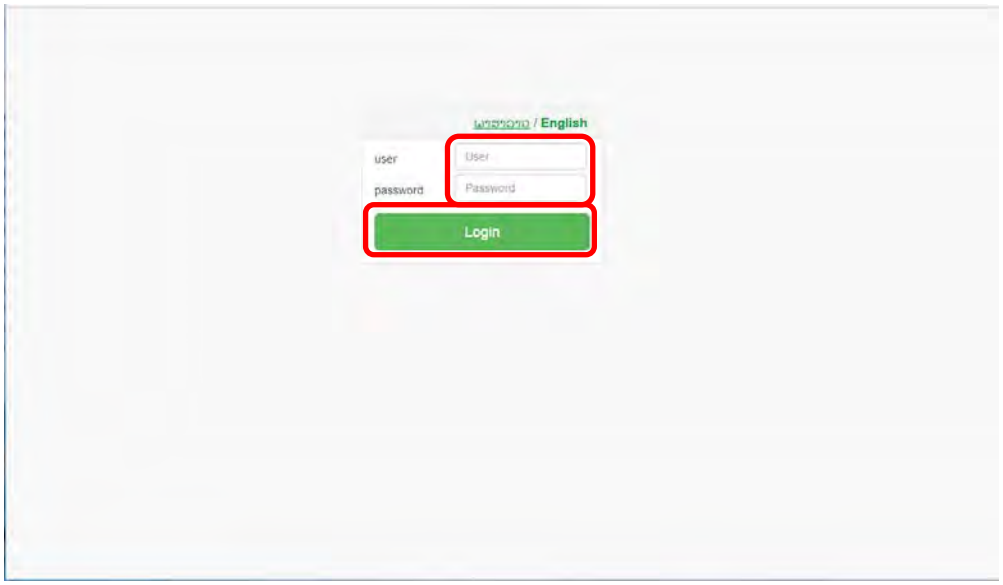
- **Internet Browser**
  - **Microsoft Windows：InternetExplorer11.0, EDGE, Chrome**

- **ສະເປັກຂອງເຄື່ອງຄອມພິວເຕີທີ່ສາມາດນຳໃຊ້ໄດ້ກັບລະບົບ.**
  - **CPU： Intel Core-i3 or more**
  - **Memory： 2GB or more**
  - **Display： Resolution 1024 * 768（TrueColor） or more**

2. ການເຂົ້າໃຊ້ລະບົບ / ການອອກຈາກລະບົບ.

2.1 ການເຂົ້າໃຊ້ລະບົບ NFMS

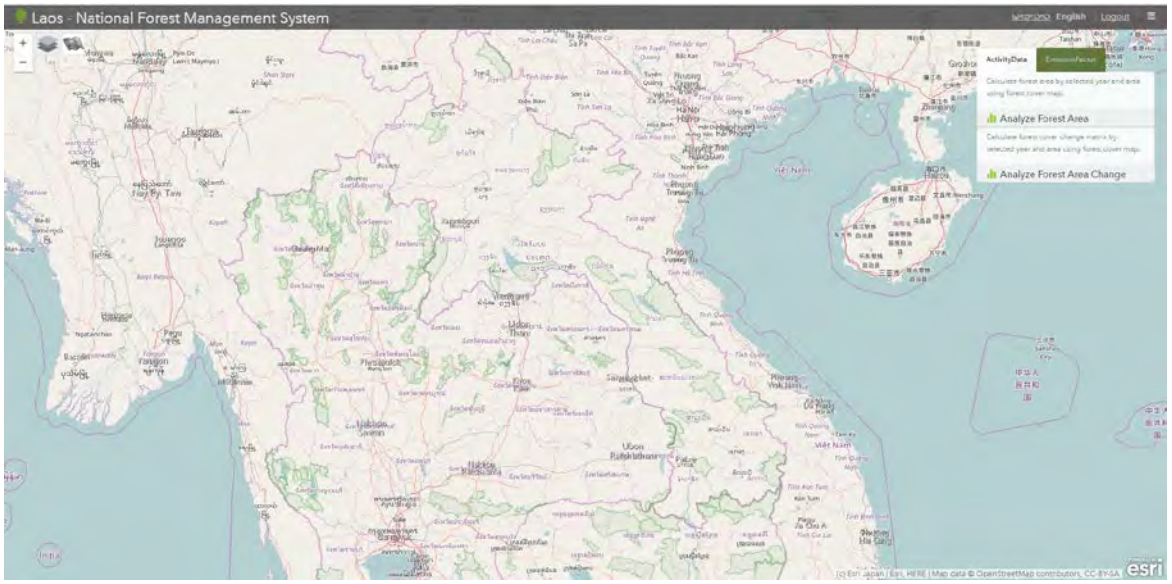
1. ລົງຊື່ [ຜູ້ໃຊ້] ແລະ [ພາສເວີດ] ໃສ່ບ່ອນ [ເຂົ້າສູ່ລະບົບ] ແລະ ກົດປຸ່ມ [ເຂົ້າສູ່ລະບົບ].



-> ຖ້າຫາກຊື່ຜູ້ໃຊ້ ແລະ ພາສເວີດ ຖືກຕ້ອງ, ການເຂົ້າສູ່ລະບົບຈະສຳເລັດ.

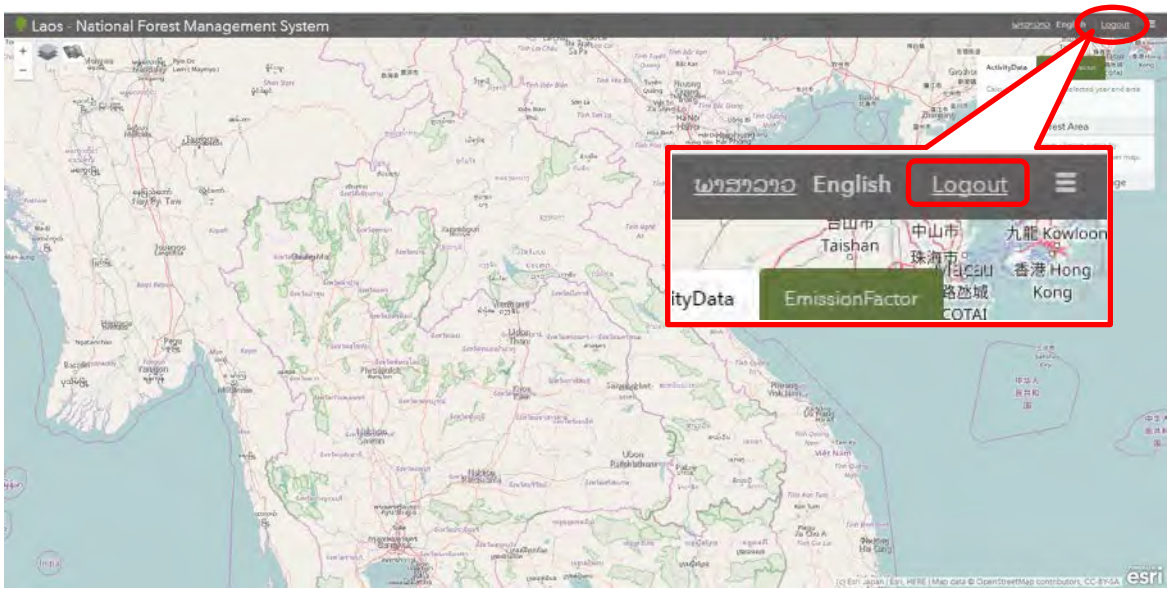
ເລືອກພາສາ
ຜູ້ໃຊ້ສາມາດປ່ຽນພາສາລະຫວ່າງ ພາສາລາວ ແລະ ພາສາອັງກິດໂດຍການກົດປຸ່ມເລືອກພາສາ (ພາສາລາວ / English) ທີ່ຫນ້າຈໍເຂົ້າສູ່ລະບົບ.

2. ໜ້າຈໍແຜນທີ່ຈະປາກົດຂຶ້ນ.



2.2 ການອອກຈາກລະບົບ NFMS

1. ກົດປຸ່ມ [ອອກຈາກລະບົບ]

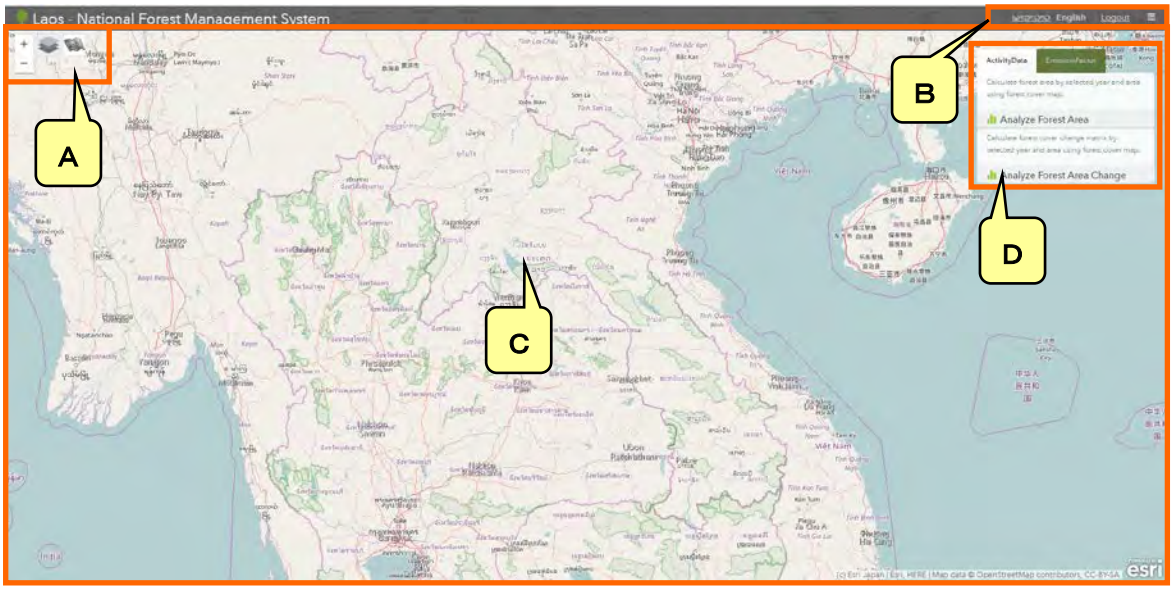


⇒【ຂໍ້ຄວາມການຢືນຢັນການອອກຈາກລະບົບ】 ຈະປາກົດຂຶ້ນ ກົດປຸ່ມ [ຕົກລົງ]

3. ຫນ້າຕ່າງ ແລະ ການສະແດງຜົນຂອງແຜນທີ່

3.1 ຫນ້າຕ່າງ

ຫນ້າຕ່າງຂ້າງລຸ່ມນີ້ແມ່ນສະແດງໃຫ້ເຫັນເຖິງຫນ້າຕາຂອງລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດລາວ NFMS



- **A ເມນຸຄຳສັ່ງການສະແດງຜົນຂອງແຜນທີ່.**

  ປ່ຽນແຜນທີ່ພື້ນຫຼັງ, ແຜນທີ່ສະເພາະ

  ຊຸມ-ເຂົ້າ / ຊຸມ-ອອກ

- **B ເມນຸຄຳສັ່ງພື້ນຖານ**

  ຄຳສັ່ງປ່ຽນພາສາ

  ຄຳສັ່ງວັດແທກ

  ຄຳສັ່ງປົ້ນ

- **C ຫນ້າຕ່າງແຜນທີ່**

ການສະແດງແຜນທີ່

- **D ຫນວດຄຳສັ່ງໃນການວິເຄາະ**

ວິເຄາະຂໍ້ມູນກິດຈະກຳ, ບັດໄຈການປ່ອຍທາດອາຍພິດ ແລະ

ປະລິມານຂອງທາດກາກບອນ.

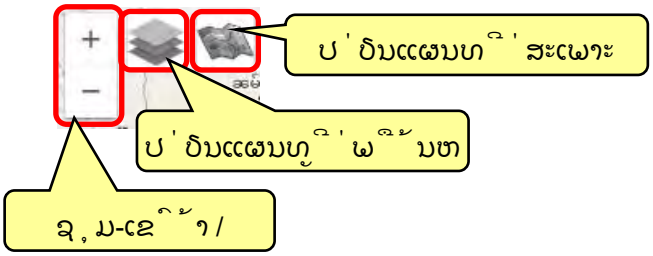
3.2 ການສະແດງຜົນຂອງແຜນທີ່

3.2.1 ເມນູການສະແດງຜົນຂອງແຜນທີ່

ຟັງຊັ່ນຂ້າງລຸ່ມນີ້ສາມາດກຳນົດການສະແດງຜົນຂອງແຜນທີ່ໄດ້.

【ຊູມ-ເຂົ້າ/ຊູມ-ອອກ】, 【ປັບແຜນທີ່ພື້ນຫຼັງ】,

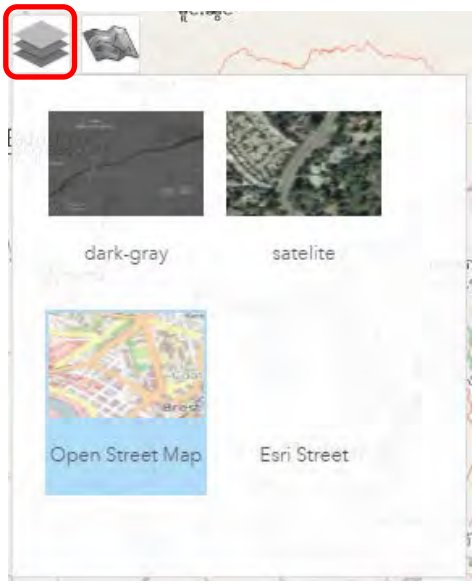
【ປັບແຜນທີ່ສະເພາະ】,



ທ່ານສາມາດນຳໃຊ້ລູກລູ້ງຂອງເມົ້າໃນການ ຊູມ-ເຂົ້າ/ ຊູມ-ອອກ

◆ **【ປ່ຽນແຜນທີ່ພື້ນຫຼັງ】**

ທ່ານສາມາດປ່ຽນແຜນທີ່ພື້ນຫຼັງໄດ້



1. ກົດປຸ່ມ **[ປ່ຽນແຜນທີ່ພື້ນຖານ]**

ກົດປຸ່ມ ເພື່ອປ່ຽນແປງແຜນທີ່ພື້ນຖານ.

2. **ເລືອກແຜນທີ່ພື້ນຖານເພື່ອສະແດງຜົນ.**

ແຜນທີ່ພື້ນຖານທີ່ຕົດຕັ້ງໃນລະບົບ NFMS ຈະຖືກສະແດງຜົນ. ເລືອກແຜນທີ່ພື້ນຖານທີ່ຈະສະແດງ.

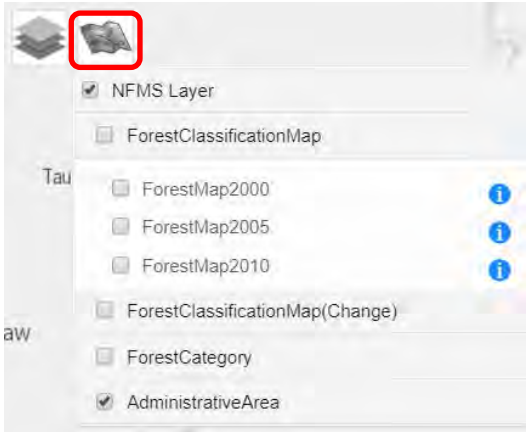
3. **ເມນູຄຳສັ່ງປິດການປ່ຽນແປງແຜນທີ່ພື້ນຖານ**

4. ກົດປຸ່ມ ຄຳສັ່ງປິດການປ່ຽນແປງແຜນທີ່ພື້ນຖານ

ແຜນທີ່ພື້ນຖານທີ່ສະແດງ
ແຜນທີ່ພື້ນຖານຈະສະແດງຜົນໃນກອບສີຟ້າ

◆ **【ການປ່ຽນຂໍ້ມູນແຜນທີ່】**

ຜູ້ໃຊ້ສາມາດປ່ຽນຂໍ້ມູນແຜນທີ່ໄດ້



1. **ກົດປຸ່ມ [ປ່ຽນຂໍ້ມູນແຜນທີ່]**

ກົດປຸ່ມ ເພື່ອສະແດງໂຄງສ້າງຊັ້ນຂອງຂໍ້ມູນແຜນທີ່.

2. **ປ່ຽນແປງຂໍ້ມູນແຜນທີ່**

ຜູ້ໃຊ້ສາມາດປ່ຽນແຜນທີ່ສະເພາະເພື່ອຈະສະແດງຜົນໂດຍການເລືອກຕົກໃສ່ໃນບ່ອກຂອງໂຄງສ້າງຂອງຊັ້ນ.

3. **ເມນູຄຳສັ່ງປິດການປ່ຽນຂໍ້ມູນແຜນທີ່**

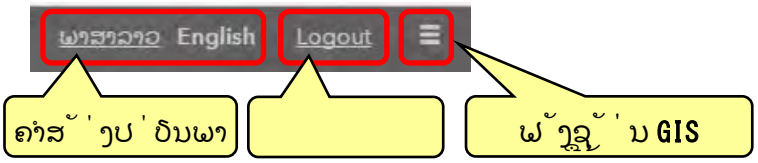
ກົດປຸ່ມ ຄຳສັ່ງປິດການປ່ຽນຂໍ້ມູນແຜນທີ່.

ໂຄງສ້າງຊັ້ນຂອງແຜນທີ່ສະເພາະ
ຜູ້ໃຊ້ສາມາດສະແດງຂໍ້ມູນແຜນທີ່ໂດຍການເລືອກທີ່ຈະ ສະແດງ / ບໍ່ສະແດງ

3.2.2 ເມນູຄຳສັ່ງພື້ນຖານ

ຄຳສັ່ງຕໍ່ໄປຂ້າງລຸ່ມນີ້ແມ່ນຄຳສັ່ງພື້ນຖານ

【ຄຳສັ່ງປ່ຽນພາສາ】、【ອອກຈາກລະບົບ】、【GIS basic function】



◆ **【ຄຳສັ່ງປ່ຽນພາສາ】**

ຜູ້ໃຊ້ສາມາດປ່ຽນພາສາ

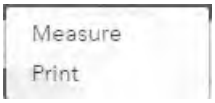
ໂດຍການເລືອກພາສາ : English ຫຼື ພາສາລາວ

◆ **【ອອກຈາກລະບົບ】**

ຜູ້ໃຊ້ສາມາດອອກຈາກລະບົບໂດຍຄລິກ [Logout.]

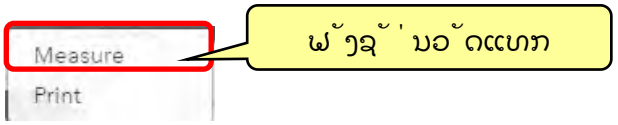
◆ 【ຟັງຊັນ GIS ພື້ນຖານ】

ຜູ້ໃຊ້ສາມາດໃຊ້ຄຳສັ່ງ ວັດແທກ ແລະ ປິ້ນ



✓ 【 ຄຳສັ່ງວັດແທກ】

ໂດຍການນຳໃຊ້ຟັງຊັ່ນວັດແທກ, ເຊິ່ງຜູ້ໃສ່ສາມາດວັດແທກລວງຍາວ ແລະ ພື້ນທີ່.



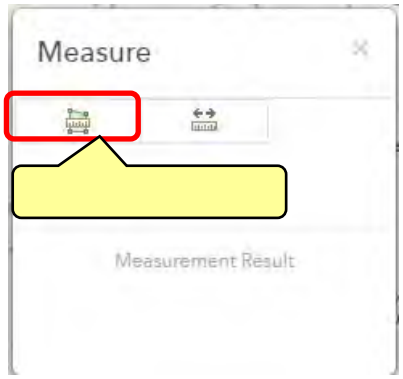
➢ 【ການວັດແທກພື້ນທີ່】

ຜູ້ໃຊ້ສາມາດວັດແທກພື້ນທີ່ໂດຍການແຕ້ມ polygon

1. ຄລິກ [ວັດແທກ]

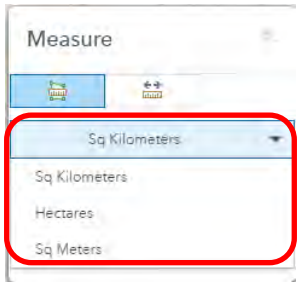
2. ເລືອກ [ພື້ນທີ່ຕ້ອງການວັດແທກ] ຈາກຊ່ອງ 【ວັດແທກ】

   ເລືອກ ( ) ຈາກຊ່ອງ 【ວັດແທກ】.



3. **ເລືອກຫົວໜ່ວຍ**

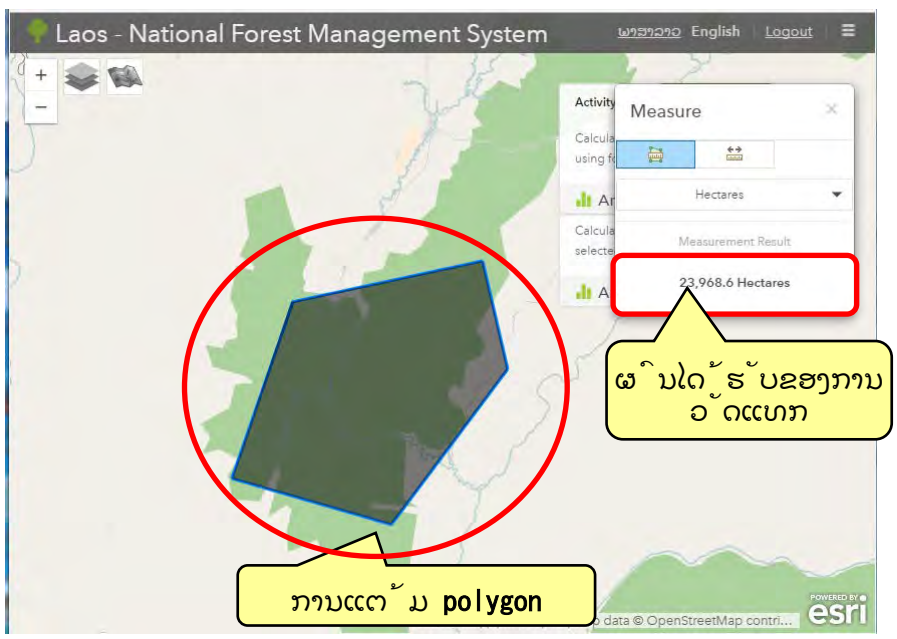
   ເລືອກຫົວໜ່ວຍຕ້ອງການໃຊ້ໃນການວັດແທກ



ຫົວໜ່ວຍວັດແທກພື້ນທີ່	ຕາລາງກິໂລແມັດ
	ເຮັກຕາ
	ຕາລາງແມັດ

4. **ການແຕ້ມ polygon ແລະ ກວດສອບຜົນໄດ້ຮັບ**

ການແຕ້ມ polygon (ຄວນກ 2 ເທື່ອຂຶ້ນໄປສໍາລັບການແຕ້ມ).
ຜົນໄດ້ຮັບຂອງການວັດແທກມັນຈະສະແດງຜົນຢູ່ໃນຫ້ອງຂອງ【ວັດແທກ】.



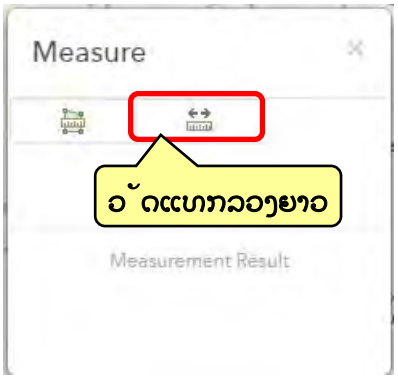
➢ **【ວັດແທກລວງຍາວ】**

ຜູ້ໃຊ້ສາມາດວັດແທກລວງຍາວໂດຍການແຕ້ມເສັ້ນ.

1. **ຄລິກ [ວັດແທກ]**

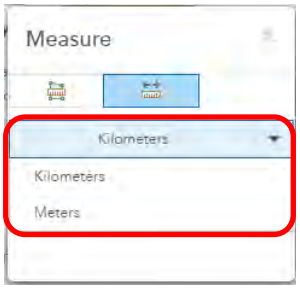
2. **ເລືອກ [ວັດແທກລວງຍາວ] ຈາກຊ່ອງ [ວັດແທກ].**

ເລືອກ ( ) ຈາກຊ່ອງ [ວັດແທກ]



3. **ເລືອກຫົວໜ່ວຍ**

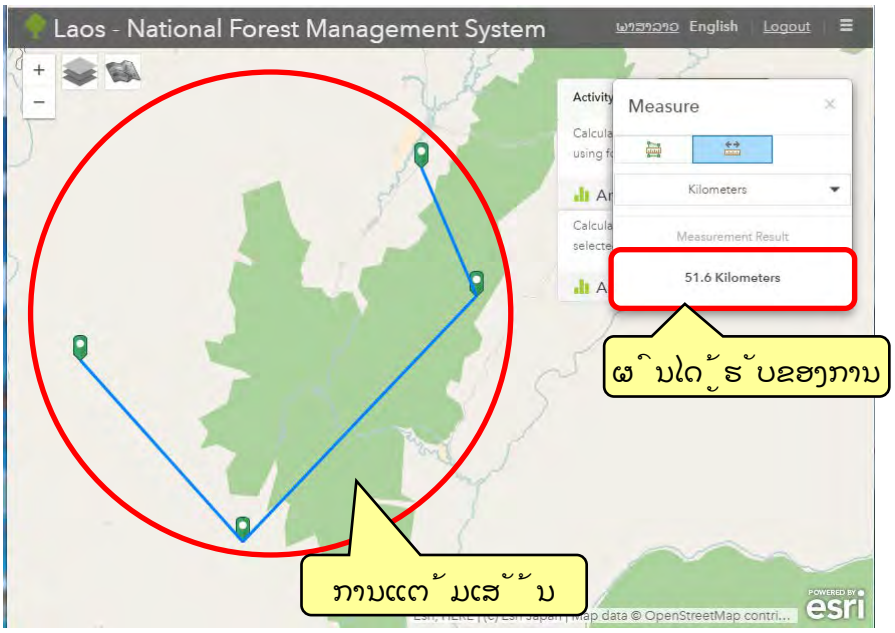
ເລືອກຫົວໜ່ວຍຕ້ອງການໃຊ້ໃນການວັດແທກ



ຫົວໜ່ວຍວັດແທກລວງຍາວ	ກິໂລແມັດ
	ແມັດ

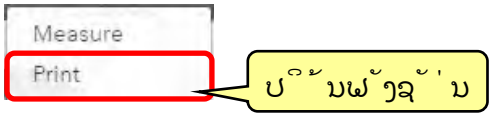
4. **ການແຕ້ມເສັ້ນຍູ່ເທິງແຜນທີ່ ແລະ ກວດສອບຜົນໄດ້ຮັບ**

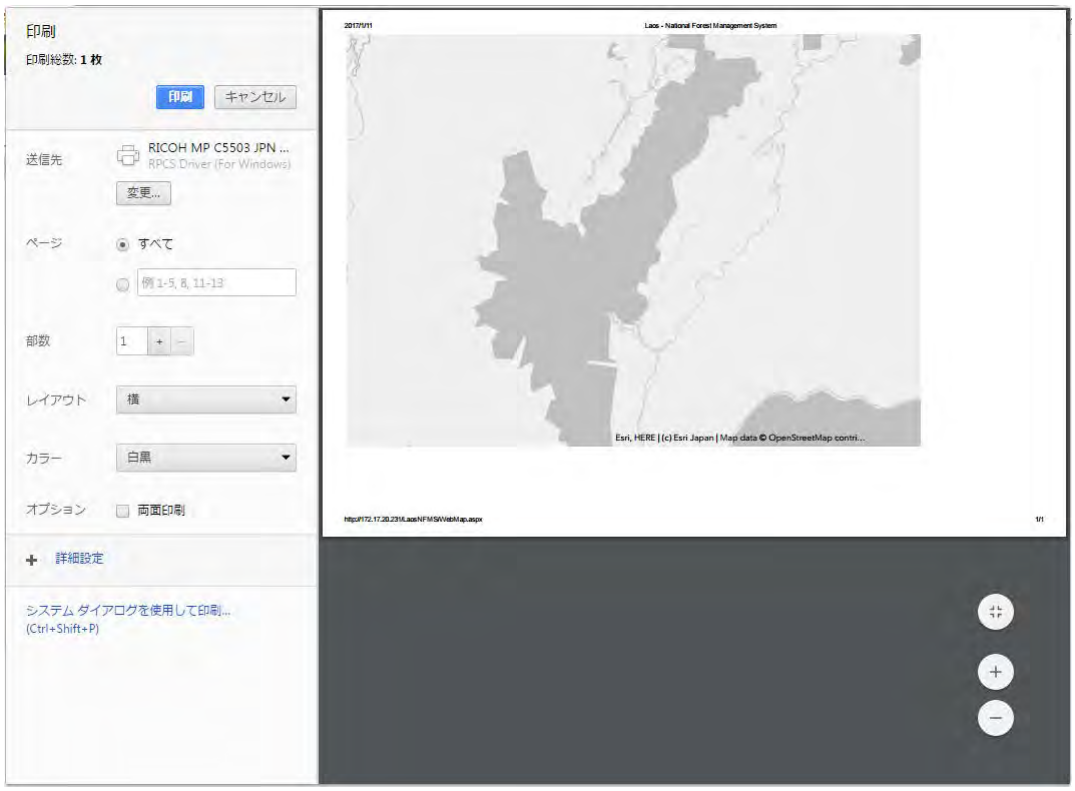
ການແຕ້ມເສັ້ນ (ຄລິກ 2 ເທື່ອ ເພື່ອສຳເລັດການແຕ້ມ)
ຜົນໄດ້ຮັບຂອງການວັດແທກມັນຈະສະແດງຜົນຍູ່ໃນຫ້ອງຂອງ [ວັດແທກ]


Laos - National Forest Management System
English
Logout
Measure
Kilometers
Measurement Result
51.6 Kilometers
ຜົນໄດ້ຮັບຂອງການ
ການແຕ້ມເສັ້ນ
esri

✓ **【ຄຳສັ່ງປິ້ນ】**

ເລືອກ [ປິ້ນ] ເພື່ອປິ້ນແຜນທີ່.





3.2.3 ຫນ້າຕ່າງຂອງແຜນທີ່

ຜູ້ໃຊ້ສາມາດສະແດງແຜນທີ່ຜົນຫຼັງແລະ

ແຜນທີ່ສະເພາະໄດ້ຢູ່ໃນຫນ້າຕ່າງຂອງແຜນທີ່.

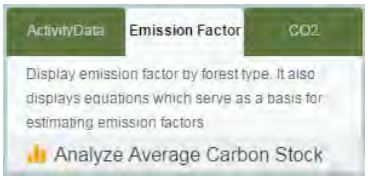
◆ **【ຕາຕະລາງສະແດງຜົນ】**

ຜູ້ໃຊ້ສາມາດເປີ່ງຕາຕະລາງສະແດງຜົນໂດຍການຄລິກໃສ່ພາບຂອງແຜນທີ່

4. ຟັງຊັ່ນການວິເຄາະ

4.1 ຫນ້າຕ່າງຂອງຟັງຊັ່ນການວິເຄາະ

ຫນ້າຕ່າງຂ້າງລຸ່ມນີ້ແມ່ນສະແດງໃຫ້ເຫັນເຖິງຫນ້າຕາຂອງຟັງຊັ່ນການວິເຄາະ.



ລ/ດ	ແທັບ	ຊື່ຂອງຟັງຊັ່ນ
1	ຂໍ້ມູນກິດຈະກຳ	ການວິເຄາະພື້ນທີ່ປ່າໄມ້
2		ວິເຄາະການປ່ຽນແປງຂອງພື້ນທີ່ປ່າໄມ້
3	ປັດໄຈການປ່ອຍທາດອາຍພິດ	ວິເຄາະຄ່າສະເລ່ຍຂອງທາດກາກບອນ
4	CO2	ປະລິມານຂອງທາດກາກບອນ/CO2
5		ການປ່ຽນແປງຂອງທາດກາກບອນ

4.2 ຂໍ້ມູນກິດຈະກຳ

4.2.1 ການອົດເຄາະພື້ນທີ່ປ່າໄມ້

ຜູ້ໃຊ້ສາມາດອົດເຄາະພື້ນທີ່ປ່າໄມ້ໂດຍປະຕິບັດຕາມເງື່ອນໄຂດັ່ງຂ້າງລຸ່ມນີ້

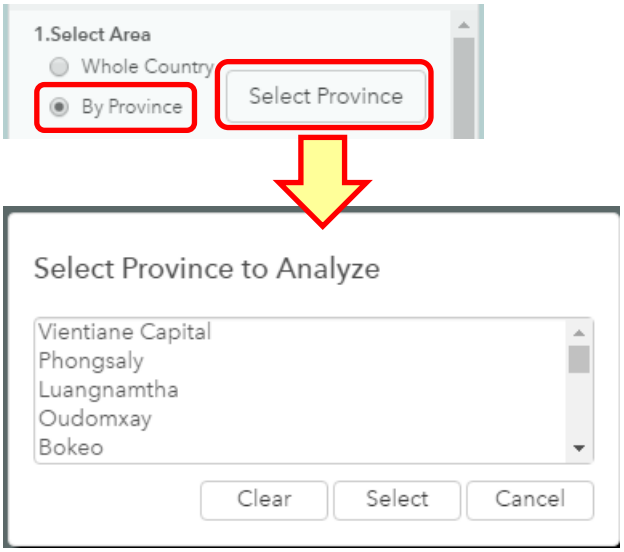
ລ/ດ.	ເງື່ອນໄຂໃນການອົດເຄາະ	ໝາຍເຫດ
1	ເລືອກພື້ນທີ່	ຜູ້ໃຊ້ສາມາດເລືອກ"ທົ່ວປະເທດ" ຫຼື "ຂອງແຕ່ລະແຂວງ"
2	ລົງເລິກອົດເຄາະພື້ນທີ່ຕາມປະເພດປ່າ	ຜູ້ໃຊ້ສາມາດອົດເຄາະພື້ນທີ່ຕາມປະເພດປ່າ
3	ເລືອກປີຂອງແຜນທີ່	ຜູ້ໃຊ້ສາມາດເລືອກປີຂອງແຜນທີ່ປະເພດປ່າໄມ້
4	ເລືອກປະເພດທີ່ຕ້ອງການສັງລວມ	ຜູ້ໃຊ້ສາມາດເລືອກປະເພດທີ່ຕ້ອງການສັງລວມ

1. 【ເລືອກພື້ນທີ່】

ຜູ້ໃຊ້ສາມາດເລືອກພື້ນທີ່ຕ້ອງການຈະອົດເຄາະ.

- ທົ່ວປະເທດ
- ຂອງແຕ່ລະແຂວງ

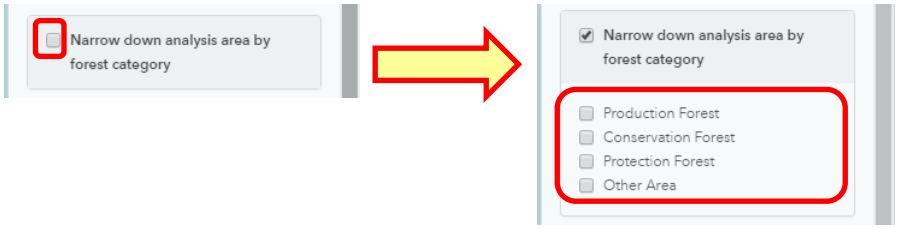
ເວລາເລືອກ [ຂອງແຕ່ລະແຂວງ], ຄລິກ [ເລືອກແຂວງ]



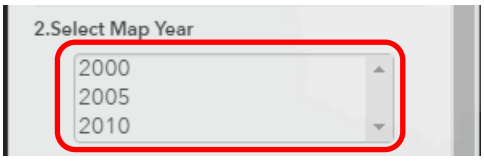
ເລືອກແຂວງທີ່ຕ້ອງການຈະວິເຄາະ,
ສາມາດເລືອກໄດ້ຫຼາຍແຂວງແລະວິເຄາະພ້ອມກັນໄດ້.

ເລືອກຫຼາຍແຂວງພ້ອມກັນ
ວິທີການເລືອກຫຼາຍແຂວງພ້ອມກັນແມ່ນກົດ「Shift + Click」ແລະ「Ctrl + Click」

2. **【ລົງເລືກວິເຄາະພື້ນທີ່ຕາມປະເພດປ່າ】**
ຜູ້ໃຊ້ສາມາດວິເຄາະພື້ນທີ່ຕາມປະເພດປ່າ.

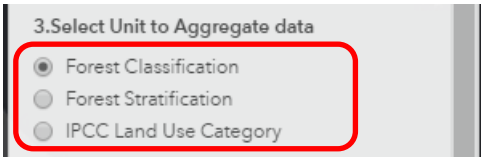


3. **【ເລືອກປີຂອງແຜນທີ່】**
ຜູ້ໃຊ້ສາມາດເລືອກປີຂອງແຜນທີ່ປະເພດປ່າໃນ້ທີ່ຕ້ອງການວິເຄາະໄດ້.



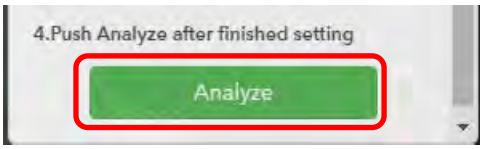
ເລືອກຫຼາຍແຂວງພ້ອມກັນ
ວິທີການເລືອກຫຼາຍແຂວງພ້ອມກັນແມ່ນ「Shift + Click」ແລະ「Ctrl + Click」

4. **【ເລືອກປະເພດທີ່ຕ້ອງການສັງລວມ】**
ເລືອກປະເພດທີ່ຕ້ອງການສັງລວມ.



5. **【ວິເຄາະ】**

ຄລິກປຸ່ມ [ວິເຄາະ] ເພື່ອດຳເນີນການວິເຄາະ.



6. 【ຜົນຂອງການວິເຄາະ】

ຜົນຂອງການວິເຄາະຈະສະແດງດັ່ງຕາຕະລາງຂ້າງລຸ່ມນີ້:

DownLoad Data

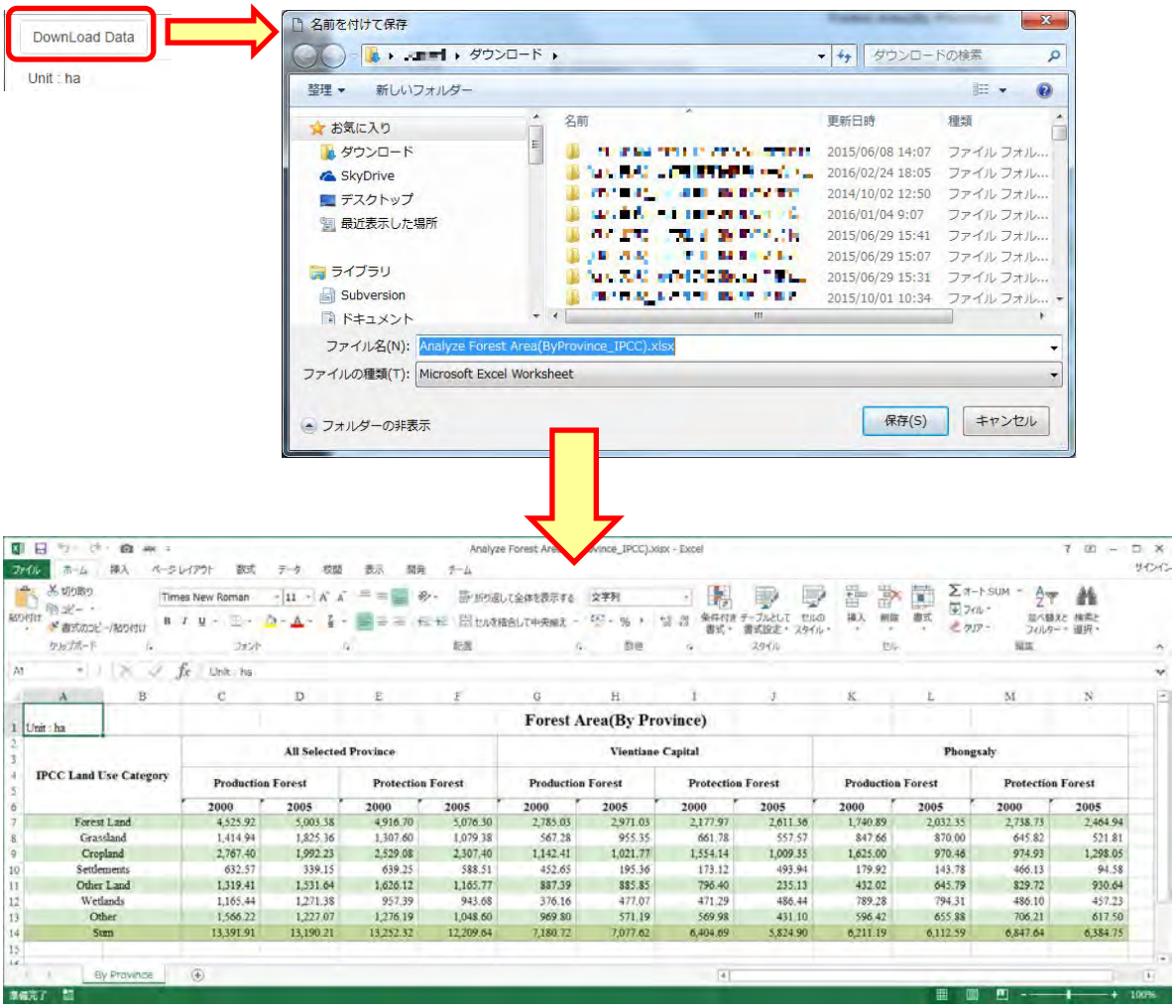
Unit : ha

Forest Area(By Province)

IPCC Land Use Category	All Selected Province				Vientiane Capital				Phongsaly			
	Production Forest		Protection Forest		Production Forest		Protection Forest		Production Forest		Protection Forest	
	2000	2005	2000	2005	2000	2005	2000	2005	2000	2005	2000	2005
Forest Land	4,525.92	5,003.38	4,916.70	5,076.30	2,785.03	2,971.03	2,177.97	2,611.36	1,740.89	2,032.35	2,738.73	2,464.94
Grassland	1,414.94	1,825.36	1,307.60	1,079.38	567.28	955.35	661.78	557.57	847.66	870.00	645.82	521.81
Cropland	2,767.40	1,992.23	2,529.08	2,307.40	1,142.41	1,021.77	1,554.14	1,009.35	1,625.00	970.46	974.93	1,298.05
Settlements	632.57	339.15	639.25	588.51	452.65	195.36	173.12	493.94	179.92	143.78	466.13	94.58
Other Land	1,319.41	1,531.64	1,626.12	1,165.77	887.39	885.85	796.40	235.13	432.02	645.79	829.72	930.64
Wetlands	1,165.44	1,271.38	957.39	943.68	376.16	477.07	471.29	486.44	789.28	794.31	486.10	457.23
Other	1,566.22	1,227.07	1,276.19	1,048.60	969.80	571.19	569.98	431.10	596.42	655.88	706.21	617.50
Sum	13,391.91	13,190.21	13,252.32	12,209.64	7,180.72	7,077.62	6,404.69	5,824.90	6,211.19	6,112.59	6,847.64	6,384.75

7. **【ດາວໂຫຼດຜົນຂອງການວິເຄາະ】**

ຄລິກປຸ່ມ [ດາວໂຫຼດຂໍ້ມູນ] ເພື່ອດາວໂຫຼດຜົນຂອງການວິເຄາະ.



4.2.2 ອົດເຄາະການປ່ຽນແປງຂອງພື້ນທີ່ປ່າໄມ້

ຜູ້ໃຊ້ສາມາດອົດເຄາະການປ່ຽນແປງຂອງພື້ນທີ່ປ່າໄມ້ໂດຍປະຕິບັດຕາມເງື່ອນໄຂດັ່ງຂ້າງລຸ່ມນີ້.

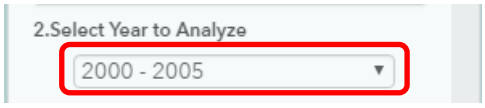
ລ/ດ.	ເງື່ອນໄຂໃນການອົດເຄາະ	ໝາຍເຫດ
1	ເລືອກພື້ນທີ່	ຜູ້ໃຊ້ສາມາດເລືອກ"ທົ່ວປະເທດ" ຫຼື "ຂອງແຕ່ລະແຂວງ"
2	ລົງເລືກອົດເຄາະພື້ນທີ່ຕາມປະເພດປ່າ	ຜູ້ໃຊ້ສາມາດອົດເຄາະພື້ນທີ່ຕາມປະເພດປ່າ
3	ເລືອກປີຂອງແຜນທີ່	ຜູ້ໃຊ້ສາມາດເລືອກປີຂອງແຜນທີ່ປະເພດປ່າໄມ້
4	ເລືອກປະເພດທີ່ຕ້ອງການສັງລວມ	ຜູ້ໃຊ້ສາມາດເລືອກປະເພດທີ່ຕ້ອງການສັງລວມ

1. **【ເລືອກພື້ນທີ່】**
   ຜູ້ໃຊ້ສາມາດເລືອກພື້ນທີ່ຕ້ອງການຈະອົດເຄາະ.
   ສຳລັບລາຍລະອຽດແມ່ນອົງໃສ່ຂໍ້ທີ "4.2.1ການອົດເຄາະພື້ນທີ່ປ່າໄມ້".

2. **【ລົງເລືກອົດເຄາະພື້ນທີ່ຕາມປະເພດປ່າ】**

   ຜູ້ໃຊ້ສາມາດອົດເຄາະພື້ນທີ່ຕາມປະເພດປ່າ..
   ສຳລັບລາຍລະອຽດແມ່ນອົງໃສ່ຂໍ້ທີ "4.2.1ການອົດເຄາະພື້ນທີ່ປ່າໄມ້".

3. **【ເລືອກປີຂອງແຜນທີ່】**
   ຜູ້ໃຊ້ສາມາດເລືອກປີຂອງແຜນທີ່ປະເພດປ່າໄມ້ທີ່ຕ້ອງການອົດເຄາະໄດ້.

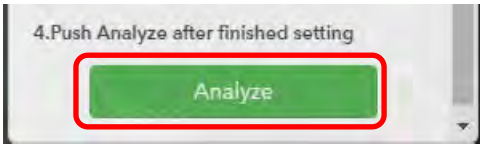


4. **【ເລືອກປະເພດທີ່ຕ້ອງການສັງລວມ】**

ເລືອກປະເພດທີ່ຕ້ອງການສັງລວມ
ສຳລັບລາຍລະອຽດແມ່ນອີງໃສ່ຂໍ້ທີ່ "4.2.1ການວິເຄາະພື້ນທີ່ປ່າໄມ້".

5. **【ວິເຄາະ】**

ຄລິກປຸ່ມ [ວິເຄາະ] ເພື່ອດຳເນີນການວິເຄາະ.

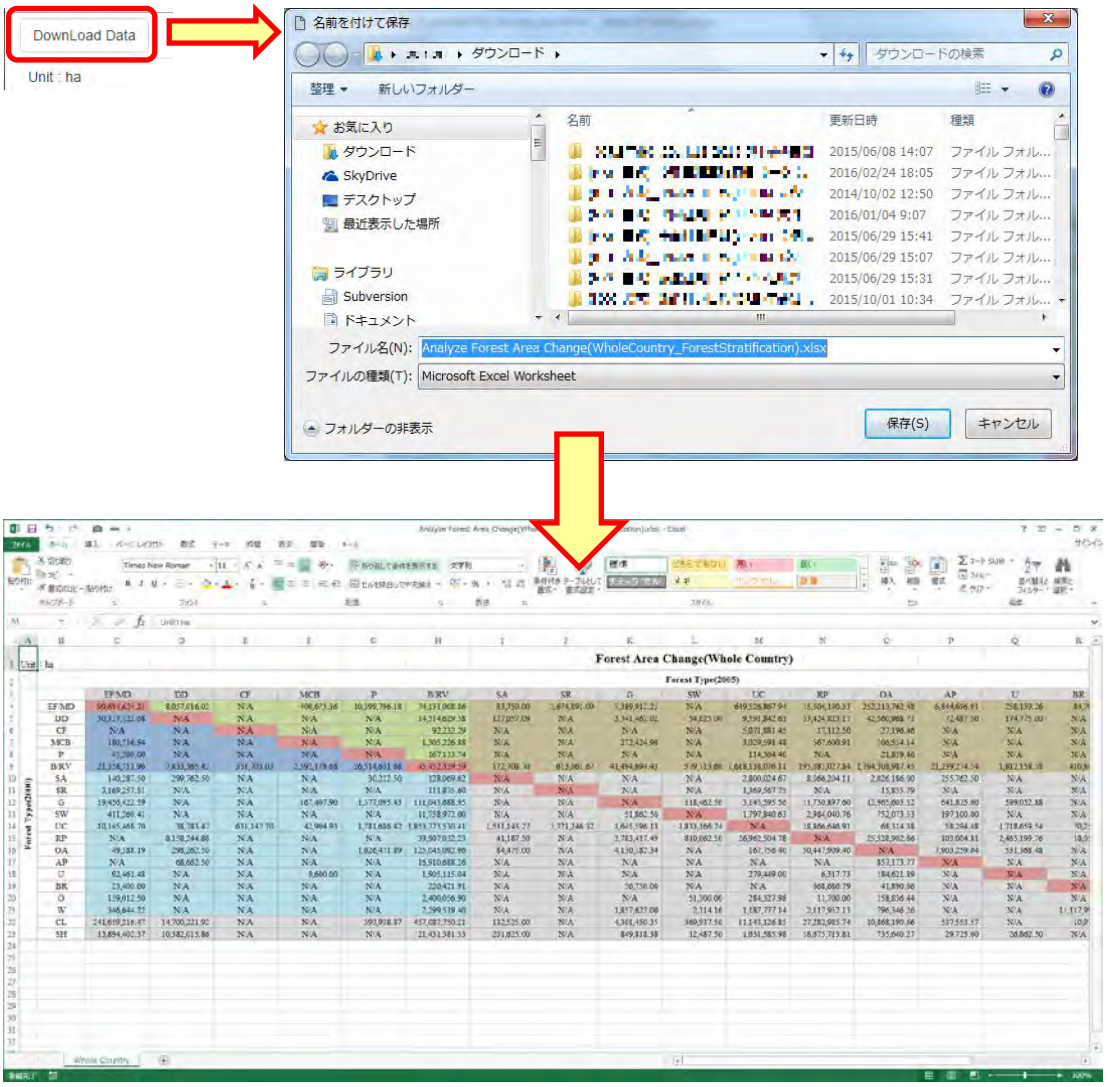


6. **【ຜົນຂອງການວິເຄາະ】**

.ຜົນຂອງການວິເຄາະຈະສະແດງດັ່ງຕາຕະລາງຂ້າງລຸ່ມນີ້:

7. **【ດາວໂຫຼດຜົນຂອງການວິເຄາະ】**

ຄລິກປຸ່ມ [ດາວໂຫຼດຂໍ້ມູນ] ເພື່ອດາວໂຫຼດຜົນຂອງການວິເຄາະ.



4.3 ປັດໄຈການປ່ອຍທາດອາຍພິດ

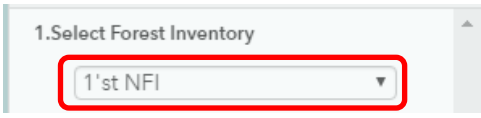
4.3.1 ວິເຄາະຄ່າສະເລ່ຍຂອງທາດກາກບອນ

ຜູ້ໃຊ້ສາມາດວິເຄາະຄ່າສະເລ່ຍຂອງທາດກາກບອນໂດຍປະຕິບັດຕາມເງື່ອນໄຂດັ່ງຂ້າງລຸ່ມນີ້.

ລດ.	ເງື່ອນໄຂໃນການວິເຄາະ	ໝາຍເຫດ
1	ເລືອກປະເພດການສຳຫຼວດ	ຜູ້ໃຊ້ສາມາດເລືອກປະເພດການສຳຫຼວດທີ່ຕ້ອງການຈະສະແດງຜົນ
2	ເລືອກປະເພດທີ່ຕ້ອງການສ້າງລວມ	ຜູ້ໃຊ້ສາມາດເລືອກປະເພດທີ່ຕ້ອງການສ້າງລວມ

1. **【ເລືອກປະເພດການສຳຫຼວດ】**

ຜູ້ໃຊ້ສາມາດເລືອກປະເພດການສຳຫຼວດທີ່ຕ້ອງການຈະສະແດງຜົນ

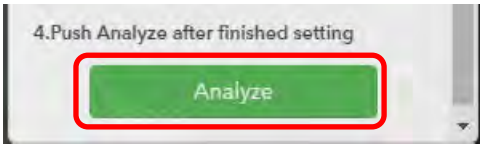


2. **【ລົງເລືກວິເຄາະພື້ນທີ່ຕາມປະເພດປ່າ】**

ຜູ້ໃຊ້ສາມາດວິເຄາະພື້ນທີ່ຕາມປະເພດປ່າ..
ສຳລັບລາຍລະອຽດແມ່ນຢູ່ໃສ່ຂໍ້ທີ "4.2.1ການວິເຄາະພື້ນທີ່ປ່າໄມ້".

3. **【ວິເຄາະ】**

ຄລິກປຸ່ມ [ວິເຄາະ] ເພື່ອດຳເນີນການວິເຄາະ.



4. **【ຜົນຂອງການວິເຄາະ】**

ຜົນຂອງການວິເຄາະຈະສະແດງດັ່ງຕາຕະລາງຂ້າງລຸ່ມນີ້:

DownLoad Data

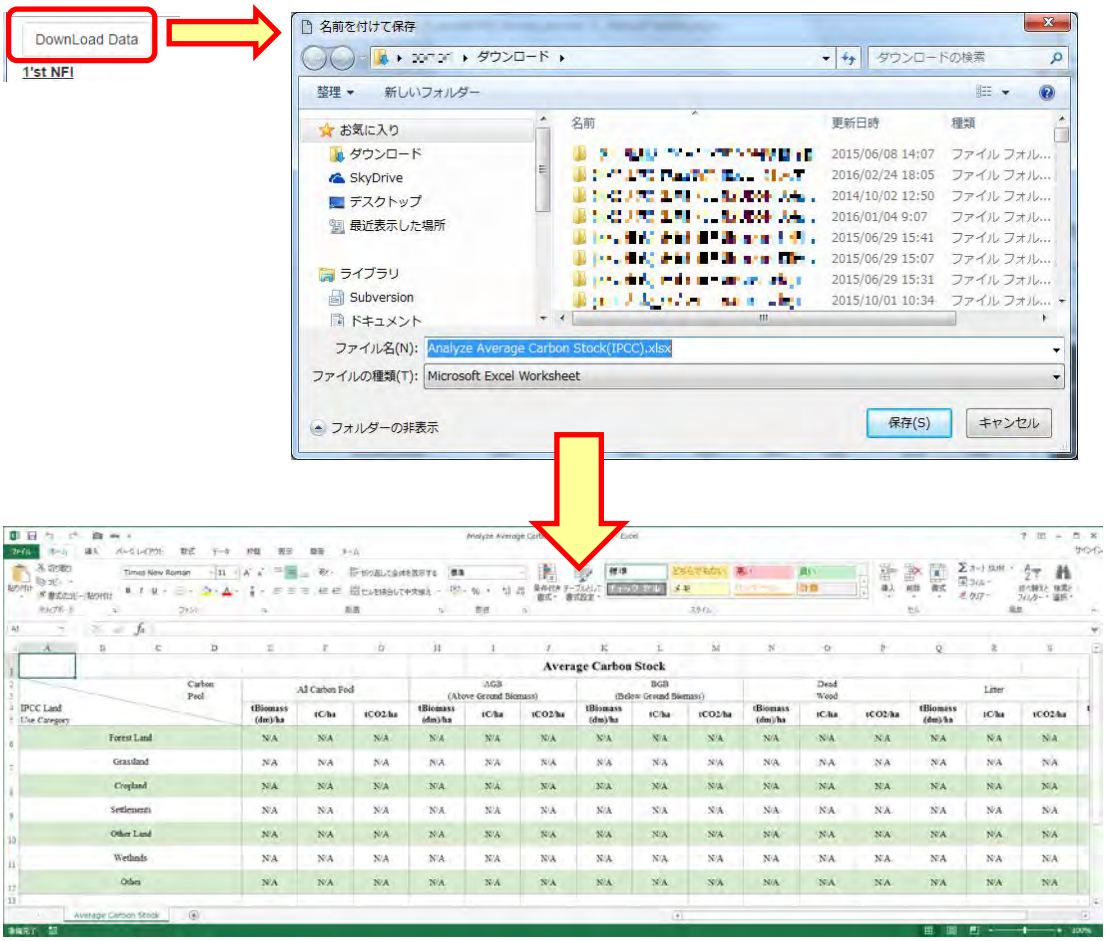
1'st NFI
This data is the result of the 1'st NFI.

Average Carbon Stock

IPCC Land Use Category	Carbon Pool	All Carbon Pool			AGB (Above Ground Biomass)			BGB (Below Ground Biomass)			Dead Wood			Litter			Soil		
		tBiomass (dm)/ha	tC/ha	tCO2/ha	tBiomass (dm)/ha	tC/ha	tCO2/ha	tBiomass (dm)/ha	tC/ha	tCO2/ha	tBiomass (dm)/ha	tC/ha	tCO2/ha	tBiomass (dm)/ha	tC/ha	tCO2/ha	tBiomass (dm)/ha	tC/ha	tCO2/ha
Forest Land		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grassland		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cropland		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Settlements		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other Land		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wetlands		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

5. **【ດາວໂຫຼດຜົນຂອງການວິເຄາະ】**

ຄລິກປຸ່ມ [ດາວໂຫຼດຂໍ້ມູນ] ເພື່ອດາວໂຫຼດຜົນຂອງການວິເຄາະ.



4.4 ທາດກາກບອນ, CO2

4.4.1 ປະລິມານຂອງທາດກາກບອນ/CO2

ຜູ້ໃຊ້ສາມາດວິເຄາະປະລິມານຂອງທາດກາຫບອນ/co2

ຂອງປ່າໄດ້ໂດຍປະຕິບັດຕາມເງື່ອນໄຂດັ່ງຂ້າງລຸ່ມນີ້.

ລດ.	ເງື່ອນໄຂໃນການວິເຄາະ	ໝາຍເຫດ
1	ເລືອກພື້ນທີ່	ຜູ້ໃຊ້ສາມາດເລືອກ"ທົ່ວປະເທດ" ຫຼື "ຂອງແຕ່ລະແຂວງ"
2	ລົງເລືກວິເຄາະພື້ນທີ່ຕາມປະເພດປ່າ	ຜູ້ໃຊ້ສາມາດວິເຄາະພື້ນທີ່ຕາມປະເພດປ່າ

3	ເລືອກປີຂອງແຜນທີ່	ຜູ້ໃຊ້ສາມາດເລືອກປີຂອງແຜນທີ່ປະເພດປ່າໄມ້
4	ເລືອກປັດໄຈການປ່ອຍທາດຂາຍ ພິດ	ຜູ້ໃຊ້ສາມາດເລືອກປະເພດການສຳຫຼວດທີ່ຕ້ອງ ການຈະສະແດງຜົນ
5	ເລືອກປະເພດທີ່ຕ້ອງການສັ່ງ ລວມ	ຜູ້ໃຊ້ສາມາດເລືອກປະເພດທີ່ຕ້ອງການສັ່ງລວມ

1. **【ເລືອກພື້ນທີ່】**

   ຜູ້ໃຊ້ສາມາດເລືອກພື້ນທີ່ຕ້ອງການຈະວິເຄາະ.
   ສຳລັບລາຍລະອຽດແມ່ນຢູ່ໃສ່ຂໍ້ທີ "4.2.1ການວິເຄາະພື້ນທີ່ປ່າໄມ້".

2. **【ລົງເລືກວິເຄາະພື້ນທີ່ຕາມປະເພດປ່າ】**

   ຜູ້ໃຊ້ສາມາດວິເຄາະພື້ນທີ່ຕາມປະເພດປ່າ..
   ສຳລັບລາຍລະອຽດແມ່ນຢູ່ໃສ່ຂໍ້ທີ "4.2.1ການວິເຄາະພື້ນທີ່ປ່າໄມ້".

3. **【ເລືອກປີຂອງແຜນທີ່】**

   ຜູ້ໃຊ້ສາມາດເລືອກປີຂອງແຜນທີ່ປະເພດປ່າໄມ້ທີ່ຕ້ອງການວິເຄາະໄດ້.

4. **【ເລືອກປັດໄຈການປ່ອຍທາດອາຍພິດ】**

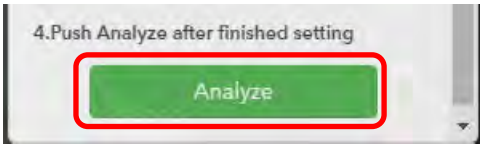
ຜູ້ໃຊ້ສາມາດເລືອກປະເພດການສຳຫຼວດທີ່ຕ້ອງການຈະສະແດງຜົນ

5. **【ເລືອກປະເພດທີ່ຕ້ອງການສັງລວມ】**

ເລືອກປະເພດທີ່ຕ້ອງການສັງລວມ
ສຳລັບລາຍລະອຽດແມ່ນຢູ່ໃສ່ຂໍ້ທີ "4.2.1ການວິເຄາະພື້ນທີ່ປ່າໄມ້".

6. **【ວິເຄາະ】**

.ຄລິກປຸ່ມ [ວິເຄາະ] ເພື່ອດຳເນີນການວິເຄາະ.



7. **【ຜົນຂອງການວິເຄາະ】**

ຜົນຂອງການວິເຄາະຈະສະແດງດັ່ງຕາຕະລາງຂ້າງລຸ່ມນີ້:

DownLoad Data

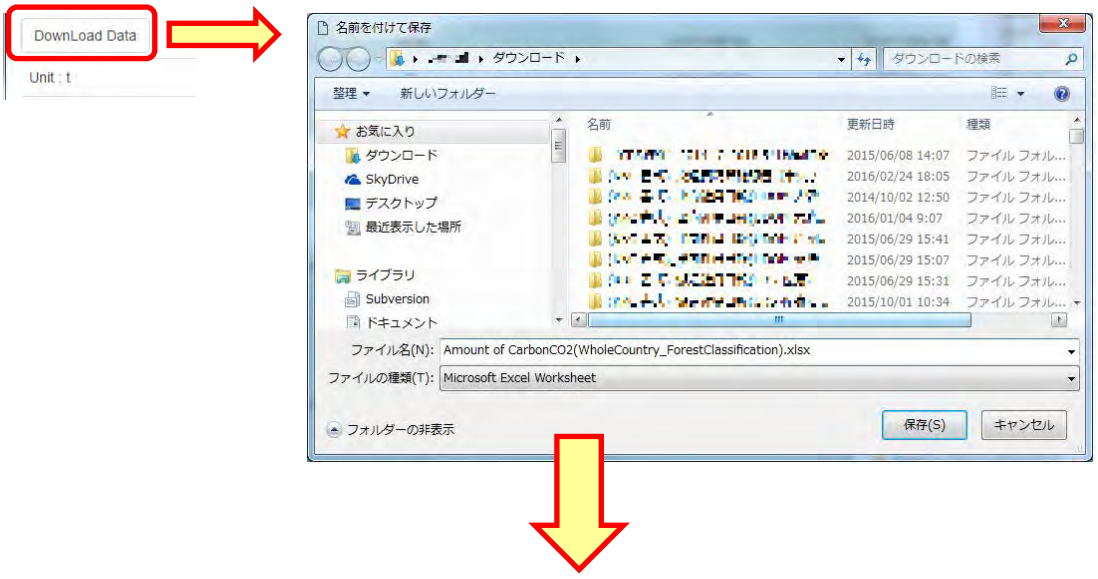
Unit : t

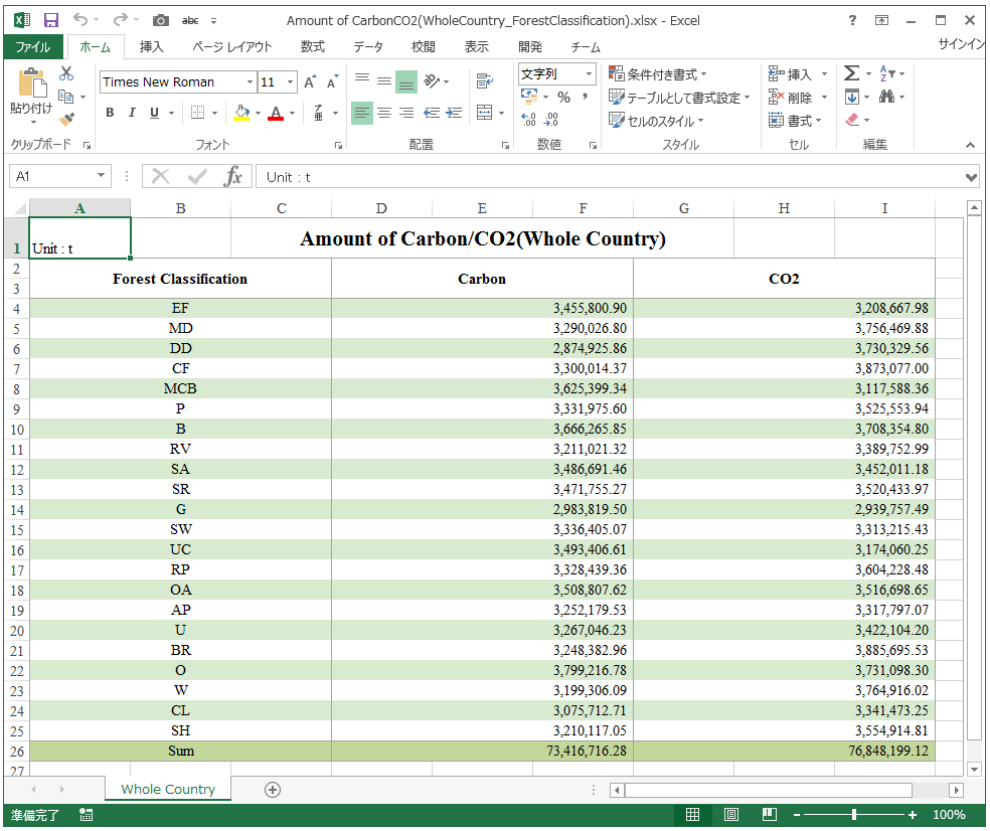
Amount of Carbon/CO2(Whole Country)

Forest Classification	Carbon	CO2
EF	3,455,800.90	3,208,667.98
MD	3,290,026.80	3,756,469.88
DD	2,874,925.86	3,730,329.56
CF	3,300,014.37	3,873,077.00
MCB	3,625,399.34	3,117,588.36
P	3,331,975.60	3,525,553.94
B	3,666,265.85	3,708,354.80
RV	3,211,021.32	3,389,752.99
SA	3,486,691.46	3,452,011.18
SR	3,471,755.27	3,520,433.97
G	2,983,819.50	2,939,757.49
SW	3,336,405.07	3,313,215.43
VC	3,493,406.61	3,174,060.25
RP	3,328,439.36	3,604,228.48
OA	3,508,807.62	3,516,698.65
AP	3,252,179.53	3,317,797.07
U	3,267,046.23	3,422,104.20
BR	3,248,382.96	3,885,695.53
O	3,799,216.78	3,731,098.30
W	3,199,306.09	3,784,916.02
CL	3,075,712.71	3,341,473.25
SH	3,210,117.05	3,554,914.81
Sum	73,416,716.28	76,848,199.12

8. **【ດາວໂຫຼດຜົນຂອງການວິເຄາະ】**

ຄລິກປຸ່ມ [ດາວໂຫຼດຂໍ້ມູນ] ເພື່ອດາວໂຫຼດຜົນຂອງການວິເຄາະ.





Unit : t

Amount of Carbon/CO2(Whole Country)

Forest Classification	Carbon	CO2
EF	3,455,800.90	3,208,667.98
MD	3,290,026.80	3,756,469.88
DD	2,874,925.86	3,730,329.56
CF	3,300,014.37	3,873,077.00
MCB	3,625,399.34	3,117,588.36
P	3,331,975.60	3,525,553.94
B	3,666,265.85	3,708,354.80
RV	3,211,021.32	3,389,752.99
SA	3,486,691.46	3,452,011.18
SR	3,471,755.27	3,520,433.97
G	2,983,819.50	2,939,757.49
SW	3,336,405.07	3,313,215.43
UC	3,493,406.61	3,174,060.25
RP	3,328,439.36	3,604,228.48
OA	3,508,807.62	3,516,698.65
AP	3,252,179.53	3,317,797.07
U	3,267,046.23	3,422,104.20
BR	3,248,382.96	3,885,695.53
O	3,799,216.78	3,731,098.30
W	3,199,306.09	3,764,916.02
CL	3,075,712.71	3,341,473.25
SH	3,210,117.05	3,554,914.81
Sum	73,416,716.28	76,848,199.12

4.4.2 ການປ່ຽນແປງຂອງທາດກາກບອນ.

ຜູ້ໃຊ້ສາມາດອົດເຄາະການປ່ຽນແປງຂອງທາດກາກບອນໄດ້ໂດຍປະຕິບັດຕາມເງື່ອນໄຂດັ່ງຂ້າງ

ລຸ່ມນີ້:

ລດ.	ເງື່ອນໄຂໃນການອົດເຄາະ	ໝາຍເຫດ
1	ເລືອກພື້ນທີ່	ຜູ້ໃຊ້ສາມາດເລືອກ"ທົ່ວປະເທດ" ຫຼື "ຂອງແຕ່ລະແຂວງ"
2	ລົງເລືກອົດເຄາະພື້ນທີ່ຕາມປະເພດປ່າ	ຜູ້ໃຊ້ສາມາດອົດເຄາະພື້ນທີ່ຕາມປະເພດປ່າ
3	ເລືອກປີຂອງແຜນທີ່	ຜູ້ໃຊ້ສາມາດເລືອກປີຂອງແຜນທີ່ປະເພດປ່າໄມ້
4	ເລືອກບັດໄຈການປ່ຽນທາດອາຍພົດ	ຜູ້ໃຊ້ສາມາດເລືອກປະເພດການສຳຫຼວດທີ່ຕ້ອງ ການຈະສະແດງຜົນ
5	ເລືອກປະເພດທີ່ຕ້ອງການສັງລວມ	ຜູ້ໃຊ້ສາມາດເລືອກປະເພດທີ່ຕ້ອງການສັງລວມ

1. **【ເລືອກພື້ນທີ່】**

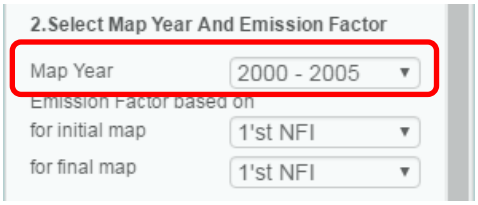
   ຜູ້ໃຊ້ສາມາດເລືອກພື້ນທີ່ຕ້ອງການຈະອົດເຄາະ.
   ສຳລັບລາຍລະອຽດແມ່ນຢູ່ໃສ່ຂໍ້ທີ "4.2.1ການອົດເຄາະພື້ນທີ່ປ່າໄມ້".

2. **【ລົງເລືກອົດເຄາະພື້ນທີ່ຕາມປະເພດປ່າ】**

   ຜູ້ໃຊ້ສາມາດອົດເຄາະພື້ນທີ່ຕາມປະເພດປ່າ..
   ສຳລັບລາຍລະອຽດແມ່ນຢູ່ໃສ່ຂໍ້ທີ "4.2.1ການອົດເຄາະພື້ນທີ່ປ່າໄມ້".

3. **【ເລືອກປີຂອງແຜນທີ່】**

   ຜູ້ໃຊ້ສາມາດເລືອກປີຂອງແຜນທີ່ປະເພດປ່າໄມ້ທີ່ຕ້ອງການອົດເຄາະໄດ້.


2.Select Map Year And Emission Factor
Map Year
2000 - 2005
Emission Factor based on
for initial map
1'st NFI
for final map
1'st NFI

4. **【ເລືອກປັດໄຈການປ່ອຍທາດອາຍພິດ】**

ຜູ້ໃຊ້ສາມາດເລືອກປະເພດການສຳຫຼວດທີ່ຕ້ອງການຈະສະແດງຜົນ

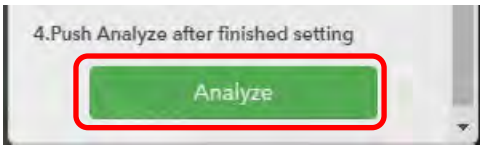
5. **【ເລືອກປະເພດທີ່ຕ້ອງການສ້າງລວມ】**

ເລືອກປະເພດທີ່ຕ້ອງການສ້າງລວມ

ສຳລັບລາຍລະອຽດແມ່ນຢູ່ໃສ່ຂໍ້ທີ "4.2.1ການວິເຄາະພື້ນທີ່ປ່າໄມ້".

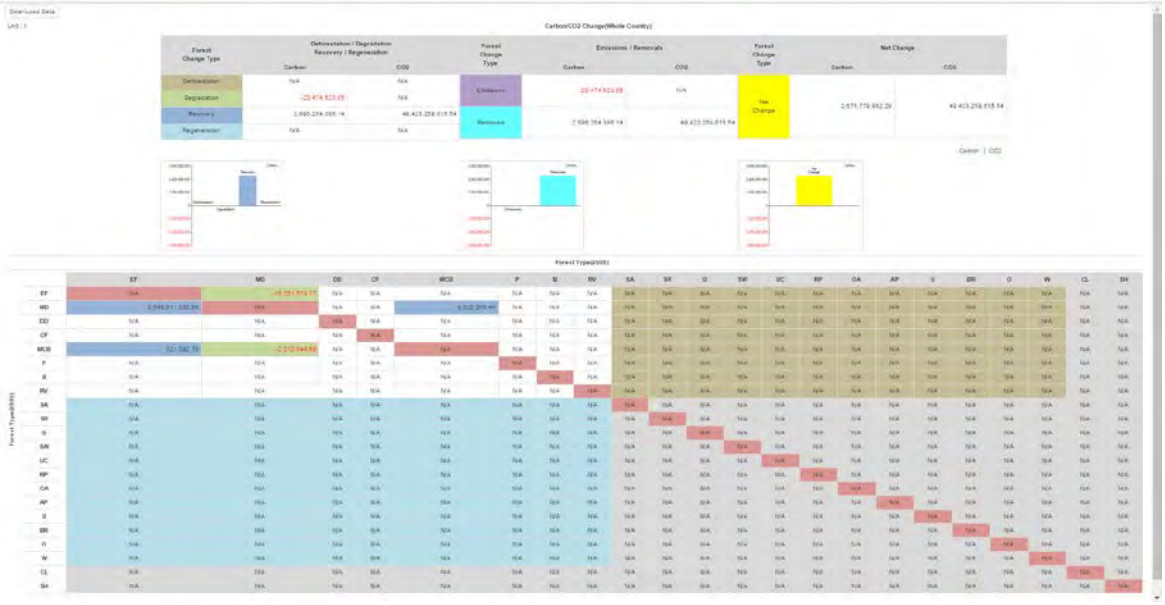
6. **【ວິເຄາະ】**

ຄລິກປຸ່ມ [ວິເຄາະ] ເພື່ອດຳເນີນການວິເຄາະ.



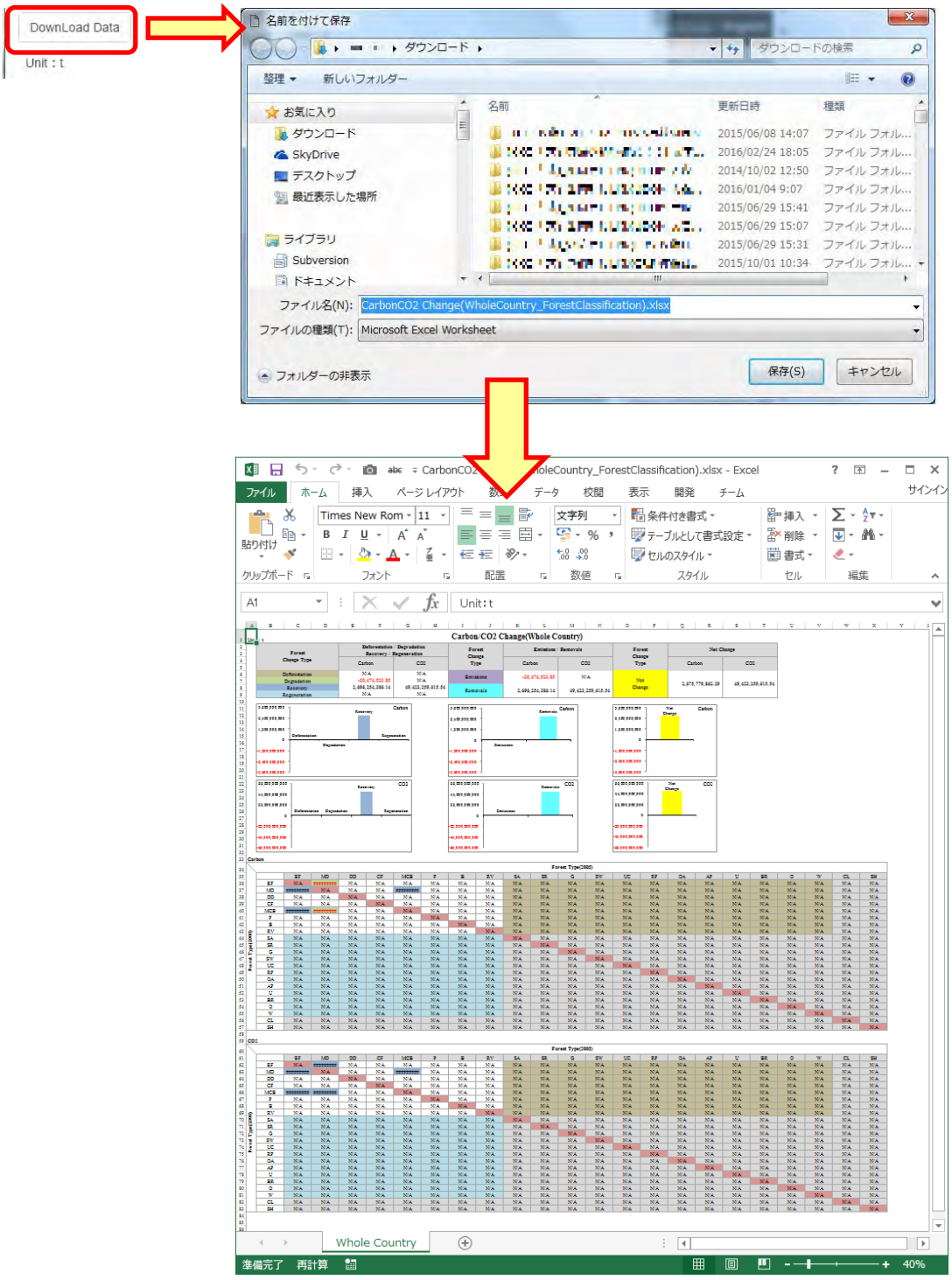
7. **【ຜົນຂອງການວິເຄາະ】**

ຜົນຂອງການວິເຄາະຈະສະແດງດັ່ງຕາຕະລາງຂ້າງລຸ່ມນີ້:



8. **【ດາວໂຫຼດຜົນຂອງການວິເຄາະ】**

[ດາວໂຫຼດຂໍ້ມູນ] ເພື່ອດາວໂຫຼດຜົນຂອງການວິເຄາະ.



Separate Volume

2-10 NFMS Data Installation Manual

NFMS (National Forest Monitoring System)
-Sustainable Forest Management and REDD+ Support Project-
Data Installation Manual

Ver.1.0

November 2017

Date Created	2017/7/5	NFMS(NationalForestMonitoringSystem)	NFMS Data Installation Manual	―
Date Updated	2017/12/14			
Version	Ver 1.0			

国際航業株式会社

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Update History

Date Created/Updated	Version	Person	Reasons for Update	Updated Part	Contents
2016/09/28	0.01	Hachyo			Newly created
2017/11/28	1.0	Kato			

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About notation of materials

This document follows the following notation rules.

Notation of control etc.

Controls and keyboard operations etc. are written as follows.

[ ] : Controls for buttons, combo boxes, menus, etc.
【 】 : Screens such as dialog, window, and panel
{ } : Key to enter with keyboard
○○○ : Parts to change for each application or by setting items

Tips and notes

Tips and notes etc. are notified by icons like the following.

- : Tips
- : Notes
- : Please refer to・・・

Other notes on manual notation

- Click operation of the mouse is distinguished from "left click" and "right click" by clicking button. However, when it is simply written as "click" it means "left click".
- "Context menu" indicates the menu displayed when right clicking with the mouse.

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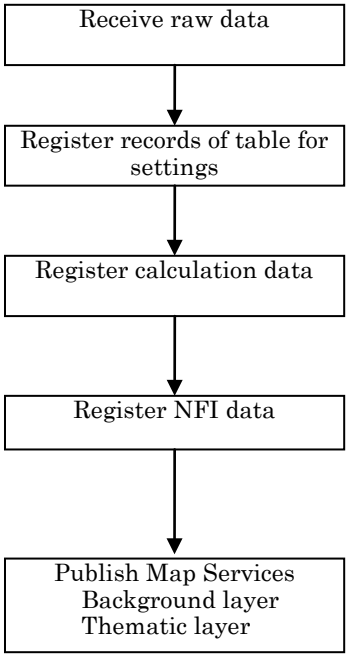
1.1. Data Installation Flow Chart



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1.2. Data Installation Procedure

1.2.1. Receive raw data

Category	Data Item	Data Type	Conditions for data to be installed
Forest Type Map (single year)	Forest Type map (YYYY)	Shapefile or Feature Class	・Name of shapefile or feature class is FTMYYYY*. YYYY is the year of Western calendar and represents a year of the data source. (Note: * can be any alphanumeric character). ・Field name of Forest Type Code is "FIXYYYY". ・We store one year's data in one folder or one feature data set.
Forest Type Map (comparison)	Forest Type Map (Comparison, YYYY2_YYYY1)	Shapefile or Feature Class	・Name of shapefile or feature class is ChangeYYYY 2 _ YYYY 1 * ・YYYY 2 is the year after change. YYYY 1 is the year before change. Represents the year (change) of the data source. (Note: * can be any alphanumeric character). ・The field name of the forest categorization change code is "ChangeYY 1 YY 2". YY1 represents the two digits of the year before the change. YY 2 represents the two digits of the year after change. ・One comparison data is stored in one folder and one feature data set.
Satellite Image	Satellite Image YYYY year (False Color)	Raster	・YYYY is a year. It represents year of data source.
	Satellite Image YYYY year (True Color)	Raster	・YYYY is a year. It represents year of data source.
Result of National Forest Inventory	1'st NFI (1991-1999)	Excel file	・Fill in the data in the format of "NFIOutputSettingSheetMaster.xls". When registering data in the DB, you can register the data by executing the SQL statement in the rightmost column.
Forest Administrative Category Map	Production Forest Area (PFA)	Feature Class	・The feature class name is PFAYYYYMMDD. YYYYMMDD is the year, month and day. It represents the date of the data source.
	Protection Area (PTA)	Feature Class	・The feature class name is PTAYYYYMMDD. YYYYMMDD is the year, month and day. It represents the date of the data source.
	Conservation Area (CSA)	Feature Class	・The feature class name is CSAYYYYMMDD. YYYYMMDD is the year, month and day. It represents the date of the data source.

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Administrative Boundary	Provincial administrative boundary	Feature Class	・The field name of the Province code is ″PCode″
	National administrative boundary	Feature Class	
	District administrative boundary	Feature Class	

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1.2.2. File list for data construction

NO	File Name	Purpose	Saved Location	Remarks
1	DDL.sql	1.2.3. Register records of table for settings	*DB is already restored in FIPD server so that this sql is not necessary anymore	Usage： Execute DDL in Microsoft SQL Server Management Studio2012
2	nfms_m_basemap.csv	1.2.3.1 で作成した設定系テーブルにデータのインポート用	...¥LAOSFOREST¥trunk¥docs¥20_基本設計¥DB 設計¥UDOM 様提供用テストデータ	使用順番：STEP2 Microsoft SQL Server Management Studio2012 で、テーブル名と csv ファイル名が同じであるテーブルに、csv ファイルをインポートします。インポートが完了した場合、設定系テーブルのレコードが登録されます。
3	nfms_m_carbon_pool.csv			
4	nfms_m_forest_area.csv			
5	nfms_m_forest_area_change_map_year.csv			
6	nfms_m_forest_classification.csv			
7	nfms_m_forest_inventory.csv			
8	nfms_m_forest_inventory_detail.csv			
9	nfms_m_forest_inventory_equation_used.csv			
10	nfms_m_forest_stratification.csv			
11	nfms_m_ipcc_land_use_category.csv			
12	nfms_m_layer_group.csv			
13	nfms_m_layers.csv			
14	nfms_m_map_year.csv			
15	nfms_m_province.csv			
16	nfms_m_rel_forest_classification_ipcc_definition.csv			
17	nfms_m_rel_forest_classification_stratification.csv			
18	nfms_m_user.csv			
19	nfms_t_forest_area.csv			
20	nfms_t_forest_area_change.csv			

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21	CalcForestAreaUnit.py	1.2.4.1 Creation of minimum forest area feature class (calculation table)	E:¥NFMS¥arcpy	Usage: Refer to 1.2.4.1
22	CalcForestAreaChangeUnit.py	1.2.4.2 Creation of minimum unit forest (comparative) area feature class (calculation table)	E:¥NFMS¥arcpy	Usage: Refer to 1.2.4.2
23	create_index.sql	Add index to ForestArea table and ForestAreaChange table registered in 1.2.4.3	E:¥NFMS¥ddl	Usage: Execute sql scripts in Microsoft SQL Server Management Studio2012
24	create_view.sql	Create View used for calculation in 1.2.4.3	E:¥NFMS¥ddl	Usage: Execute sql scripts in Microsoft SQL Server Management Studio2012

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1.2.3. Register records of table for settings

1.2.3.1 If there is no setting table, create setting tables

FIPD server has already had the setting table. Therefore 1.2.3 is not necessary to be conducted.

- In Microsoft SQL Server Management Studio2012, execute SQL DDL (DDL.sql) for setting table creation.
- In Microsoft SQL Server Management Studio2012, register the setting table record using the csv file of the setting table record.

1.2.3.2 Confirmation of consistency

- Make sure that values of the province master table (nfms_m_map_year) exactly matches values of the province code field ("PCode") of province's administrative boundary feature class (province)
- Confirm that map year of the map year master table (nfms_m_map_year) and map year (YYYY part) described in the Forest Type Map shapefile are completely identical.
- Make sure that the following two years are perfectly matched;
    1. Two map years (before and after the change) described in "nfms_m_forest_area_change_map_year", map year master table of forest categories (comparison)
    2. Two years listed in feature class name of forest categorization (comparison). Note that YYYY 2 _ YYYY 1: YYYY 2 is the map year after the change, YYYY 1 is the map year before the change
- Confirm that the forest type code (forest_classification_cd) of the forest type master table (nfms_m_forest_classification) and the forest class code of the forest type (single year) shapefile file are completely identical.
- Confirm that the forest type code (forest_classification_cd) of the forest type master table (nfms_m_forest_classification) is used for the first two digits and the last two digits of the forest categorization change code of the forest categorization (comparison) shapefile.

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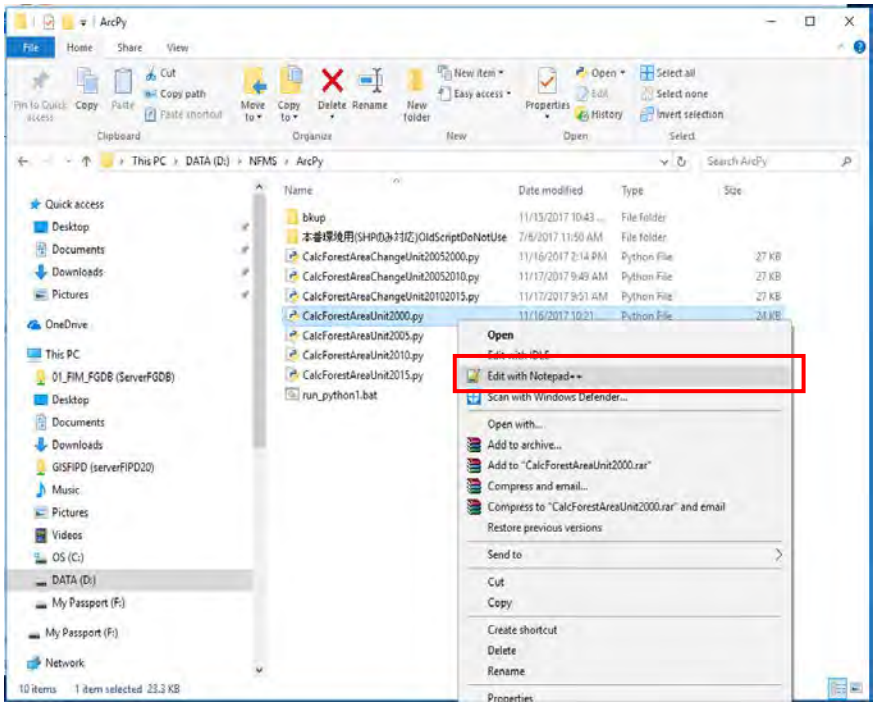
1.2.4. Register calculation data

1.2.4.1 Step1: Creation of minimum forest area feature class (calculation table)

Edit and execute the ArcPy (CalcForestAreaUnit.py) variable for creating the minimum unit forest area table (feature class) for one year. Change / specify the variable every year and execute the process. If you are going to calculate multiple years, run it one year at a time.

- How to execute:
  - Open the ArcPy file for data construction with a text editor.



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・Edit data path in an ArcPy script and save it (refer to the definition and change procedure of the variable in the next chapter).

D:\NFMS\ArcPy\CalcForestAreaUnit2000.py - Notepad++

File Edit Search View Encoding Language Settings Macro Run Plugins Window ?

CalcForestAreaUnit2000.py

```python
# -*- coding: utf-8 -*-
# ----------------------------

import arcpy,time,os,shutil,sys
from arcpy import env
from time import localtime,strftime

##################################################################################
###################Variable#######################################################

#variable local FGDB path(workspace, calculation space, save space,local)
FGDBpath = "D:\\NFMS\\tmp\\"

#variable FGDB name
FGDBname = "FTM2000arcpy.gdb"

#variable calculation space
Calculationpath = FGDBpath + "\\" + FGDBname

#variable SDE path
SDEpath = "C:\\Users\\keng\\AppData\\Roaming\\ESRI\\Desktop10.2\\ArcCatalog\\Connection to serverfipd4.sde"

#C:\\Users\\gakuminkato\\AppData\\Roaming\\ESRI\\Desktop10.1\\ArcCatalog\\Connection to S303303.sde

#variable 3Forest path(sde)
#PTA
PTApath = "C:\\Users\\keng\\AppData\\Roaming\\ESRI\\Desktop10.2\\ArcCatalog\\Connection to serverfipd4.sde\\geodblaos.DBO.Forest\\geodblaos.DBO.PTA20110203"
#CSA
CSApath = "C:\\Users\\keng\\AppData\\Roaming\\ESRI\\Desktop10.2\\ArcCatalog\\Connection to serverfipd4.sde\\geodblaos.DBO.Forest\\geodblaos.DBO.CSA20110203"
#PFA
PFApath = "C:\\Users\\keng\\AppData\\Roaming\\ESRI\\Desktop10.2\\ArcCatalog\\Connection to serverfipd4.sde\\geodblaos.DBO.Forest\\geodblaos.DBO.PFA20110203"

#variable country path
Countrypath = "D:\\NFMS\\MapFGDB\\Boundary.gdb\\Country"

#E:\\L_FREDD\\LAOS_GEODATA\\NFMS_SETUP_DATA\\FGDB\Boundary.gdb

#variable Forest path(harddisk)
SHPpath = "D:\\NFMS\\MapFGDB\\FTM_gdb\\FTM2000_v1.gdb\\FTM2000"

#E:\\L_FREDD\\LAOS_GEODATA\\NFMS_SETUP_DATA\\#SampleDataTraining\\02_Map\\FTM2000_v1

#variable province path
Provincepath = "D:\\NFMS\\MapFGDB\\Boundary.gdb\\Provinces"
###################Variable#######################################################
##################################################################################

#Start
```

Python file | length : 23924 lines : 657 | Ln : 1 Col : 1 Sel : 0 | 0 | Dos\Windows | UTF-8 | INS

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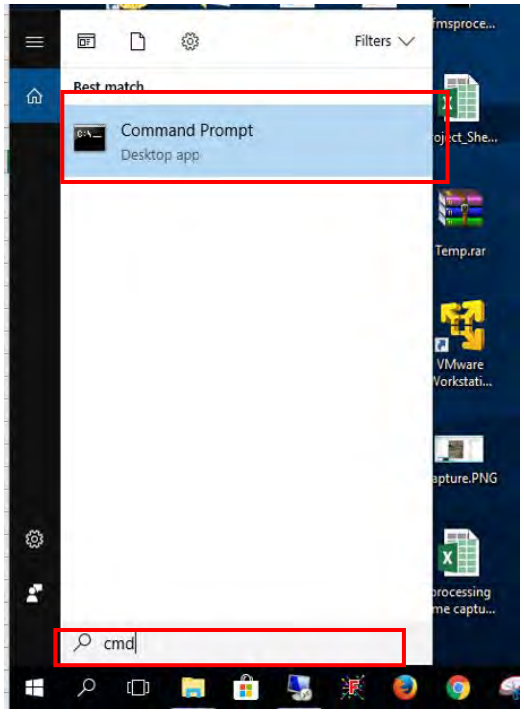
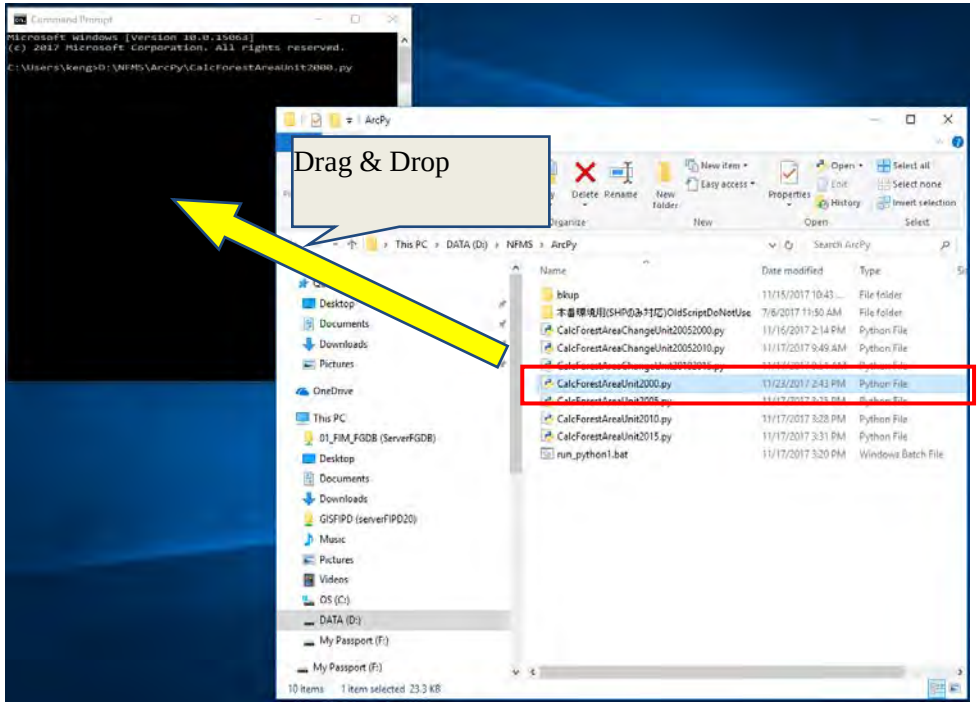
・Start【Command Prompt】(entering “cmd” at Search Window), drop the saved ArcPy file to【Command Prompt】and press the {Enter} key.





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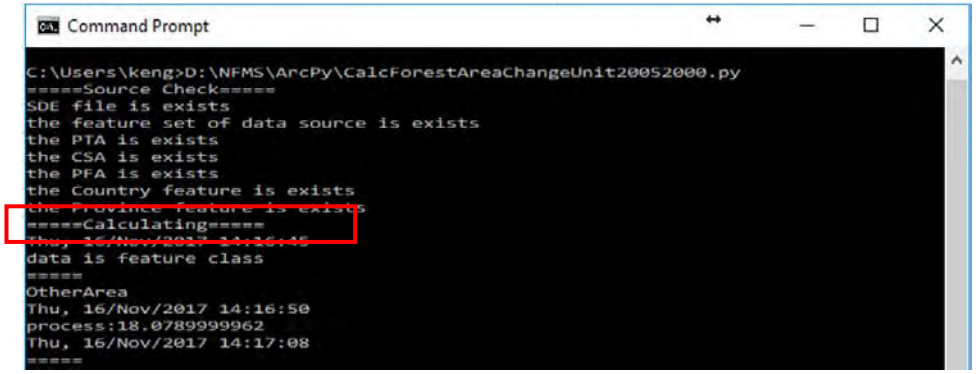
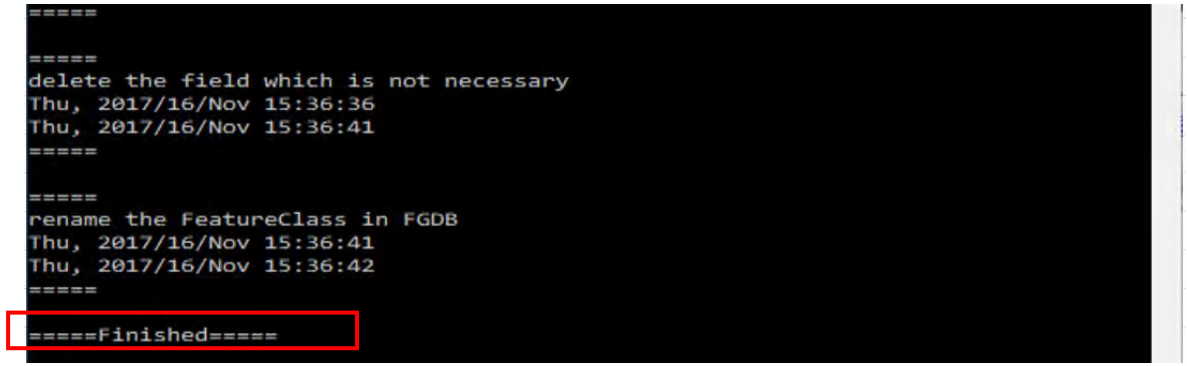
・When the cursor moves to the line below and displays "Calculating", ArcPy is running.



・When "Finished" is displayed at【Command Prompt】, ArcPy calculation is completed.



It usually takes roughly more than 5 hours to process one year of FTM data.

If memory is insufficient, registration processing of calculation data may throw "execution error"
(As of July 2017, it was confirmed in the environment of FIPD office that it threw an error in a machine installed 8GM RAM and it can be executed on a machine instaleed 16GB RAM.)

- Definition of variables and procedures to change variables
  Variables are defined in ArcPy (the part described as "#variable"). To change values of variables, refer to the table below (variable definition table 1).

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Variable Definition Table 1

Item	Variable name	Example of values of variables（Forest Type Map in 2000）	Remarks
Path for Forest Type	SHPpath	For shapefile："D:¥¥LAOS_GEODATA¥¥02_Map¥¥FTM2000" For Feature Class："D:¥¥LAOS_GEODATA¥¥02_Map.gdb¥¥FTM2000"	For shapefile, specify up to the folder of the forest type shapefile to be processed. For a feature class, specify up to feature dataset of FGDB.
Path for Protection Area (PTA) of Forest Administrative Category Map	PTApath	"C:¥¥Users¥¥admin¥¥AppData¥¥Roaming¥¥ESRI¥¥Desktop10.1¥¥ArcCatalog¥¥Connection to SERVER.sde¥¥geodblaos.DBO.Forest¥¥geodblaos.DBO.PTA20110203"	Unlike the path of the forest type shapefile, specify up to feature class name of Forest Administrative Category Map.
Path for Conservation Area (CSA) of Forest Administrative Category Map	CSApath	"C:¥¥Users¥¥admin¥¥AppData¥¥Roaming¥¥ESRI¥¥Desktop10.1¥¥ArcCatalog¥¥Connection to SERVER.sde¥¥geodblaos.DBO.Forest¥¥geodblaos.DBO.CSA20110203"	Specify a feature class name of Forest Administrative Category Map
Path for Production Forest Area（PFA）of Forest Administrative Category Map	PFApath	C:¥¥Users¥¥admin¥¥AppData¥¥Roaming¥¥ESRI¥¥Desktop10.1¥¥ArcCatalog¥¥Connection to SERVER.sde¥¥geodblaos.DBO.Forest¥¥geodblaos.DBO.PFA20110203	Unlike the path of the forest type shapefile, specify up to a feature class name of Forest Administrative Category Map.
Path for Country Feature Class	Countrypath	"D:¥¥LAOS_GEODATA¥¥99_Other¥¥LaoPDR_2010.gdb¥¥Country"	Specify path and feature class name of the Country feature class.
Path for Province Feature Class	Provincepath	D:¥¥LAOS_GEODATA¥¥99_Other¥¥LaoPDR_2010.gdb¥¥Provinces	Specify path and feature class name of the Province feature class.
Path for FGDB to store calculation data	FGDBpath	"C:¥¥Users¥¥admin¥¥Documents¥¥ArcGIS"	Specify path of the FGDB.

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Name of FGDB storing calculation data	FGDBname	″laosdata.gdb″	Specify the name of FGDB. It is necessary to add the extension ″.gdb″ after the name. If there is already an FGDB with the same name, the calculation will result in an error. Execute processes data every year
Path to store result of calculation	SDEpath	″C:¥¥Users¥¥admin¥¥AppData¥¥Roaming¥¥ESRI¥¥Desktop10.1¥¥ArcCatalog¥¥Connection to SERVER .sde″	Specify the path of the output database (SDE file)

- It is necessary to put two ″¥″. In case of only one, ArcPy calculation throws an error.
- PCs of FIPD, which is based on English keybord, show “¥” as “＼”.
- It is first confirmed whether or not necessary files exist. If the files do not exist, an error message is displayed during execution and the calculation is canceled. Check the error message, and check whether the file exists, whether the method of specifying the variable is correct, etc.

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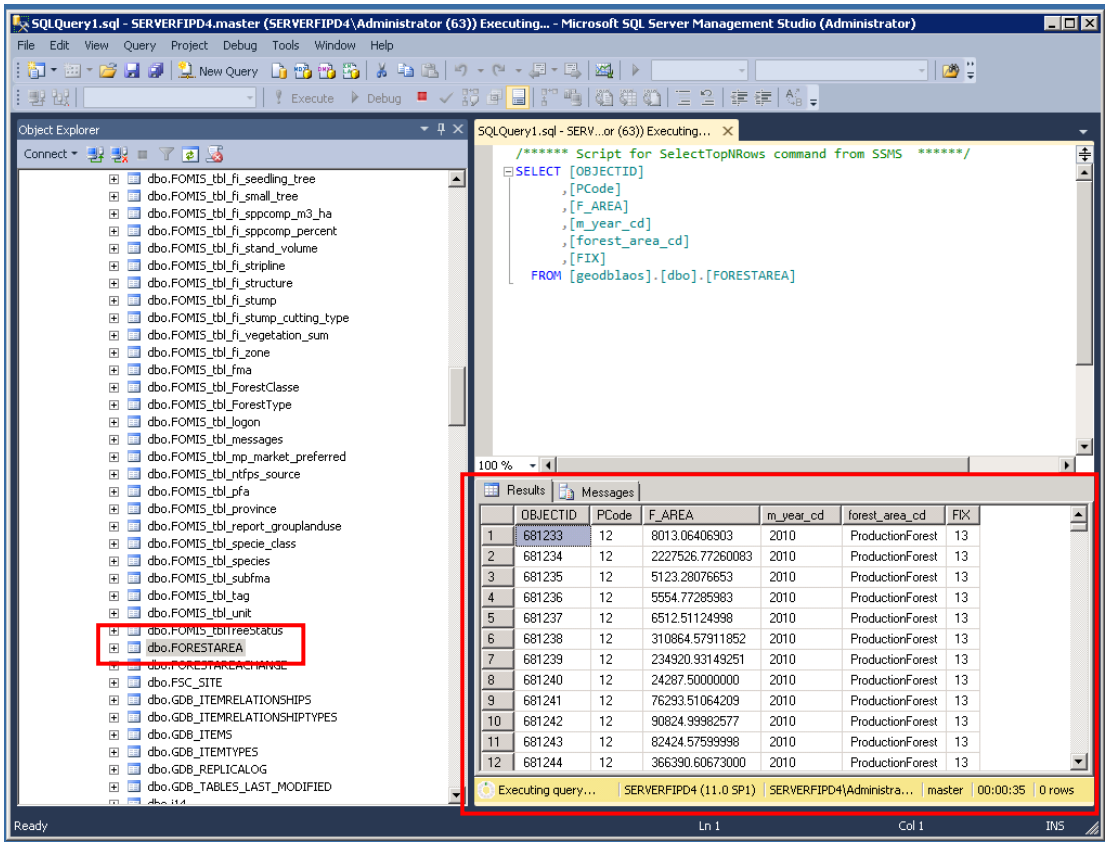
➢ Check results

Make sure the following table has been created in the database.

Table name：dbo.FORESTAREA



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1.2.4.2 Step2：Creation of minimum unit forest (comparative) area feature class (calculation table)

Edit variables of ArcPy (CalcForestAreaChangeUnit.py) and execute it for creating the minimum unit forest (comparative) area table (Feature Class) for one change. When creating the minimum unit forest (comparative) area table (feature class) for each year, specify variables and execute them one by one

- How to execute
  Same as Step1

If memory is insufficient, registration processing of calculation data may throw "execution error"
(As of July 2017, it was confirmed in the environment of FIPD office that it threw an error in a machine installed 8GM RAM and it can be executed on a machine instaleed 16GB RAM.)

- Definition of variables and procedures to change variables
  Variables are defined in ArcPy (the part described as #variable). To change values of variables, refer to the table below (variable definition table 2).

Variable Definition Table 2

Item	Variable name	Example of values of variables (Forest Type Map Change between in 2000 and 2005)	Remarks
Path for Forest categorization (Comparison)	SHPpath	For shapefile："D:¥¥LAOS_GEODATA¥¥02_Map¥¥Change2005_2000" For Feature Class： "D:¥¥LAOS_GEODATA¥¥02_Map.gdb¥¥Change2005_2000"	For shapefile, specify up to the folder of the forest type shapefile (comparison) to be processed. For a feature class, specify up to feature dataset of FGDB
Path for Protection Area (PTA) of Forest Administrative Category Map	PTApath	"C:¥¥Users¥¥admin¥¥AppData¥¥Roaming¥¥ESRI¥¥Desktop10.1¥¥ArcCatalog¥¥Connection to SERVER .sde¥¥geodblaos.DBO.Forest¥¥geodblaos.DBO.PTA20110203"	Unlike the path of the forest type shapefile, specify up to the feature class name of Forest Administrative Category Map.
Path for Conservation Area (CSA) of Forest Administrative Category Map	CSApath	"C:¥¥Users¥¥admin¥¥AppData¥¥Roaming¥¥ESRI¥¥Desktop10.1¥¥ArcCatalog¥¥Connection to SERVER (.sde¥¥geodblaos.DBO.Forest¥¥geodblaos.DBO.CSA20110203"	Specify the feature class name of Forest Administrative Category Map.

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Path for Production Forest Area（PFA）of Forest Administrative Category Map	PFApath	C:¥¥Users¥¥admin¥¥AppData¥¥Roaming¥¥ESRI¥¥Desktop10.1¥¥ArcCatalog¥¥Connection to SERVER.sde¥¥geodblaos.DBO.Forest¥¥geodblaos.DBO.PFA20110203	Unlike the path of the forest type shapefile, specify up to the feature class name of Forest Administrative Category Map
Path for Country Feature Class	Countrypath	″D:¥¥LAOS_GEODATA¥¥99_Other¥¥LaoPDR_2010.gdb¥¥Country″	Specify path and feature class name of the Country feature class.
Path for Province Feature Class	Provincepath	D:¥¥LAOS_GEODATA¥¥99_Other¥¥LaoPDR_2010.gdb¥¥Provinces	Specify path and feature class name of the Province feature class.
Path for FGDB to store calculation data	FGDBpath	″C:¥¥Users¥¥admin¥¥Documents¥¥ArcGIS″	Please specify path of the FGDB.
Name of FGDB to store calculation data	FGDBname	″laosdata.gdb″	Specify the name of FGDB. It is necessary to add the extension ″.gdb″ after the name. If there is already an FGDB with the same name, the calculation will result in an error. Execute processing data every year
Path to store result of calculation	SDEpath	″C:¥¥Users¥¥admin¥¥AppData¥¥Roaming¥¥ESRI¥¥Desktop10.1¥¥ArcCatalog¥¥Connection to SERVER.sde″	Specify the path of the output database (SDE file)

- It is necessary to put two ″¥″. In case of only one, ArcPy calculation throws an error.
- PCs of FIPD, which is based on English keybord, show “¥” as “＼”.
- It is first confirmed whether or not necessary files exist. If the files do not exist, an error message is displayed during execution and the calculation is canceled. Check the error message, and check whether the file exist, whether the method of specifying the variable is correct, etc.

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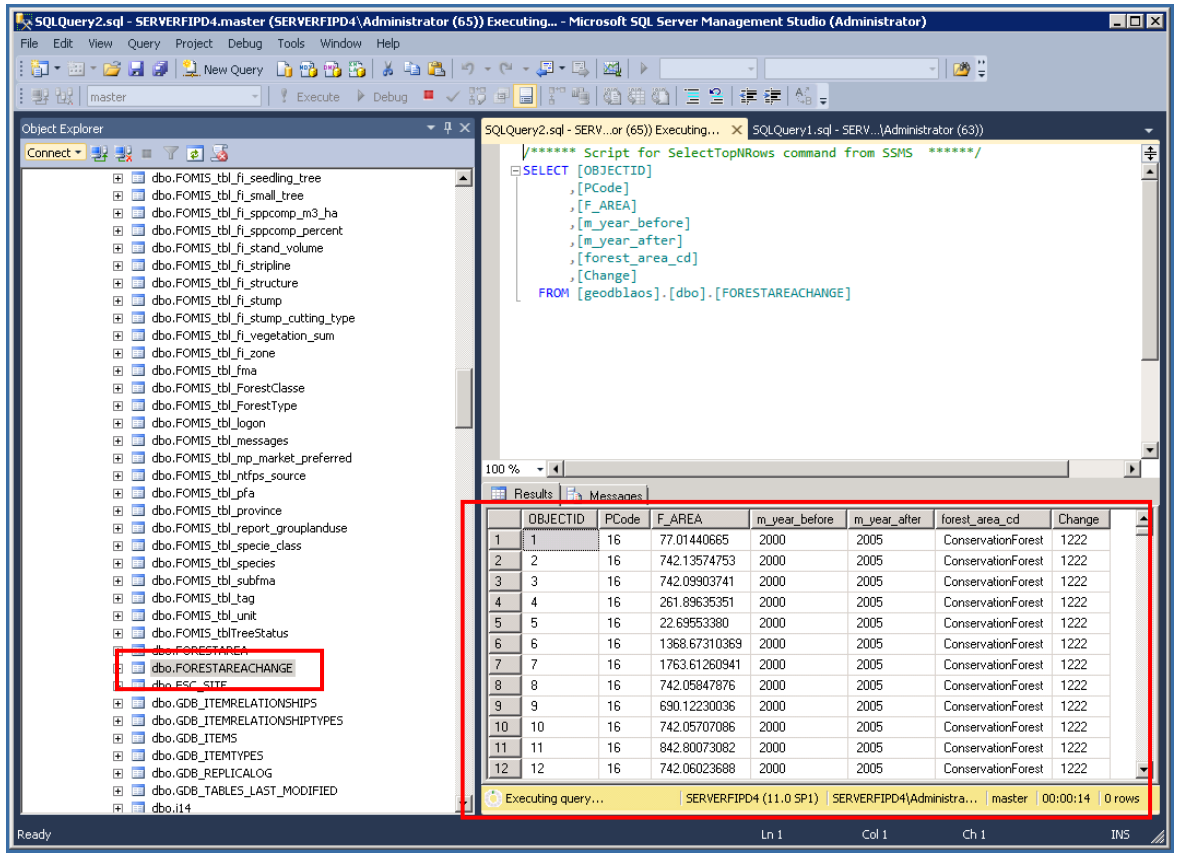
➢ Check results

Make sure the following table has been created in the database.

Table name：dbo.FORESTAREACHANGE



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Reference：Check registerd tables for calclation

For the values in tables ForestArea and ForestAreaChange, it is assumed that there are 8 cases, as shown in the table below.

Case #	Forest Type Code(FIX) / Forest Type Change Code(Change)	Province code (PCode)	Forest Administrative Category code (forest_area_cd)	Remarks
1	Except “0”	Except null character	A (Available)	
2	Except “0”	Except null character	N/A	Since Forest Administrative Category (CSA, PFA, PTA, OtherArea) are included in the whole area of Country, it is assumed that this case does not exist.
3	Except “0”	null character	A	Currently this case does not exist.
4	Except “0”	null character	N/A	Since Forest Administrative Category (CSA, PFA, PTA, OtherArea) are included in the whole area of Country, it is assumed that this case does not exist.
5	”0”	Except null character	A	
6	”0”	Except null character	N/A	Since Forest Administrative Category (CSA, PFA, PTA, OtherArea) are included in the whole area of Country, it is assumed that this case does not exist.
7	”0”	null character	A	
8	”0”	null character	N/A	Since Forest Administrative Category (CSA, PFA, PTA, OtherArea) are included in the whole area of Country, it is assumed that this case does not exist.

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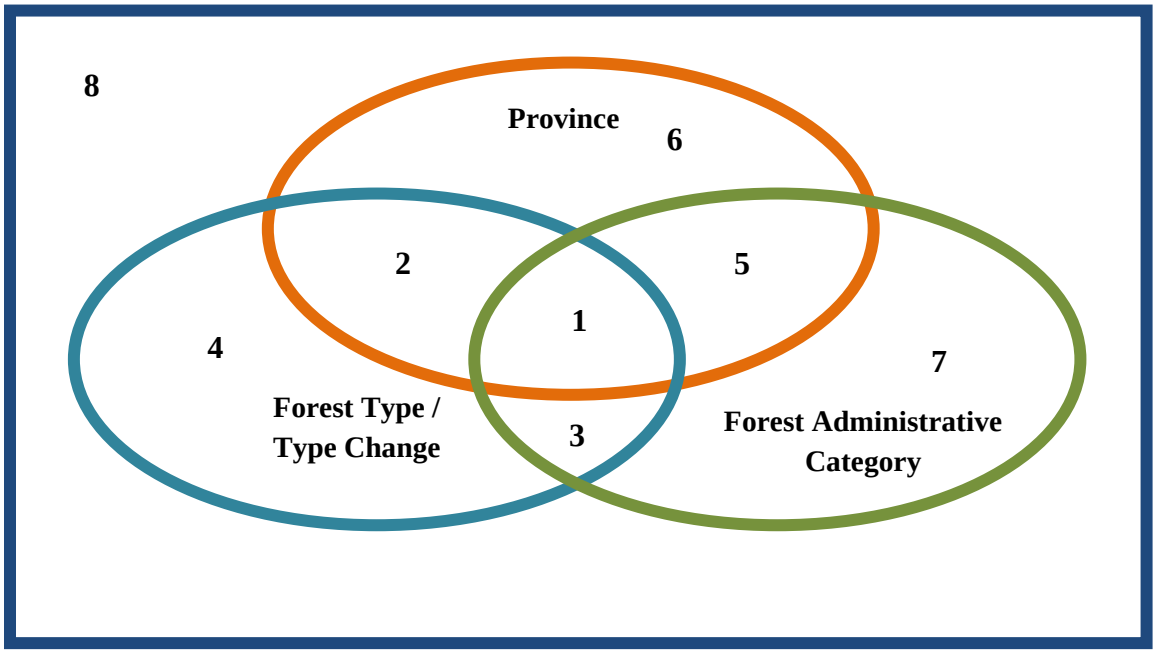
The following figure represents the above eight cases. The judgment of each case is processed by View.



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Since the table imported into the database is an SDE table, it does not have any information about geometry. If you want to check both values and attributes, check the following tables in FGDB specified by ArcPy with ArcMap (see FGDB path and FGDB name in Variable Definition Table 1 and 2). FGDB will not be deleted automatically, so delete it manually.

- Forest area minimum unit for each year (FGDB)
  CSAFTM_YYYY_Calc (Province × YYYY of Forest Type × Union of CSA)
  PTAFTM_YYYY_Calc (Province × YYYY of Forest Type × Union of PTA)
  PFAFTM_YYYY_Calc (Province × YYYY of Forest Type × Union of PFA)
  OtherFTM_YYYY_Calc (Province × YYYY of Forest Type × Union of area except Forest Administrative Category)
- Minimum unit of forest area change by years (FGDB)
  CSAChangeYYYY2_YYYY1_Calc (Province × YYYY2_YYYY1 of Forest Type Change × Union of CSA)
  PTAChangeYYYY2_YYYY1_Calc (Province × YYYY2_YYYY1 of Forest Type Change × Union of PTA)
  PFAChangeYYYY2_YYYY1_Calc (Province × YYYY2_YYYY1 of Forest Type Change × Union of PFA)
  OtherChangeYYYY2_YYYY1_Calc (Province × YYYY2_YYYY1 of Forest Type Change × Union of area except Forest Administrative Category)

YYYY is a year of the map.
YYYY 1 is a year of the map before change.
YYYY 2 is a year of the map after the change.
These tables do not include the fields and values of map year, map year (before change), map year (after change) and Forest Administrative Category code.

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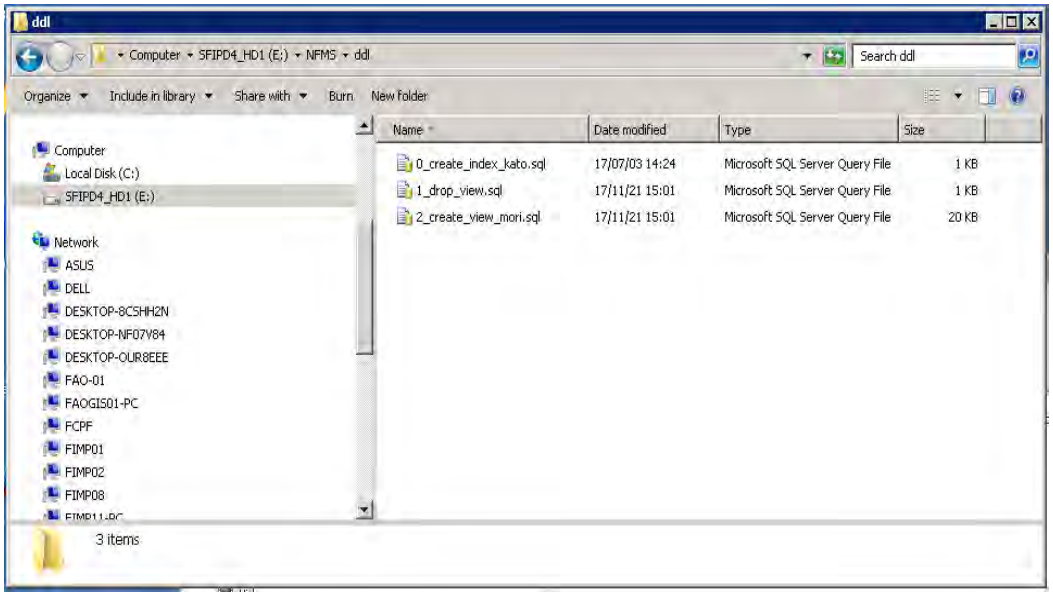
1.2.4.3 Calculation from the registered calculation table

- Execute the following sql scripts everytime ArcPy is executed and two tables “dbo.FORESTAREA” and ” dbo.FORESTAREACHANGE” are updated.
- The scripts are saved in the following directory at serverfipd4.
  - E:¥NFMS¥ddl.



- Add Index to the registered calculation tables ForestArea and ForestAreaChange

  Execute “0_create_index_kato.sql” used for adding Index at SQL Server Management Studio.

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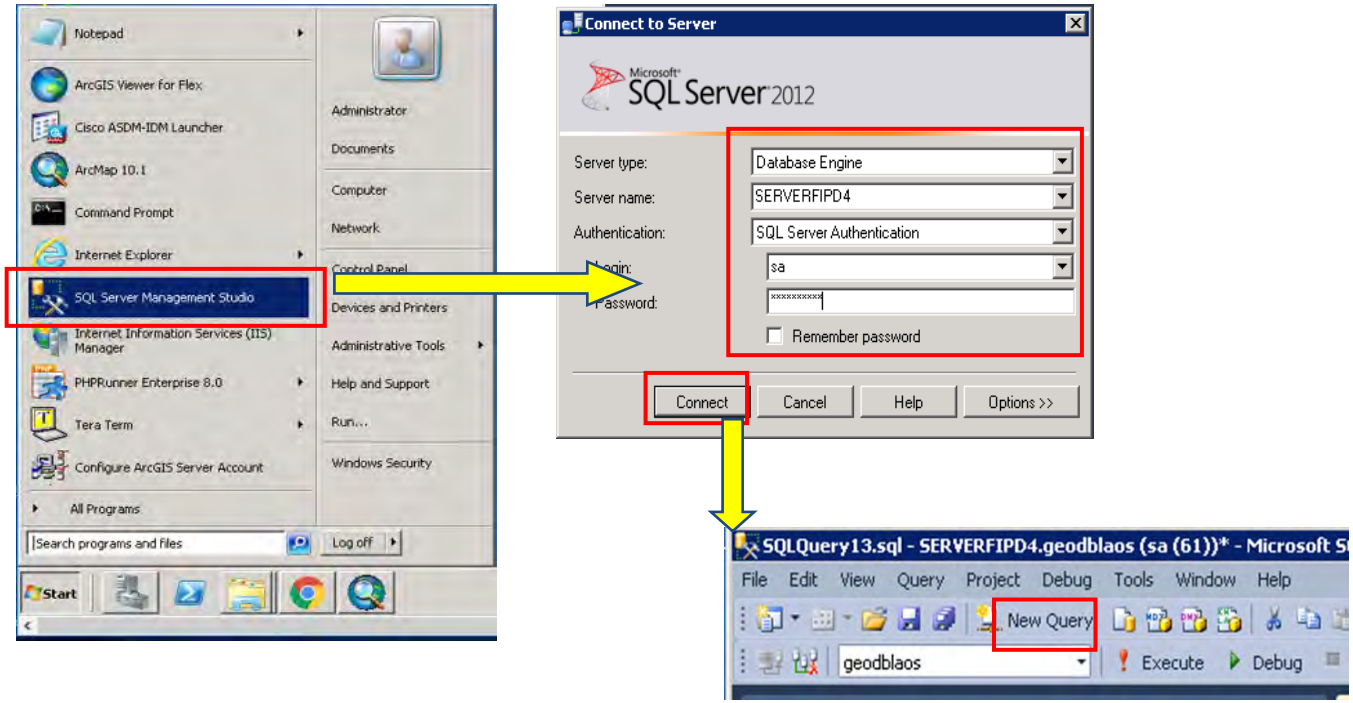
: Start Microsoft SQL Server Management Studio, login to a server, and click [New Query]



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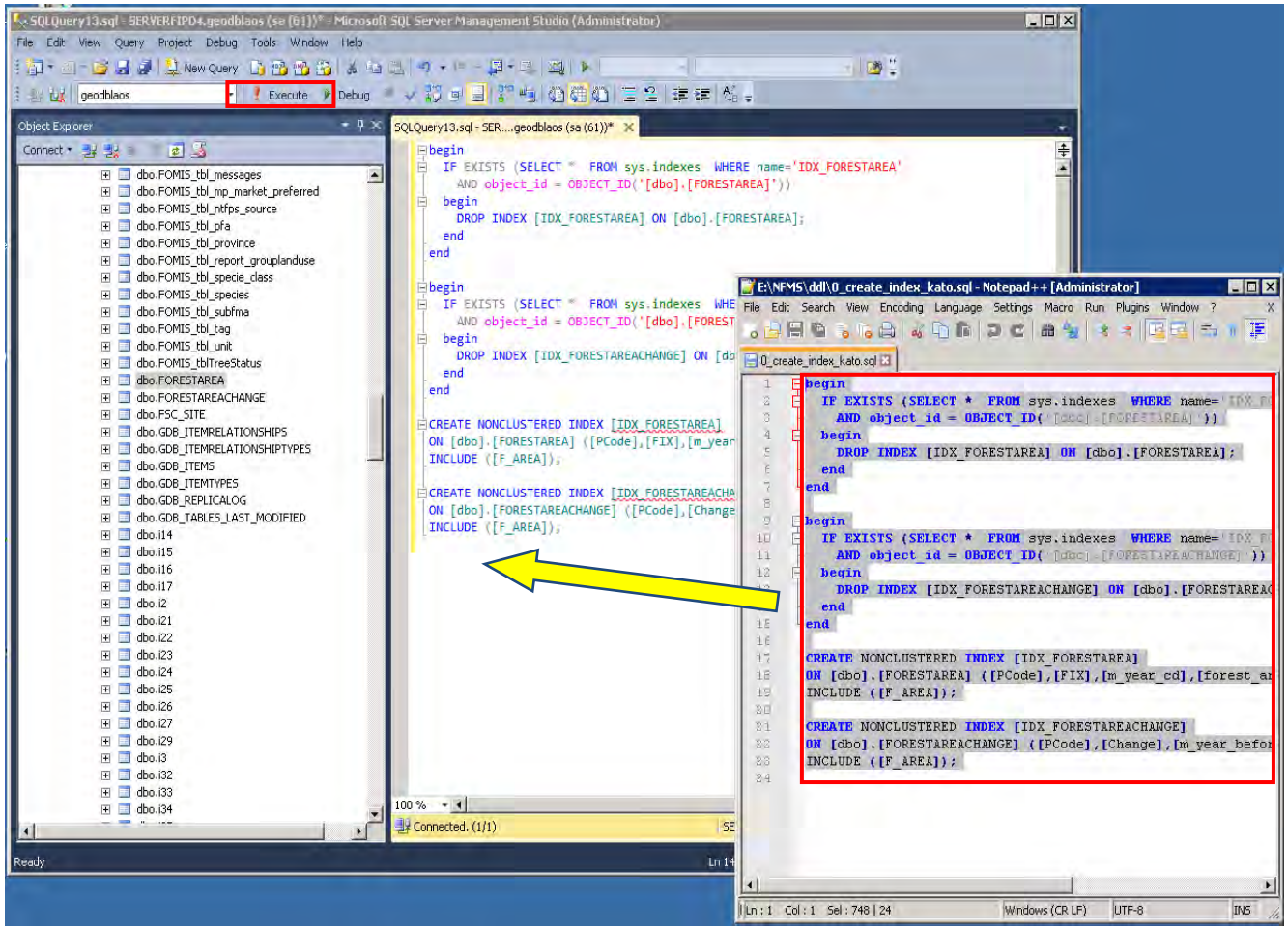
: Open “0_create_index_kato.sql” with a text editor, e.g. Notepad++, copy all scripts, and paste them in the new Query window. Then click [Execute] to run the scripts.



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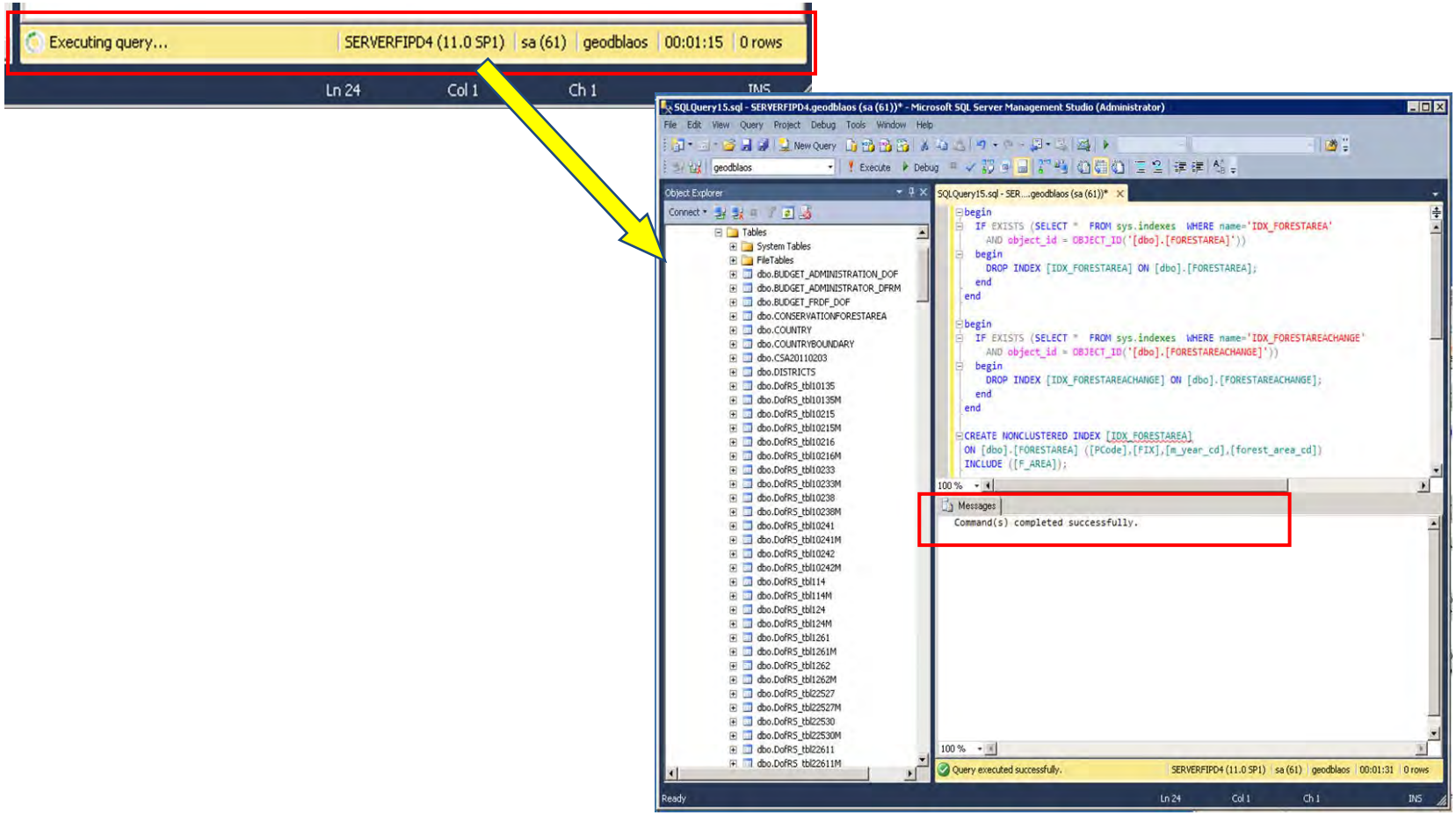
: Once the following window and message show up, processing is finished.



- Create View for calculation

  Execute “1_drop_view.sql” and “2_create_view_mori.sql”

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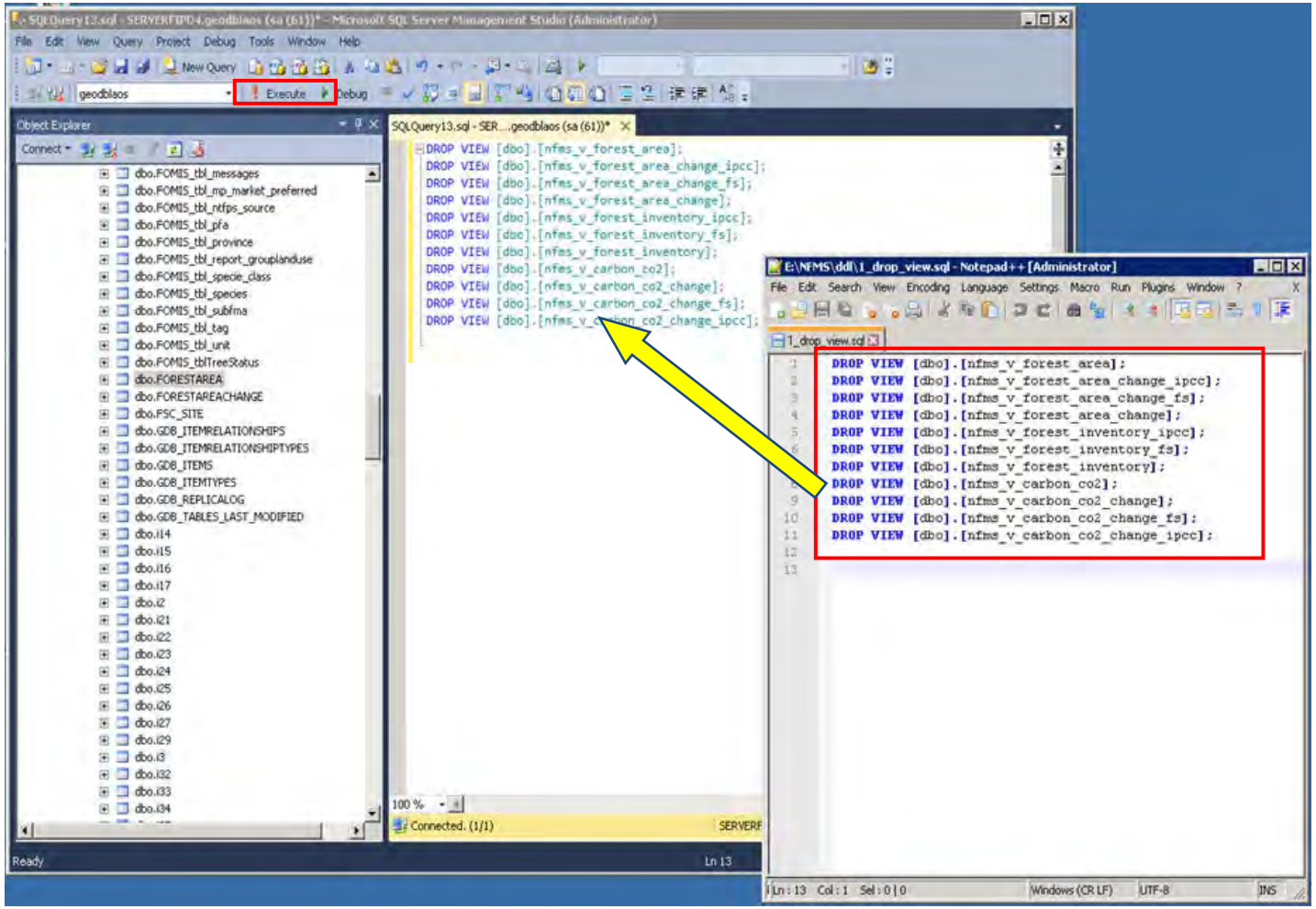
: Open “1_drop_view.sql” with a text editor, e.g. Notepad++, copy all scripts, and paste them in the new Query window. Then click [Execute] to run the scripts.



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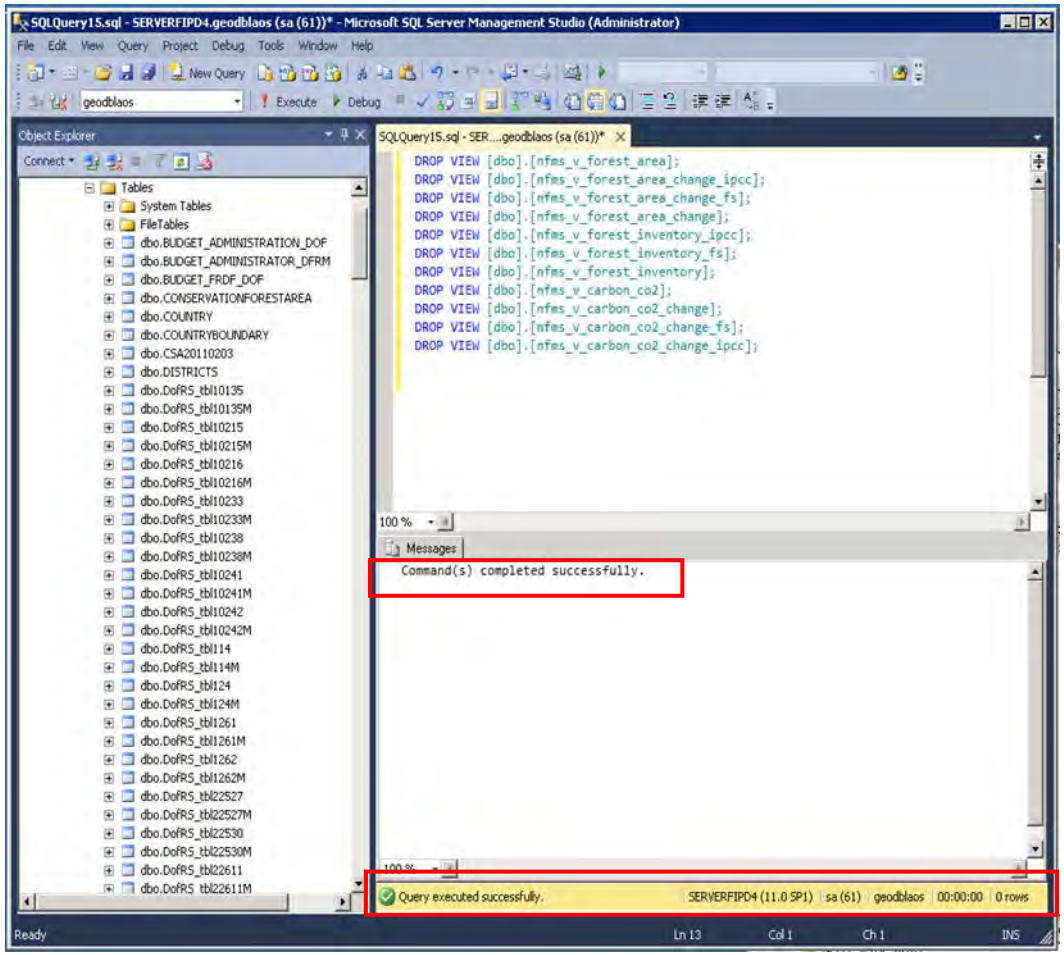
: Once the following window and message show up, processing is finished.



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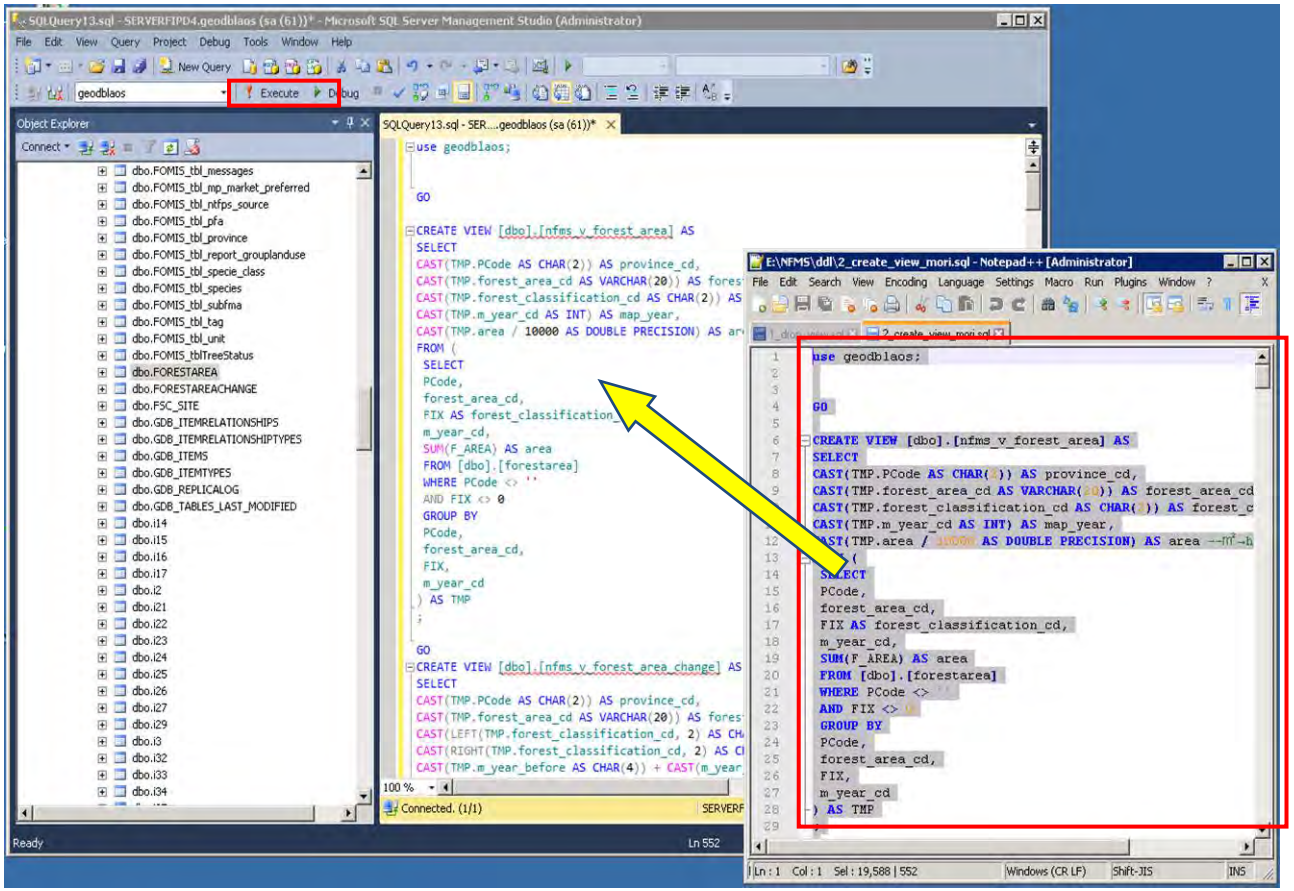
: Open “2_create_view_mori.sql” with a text editor, e.g. Notepad++, copy all scripts, and paste them in the new Query window. Then click [Execute] to run the scripts.



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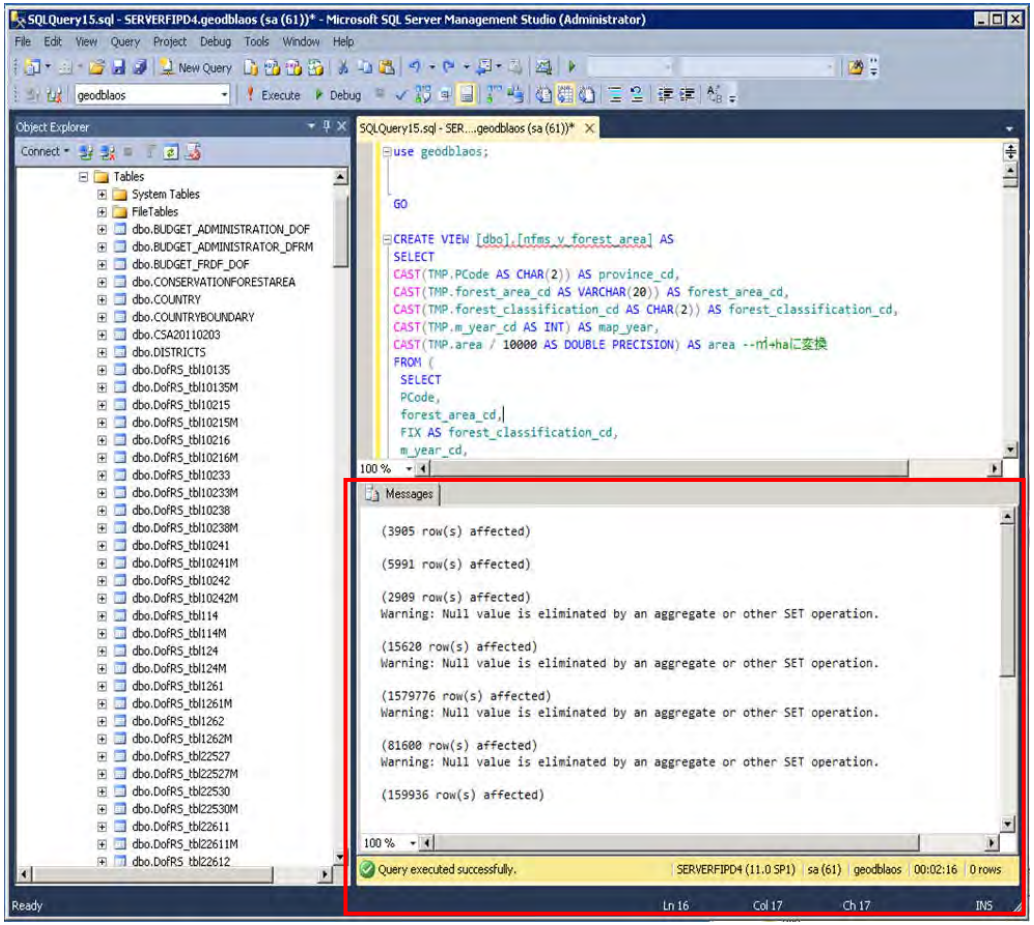
: Once the following window and message show up, processing is finished.



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1.2.5. Register NFI data

"NFIOutputSettingSheetMaster.xls" contains tables which NFI data producer should fill in. By filling the tables, SQL scripts are to be generated automatically. System administrator of NFMS can update NFI data in DB by executing the scripts in SQL Server. System administrator of NFMS should ask NFI data procucer to prepare data with the formart of "NFIOutputSettingSheetMaster.xls"

- "nfms_m_forest_inventory" sheet of "NFIOutputSettingSheetMaster.xls"

Through filling a table of this sheet, SQL script for inserting rows for table "nfms_m_forest_inventory" of geodblaos.

forest_inventory_cd has to be set correctly for SQL script of "nfms_m_forest_inventory_detail"

forest_inventory_cd*	forest_inventory_name	forest_inventory_name_lao	description	description_lao	disp_order	DML
NFI_2nd	2'nd NFI	2'nd NFI	Result of the 2'nd NFI.	Result of the 2'nd NFI.	1	insert into nfms_m_forest_inventory values('NFI_2nd','2"nd NFI','2"nd NFI','Result of the 2"nd NFI.','Result of the 2"nd NFI.',1);

NFI_1st or NFI_2nd

Shown in NFMS user interface

Shown in NFMS user interface

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➢ “forest_inventory_equation_used” sheet of “NFIOutputSettingSheetMaster.xls”

Through filling a table of this sheet, SQL script for inserting rows for table “forest_inventory_equation_used” of geodblaos is generated.

Update table “forest_inventory_equation_used” of geodblaos by using this table only when new equasions are applied.

forest_inventory_cd*	forest_classification_cd*	equation_used	equation_used_lao	DML
NFI_2nd	11	2nd NFI_Lao original AE	2nd NFI_Lao original AE	insert into nfms_m_forest_inventory_equation_used values('NFI_2nd','11','2nd NFI_Lao original AE','2nd NFI_Lao original AE');
NFI_2nd	12	2nd NFI_Lao original AE	2nd NFI_Lao original AE	insert into nfms_m_forest_inventory_equation_used values('NFI_2nd','12','2nd NFI_Lao original AE','2nd NFI_Lao original AE');
NFI_2nd	13	2nd NFI_Lao original AE	2nd NFI_Lao original AE	insert into nfms_m_forest_inventory_equation_used values('NFI_2nd','13','2nd NFI_Lao original AE','2nd NFI_Lao original AE');
NFI_2nd	14	2nd NFI_Vietnam AE	2nd NFI_Vietnam AE	insert into nfms_m_forest_inventory_equation_used values('NFI_2nd','14','2nd NFI_Vietnam AE','2nd NFI_Vietnam AE');
NFI_2nd	15	2nd NFI_Vietnam AE	2nd NFI_Vietnam AE	insert into nfms_m_forest_inventory_equation_used values('NFI_2nd','15','2nd NFI_Vietnam AE','2nd NFI_Vietnam AE');
NFI_2nd	16	GPG GL(2003) Anx_3A_1_Data_Tables(Other species)	GPG GL(2003) Anx_3A_1_Data_Tables(Other species)	insert into nfms_m_forest_inventory_equation_used values('NFI_2nd','16','GPG GL(2003) Anx_3A_1_Data_Tables(Other species)','GPG GL(2003) Anx_3A_1_Data_Tables(Other species)');
NFI_2nd	21	Vietnam modeified REL report	Vietnam modeified REL report	insert into nfms_m_forest_inventory_equation_used values('NFI_2nd','21','Vietnam modeified REL report','Vietnam modeified REL report');
NFI_2nd	22	RV survey	RV survey	insert into nfms_m_forest_inventory_equation_used values('NFI_2nd','22','RV survey','RV survey');
NFI_2nd	31	IPCC EF DB 513130	IPCC EF DB 513130	insert into nfms_m_forest_inventory_equation_used values('NFI_2nd','31','IPCC EF DB 513130','IPCC EF DB 513130');
NFI_2nd	32	2006 IPCC guideline V4 Chp4 Table4.7	2006 IPCC guideline V4 Chp4 Table4.7	insert into nfms_m_forest_inventory_equation_used values('NFI_2nd','32','2006 IPCC guideline V4 Chp4 Table4.7','2006 IPCC guideline V4 Chp4 Table4.7');
NFI_2nd	41	LUCF Sector Good Practice Guidance P3.109 Table3.4.2	LUCF Sector Good Practice Guidance P3.109 Table3.4.2	insert into nfms_m_forest_inventory_equation_used values('NFI_2nd','41','LUCF Sector Good Practice Guidance P3.109 Table3.4.2','LUCF Sector Good Practice Guidance P3.109 Table3.4.2');
NFI_2nd	42			insert into nfms_m_forest_inventory_equation_used values('NFI_2nd','42','-');

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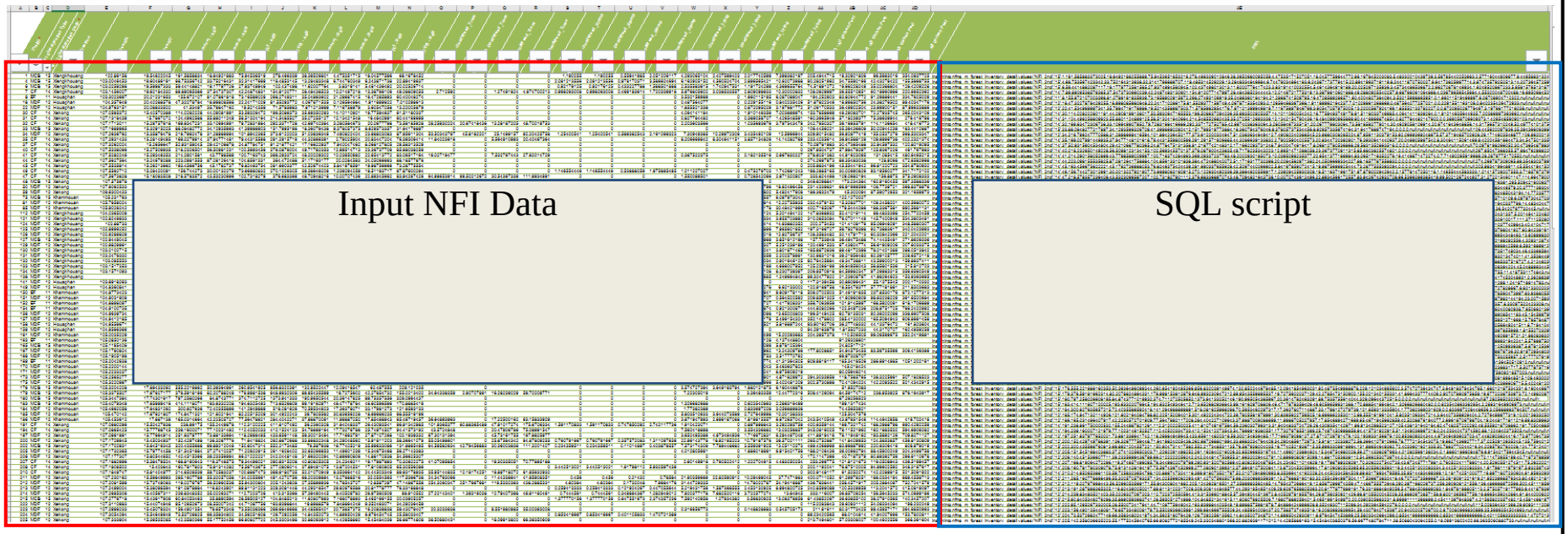
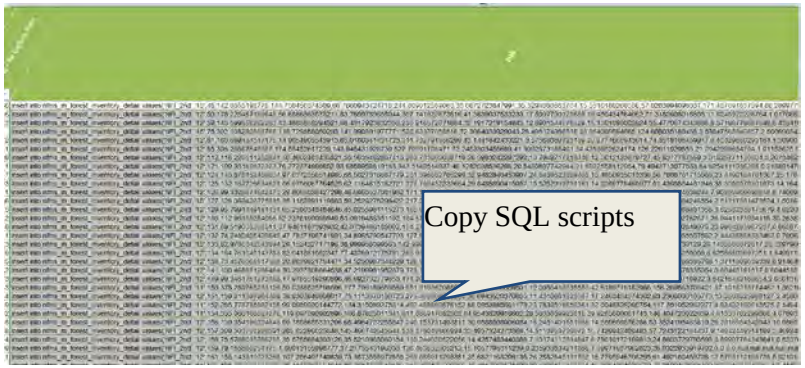
➢ “nfms_m_forest_inventory_detail” sheet of “NFIOutputSettingSheetMaster.xls”

Through filling a table of this sheet, SQL script for inserting rows for table “forest_inventory_equation_used” of geodblaos.is generated.





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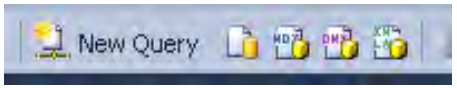
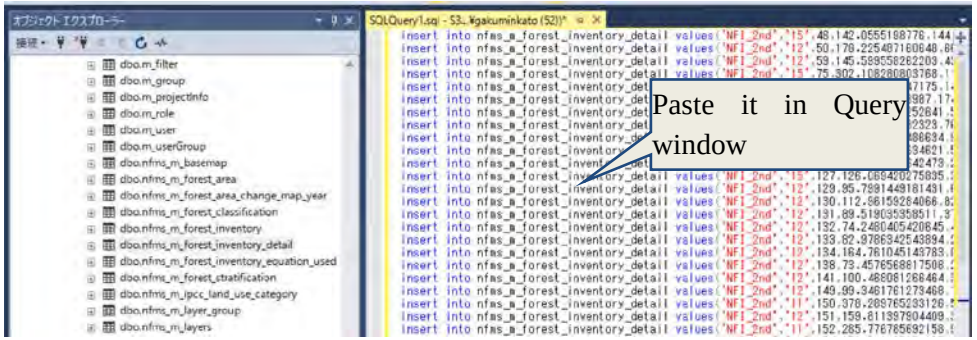
If you want to replace the exisitng NFI data, you have to delete the exising data in “nfms_m_forest_inventory_detail”table **BEFORE** inserting new data.

Open a new query window



Paste it in the query window



Execute the query

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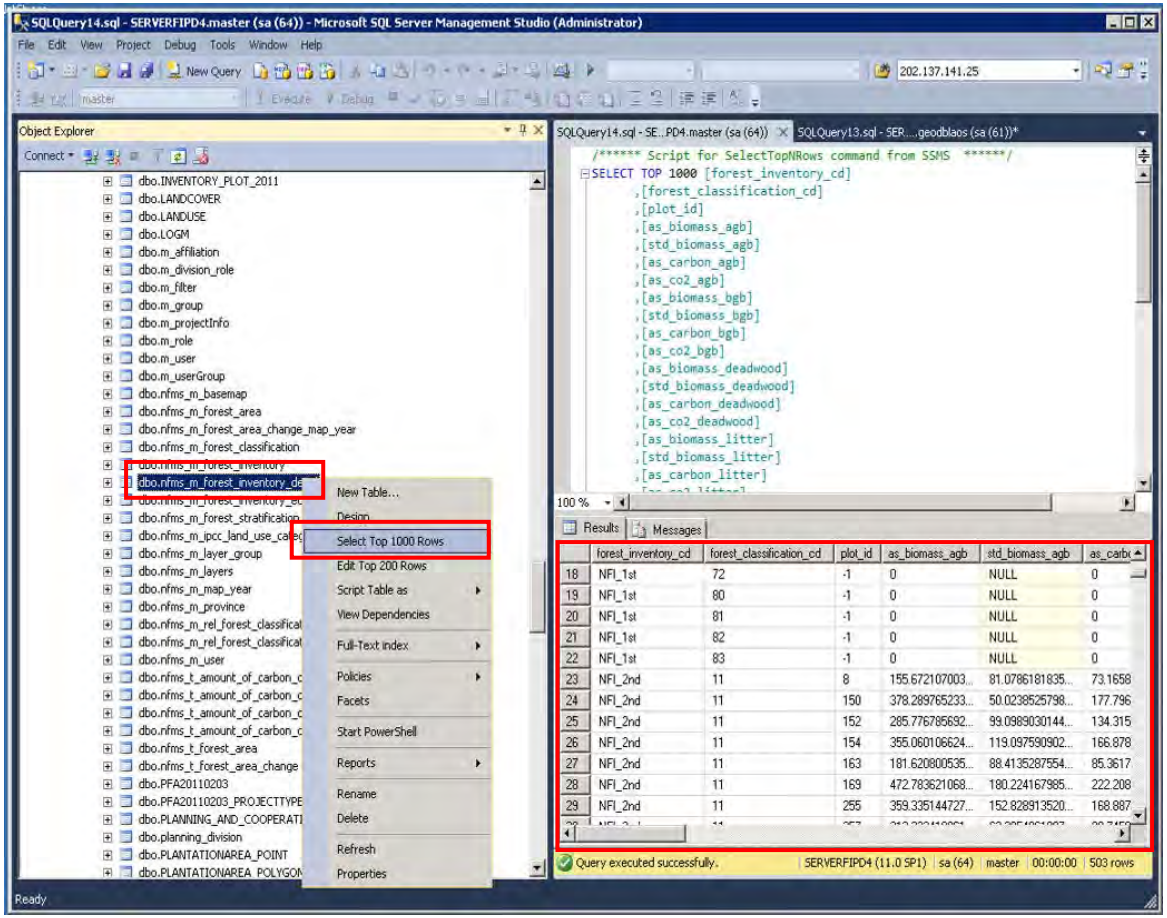
Check at “nfms_m_forest_inventory_detail”table



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1.2.6. Overview of Map Services used for NFMS

The following table shows a list of services currently used in NFMS.

No	Group	Service Name	Service Type	Purpose	Corresponding MXD	Scale for Cache	Remarks
1	Data Set-up	NFMS¥ForestCover_2000	Map Service	Create cached map tiles for thematic layers	setup_mxd¥ForestCover_2000.mxd	6-15	
2		NFMS¥ForestCover_2005	Map Service	Create cached map tiles for thematic layers	setup_mxd¥ForestCover_2005.mxd	6-15	
3		NFMS¥ForestCover_2010	Map Service	Create cached map tiles for thematic layers	setup_mxd¥ForestCover_2010.mxd	6-15	
		NFMS¥ForestCover_2015	Map Service	Create cached map tiles for thematic layers	setup_mxd¥ForestCover_2015.mxd	6-15	
4		NFMS¥ForestChange2000_2005	Map Service	Create cached map tiles for thematic layers	setup_mxd¥ForestChange2000_2005.mxd	6-11	Vector data is drawn over zoom level 12
5		NFMS¥ForestChange2005_2010	Map Service	Create cached map tiles for thematic layers	setup_mxd¥ForestChange2005_2010.mxd	6-11	Vector data is drawn over zoom level 12
		NFMS¥ForestChange2010_2015	Map Service	Create cached map tiles for thematic layers	setup_mxd¥ForestChange2010_2015.mxd	6-11	Vector data is drawn over zoom level 12
6	Background Layer	NFMS¥LANDSAT_False_2000	Map Service	Background layer	background_mxd¥LANDSAT_False_2000.mxd	6-15	
7		NFMS¥SPOT_False_2005	Map Service	Background layer	background_mxd¥SPOT_False_2005.mxd	6-15	
8		NFMS¥RapidEye_False_2010	Map Service	Background layer	background_mxd¥RapidEye_False_2010.mxd	6-15	

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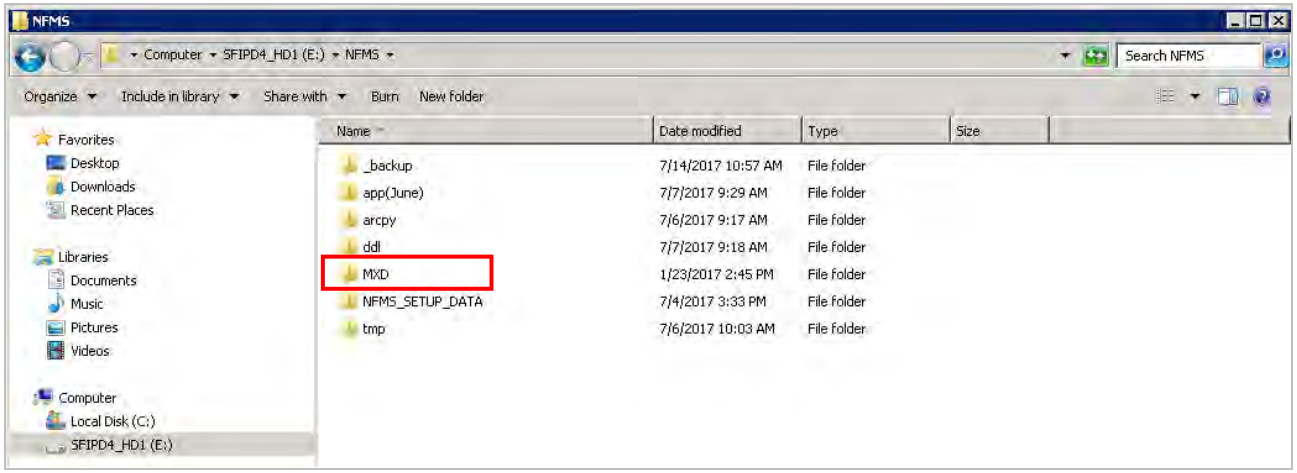
9		NFMS¥RapidEye_False_2015	Map Service	Background layer	background_mxd¥RapidEye_False_2015.mxd	6-15	
		NFMS¥LANDSAT_True_2000	Map Service	Background layer	background_mxd¥LANDSAT_True_2000.mxd	6-15	
		NFMS¥SPOT_True_2005	Map Service	Background layer	background_mxd¥SPOT_True_2005.mxd	6-15	
		NFMS¥RapidEye_True_2010	Map Service	Background layer	background_mxd¥ RapidEye_True_2010.mxd	6-15	
		NFMS¥RapidEye_True_2015	Map Service	Background layer	background_mxd¥ RapidEye_True_2015.mxd	6-15	
10	Thematic Layer tree	NFMS¥NFMS_LayerTree	Map Service	Thematic layer	thematic_mxd¥NFMS_LayerTree.mxd	(no tile cache)	Dynamic Map Service

:The services categorized in "Data Set-up" group is used only for caching map tiles. After map tiles are created, it is not necessary to keep running these services. In order to save memory of servers, you can stop the services.

mxd files used as a basis of map services are in the following directory in FIPD server(serverfipd4).

E:¥NFMS¥MXD



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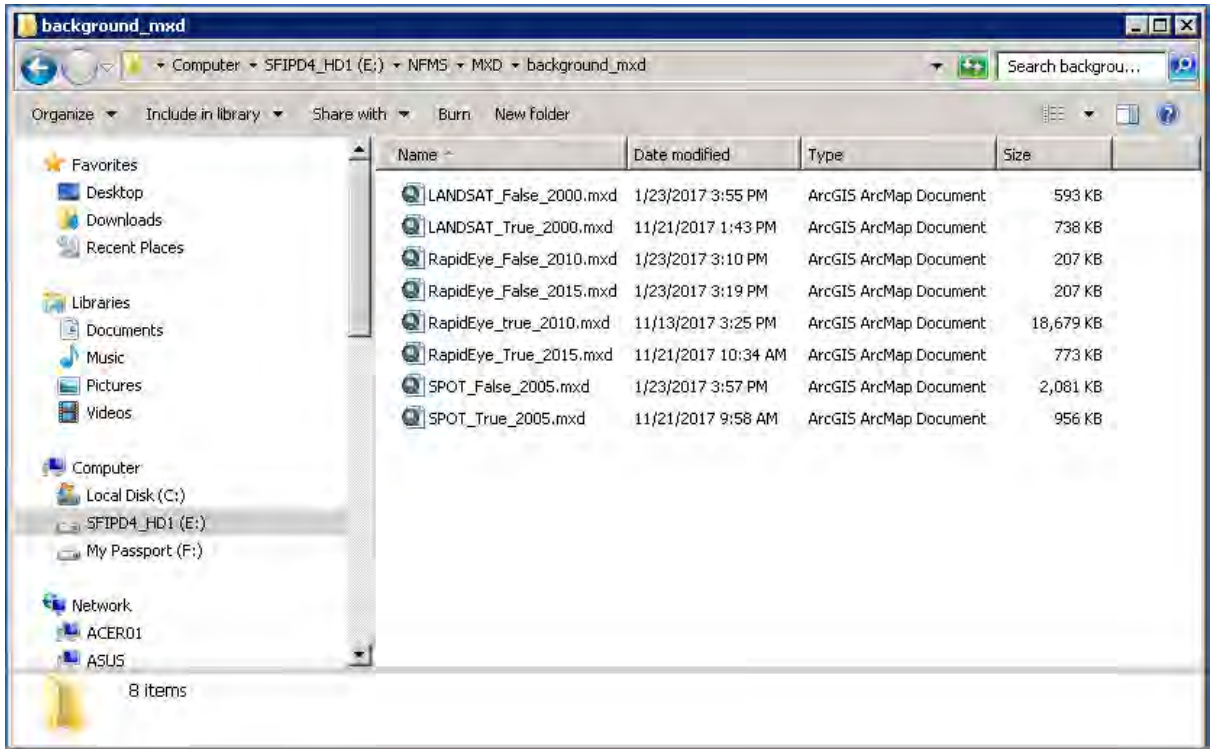
1.2.7. Register Background layer

1.2.7.1 Prepare MXD

MXD used for registering background layers are stored in the following directory.
E:¥NFMS¥MXD¥ background_mxd



In case of updating exisitng background layers, there is already existing MXD. Open an appropriate MXD.

In case of adding a background layer, there is no existing MXD. Copy an existing MXD file, paste it at the same directory, rename it appropriately and open it.

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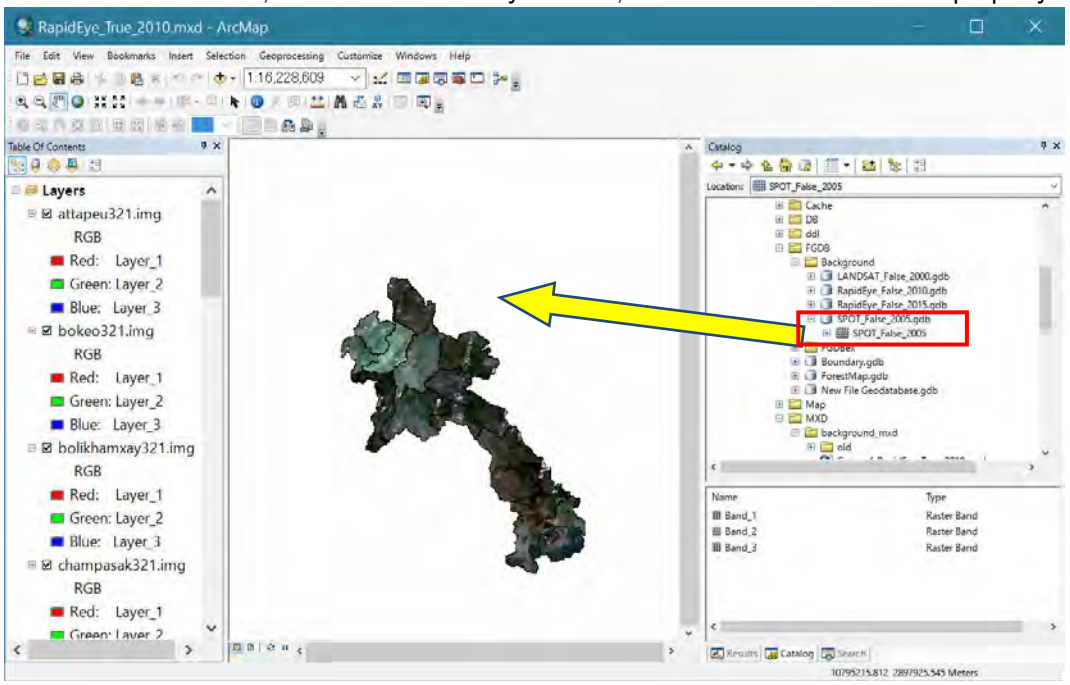
Set data set

Add a dataset in MXD, remove unnecessary dataset, and check if data is shown properly in ArcMap, and save MXD



For some satelite images, default setting for no data of image at ArcMap is set to black color. In that case, change setting for no data in image files as follows.

Right click a layer and select [Properties]. Check [Display Background Value (0,0,0)] and confirm it is set to no color. Click [OK] and check whether the black color background turned into transparent.

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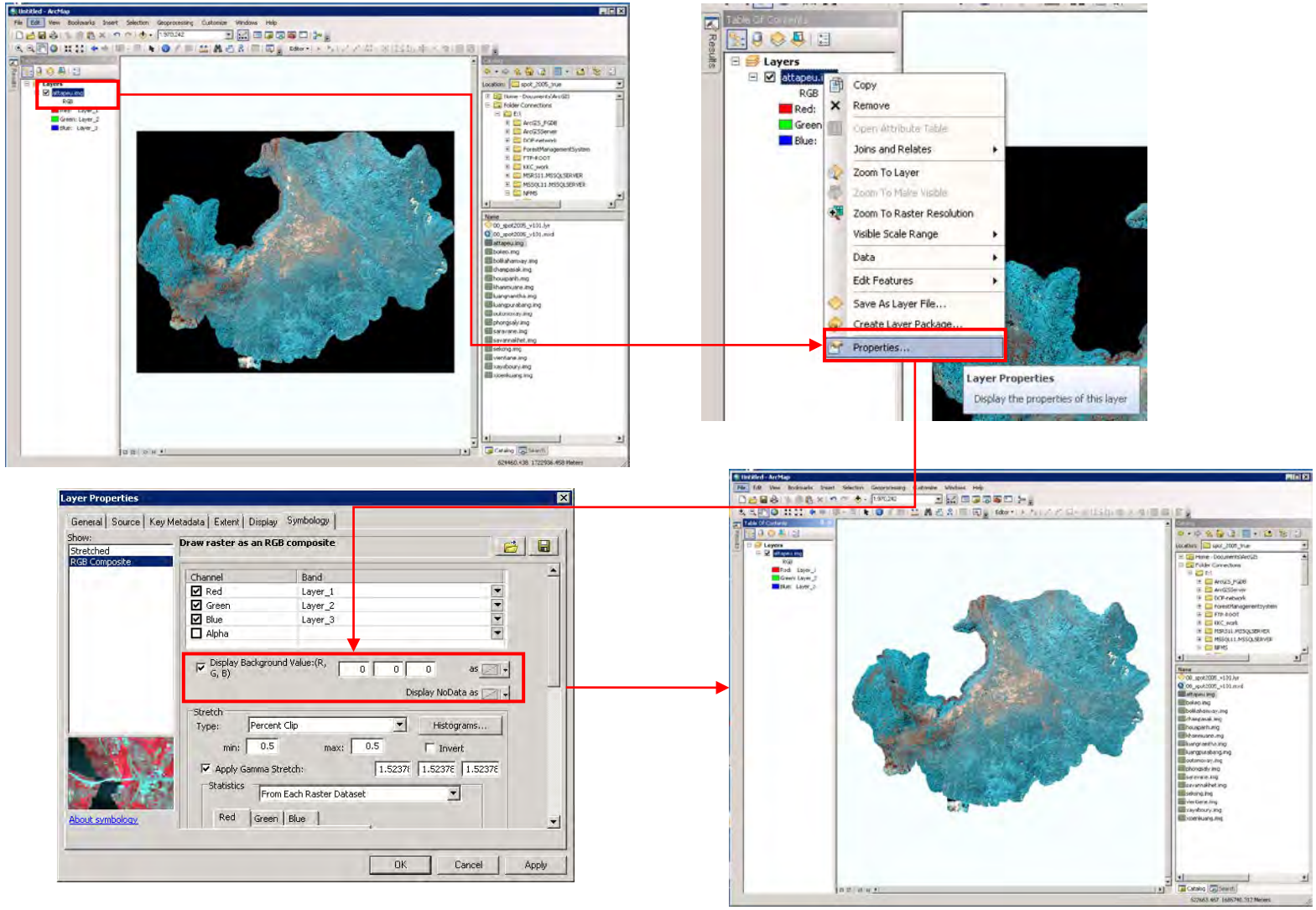

Date Created	2017/7/5	NFMS(NationalForestMonitoringSystem)	NFMS Data Installation Manual	37
Date Updated	2017/11/28			
Version	Ver.1.0			

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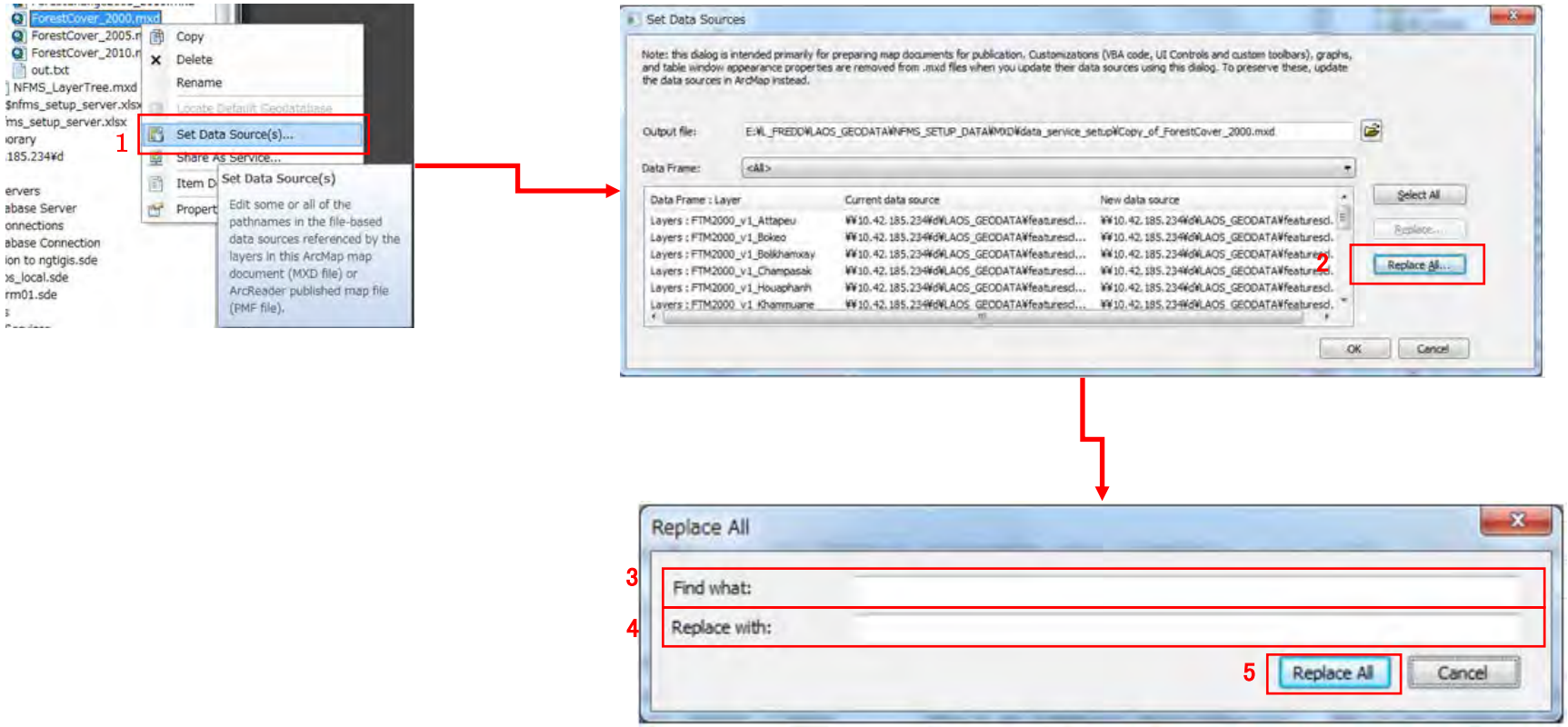
1.2.7.2 Publish Map Service

Based on MXD prepared, publish map service. Follow the following steps, checking some points.

1. Data source in MXD

Adjust Data source path for mxd (if MXD is copied from existing files, old setting may remain. Needs to check).



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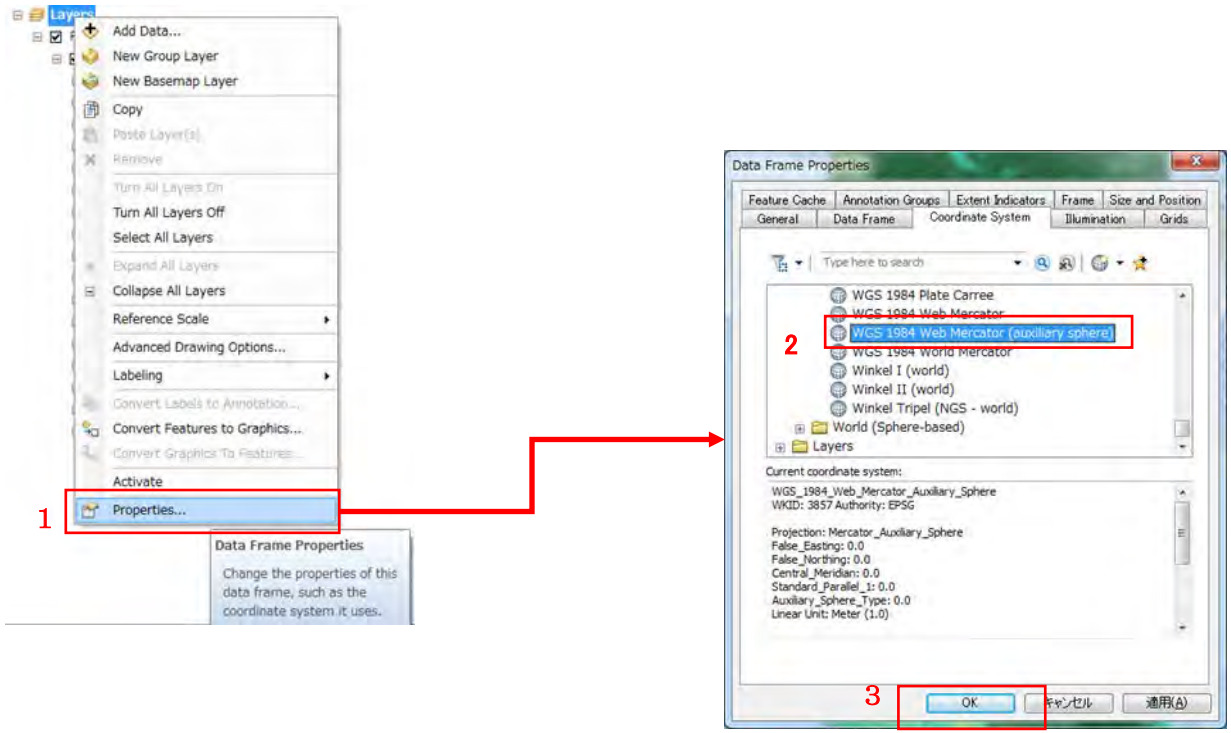
2. Coordinate system for data frame

Adjust data frame coordinate system to "WGS_1984_Web_Mercator_Auxiliary_Sphere" if it is not set accordingly.



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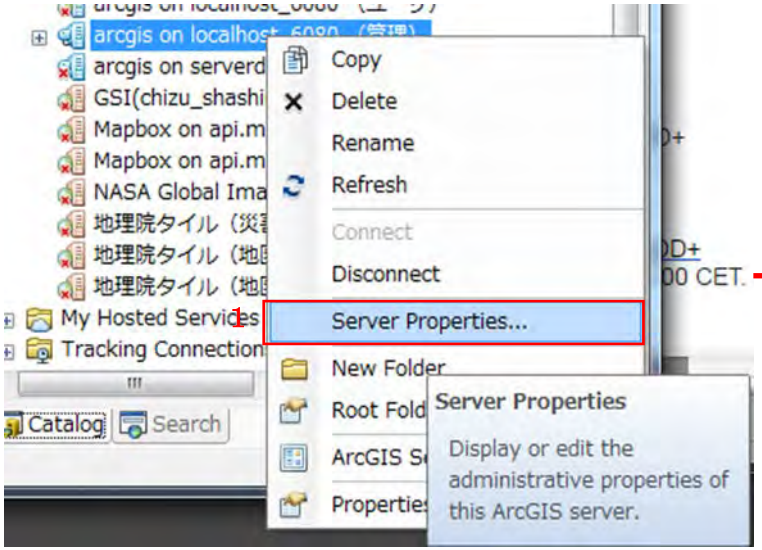
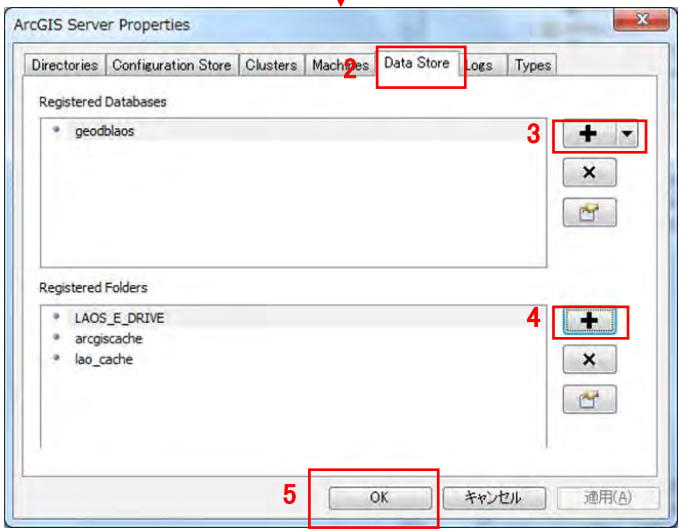
3. Register Data Store for ArcGIS Server

Register data source for ArcGIS Server before publishing service (e.g. Folder Name = "NFMS_FGDB").

Registering data store avoid copying original data to default directories of ArcGIS when publishing map services.





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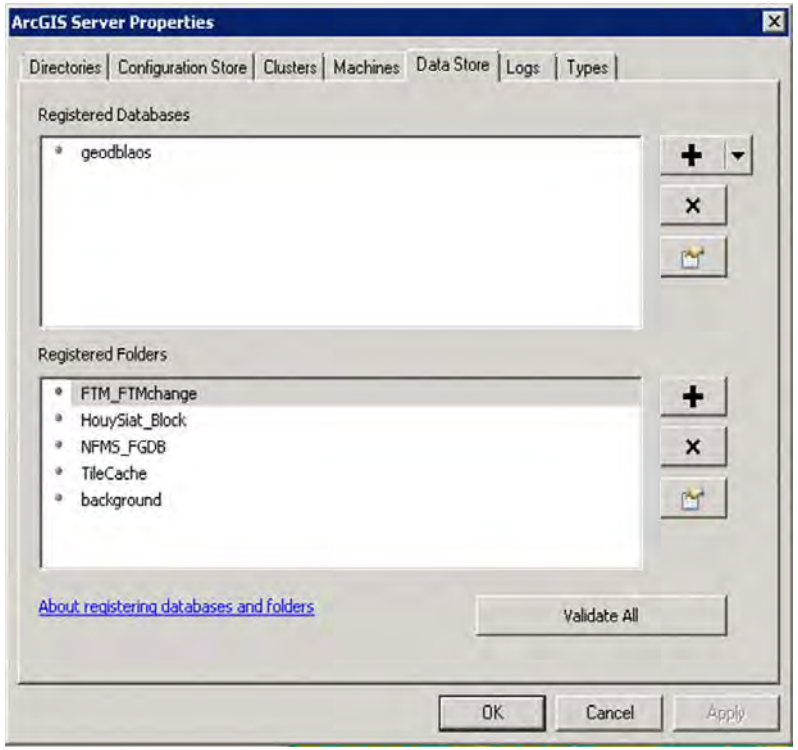
Current ArcGIS Server for serverfipd4 has already registered some directories as data source.



FTM_FTMchange	E:¥NFMS¥NFMS_SETUP_DATA¥Map
background	E:¥NFMS¥NFMS_SETUP_DATA¥Background
NFMS_FGDB	E:¥ArcGIS_FGDB
TileCache	E:¥ArcGISServer¥directories¥arcgiscache
HouySiat_Block	¥¥ServerFIPD20¥GISFIPD¥09_Production_forest¥Province_Vientiane¥PFA_Houay_Siat

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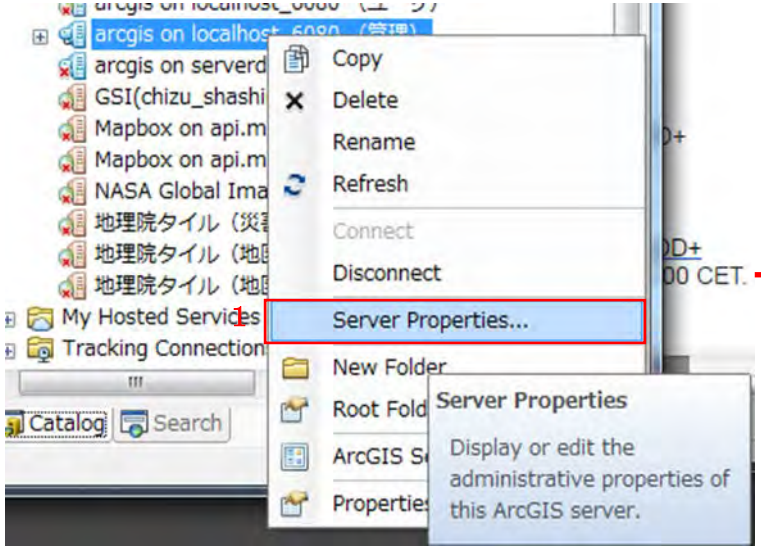
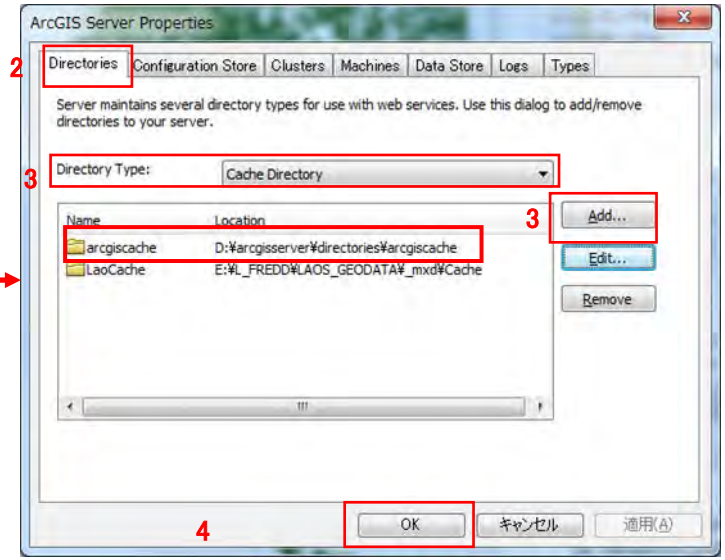
4. Register Additional Cache Directory (Optional)

Register additional cache directory if you want to change cache directory for this project. NFMS currently uses “arcgiscache” directory.

Seeting of Map service allows choosing a destination derectory for caching from derectoreis registered here.





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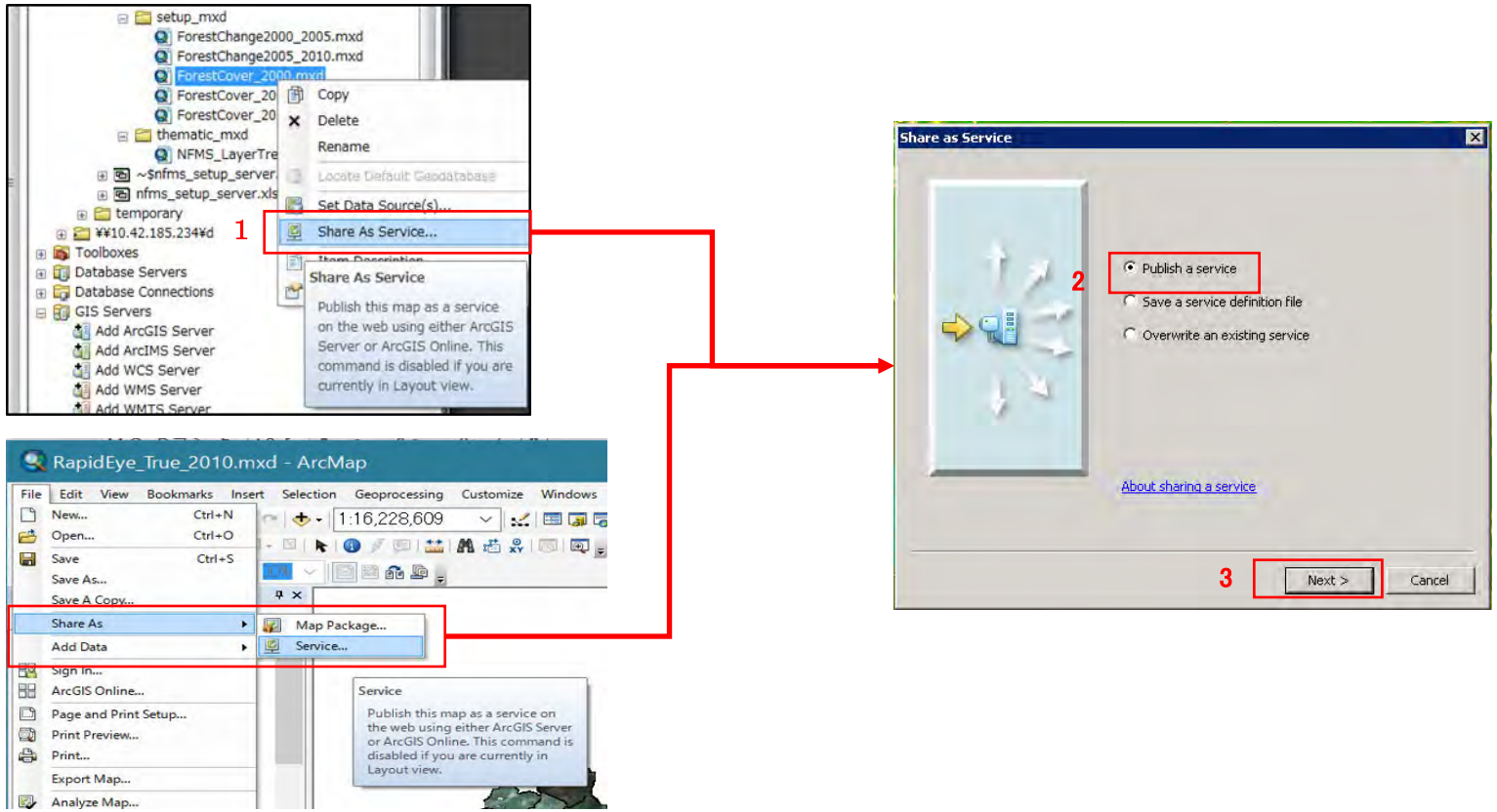
5. Share as service (with tile)

Publish a map service from the prepared mxd. One way to do that is to right click MXD at ArcCatalogue, and select [Share As Service] (At ArcMap, [File] > [Share As] > [Service..]). [Share As Service] window shows up. In case of creating a new service, select [Publish a service] and click [Next]



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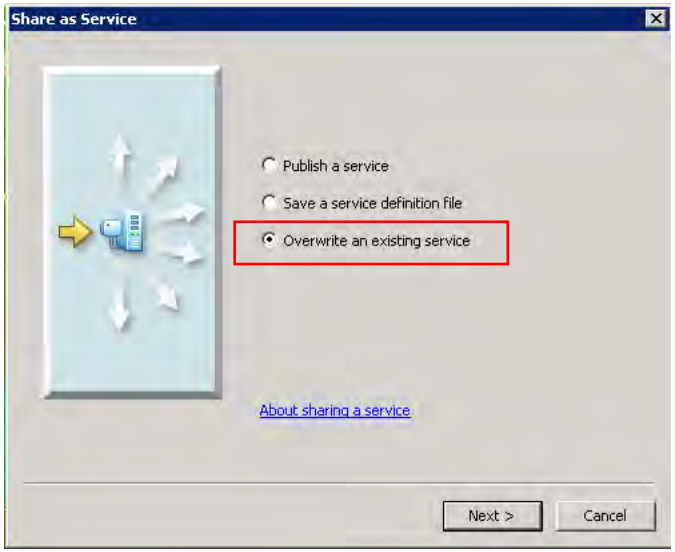
In case of data update, there is already existing map service. In that case, choose [Overwrite an existing service], and click [Next].



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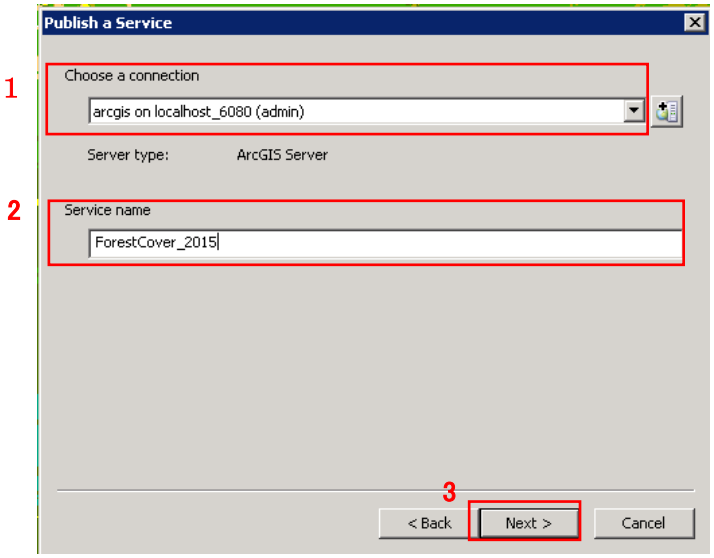
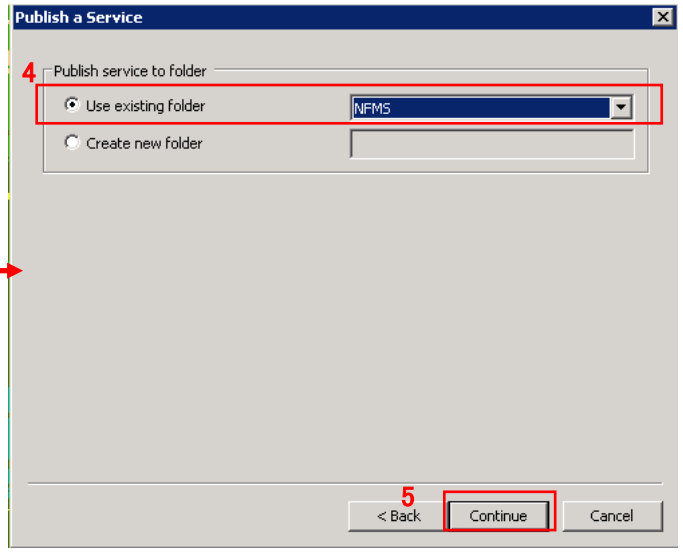
Specify【Choose a connection】and enter a service name in【Service name】. Click [Next]. Select [Use existing folder] and “NFMS”, as NFMS is already created in serverfipd4.





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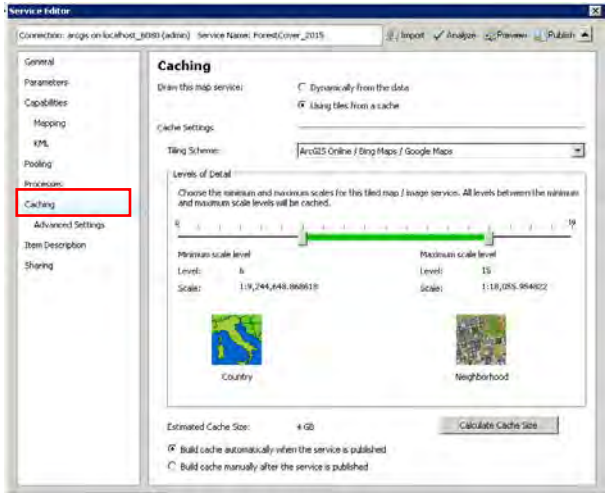
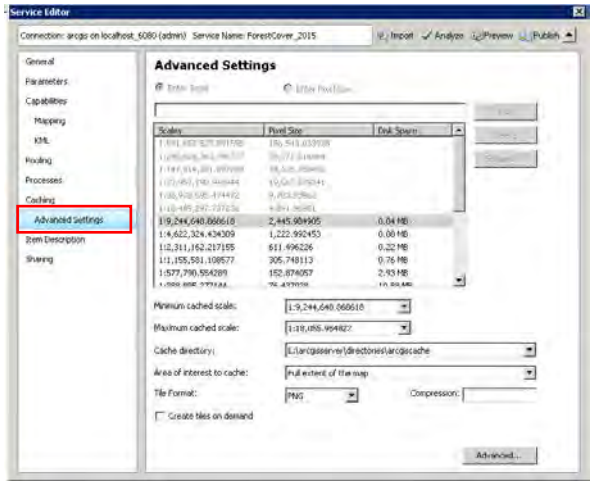
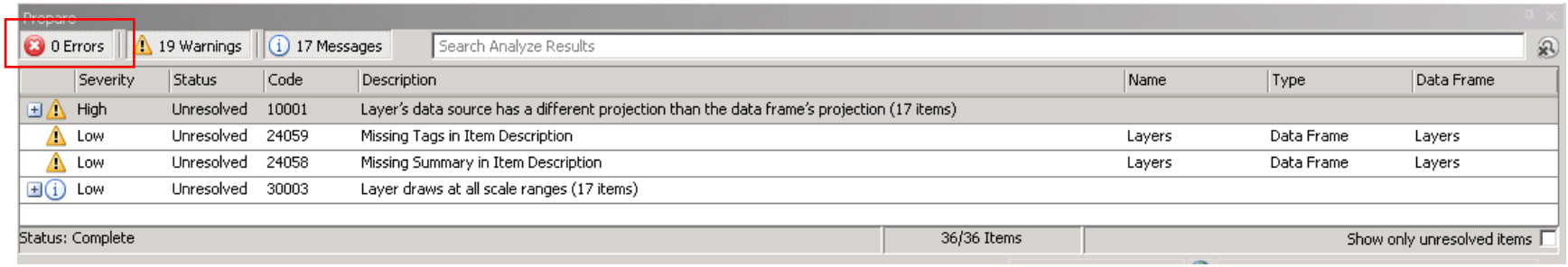
[Service Editor] window shows up. Settings of a service is customizable in this window. For example, at【Caching】tab, you can change zoom level. At [Advance Settings] tab, [Cache Directory] can be changed from default.

【Caching】Zoom levels for each map service are defined in 1.2.6.





After finishing setting, select [Analyze], confirm whether there are any errors.



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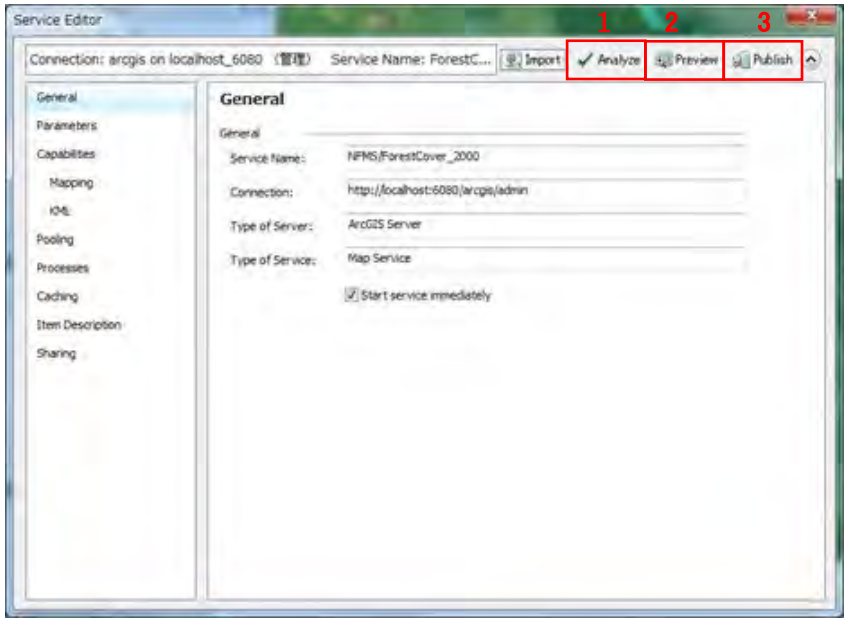
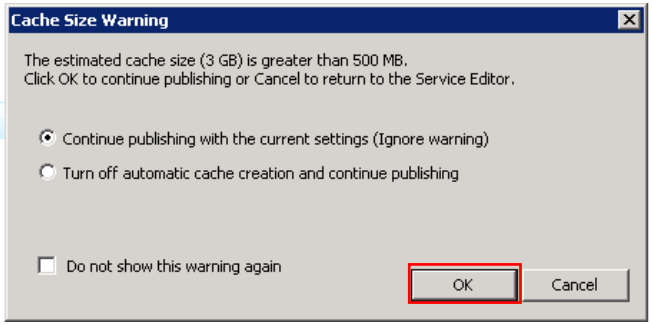
Click [Preview], check whether the service is displayed. Click[Publish]



Cache size is greater than 500 MB so that ArcGIS returns the following warning. Click OK.



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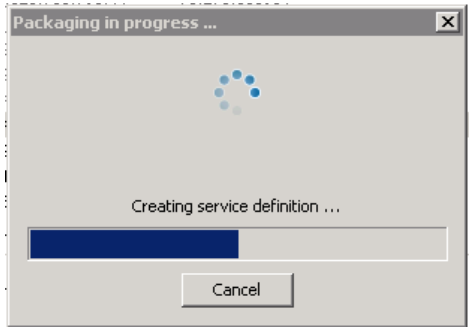
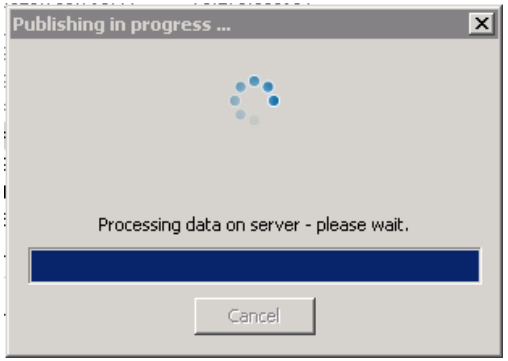
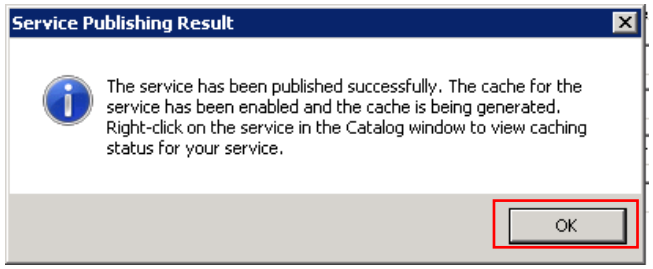
The service has been published successfully, click OK to close message window.







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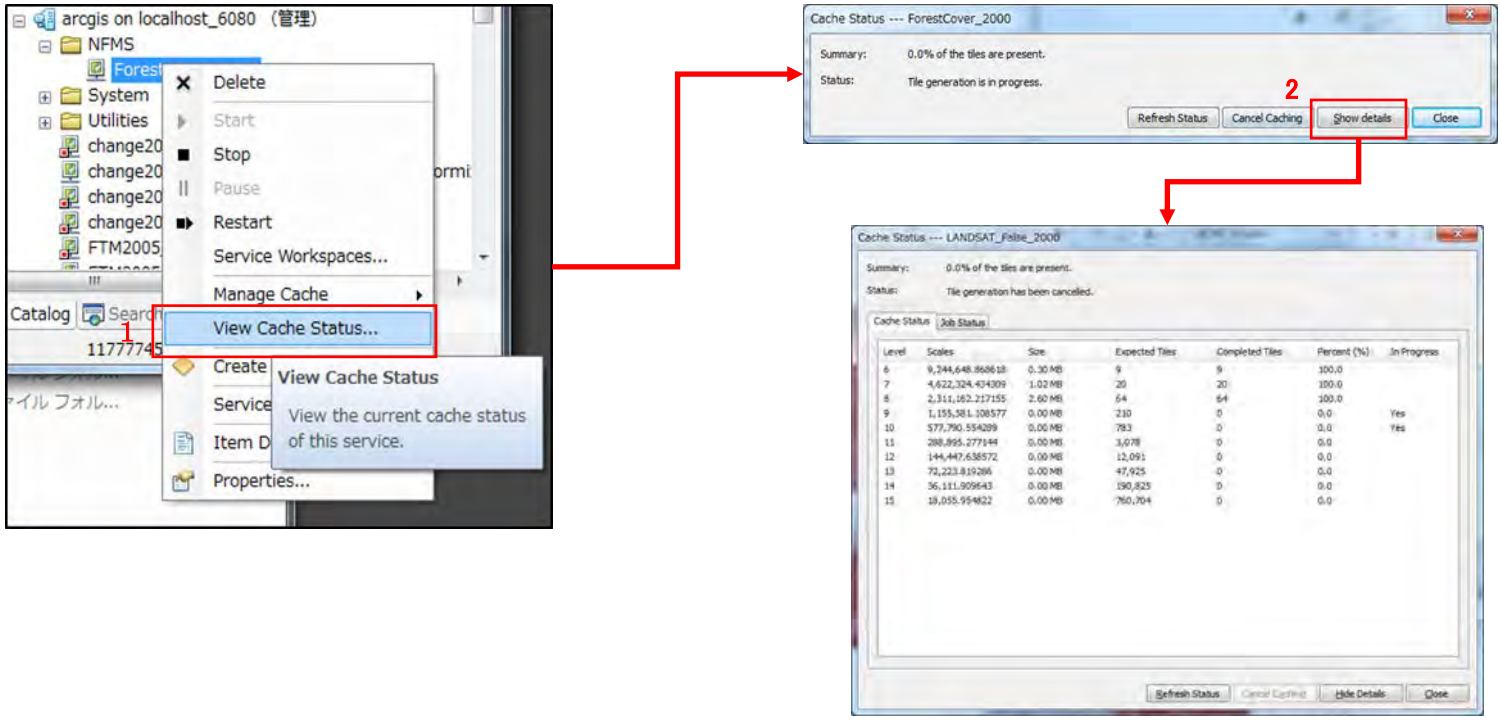
Confirm a status of caching at ArcCatalog. Right click the service created, slect [View Cache Status]. In order to see details of status, click [Show details]



Date Created	2017/7/5	NFMS(NationalForestMonitoringSystem)	NFMS Data Installation Manual	49
Date Updated	2017/11/28			
Version	Ver.1.0			

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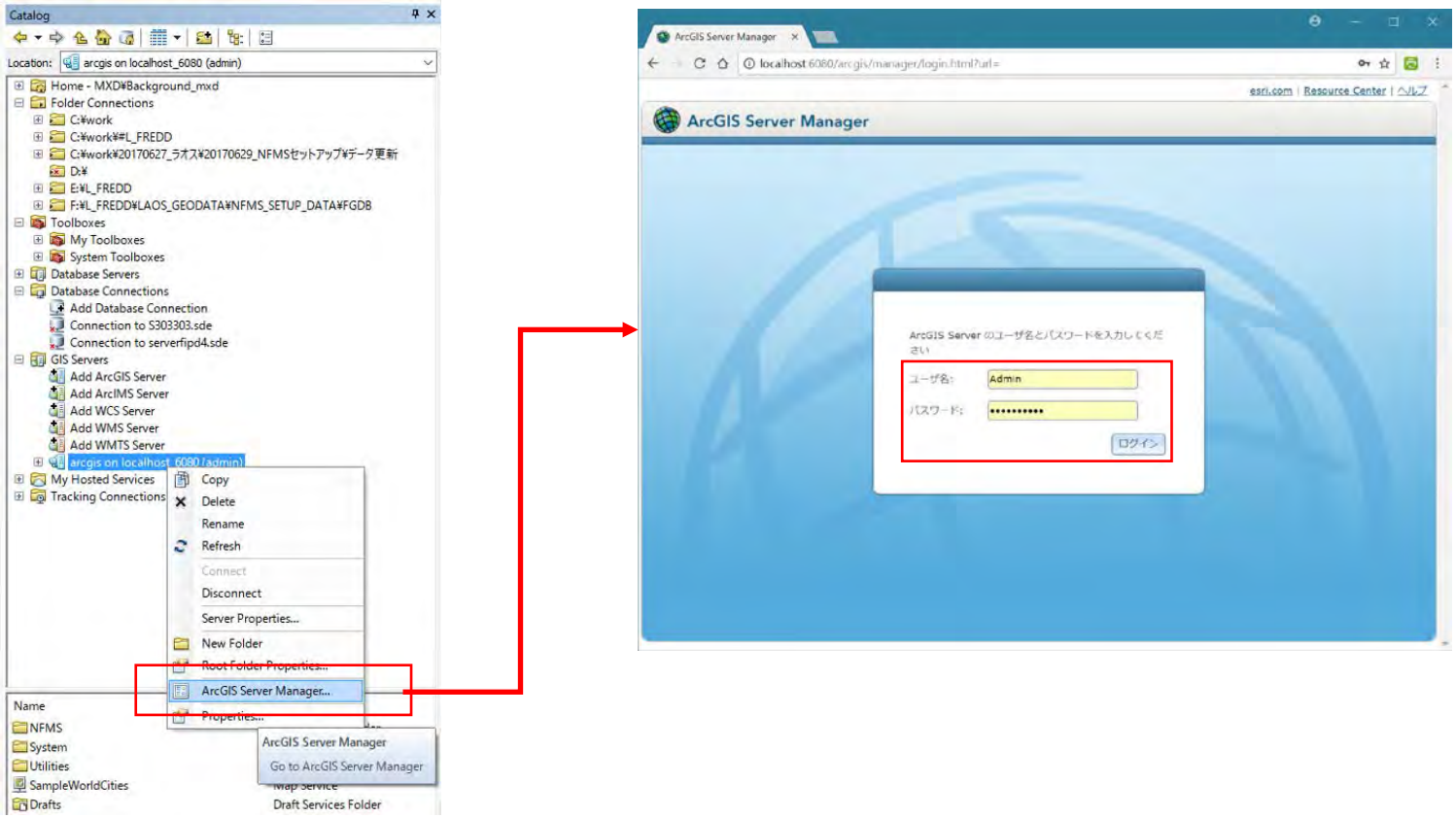
After processing of caching is finished, check the result at ArcGIS Server Manager. At ArcCatalog, right click GIS Servers for NFMS, e.g. arcgis on localhost 6080 (admin), select [ArcGIS Server Manager]. ArcGIS Server Manager starts on a browser. Log in with username and password.

Please check credential information with administrator of FIPD Server.



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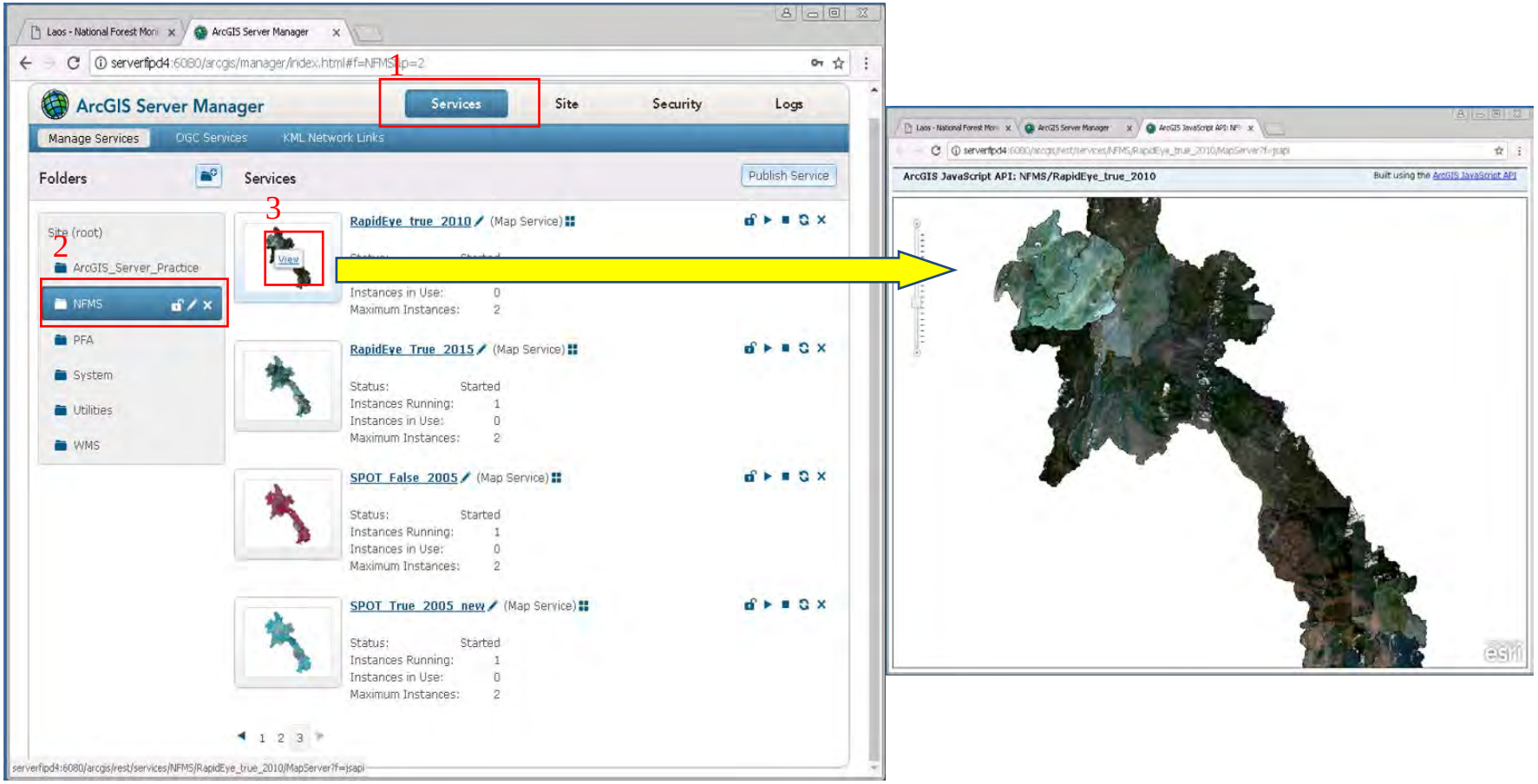
At ArcGIS Server Manager, select [NFMS], and click [View] of the service created. The service will be displayed and you can check whether the service and cache tile map are created properly.



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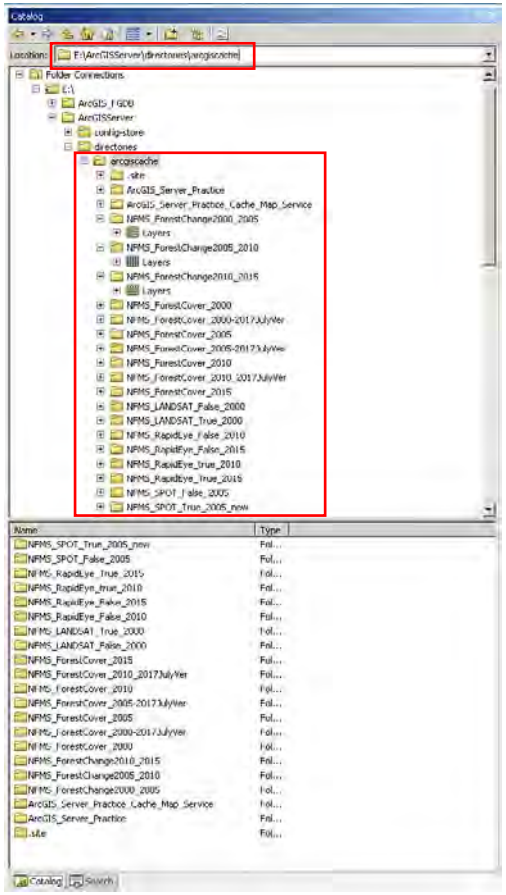
Cache map tile are stored in the following directory in serverfipd4.

.



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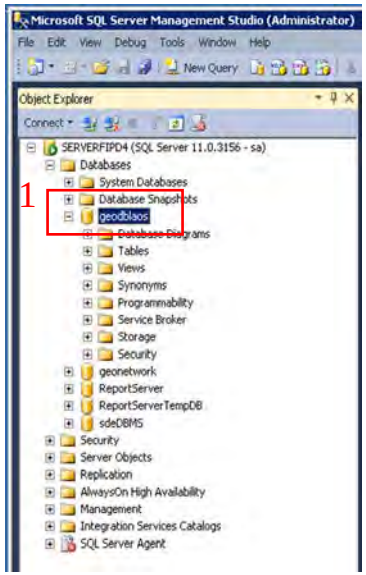
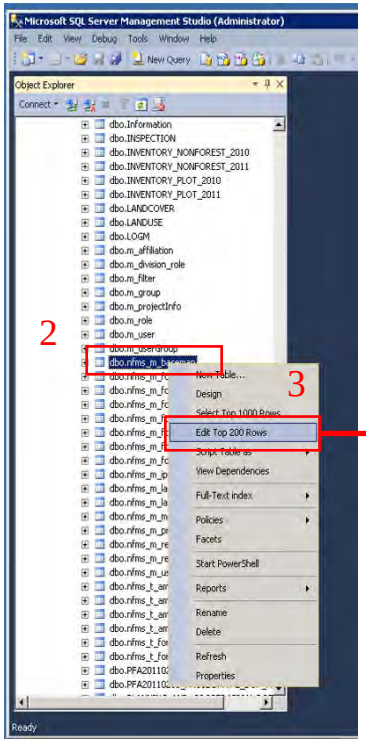
1.2.7.3 Adjust DB

In case of adding a new back ground layer, add a record to a table in DB. First, Open DB with Microsoft SQL Server Management Studio. Right click a table “nfms_m_basemap” and select [edit top 200]. Add a record at the table and fill a value in each cells.





	basemap_id	map_name	map_name_lao	type	map_url	disp_order
1	gray	GrayMap	GrayMap	gray	NULL	1
2	landsat2000	Landsat2000	Landsat2000	ImageService	http://localhost:6080/arcgis/rest/services/NFMS/LANDSAT_False_2000/MapServer	11
3	RapidEye2010	RapidEye2010	RapidEye2010	ImageService	http://localhost:6080/arcgis/rest/services/NFMS/RapidEye_False_2010/MapServer	13
4	RapidEye2010True	RapidEye2010(True)	RapidEye2010(True)	MapService	http://localhost:6080/arcgis/rest/services/NFMS/RapidEye_True_2010testKato/MapServer	15
5	RapidEye2015	RapidEye2015	RapidEye2015	ImageService	http://localhost:6080/arcgis/rest/services/NFMS/RapidEye_False_2015/MapServer	14
6	satellite	Arc - Satellite	Arc - Satellite	satellite	NULL	2
7	spot2005	Spot2005	Spot2005	ImageService	http://localhost:6080/arcgis/rest/services/NFMS/SPOT_False_2005/MapServer	12

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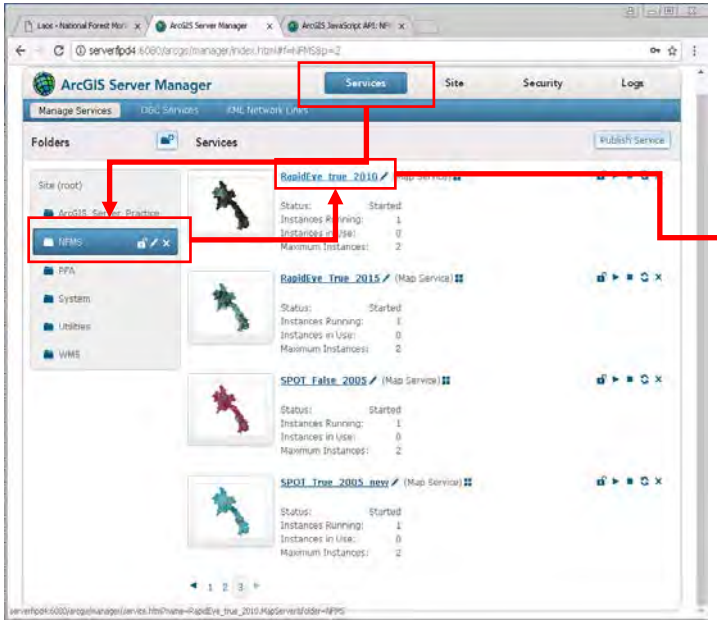
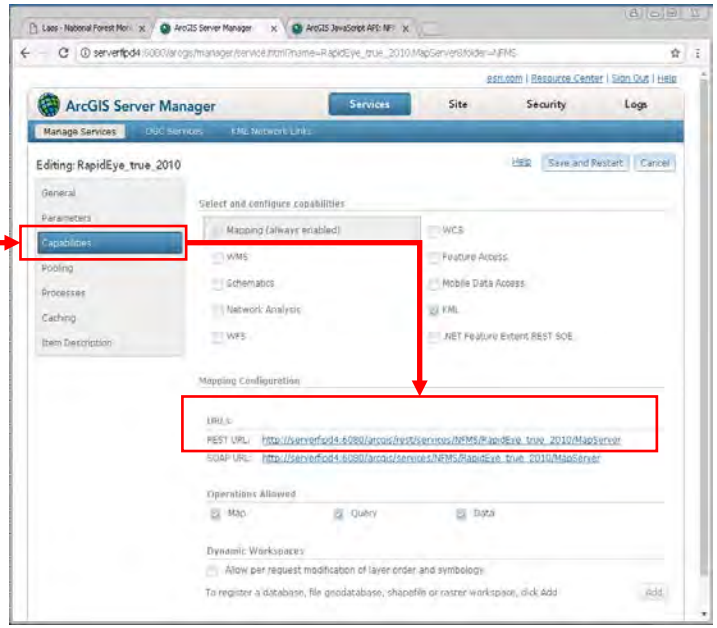
- basemap_id: Unique system id
- map_name: Map name shown in NFMS (English)
- map_name_lao: Map name shown in NFMS (Lao)
- type: Enter “MapService” for a background layer
- map_url: Rest Endpoint URL
- disp_order: defines an order of layers shown in NFMS

Please refer to NFMS DB Definition Document for more detail.

How to acquire Rest Endpoint URL for map_url field

Open ArcGIS Server Manager, Click [Services] tab, and click [NFMS]. Then select a name of a target map service and click it. In the next window, click [Capabilities] tab and you can find [REST URL]. Copy the URL.





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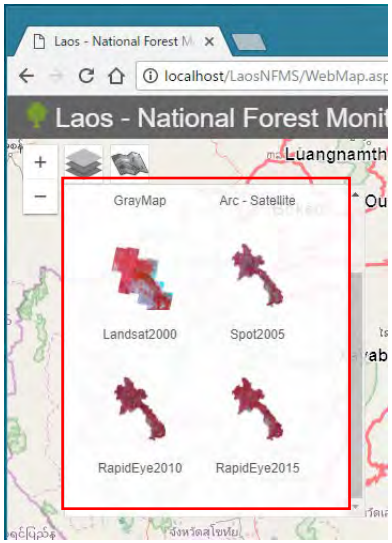
“disp_order” field defines an order of list at following panel of NFMS



1.2.7.4 Check at NFMS

Open NFMS by accessing the following URL and confirm that the background layer is registered.

- URL: http://serverfipd4:4242/nfms

Please check credential information for login with administrator of FIPD Server.

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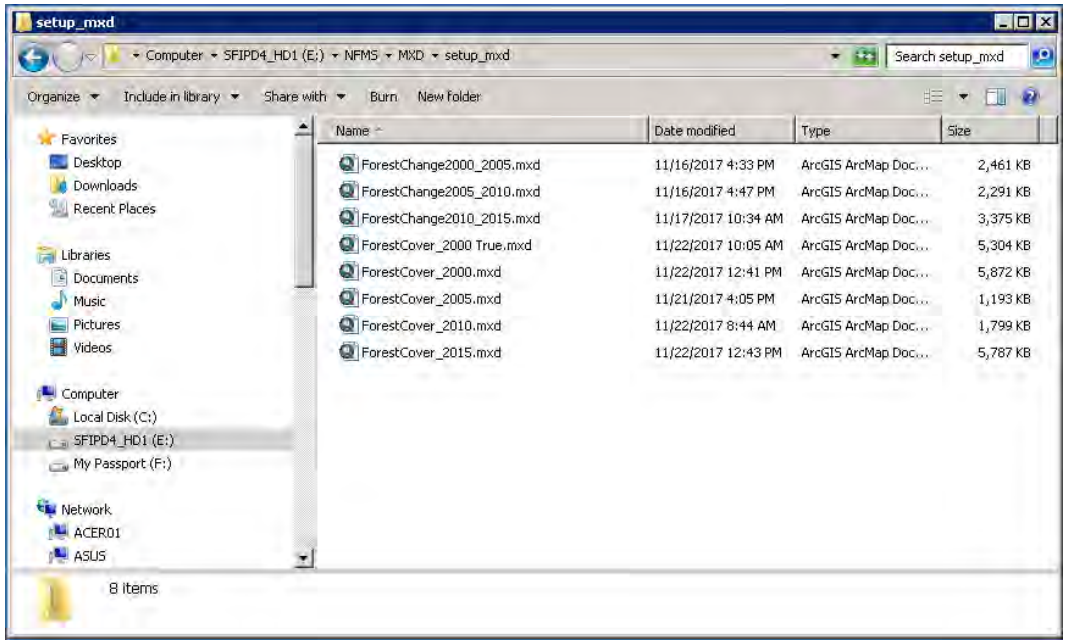
1.2.8. Register Thematic Layer

1.2.8.1 Prepare MXD for setup

MXD used for setting up thematic layers are stored in the following directory.

- E:¥NFMS¥MXD¥setup_mxd

These mxd is only used for creating cache map tile of thematic layers.



In case of updating exisitng thematic layers, there is already existing MXD in setup_mxd folder. Open correspoinding MXD.

In case of adding a thematic layer, there is no existing MXD. Copy an existing MXD file, paste it at the same directory, rename it appropriately and open it.

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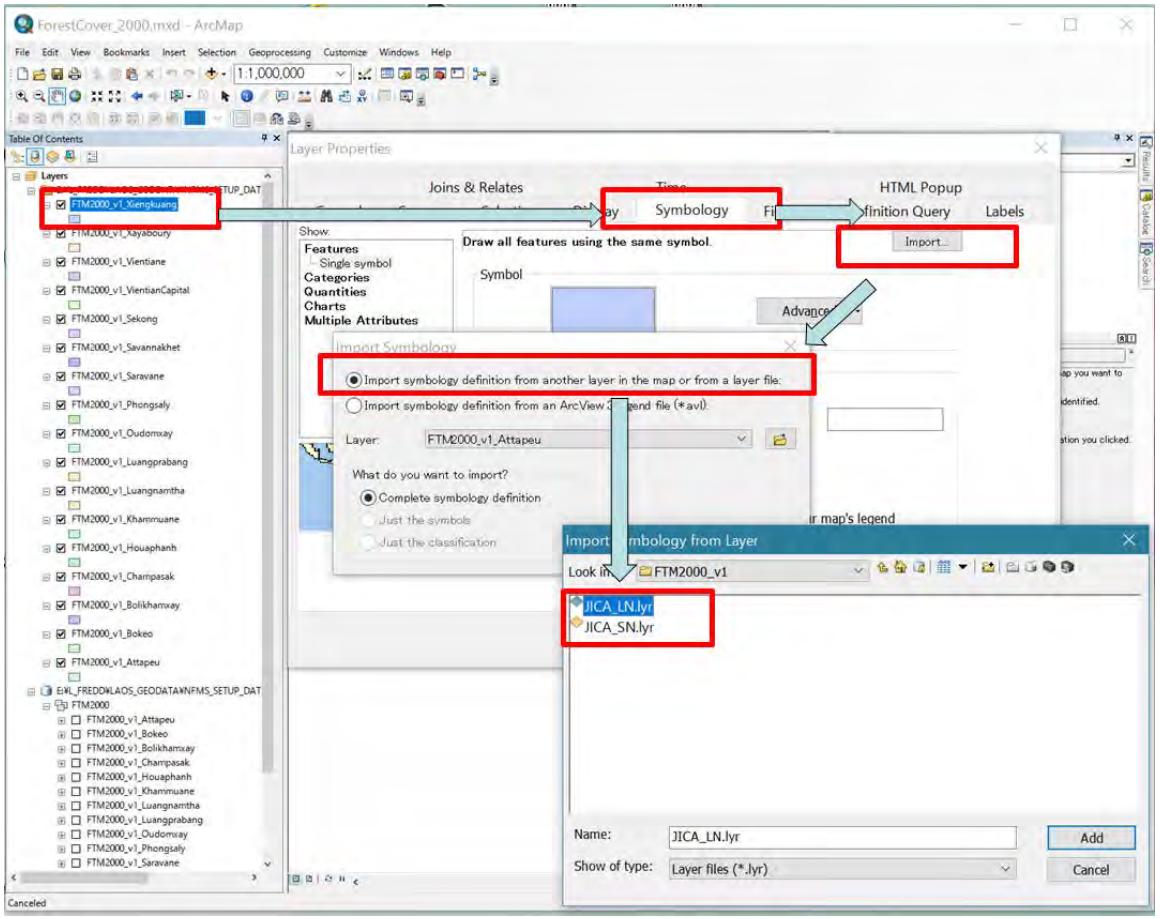
Set data set

Add a dataset in MXD, remove unnecessary dataset, and check if data is shown properly in ArcMap, and save MXD.

Set symbology of data set correctly. If there is Layer file, apply it to data set.

If possible, it is recommended to ask data producer to creata Layer file for symbolization of data set.

- Apply Layer file to data set



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Using batch function of Geoprocessing tool “Apply Symbology From Layer”is supposed to apply Layer file to multiple datasets. However, on the course of implemenation of symobolization, this tool sometimes do not apply layer file correctly. It is hightly recommended to apply Layer file one by one and confirm all the symbology displayed correctly before publishing Map Services.

1.2.8.2 Publish Map Service for creating map cache tile

Based on MXD prepared, publish map service. The procedure is same as that of background layers.

Please refer to 1.2.7.2 Publish Map Service

These map services are only used for creating cache map tile of thematic layers. Therefore, after finishing process of caching, you can stop map services to save memory of a server.

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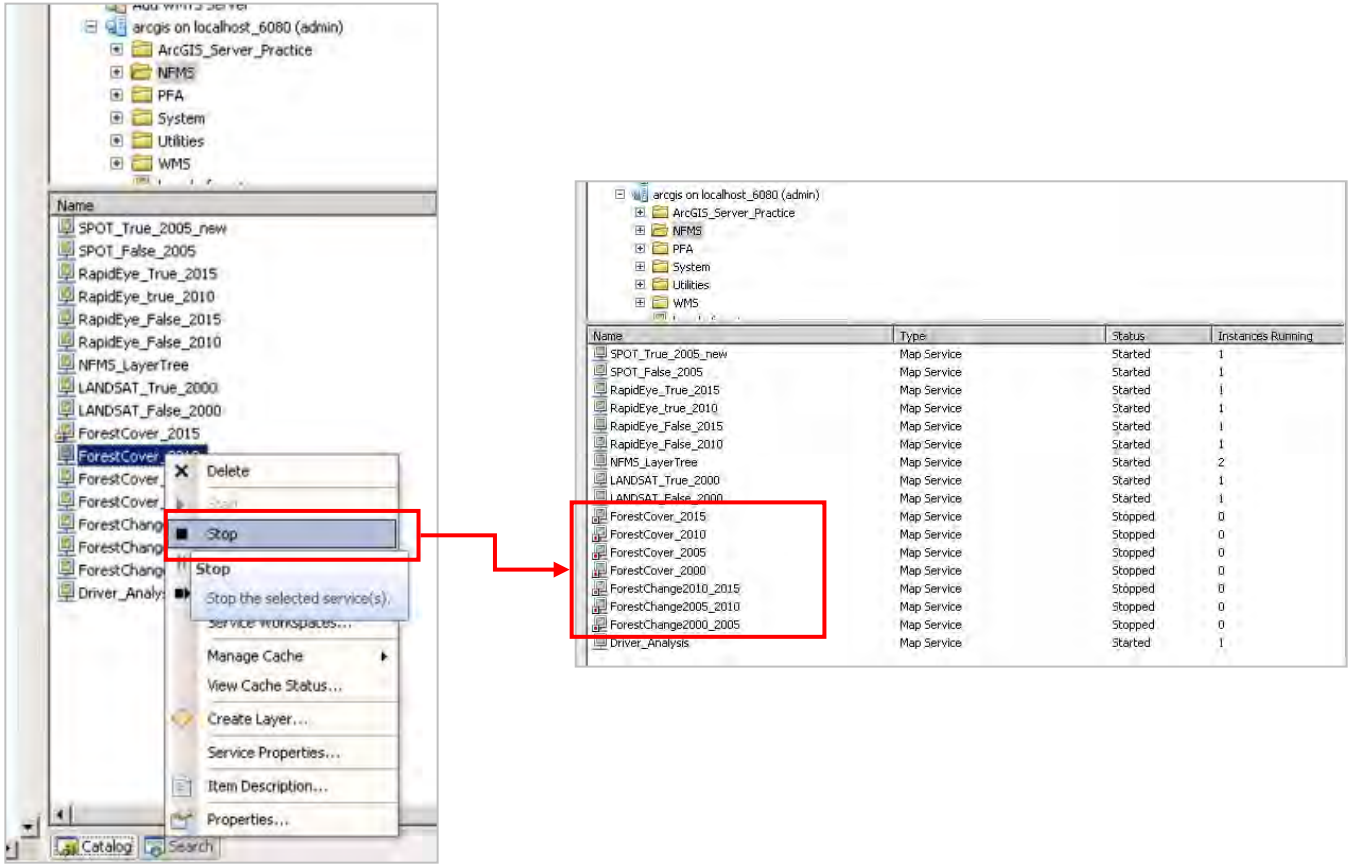

1.2.8.3 Prepare MXD for Thematic Layers

MXD used for registering thematic layers are stored in the following directory. Open “NFMS_LayerTree.mxd”

- E:¥NFMS¥MXD¥thematic_mxd

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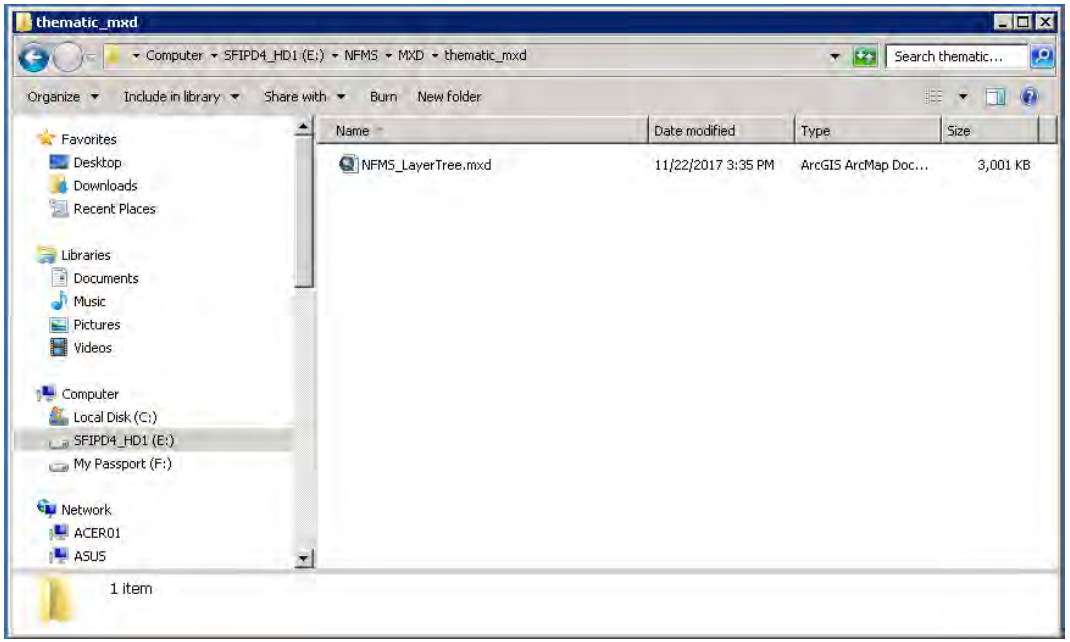

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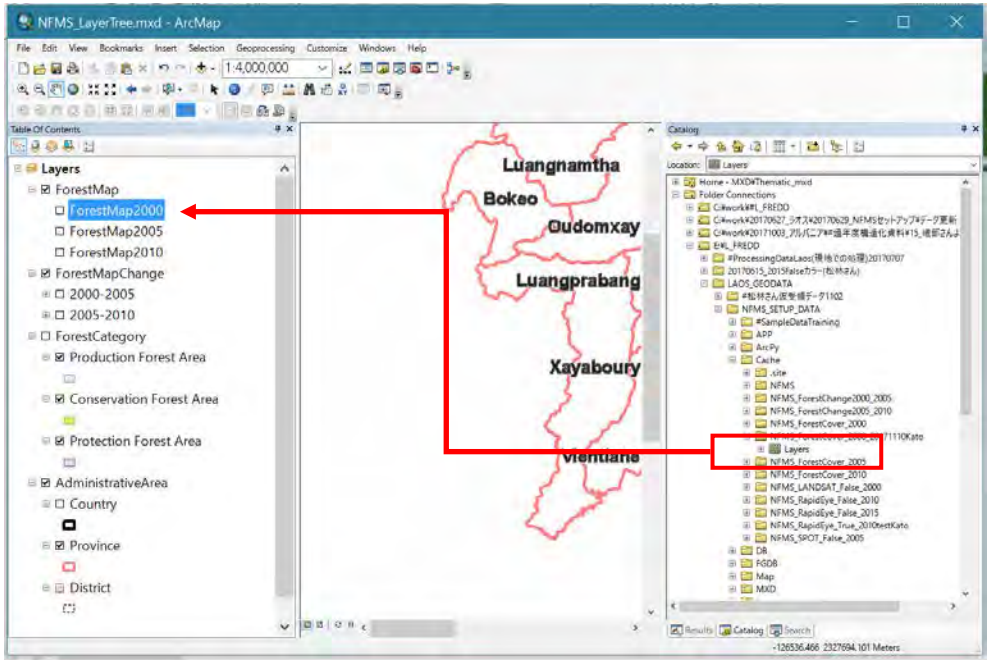
In case of Forest Type Map (FTM)

Add a new cache tile map created in 1.2.8.2 Publish Map Service for creating map cache tile.

In case of updating an existing layer, replace it with new data set.

In case of adding a new layer, add tile file and name it properly.



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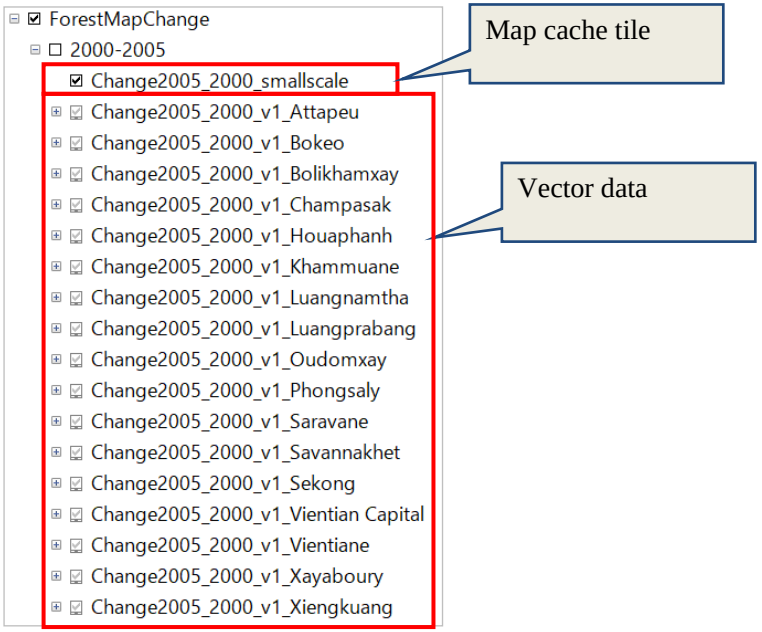
In case of FTM (change)

For FTM (change), map cache tile is used for small scale (zoom level 6 to 11). At large scale, vector data is used. Therefore, both data set have to be set in MXD.



In case of updating an existing layer, replace it with new data set. Steps to do this is same as that of FTM. Please refer to the procedure.
In case of adding a new layer, add tile file and name it properly.

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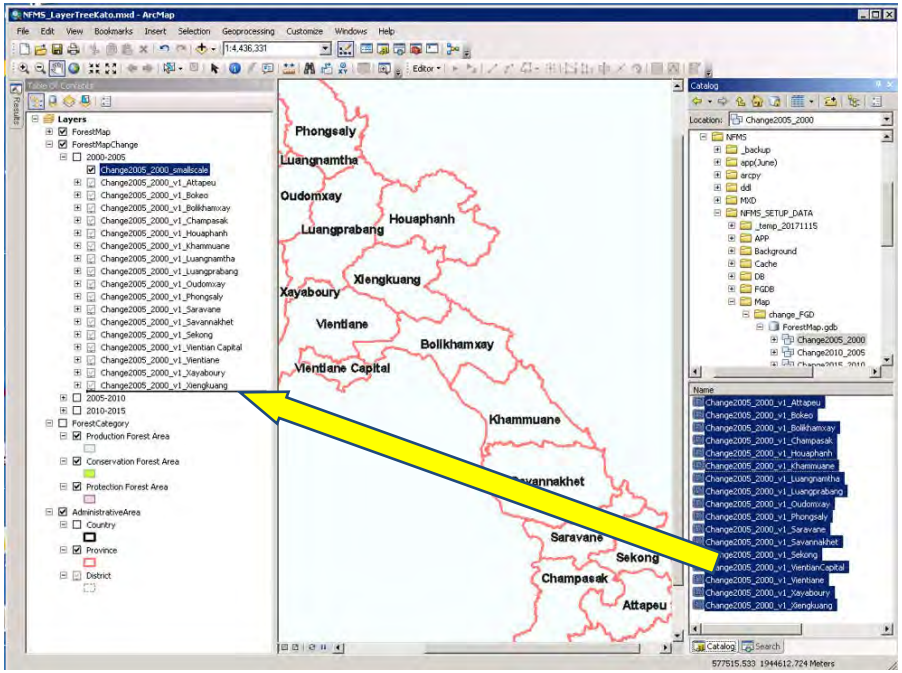
For vector data, setting for symbology and scale filtering are needed.

- Adding data sets



- Symbology

  Please refer to 1.2.8.1 for detail procedure to apply Layer file.

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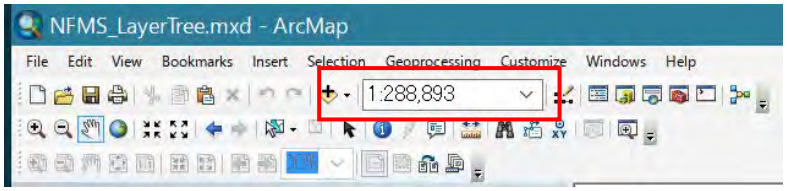
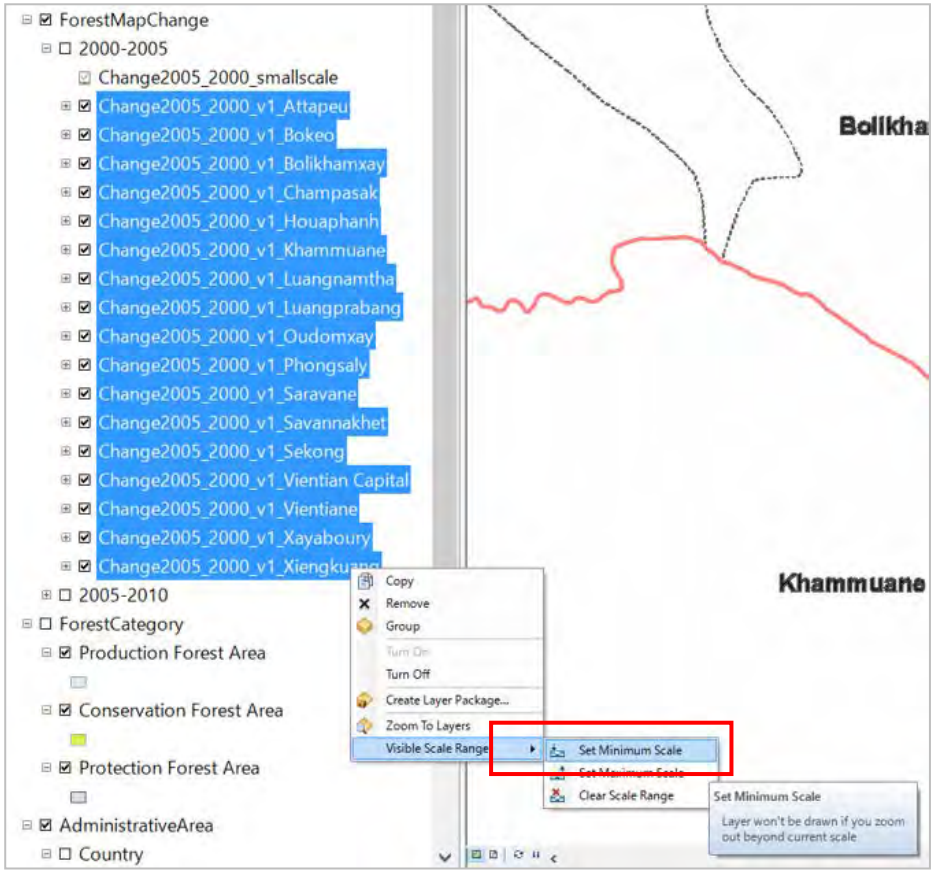
➢ Scale filtering

Set scale “1:288,893”at ArcMap. Slect vector layers at content panel, right click them, and select [Visible Scale Range] and select [Set Minimum Scale].





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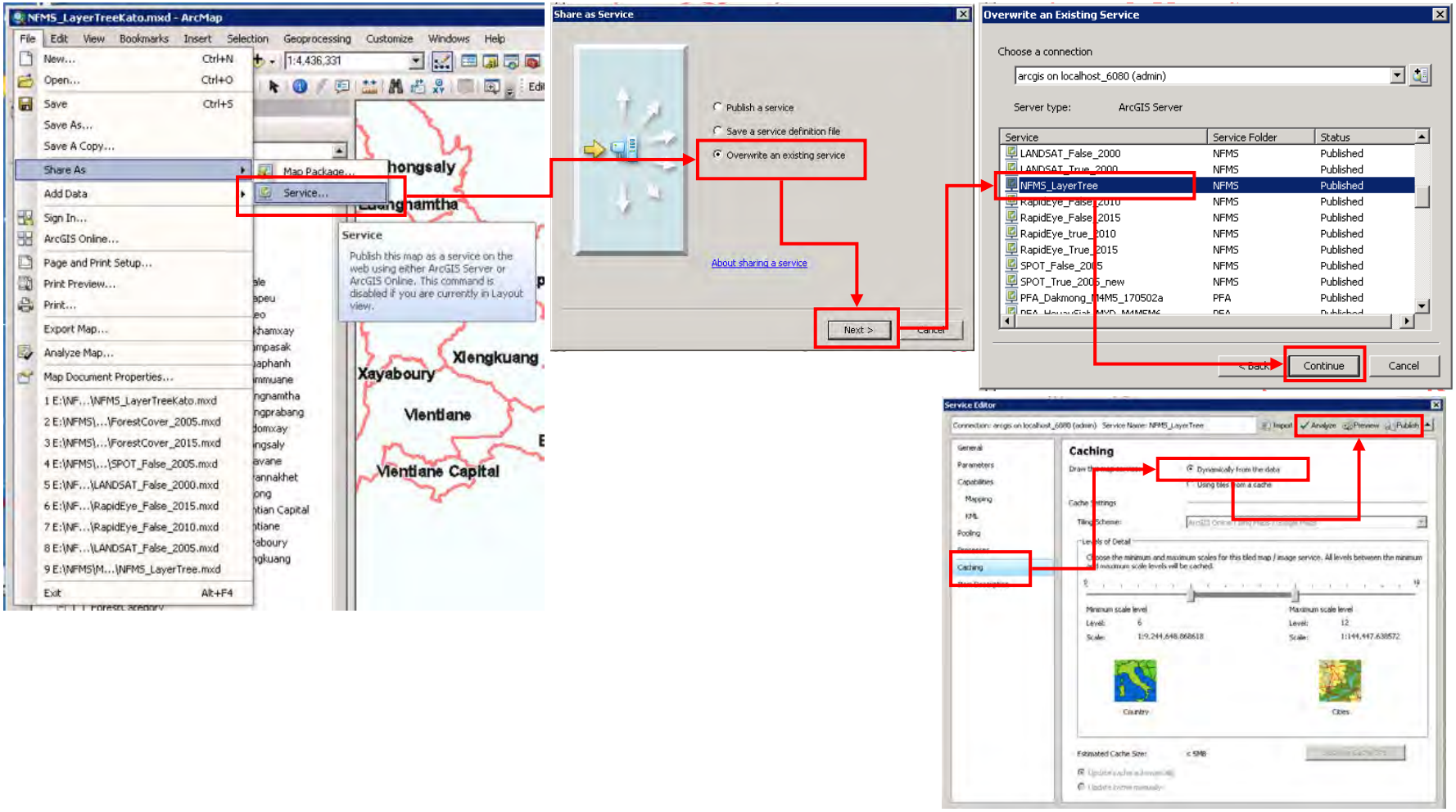
1.2.8.4 Publish Map Service for thematic layer

At "NFMS_LayerTree.mxd", select [File], [Share as], and [Service]. Choose [Overwrite and existing service] and click [Next]. Select [NFMS_LayerTree] service and click [Continue]. At [Caching] tab, confirm that [Dynamically from the data] is selected. Then, click [Analyze][Preview] and [Publish] accordingly.



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1.2.8.5 Adjust DB

In case of adding a new thematic layer, add a record to a table in DB. First, Open DB with Microsoft SQL Server Management Studio. Right click a table “nfms_m_layers” and select [edit top 200]. Add a record at the table and fill a value in each cells.

	layer_group_id	layer_name_arcgis	layer_name	layer_name_lao	legend_url	legend_width	legend_height
41	11	Country	Country	îæîsÉíèE	/legend/administrativ_boundary.html	170	100
42	11	District	District	îSîsÉíèE	/legend/administrativ_boundary.html	170	100
43	11	EXù?i µo¬E}(o∑er)	EXù?i µo¬E}(o∑er)	ÉXù¬ïµò¬É}(ö∑èr)		NULL	NULL
44	11	ForestCategory	ForestCategory	ÉXù¬3ïµò¬É}		NULL	NULL
45	11	ForestMap	ForestClassificationMap	ÉXù¬ïµò¬É}(ÆPöN)		NULL	481
46	11	ForestMap2000	ForestMap2000	ForestMap2000	/legend/forest_class.html	380	380
47	11	ForestMap2005	ForestMap2005	ForestMap2005	/legend/forest_class.html	380	380
48	11	ForestMap2010	ForestMap2010	ForestMap2010	/legend/forest_class.html	380	380
49	11	ForestMapChange	ForestClassificationMap(Change)	ÉXù¬ïµò¬É}(ö∑èr)		NULL	481
50	11	Production Forest Area	ProductionForestArea	É-‖ÄYù¬	/legend/forest_area.html	230	100
51	11	Protection Forest Area	ProtectionForestArea	ò▇æSù¬	/legend/forest_area.html	230	100
52	11	Province	Province	î°îsÉíèE	/legend/administrativ_boundary.html	170	100

layer_group_id: ID for layer group. Currently all layer is under “NFMS Layer” so that “11” is default
layer_name_arcgis: Layer name published in ArcGIS Server
layer_name: Layer name displayed in NFMS (English)
layer_name_lao: Layer name displayed in NFMS (Laos)
legend_url: URL for html of legend. Choose appropriate one.
legend_width and legend_height: Width and height of legend window

“NFMS Layer” is the only one layer group defined in NFMS at the table “nfms_m_layer_group”as of November 2017.

	layer_group_id	layer_group_name	layer_group_name_lao	map_url	disp_order
1	11	NFMS Layer	NFMS Layer	http://localhost:6080/arcgis/rest/services/NFMS/NFMS_LayerTree/MapServer	1

.

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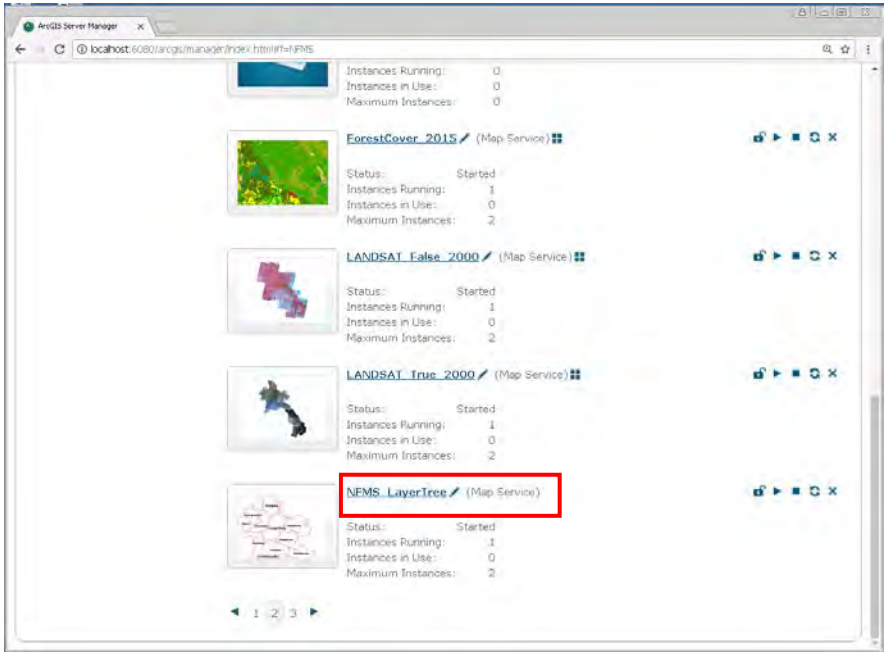
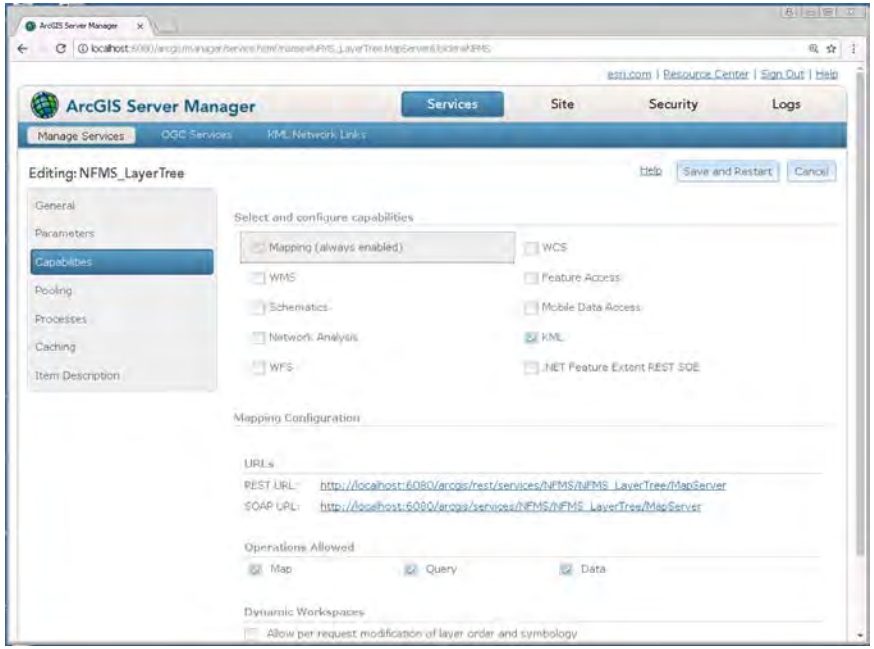
: How to attain value of “layer_name_arcgis”

Open ArcGIS Server Manager and navigate to “NFMS_LayerTree” service. At [Capabilities] tab, click [REST URL].





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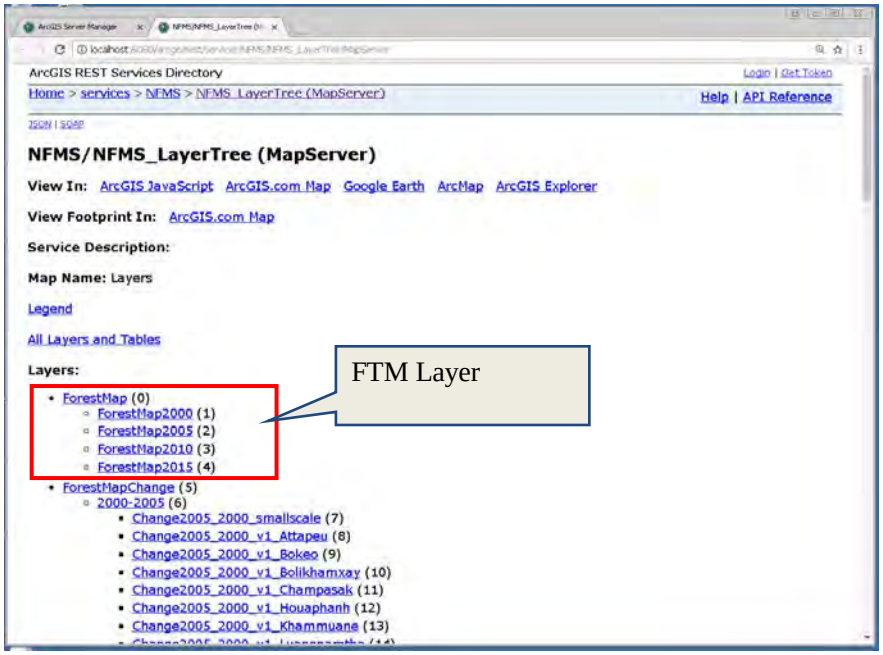
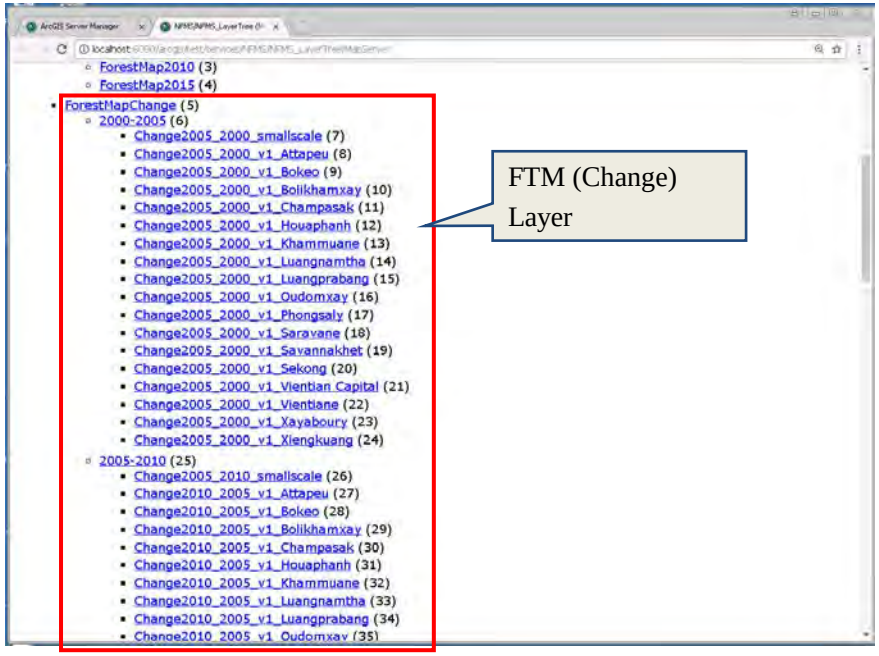
Under [Layers], Layer names published in ArcGIS Server are listed. Copy corresponding layer names and paste them in the table in DB.





1.2.8.6 Check at NFMS

Open NFMS by accessing the following URL and confirm that the background layer is registered.

- URL: http://serverfipd4:4242/nfms

Please check credential information for login with administrator of FIPD Server.

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NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)
ໂຄງການສະໜັບສະໜູນການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນຍົງ ແລະ REDD+
ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າລະບົບ

ສະບັບທີ Ver.1.0

ພະຈິກ 2017

ອັນທີສ້າງ	2017/7/5			
ອັນທີປັບປຸງ	2017/12/14	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	–
ສະບັບທີ	Ver 1.0			

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ອັນທີ່ສ້າງ	2017/7/5			
ອັນທີ່ປັບປຸງ	2017/12/14	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	–
ສະບັບທີ່	Ver 1.0			

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ປະຫວັດຂອງການປັບປຸງ

ວັນທີ ສ້າງ/ປັບປຸງ	ສະບັບທີ	ຜູ້ດັດແກ້	ເຫດຜົນຂອງການ ປັບປຸງ	ພາກສ່ວນທີ່ດັດແກ້	ເນື້ອໃນ
2016/09/28	0.01	Hachyo			ສ້າງຂຶ້ນໃຫມ່
2017/11/28	1.0	Kato			

ວັນທີ ສ້າງ	2017/7/5			
ວັນທີ ປັບ ປຸງ	2017/12/14	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	–
ສະບັບທີ	Ver 1.0			

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ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/12/14	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	–
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ຄວາມໝາຍຂອງສັນຍາລັກ ແລະ ເຄື່ອງໝາຍ.

ເອກະສານສະບັບນີ້ແມ່ນແມ່ນອີງຕາມສັນຍາລັກ ແລະ ເຄື່ອງໝາຍ.ຂ້າງລຸ່ມນີ້

ສັນຍາລັກ ແລະ ປຸ່ມຄວບຄຸມອື່ນໆ.

ປຸ່ມຄວບຄຸມຄືບອດ ແລະ ອື່ນໆ ດັ່ງລາຍລະອຽດຂ້າງລຸ່ມນີ້.

[ ] : ປຸ່ມສຳລັບຄວບຄຸມ, combo boxes, ເມນູ, ແລະ ອື່ນໆ.

【 】 : ຫນ້າຈໍປັນຕົ້ນແມ່ນ dialog, window ແລະ panel

{ } : ຄົ້ນພົບ້ອຽບ້ອນດ້ວແປ້ນພິມ

○○○ : ພາກສ່ວນທີ່ຈະຕ້ອງມີການປ່ຽນແປງໃນແຕ່ລະການໃຊ້ງານ ຫຼື ແຕ່ລະການຕັ້ງຄ່າອື່ນໆ

ຄຳແນະນຳ ແລະ ໝາຍເຫດ

ໄດ້ລະບຸໄວ້ຕາມສັນຍາລັກຂ້າງລຸ່ມນີ້.

- : ຄຳ ແນ ະ ນຳ
- : ໝາ ຍ ເ ຫດ
- : ຂ້າງອີງເຖິງ…

ເຄື່ອງໝາຍ ແລະ ສັນຍາລັກອື່ນໆ ທີ່ມີຢູ່ໃນຄູ່ມື

- ຄລິກສັ່ງການດຳເນີນງານຂອງເມົ້າກຳນົດແມ່ນ "ຄລິກຊ້າຍ" ແລະ "ຄລິກຂວາ" ໂດຍການຄລິກທີ່ເມົ້າດ້າຂວາ.

ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/12/14	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນຂຶ້ນໃນລະບົບ NFMS	–
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ຢ່າງໃດກໍ່ຕາມ, ງ່າຍໆຄືຫາກເຫັນຄຳວ່າ "ຄລິກ" ໝາຍວ່າ "ຄລິກຊ້າຍ".

- "Context menu" ແມ່ນກຳນົດລະສະແດງຜົນເມື່ອເວລາຄລິກຂວາຂອງເມົ້າ.

ອັນທີສ້າງ	2017/7/5			
ອັນທີປັບປຸງ	2017/12/14	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	–
ສະບັບທີ	Ver 1.0			

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1.1. ແຜນວາດຂັ້ນຕອນການນຳຂໍ້ມູນເຂົ້າລະບົບ

ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	1
ສະບັບທີ	Ver.1.0			

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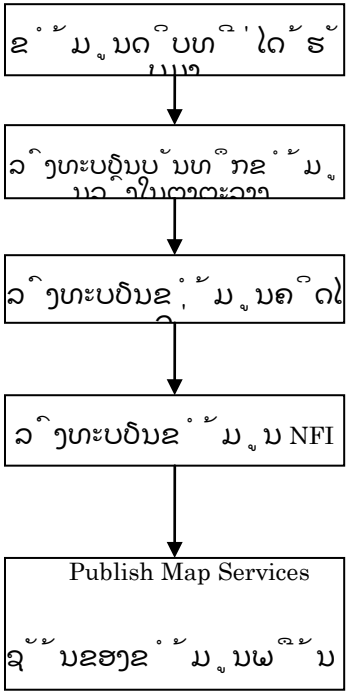

ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	2
ສະບັບທີ	Ver.1.0			

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1.2. ຂັ້ນຕອນການນຳຂໍ້ມູນເຂົ້າລະບົບ

1.2.1. ຂໍ້ມູນດິບທີ່ໄດ້ຮັບມາ

ປະເພດ	ລາຍການຂໍ້ມູນ	ປະເພດຂໍ້ມູນ	ເງື່ອນໄຂສຳລັບການລົງທະບຽນຂໍ້ມູນ
ແຜນທີ່ປະເພດປ່າໄມ້ (ປົດປ້ອ)	ແຜນທີ່ປະເພດປ່າໄມ້ (YYYY)	Shapefile or Feature Class	·ຊື່ຂອງ shapefile or feature class ແມ່ນ FTMYYYY*. YYYY ແມ່ນປີຂອງປະຕິທິນຕາເວັນຕົກ ແລະ ເຊິ່ງມັນສະແດງເຖິງວັນເວລາຂອງແຫຼ່ງຂໍ້ມູນ. (ໝາຍເຫດ: * ສາມາດເປັນໄດ້ທັງຕົວອັກສອນ ແລະ ຕົວເລກ). ·ຊື່ຜາຍ,ລະຫັດຂອງປະເພດປ່າແມ່ນ"FIXYYYY". ·ອາດຈະເກັບຂໍ້ມູນພວກເຮົາເກັບຂໍ້ມູນຫນຶ່ງປີໃນໂຜນເດີຫນຶ່ງ ແລະ ຫນຶ່ງ feature data set
ແຜນທີ່ປະເພດປ່າໄມ້ (ສົມທົບ)	ແຜນທີ່ປະເພດປ່າໄມ້ (ສົມທົບ, YYYY2_YYYY1)	Shapefile or Feature Class	·ຊື່ຂອງ shapefile or feature class ປ່ຽນໄປເປັນ YYYY 2 _ YYYY 1 * · YYYY 2 ແມ່ນປີຫຼັງຈາກປ່ຽນແປງ. YYYY 1 ແມ່ນປີກ່ອນການປ່ຽນແປງ. ເຊິ່ງມັນມັນແທນໃຫ້(ປີທີ່ມີການປ່ຽນແປງ) ຂອງແຫຼ່ງຂໍ້ມູນ. (ໝາຍເຫດ: * ສາມາດເປັນໄດ້ທັງຕົວອັກສອນ ແລະ ຕົວເລກ). ·ຊື່ຜາຍ,ລະຫັດການປ່ຽນແປງຂອງປະເພດປ່າແມ່ນ "ChangeYY 1 YY 2". YY1 ແທນດ້ວຍສອງຕົວເລກຂອງປີຫຼັງມີການປ່ຽນແປງ. ·ຊຸດຂໍ້ມູນການສົມທົບອາດຈະເກັບໄວ້ໃນໂຜນເດີຫນຶ່ງ ແລະ ຫນຶ່ງ feature data set

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ພາບຖ່າຍດາວທຽມ	ພາບຖ່າຍດາວທຽມ YYYY ປີ (False Color)	Raster	·YYYY ແມ່ນປີ. ເຊິ່ງແທນໃຫ້ປີຂອງແຫຼ່ງຂໍ້ມູນ.
	ພາບຖ່າຍດາວທຽມ YYYY ປີ (True Color)	Raster	·YYYY ແມ່ນປີ. ເຊິ່ງທນໃຫ້ປີຂອງແຫຼ່ງຂໍ້ມູນ.
ຜົນການສຳຫຼວດປ່າໄມ້ແຫ່ງຊາດ	1'st NFI (1991-1999)	Excel file	·ຕື່ມຂໍ້ມູນໃນຮູບແບບຂອງ"NFIOutputSettingSheetMaster.xls". ເວລາລົງທະບຽນຂໍ້ມູນໃສ່ໃນຖານຂໍ້ມູນ DB, ນັ້ນ ທ່ານສາມາດລົງທະບຽນຂໍ້ມູນໂດຍການໃຊ້ SQL statement ໃນຄໍລໍາດ້ານຂວາ.
ຂອບເຂດພື້ນທີ່ປະເພດປ່າ	ພື້ນທີ່ປ່າຜະລິດ (PFA)	Feature Class	·The feature class ຊື່ແມ່ນ PFAYYYYMMDD. YYYYMMDD ມີຄວາມໝາຍວ່າ ປີ, ເດືອນ, ແລະ ມື້.ເຊິ່ງມັນສະແດງເຖິງວັນເວລາຂອງແຫຼ່ງຂໍ້ມູນ
	ພື້ນທີ່ປ່າປ້ອງກັນ (PTA)	Feature Class	·The feature class ຊື່ແມ່ນ PTAYYYYMMDD. YYYYMMDD ມີຄວາມໝາຍວ່າ ປີ, ເດືອນ, ແລະ ມື້.ເຊິ່ງມັນສະແດງເຖິງວັນເວລາຂອງແຫຼ່ງຂໍ້ມູນ
	ພື້ນທີ່ປ່າສະຫງວນ (CSA)	Feature Class	·The feature class ຊື່ແມ່ນ CSAYYYYMMDD. YYYYMMDD ມີຄວາມໝາຍວ່າ ປີ, ເດືອນ, ແລະ ມື້.ເຊິ່ງມັນສະແດງເຖິງວັນເວລາຂອງແຫຼ່ງຂໍ້ມູນ
ຂອບເຂດຊາຍແດນ	ຂອບເຂດຊາຍແດນແຂວງ	Feature Class	·ຝາຍ,ລະຫັດຂອງແຂວງແມ່ນ "PCode"
	ຂອບເຂດຊາຍແດນປະເທດ	Feature Class	
	ຂອບເຂດຊາຍແດນເມືອງ	Feature Class	

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1.2.2. ບັນຊີລາຍຊື່ ສຳລັບການສ້າງຂໍ້ມູນ

ລດ	ຊື່ ຝາຍ	ຈຸດປະສົງ	ທີ່ ຕັ້ງບ່ ອນເກັບມ້ບົນ	ໝາຍເຫດ
ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດການປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	5
ສະບັບທີ	Ver.1.0			

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1	DDL.sql	1.2.3. ລ່ຽງທະບຽນບັນທຶກຂໍ້ມູນໃນຕາຕະລາງ,	*DB ຖານຂໍ້ມູນທັງໝົດແມ່ນໄດ້ຕິດຕັ້ງລົງໃນເຊີເວີ້ຍປັນທີ່ຮຽບຮ້ອຍແລ້ວ ອວບ້ການ້ຍ້ແມ່ນບໍ່ຈຳປັນທີ່ຈະດຳເນີນງານ	ການໃຊ້ງານ: ດຳເນີນງານ DDL ໃນ Microsoft SQL Server Management Studio2012
2	nfms_m_basemap.csv	1.2.3.1 で作成した設定系テーブルにデータのインポート用	...¥LAOSFOREST¥trunk¥docs¥20_基本設計¥DB 設計¥UDOM 様提供用テストデータ	使用順番：STEP2 Microsoft SQL Server Management Studio2012 で、テーブル名と csv ファイル名が同じであるテーブルに、csv ファイルをインポートします。インポートが完了した場合、設定系テーブルのレコードが登録されます。
3	nfms_m_carbon_pool.csv			
4	nfms_m_forest_area.csv			
5	nfms_m_forest_area_change_map_year.csv			
6	nfms_m_forest_classification.csv			
7	nfms_m_forest_inventory.csv			
8	nfms_m_forest_inventory_detail.csv			
9	nfms_m_forest_inventory_equation_used.csv			
10	nfms_m_forest_stratification.csv			
11	nfms_m_ipcc_land_use_category.csv			
12	nfms_m_layer_group.csv			
13	nfms_m_layers.csv			
14	nfms_m_map_year.csv			
15	nfms_m_province.csv			
16	nfms_m_rel_forest_classification_ipcc_definition.csv			
17	nfms_m_rel_forest_classification_stratification.csv			
18	nfms_m_user.csv			
19	nfms_t_forest_area.csv			
20	nfms_t_forest_area_change.csv			

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21	CalcForestAreaUnit.py	1.2.4.1 ການສ້າງພື້ນທີ່ ປ່າໄມ້ເປັນ feature class (calculation table)	E:¥NFMS¥arcpy	ການດຳເນີນງານ: ເບິ່ງຂໍ້ທີ 1.2.4.1
22	CalcForestAreaChangeUnit.py	1.2.4.2 ການສ້າງພື້ນທີ່ ຫົວໜ່ວຍປ່າໄມ້ເປັນ (ສົມທົບ) ພື້ນທີ່ feature class (calculation table)	E:¥NFMS¥arcpy	ການດຳເນີນງານ: ເບິ່ງຂໍ້ທີ 1.2.4.2
23	create_index.sql	ການເພີ່ມ index ເຂົ້າໃນ ຕາຕະລາງພື້ນທີ່ປ່າໄມ້ ແລະ ຕາຕະລາງການປ່ຽນແປງພື້ນທີ່ປ່າໄມ້ລົງທະບຽນໃນ 1.2.4.3	E:¥NFMS¥ddl	ການດຳເນີນງານ: ການດຳເນີນງານ sql scripts ໃນ Microsoft SQL Server Management Studio2012
24	create_view.sql	ສ້າງ View ການນຳໃຊ້ສຳລັບ ການຄົດໄລ່ໃນ 1.2.4.3	E:¥NFMS¥ddl	ການດຳເນີນງານ: ການດຳເນີນງານ sql scripts ໃນ Microsoft SQL Server Management Studio2012

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1.2.3. ການລົງທະບຽນບັນທຶກຂໍ້ມູນລົງໃນຕາຕະລາງການຕັ້ງຄ່າ

1.2.3.1 ຖ້າບໍ່ມີຕາຕະລາງການຕັ້ງຄ່າ, ໃຫ້ສ້າງຕາຕະລາງການຕັ້ງຄ່າ

ໃນລະບົບເຊີເວີ້ຂອງ FIPD ແມ່ນໄດ້ມີຕາຕາລາງການຕັ້ງຄ່າແລ້ວ ດ່ຽວນັ້ນຂໍ້ທີ 1.2.3 ບໍ່ຈຳເປັນເຮັດ.

- ໃນ Microsoft SQL Server Management Studio2012, execute SQL DDL (DDL.sql) ສຳລັບຕາຕະລາງການຕັ້ງຄ່າ..
- ໃນ Microsoft SQL Server Management Studio2012, ການລົງທະບຽນບັນທຶກການຕັ້ງຄ່າໂດຍໃຊ້ csv ຟາຍຂອງການບັນທຶກຂໍ້ມູນລົງໃນຕາຕະລາງການຕັ້ງຄ່າ.

1.2.3.2 ການຍົກຍັນຄວາມສອດຄ່ອງ

- ໃຫ້ແນ່ໃຈວ່າຄ່າຂອງຂອງແຂວງໃນຕາຕາລາງຫຼັກ (nfms_m_map_year) ກົງກັບຄ່າຂອງລະຫັດແຂວງ ("PCode") ຂອງຂອບເຂດຊາຍແດນແຂວງ feature class (ແຂວງ)
- ໃຫ້ແນ່ໃຈວ່າປີຂອງແຜນທີ່ໃນຕາຕາລາງແມ່ (nfms_m_map_year) ແລະປີຂອງແຜນທີ່ (YYYY part) ແຜນທີ່ປະເພດປ່າໄມ້ທັງໝົດຍູ່ໃນຮູບແບບຂອງ shapefile.
- ໃຫ້ແນ່ໃຈວ່າສອງປີທັດໄປແມ່ນຖືກຕ້ອງແລະກົງກັນ;

1. ປີຂອງແຜນທີ່ທັງສອງ (ກ່ອນແລະຫຼັງການປ່ຽນແປງ) ນອນໃນຮູບແບບ "nfms_m_forest_area_change_map_year", ໃນຕາຕາລາງຫຼັກປີຂອງແຜນປະເພດປ່າໄມ້ (ການສົມທຽບ)
2. ສອງປີທີ່ລະບຸໄວ້ໃນ feature class ຊື່ຂອງການຈຳແນກປະເພດປ່າໄມ້ (ການສົມທຽບ). ໝາຍເຫດ YYYY 2 _ YYYY 1: YYYY 2 ແມ່ນແຜນທີ່ປີຫຼັງຈາກການປ່ຽນແປງ, YYYY 1 ແມ່ນແຜນທີ່ປີກ່ອນການປ່ຽນແປງ.
   - ໃຫ້ແນ່ໃຈວ່າລະຫັດຂອງປະເພດປ່າໄມ້ (forest_classification_cd) ຂອງຕາຕະລາງປະເພດປ່າໄມ້ (nfms_m_forest_classification) ແລະລະຫັດປ່າໄມ້ຂອງປະເພດປ່າ(ປີດບ້ວ) ທັງໝົດຍູ່ໃນຮູບແບບຂອງ shapefile ຟາຍ .
   - ໃຫ້ແນ່ໃຈວ່າລະຫັດປະເພດປ່າໄມ້ (forest_classification_cd) ຂອງຕາຕະລາງປະເພດປ່າໄມ້ (nfms_m_forest_classification) ແມ່ນນຳໃຊ້ຕົວເລກສອງຕົວທຳອິດ ແລະ ລະຫັດເລກທ້າຍສອງຕົວສຸດທ້າຍການປ່ຽນແປງຂອງປະເພດປ່າໄມ້

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(ການສ ົມທບົບ) shapefile.

1.2.4. ລ ົງທະບບົນຂ ໍ້ມ ູນຄ ິດໄລ ່

1.2.4.1 ຂ ັ້ນຕອນທ ີ 1: ການສ ້າງພ ື້ນທ ີ ່ປ ່າໄມ ້ feature class (ຕາຕະລາງການຄ ິດໄລ ່)

ແກ ້ໄຂ ແລະ ຈ ັດການຕ ົວແປ ArcPy (CalcForestAreaUnit.py) ເພ ື່ ່ອສ ້າງຕາຕະລາງເຂດພ ື້ນທ ີ ່ຂອງປ ່າໄມ ້(feature class) ສະເພາະຫນ ື່ ່ງປ ີ. ການປ ່ບົນ / ກ ໍານ ົດຕ ົວແປແຕ ່ລະປ ີ ແລະ ດຳເນ ີນການ. ຖ ້າທ ່ານຢາກຈະຄ ິດໄລ ່ໃນຫ ຼາຍຊ ້ວງເວລາ, ກ ໍ ່ໃຫ ້ໃຊ ້ເວລາເວລາດບົວກ ັນ.

- ວ ິທ ີປະຕ ິບ ັດ:
  - ເປ ີດ ArcPy ຟາຍເພ ື່ ່ອສ ້າງ ແລະ ແກ ້ໄຂດ ້ວຍ text editor.

ວ ັນທ ີສ ້າງ	2017/7/5			
ວ ັນທ ີປ ັບປ ຸງ	2017/11/28	NFMS (ລະບ ົບຕ ິດຕາມກວດກາປ ່າໄມ ້ແຫ ່ງຊາດ)	ຄ ູ ່ມ ືການນຳຂ ໍ້ມ ູນເຂ ົ້າໃນລະບ ົບ NFMS	9
ສະບ ັບທ ີ	Ver.1.0			

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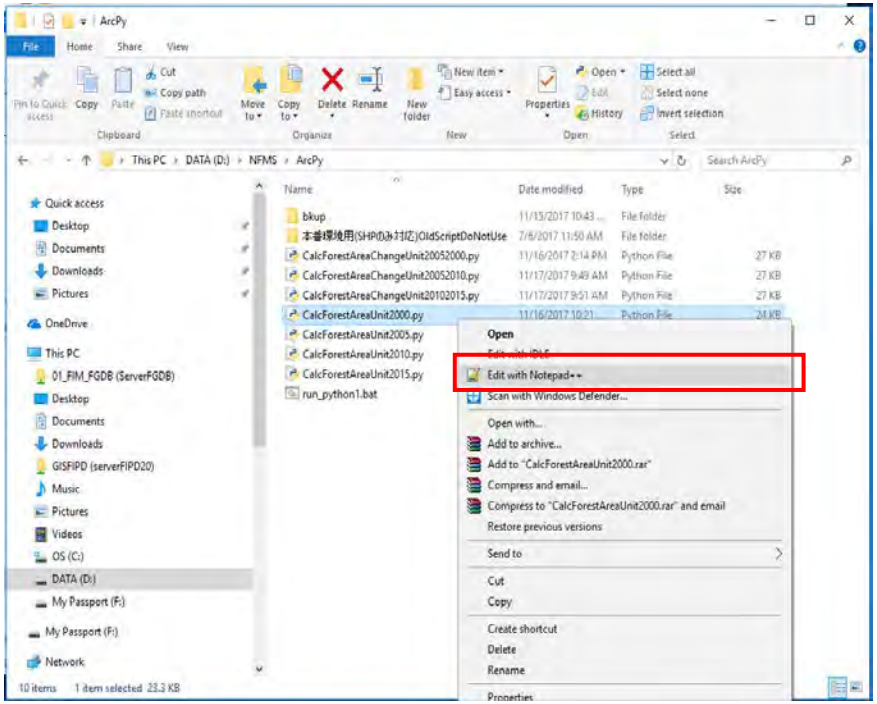

· ແກ້ໄຂຂໍ້ມູນທີ່ຍູ່ທີ່ຍູໃນ ArcPy script ແລະ save (ຫຶງໃສ່ນິຍາມ ແລະ ການປ່ບົນແປງ ຂຫງ ຕົວແປໃນ ບົດຕໍ່ໄປ).

ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	10
ສະບັບທີ	Ver.1.0			

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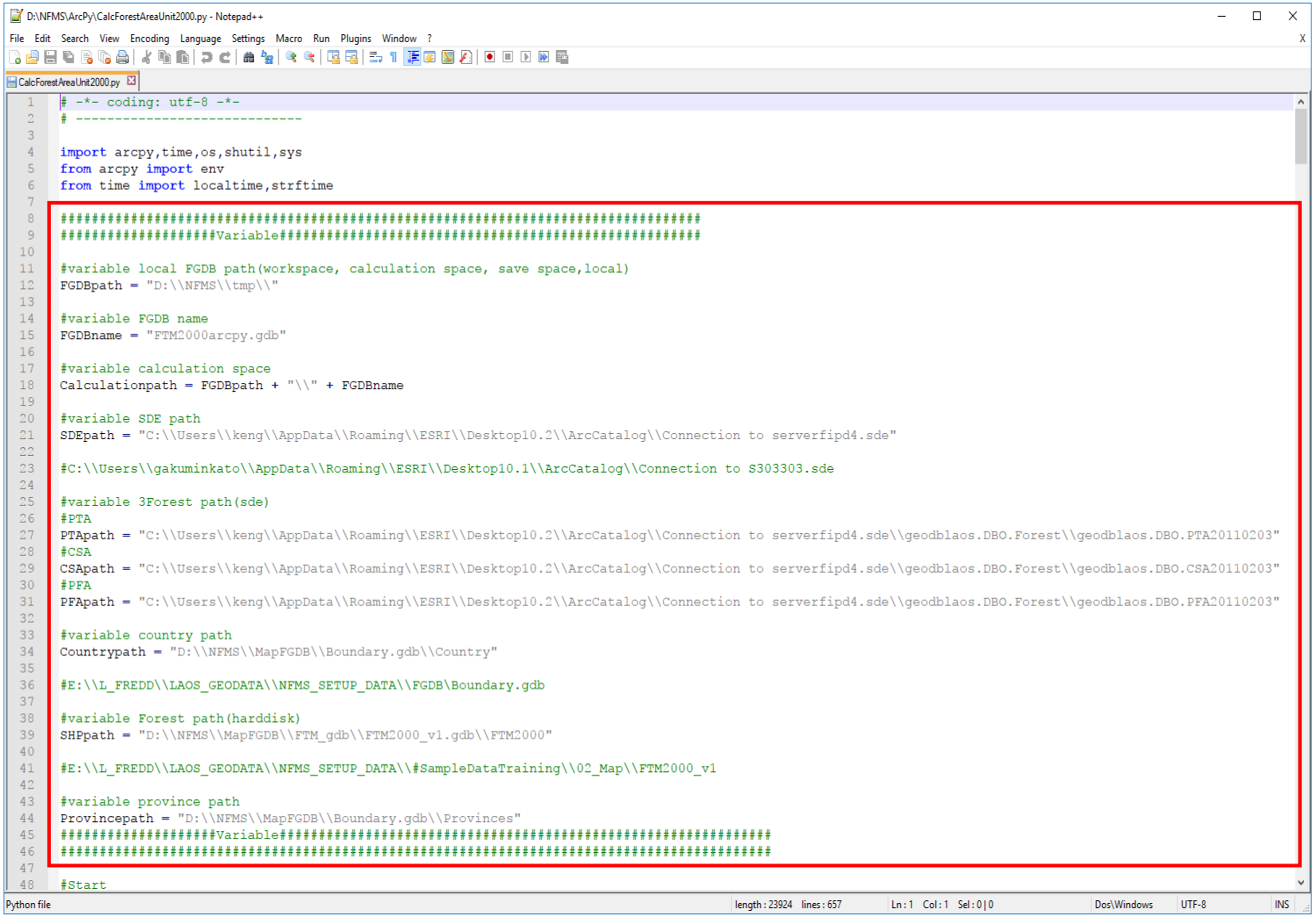


```python
# -*- coding: utf-8 -*-
# -----------------------------

import arcpy,time,os,shutil,sys
from arcpy import env
from time import localtime,strftime

##################################################################################
###################Variable#######################################################

#variable local FGDB path(workspace, calculation space, save space,local)
FGDBpath = "D:\\NFMS\\tmp\\"

#variable FGDB name
FGDBname = "FTM2000arcpy.gdb"

#variable calculation space
Calculationpath = FGDBpath + "\\" + FGDBname

#variable SDE path
SDEpath = "C:\\Users\\keng\\AppData\\Roaming\\ESRI\\Desktop10.2\\ArcCatalog\\Connection to serverfipd4.sde"

#C:\\Users\\gakuminkato\\AppData\\Roaming\\ESRI\\Desktop10.1\\ArcCatalog\\Connection to S303303.sde

#variable 3Forest path(sde)
#PTA
PTApath = "C:\\Users\\keng\\AppData\\Roaming\\ESRI\\Desktop10.2\\ArcCatalog\\Connection to serverfipd4.sde\\geodblaos.DBO.Forest\\geodblaos.DBO.PTA20110203"
#CSA
CSApath = "C:\\Users\\keng\\AppData\\Roaming\\ESRI\\Desktop10.2\\ArcCatalog\\Connection to serverfipd4.sde\\geodblaos.DBO.Forest\\geodblaos.DBO.CSA20110203"
#PFA
PFApath = "C:\\Users\\keng\\AppData\\Roaming\\ESRI\\Desktop10.2\\ArcCatalog\\Connection to serverfipd4.sde\\geodblaos.DBO.Forest\\geodblaos.DBO.PFA20110203"

#variable country path
Countrypath = "D:\\NFMS\\MapFGDB\\Boundary.gdb\\Country"

#E:\\L_FREDD\\LAOS_GEODATA\\NFMS_SETUP_DATA\\FGDB\Boundary.gdb

#variable Forest path(harddisk)
SHPpath = "D:\\NFMS\\MapFGDB\\FTM_gdb\\FTM2000_v1.gdb\\FTM2000"

#E:\\L_FREDD\\LAOS_GEODATA\\NFMS_SETUP_DATA\\#SampleDataTraining\\02_Map\\FTM2000_v1

#variable province path
Provincepath = "D:\\NFMS\\MapFGDB\\Boundary.gdb\\Provinces"
###################Variable#############################################################
#########################################################################################

#Start
```

ວັນທີ ສ້າງ	2017/7/5			
ວັນທີ ປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມື ການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	11
ສະບັບທີ	Ver.1.0			

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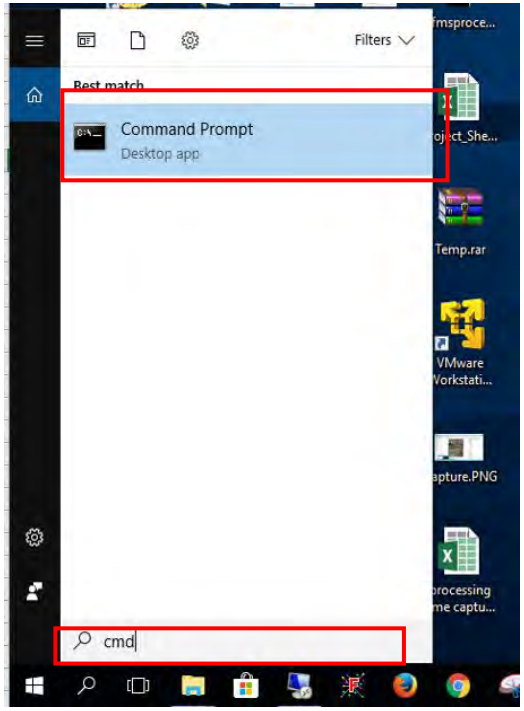
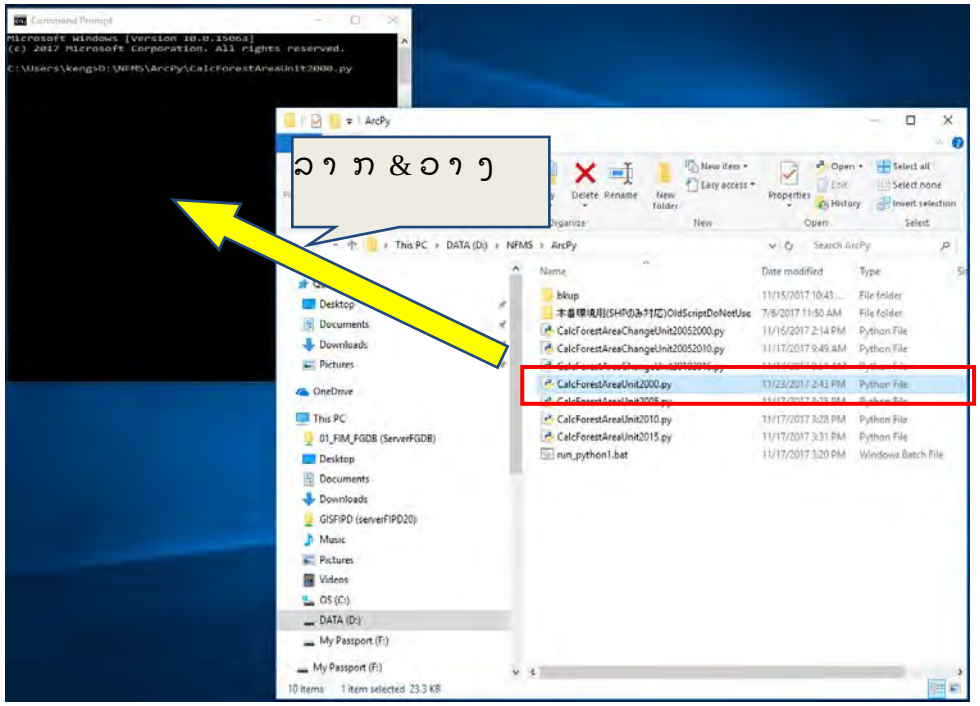
・ຄວິກ Start【Command Prompt】(ພິມ “cmd”), ລາກ ແລະ saved ArcPy file ໄປວາງ ໃສ່【Command Prompt】ແລະ ກົດ {Enter}.





ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	12
ສະບັບທີ	Ver.1.0			

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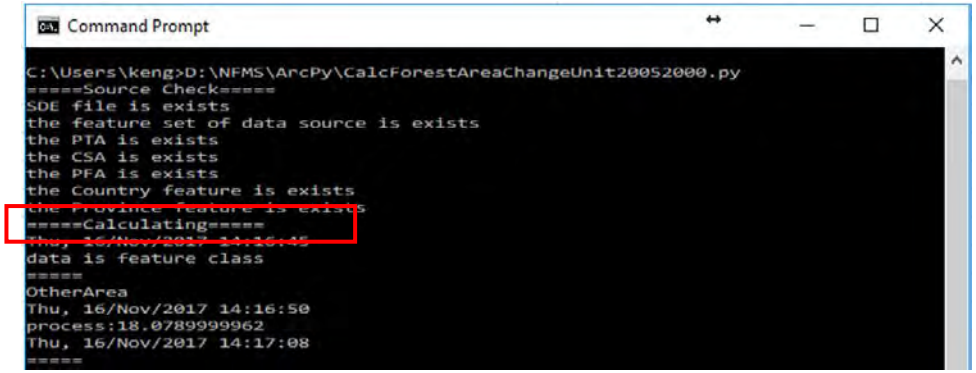
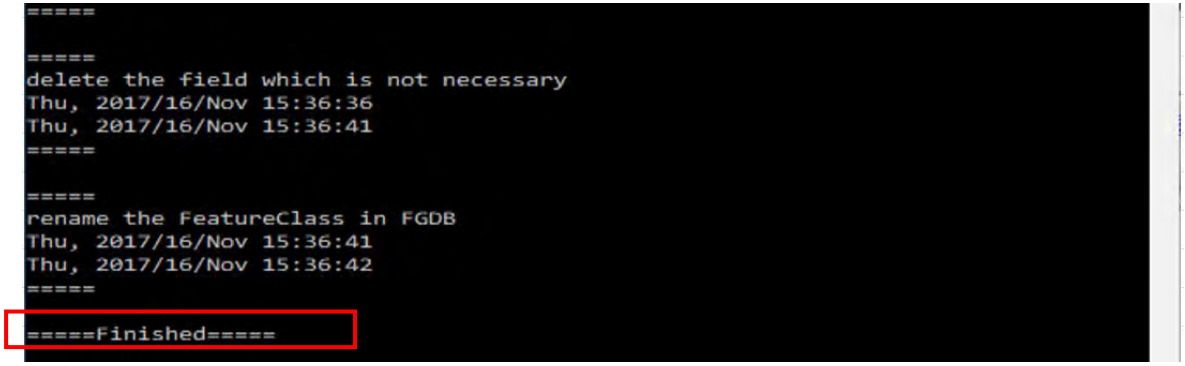
· ຫາກມັນສະແດງຜົນດັ່ງຂ້າງລຸ່ມນີ້ສະແດງວ່າ "Calculating", ArcPy ແມ່ນກຳລັງດຳເນີນງານ.



· ເວລາ "ສຳເລັດ" ມັນຈະ ສະ ແດງ ໃນ 【Command Prompt】, ArcPy calculation ແມ່ນສຳເລັດເປັນທີ່ຮບົບຮ້ອຍ ດັ່ງຂ້າງລຸ່ມນີ້.



- ໃຊ້ເວລາ ໃນກາ ນດຳ ເນີນງານຫຼາຍກວ່າ 5 ຊົ່ວໂມງ ສຳ ລັບຂໍ້ມູນຫນຶ່ງປີຂອງ FTM
- ຖ້າຫາ ກພົ້ນທີ່ຄວາ ມຈຳ ຂອງ ເຄື່ອງຫາ ກບໍ່ພບົງ ພໍ, ຂັ້ນຕອນດັ່ງກ່າວນີ້ມັນຈະ ສະ ແດງ ຜົນ "execution error"

ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	13
ສະບັບທີ	Ver.1.0			

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(ໃນເດືອນກໍລະກົດ 2017 ໄດ້ກວດສອບເຄື່ອງຄອມພິວເຕີ້ຂອງ FIPD ແລ້ວແມ່ນ 8GM RAM ມັນຈະ ສົ່ງຜົນ ໃຫ້ເກີດຂໍ້ພິດພາດໄດ້, ຄວາ ມແຮງ ຂອງ ແລ້ວມຍ່າງໜ້ອຍ 16GB RAM)

- ຄຳນິຍາມຂອງຕົວແປ ແລະ ຂັ້ນຕອນໃນການປ່ຽນແປງຕົວແປ
  ຕົວແປແມ່ນໄດ້ກຳນົດໃນ ArcPy (ດ້ວຍນີ້ "#variable"). ເພື່ອປ່ຽນແປງ ຄ່າຂອງ ຕົວແປໃຫ້ປະ ຕິບັດຕາ ມຕາ ຕະ ລາ ງ ຂ້າງລຸ່ມນີ້ (ຕາ ຕະ ລາ ງ ລາ ຍລະ ອຽດ ຂອງ ຕົວແປ 1).

ຕາ ຕະ ລາ ງ ນິ ຍາ ມ ແລະ ລາ ຍລະ ອຽດ ຂອງ ຕົວແປ 1

ລາ ຍການ	ຊື່ ຂອງ ຕົວແປ	ຕົວຢ່າງຄ່າຕົວແປ ຂອງ (ແຜນທີ່ ປະ ເພດ ປ່າ ໄມ້ ປີ 2000)	ໝາ ຍ ເຫດ
Path ສຳ ລັບ ແຜນ ທີ່ ປະ ເພດ ປ່ າ ໄມ້	SHPpath	ສຳ ລັບ shapefile: "D:¥¥LAOS_GEODATA¥¥02_Map¥¥FTM2000" ສຳ ລັບ Feature Class: "D:¥¥LAOS_GEODATA¥¥02_Map.gdb¥¥FTM2000"	ສຳ ລັບ shapefile, ກຳ ນົດໄວ້ ໃ ນ ໂ ຟ ເດ ີ ຂ ອ ງ forest type shapefile ເພ ື ່ ອ ຈ ະ ດ ຳ ເນ ີ ນ ກ า ນ. ສຳ ລັ ບ feature class, ກ ຳ ນ ົ ດ ໄ ວ ້ ໃ ນ ໂ ฟ ເ ด ี ข อ ง FGDB.
Path ສຳ ລັ ບ ພື ້ ນ ທ ີ ່ ป ่ า ป ้ อ ง ກ ັ ນ (PTA) ຂ ອ ງ ຂ ອ ບ ເ ຂ ດ ແ ຜ ນ	PTApath	"C:¥¥Users¥¥admin¥¥AppData¥¥Roaming¥¥ESRI¥¥Desktop10.1¥¥ArcCatalog¥¥Connection to SERVER.sde¥¥geodblaos.DBO.Forest¥¥geodblaos.DBO.PTA20110203"	ມ ັ ນ ບ ໍ ຄ ື ກ ັ ບ path ຂ ອ ງ forest type shapefile, ກ ຳ ນ ົ ດ ເ ป ັ ນ feature class ຊ ື ່ ຂ ອ ງ ຂ ອ ບ ເ ຂ ດ ແ ຜ ນ

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ທີ່ປະເພດປ່າ.			ທີ່ປະເພດປ່າ..
Path ສຳລັບພື້ນທີ່ປ່າສະຫງວນ (CSA) ຂອງຂອບເຂດແຜນທີ່ປະເພດປ່າ.	CSApath	"C:¥¥Users¥¥admin¥¥AppData¥¥Roaming¥¥ESRI¥¥Desktop10.1¥¥ArcCatalog¥¥Connection to SERVER.sde¥¥geodblaos.DBO.Forest¥¥geodblaos.DBO.CSA20110203"	ກຳນົດເປັນ feature class ຊື່ຂອງຂອບເຂດແຜນທີ່ປະເພດປ່າ
Path ສຳລັບປ່າຜະລິດ(PFA)ຂອງຂອບເຂດແຜນທີ່ປະເພດປ່າ.	PFApath	C:¥¥Users¥¥admin¥¥AppData¥¥Roaming¥¥ESRI¥¥Desktop10.1¥¥ArcCatalog¥¥Connection to SERVER.sde¥¥geodblaos.DBO.Forest¥¥geodblaos.DBO.PFA20110203	ມັນບໍ່ຄືກັບ path ຂອງ forest type shapefile, ກຳນົດເປັນ feature class ຊື່ຂອງຂອບເຂດແຜນທີ່ປະເພດປ່າ
Path ສຳລັບ Feature Class ຂອງປະເທດ	Countrypath	"D:¥¥LAOS_GEODATA¥¥99_Other¥¥LaoPDR_2010.gdb¥¥Country"	ກຳນົດ path ແລະ feature class ຊື່ຂອງປະເທດ Country feature class.
Path ສຳລັບ Feature Class ຂອງແຂວງ	Provincepath	D:¥¥LAOS_GEODATA¥¥99_Other¥¥LaoPDR_2010.gdb¥¥Provinces	ກຳນົດ path ແລະ feature class ຊື່ຂອງແຂວງ Province feature class.
Path ສຳລັບ FGDB ເພື່ອເກັບຂໍ້	FGDBpath	"C:¥¥Users¥¥admin¥¥Documents¥¥ArcGIS"	ກຳນົດ path ຂອງ FGDB.

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ມ ູ ນຄ ິ ດໄລ ່ (calculation data)			
ຊ ື ່ ຂ ອ ງ FGDB ເກ ັ ບຂ ໍ ້ ມ ູ ນຄ ິ ດ ໄລ ່ (calculation data)	FGDBname	"laosdata.gdb"	ກ ຳ ນ ົ ດ path ຂ ອ ງ FGDB. ຈ ຳ ເປ ັ ນຕ ້ ອງໄດ ້ ຕ ື ່ ມ ສ ່ ວນຂ ະ ຫຍ າ ຍ ".gdb" ຫ ຼ ັ ງ ຊ ື ່ ຖ ້ າຫາ ກ ມ ີ ແຕ ່ FGDB ກ ັ ບຊ ື ່ ຜ ົ ນການຄ ິ ດໄລ ່ ຈ ະ ເກ ີ ດມ ີ ຂ ໍ ້ ຜ ິ ດ ພາ ດ
Path ສ ຳ ລ ັ ບເກ ັ ບຜ ົ ນໄດ ້ ຮ ັ ບຂ ອ ງ ກ າ ນ ຄ ິ ດໄລ ່	SDEpath	"C:¥¥Users¥¥admin¥¥AppData¥¥Roaming¥¥ESRI¥¥Desktop10.1¥¥ArcCatalog¥¥Connection to SERVER .sde"	ກ ຳ ນ ົ ດຂ ອ ງ ຜ ົ ນໄດ ້ ຮ ັ ບ ຂ ອ ງ ຖ າ ນ ຂ ໍ ້ ມ ູ ນ (SDE file)

- ຕ ້ ອງໄດ ້ ເພ ີ ່ ມສ ັ ນຍ າ ລ ັ ກ "¥"ສ ອ ງ ໂ ຕ. ຫາກມ ີ ໂ ຕ ດ ບ ົ ວ , ArcPy calculation ຈ ະ ເກ ີ ດມ ີ ຂ ໍ ້ ພ ິ ດພາ ດ .
- ແປ ້ ນພ ິ ມຄ ອ ມ ພ ິ ວເຕ ີ ້ ຂ ອ ງ FIPD, ສ ັ ນຍ າ ລ ັ ກ "¥" ແມ ່ ນຈະຢ ູ ່ ທ ີ ່ "＼".
- ໃຫ ້ ແນ ່ ໃ ຈ ວ ່ າມ ີ ໄຟລ ์ ທ ີ ່ ຈ ໍ າເປ ັ ນ. ຖ ້ າຟ າ ຍ ບ ໍ ່ ມ ີ, ຂ ໍ ້ ຄວາມສະແດງຂ ໍ ້ ຜ ິ ດພາດຈະຖ ື ກສະແດງໃນລະຫວ ່ າງການປະຕ ິ ບ ັ ດ ແລະ ການຄ ິ ດໄລ ່ ຖ ື ກຍ ົ ກເລ ີ ກ. ກວດສອບຂ ໍ ້ ຄວາມສະແດງຂ ໍ ້ ຜ ິ ດພາດ ແລະ ກວດເບ ິ ່ ງວ ່ າໄຟລ ์ ມ ີ ຢ ູ ່ ຫ ຼ ື ບ ໍ ່ ແລະ ເບ ິ ່ ງຕ ື ່ ມ ອ ີ ກວ ່ າວ ິ ທ ີ ການກ ໍ ານ ົ ດຕ ົ ວແປແມ ່ ນຖ ື ກຕ ້ ອງແລ ້ ວບ ໍ ່ ແລະ ອ ີ ່ ນງ.

ວ ັ ນທ ີ ສ ້ າ ງ	2017/7/5			
ວ ັ ນທ ີ ປ ັ ບ ປ ຸ ງ	2017/11/28	NFMS (ລະບ ົ ບຕ ິ ດຕາມກວດກາປ ່ າໄມ ້ ແຫ ່ ງຊາດ)	ຄ ູ ່ ມ ື ການນ ຳຂ ໍ ້ ມ ູ ນເຂ ົ ້ າໃນລະບ ົ ບ NFMS	16
ສະບ ັ ບທ ີ	Ver.1.0			

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- ກວດສອບຜົນໄດ້ຮັບ
  ໃຫ້ແນ່ໃຈວ່າຕາຕະລາງໄດ້ຖືກສ້າງ ແລະ ນອນຢູ່ໃນຖານຂໍ້ມູນແລ້ວ.
  ຊື່ຕາຕະລາງ : dbo.FORESTAREA

ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	17
ສະບັບທີ	Ver.1.0			

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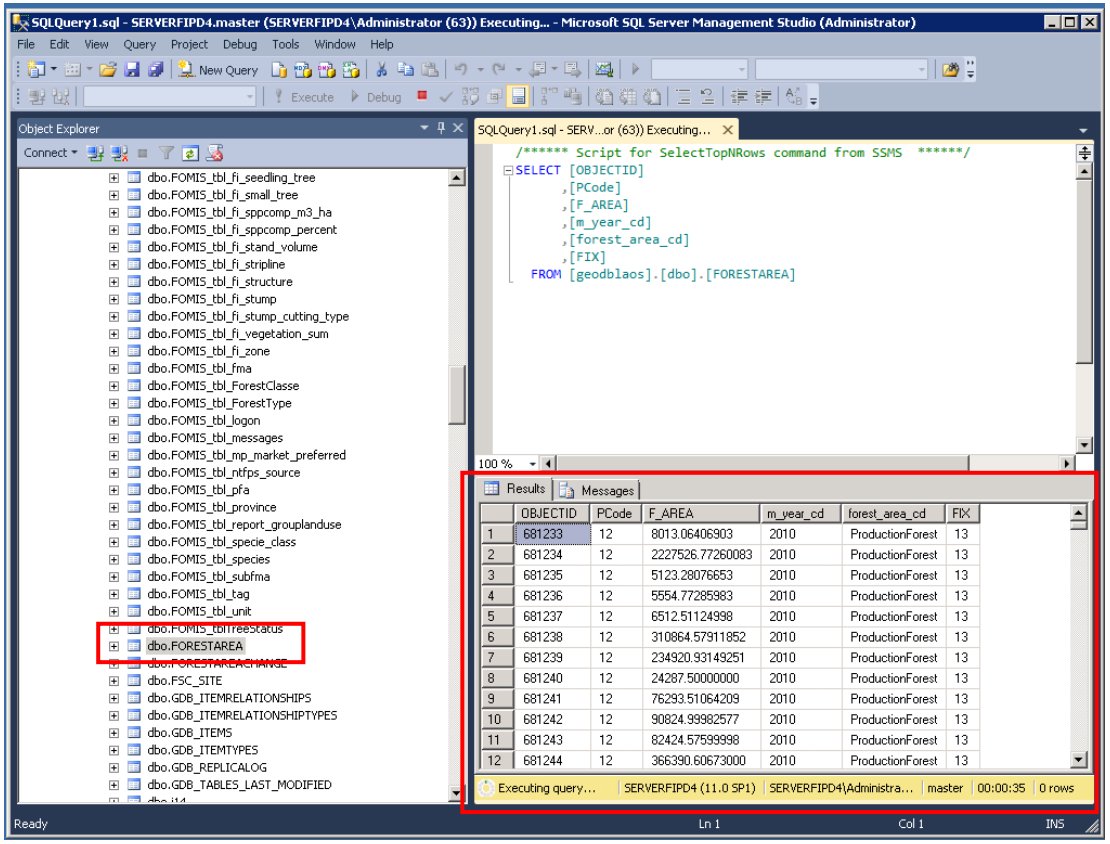

1.2.4.2 ຂັ້ນຕອນທີ 2: ການສ້າງພື້ນທີ່ປ່າໄມ້ (ສົມທຽບ) ພື້ນທີ່ feature class (calculation table)

ແກ້ໄຂຕົວແປຂອງ ArcPy (CalcForestAreaChangeUnit.py) ແລະ ດຳເນີນການສຳລັບການສ້າງຕາຕະລາງເຂດພື້ນທີ່ປ່າໄມ້(ການປຽບທຽບ) ຕາ ຕະ ລາ ງ ກາ ນ ປ່ຽນແປງ (Feature Class)

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ສ່ຳລັບການປ່ຽນແປງຫນຶ່ງ. ໃນເວລາສ້າງຕາຕະລາງເຂດພື້ນທີ່ປ່າໄມ້ (ການປຽບທຽບ) ຕາ ຕະ ລາ ງ ກາ ນ ປ່ຽ ນ ແ ປ ງ (Feature Class) ສ ຳ ລ ັ ບ ແ ຕ ່ ລ ະ ປ ີ , ກ ຳ ນ ົ ດ ຕ ົ ວ ແ ປ ແ ລ ະ ດ ຳ ເ ນ ີ ນ ກ າ ນ ໂ ປ ຕ າ ມ ລ ຳ ດ ັ ບ ຂ ັ ້ ນ ແ ຕ ່ ລ ະ ຮ ັ ນ.

- ຂ ັ ້ ນ ຕ ອ ນ ກ າ ນ ປ ະ ຕ ິ ບ ັ ດ
  ແ ບ ບ ດ ຽ ວ ກ ັ ບ ຂ ັ ້ ນ ຕ ອ ນ ທ ີ 1

ຖ້ າ ຫ າ ກ ພ ື ້ ນ ທ ີ ່ ຄ ວ າ ມ ຈ ຳ ຂ ອ ງ ເ ຄ ື ່ ອ ງ ຫ າ ກ ບ ໍ ່ ພ ຽ ງ ພ ໍ , ຂ ັ ້ ນ ຕ ອ ນ ດ ັ ່ ງ ກ ່ າ ວ ນ ີ ້ ມ ັ ນ ຈ ະ ສ ະ ແ ດ ງ ຜ ົ ນ "execution error"

(ໃ ນ ເ ດ ືອ ນ ກ ໍ ລ ະ ກ ົ ດ 2017 ໄ ດ ້ ກ ວ ດ ສ ອ ບ ເ ຄ ື ່ ອ ງ ຄ ອ ມ ພ ິ ວ ເ ຕ ີ ້ ຂ ອ ງ FIPD ແ ລ ັ ມ ແ ມ ່ ນ 8GM RAM ມ ັ ນ ຮ າ ດ ຈ ະ ສ ົ ່ ງ ຜ ົ ນ ໃ ຫ ້ ກ ິ ດ ຂ ໍ ້ ພ ິ ດ ພ າ ດ ໄ ດ ້ , ຄ ວ າ ມ ແ ຮ ງ ຂ ອ ງ ແ ລ ັ ມ ຍ ່ າ ງ ຫ ນ ້ ອ ຍ 16GB RAM)

- ຄ ວ າ ມ ຫ ມ າ ຍ ຂ ອ ງ ຕ ົ ວ ແ ປ ແ ລ ະ ຂ ັ ້ ນ ຕ ອ ນ ກ າ ນ ປ ່ ຽ ນ ແ ປ ງ ຕ ົ ວ ແ ປ
  ກ າ ນ ກ ຳ ນ ົ ດ ຄ ່ າ ຂ ອ ງ ຕ ົ ວ ແ ປ ຍ ູ ່ ໃ ນ ArcPy (ທ ີ ່ ອ ະ ທ ິ ບ າ ຍ ດ ັ ່ ງ #variable). ໃ ນ ກ າ ນ ກ ຳ ນ ົ ດ ແ ລ ະ ປ ່ ຽ ນ ແ ປ ງ ຄ ່ າ ຂ ອ ງ ຕ ົ ວ ແ ປ ໃ ຫ ້ ເ ປ ັ ່ ງ ຕ າ ມ ຕ າ ຕ ະ ລ າ ງ ຂ ້ າ ງ ລ ຸ ່ ມ ນ ີ ້ (ຕ າ ຕ ະ ລ າ ງ ນ ິ ຍ າ ມ ແ ລ ະ ລ າ ຍ ລ ະ ອ ຽ ດ ຂ ອ ງ ຕ ົ ວ ແ ປ ແ ປ 2).

ຕ າ ຕ ະ ລ າ ງ ນ ິ ຍ າ ມ ແ ລ ະ ລ າ ຍ ລ ະ ອ ຽ ດ ຂ ອ ງ ຕ ົ ວ ແ ປ **2**

ລ າ ຍ ກ າ ນ	ຊ ື ່ ຂ ອ ງ ຕ ົ ວ ແ ປ	ຕ ົ ວ ຢ ່ າ ງ ຄ ່ າ ຕ ົ ວ ແ ປ ຂ ອ ງ (ແ ຜ ນ ທ ີ ່ ກ າ ນ ປ ່ ຽ ນ ແ ປ ງ ປ ະ ເ ພ ດ ປ ່ າ ໄ ມ ້ ປ ີ 2000 ແ ລ ະ 2005)	ຫ ມ າ ຍ ເ ຫ ດ
Path ສ ຳ ລ ັ ບ ແ ຜ ນ ທ ີ ່ ປ ະ ເ ພ ດ ປ ່ າ (ກ າ ນ ປ ຽ ບ ທ ຽ ບ)	SHPpath	For shapefile: "D:¥¥LAOS_GEODATA¥¥02_Map¥¥Change2005_2000" For Feature Class: "D:¥¥LAOS_GEODATA¥¥02_Map.gdb¥¥Change2005_2000"	ສ ຳ ລ ັ ບ shapefile, ກ ຳ ນ ົ ດ ໄ ວ ້ ໃ ນ ໂ ຟ ເ ດ ີ ຂ ອ ງ forest type shapefile ຂ ອ ງ forest type shapefile (ການ ສ ົ ມ ທ ຽ ບ) ພ ື ້ ອ ຈ ະ ດ ຳ ເ ນ ີ ນ ກ າ ນ. ສ ຳ ລ ັ ບ feature class, ກ ຳ ນ ົ ດ ໄ ວ ້ ໃ ນ ໂ ຟ ເ ດ ີ ຂ ອ ງ

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			FGDB.
Path ສຳ ລັບພື້ນ ທີ່ປ່າປ້ອງກັນ (PTA) ຂອງ ຂອບ ເ ຂດແຜນທີ່ ປະ ເ ພດປ່າ.	PTApath	"C:¥¥Users¥¥admin¥¥AppData¥¥Roaming¥¥ESRI¥¥Desktop10.1¥¥ArcCatalog¥¥Connection to SERVER .sde¥¥geodblaos.DBO.Forest¥¥geodblaos.DBO.PTA20110203"	ມັນບໍ່ຄືກັບ path ຂອງ forest type shapefile, ກຳ ນົດເປັນ feature class ຊື່ ຂອງຂອບເ ຂດແຜນທີ່ ປະ ເ ພດປ່າ..
Path ສຳ ລັບພື້ນ ທີ່ປ່າສະ ຫງ ວນ (CSA) ຂອງ ຂອບເ ຂດ ແຜນທີ່ ປະ ເ ພດປ່າ.	CSApath	"C:¥¥Users¥¥admin¥¥AppData¥¥Roaming¥¥ESRI¥¥Desktop10.1¥¥ArcCatalog¥¥Connection to SERVER (.sde¥¥geodblaos.DBO.Forest¥¥geodblaos.DBO.CSA20110203"	ກຳ ນົດເປັນ feature class ຊື່ ຂອງ ຂອບເ ຂດແຜນທີ່ ປະ ເ ພດປ່າ
Path ສຳ ລັບປ່າຜ ະ ລິດ(PFA)ຂອງ ຂອບເ ຂດແຜນ ທີ່ ປະ ເ ພດປ່າ.	PFApath	C:¥¥Users¥¥admin¥¥AppData¥¥Roaming¥¥ESRI¥¥Desktop10.1¥¥ArcCatalog¥¥Connection to SERVER.sde¥¥geodblaos.DBO.Forest¥¥geodblaos.DBO.PFA20110203	ມັນບໍ່ຄືກັບ path ຂອງ forest type shapefile, ກຳ ນົດເປັ ນ feature class ຊື່ ຂອງ ຂອບເ ຂດແຜນທີ່ ປະ ເ ພດປ່າ
Path ສຳ ລັບ Feature Class ຂອງ ປະ ເ ທດ	Countrypath	"D:¥¥LAOS_GEODATA¥¥99_Other¥¥LaoPDR_2010.gdb¥¥Country"	ກຳ ນົດ path ແລະ feature class ຊື່ ຂອງ ປະ ເ ທດ Country feature class.
Path ສຳ ລັບ Feature Class ຂອງ ແຂວງ	Provincepath	D:¥¥LAOS_GEODATA¥¥99_Other¥¥LaoPDR_2010.gdb¥¥Provinces	ກຳ ນົດ path ແລະ feature class ຊື່ ຂອງ ແຂວງ

ວັນທີສ້າ ງ	2017/7/5			
ວັນທີປັບ ປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	20
ສະບັບທີ	Ver.1.0			

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			Province feature class.
Path ສຳ ລັບ FGDB ເພື່ອເກັບຂໍ້ມູນຄິດໄລ່ (calculation data)	FGDBpath	"C:¥¥Users¥¥admin¥¥Documents¥¥ArcGIS"	ກຳ ນົດ path ຂອງ FGDB.
ຊື່ ຂອງ FGDB ເກັບຂໍ້ມູນຄິ ດ ໄລ່ (calculation data)	FGDBname	"laosdata.gdb"	ກຳ ນົ ດ path ຂ ອ ງ FGDB. ຈ ຳ ເປັ ນ ຕ້ ອ ງ ໃ ດ້ ຕ ື່ ມ ສ່ ວ ນ ຂ ະ ຫ ຍ າ ຍ ".gdb" ຫ ຼ ັ ງ ຊ ື່ ຖ້ າ ຫ າ ກ ມ ີ ແ ຕ່ FGDB ກ ັ ບ ຊ ື່ ຜ ົ ນ ກ າ ນ ຄ ິ ດ ໄ ລ່ ຈ ະ ເ ກ ີ ດ ມ ີ ຂ ໍ ້ ຜ ິ ດ ພ າ ດ
Path ສຳ ລ ັ ບ ເ ກ ັ ບ ຜ ົ ນ ໄ ດ້ ຮ ັ ບ ຂ ອ ງ ກ າ ນ ຄ ິ ດ ໄ ລ່	SDEpath	"C:¥¥Users¥¥admin¥¥AppData¥¥Roaming¥¥ESRI¥¥Desktop10.1¥¥ArcCatalog¥¥Connection to SERVER.sde"	ກ ຳ ນ ົ ດ ຂ ອ ງ ຜ ົ ນ ໄ ດ້ ຮ ັ ບ ຂ ອ ງ ຖ າ ນ ຂ ໍ ້ ມ ູ ນ (SDE file)

- ຕ້ ອ ງ ໄ ດ້ ເ ພ ີ່ ມ ສ ັ ນ ຍ າ ລ ັ ກ ສ ອ ງ ໃ ຕ "¥". ຫ າ ກ ມ ີ ໃ ຕ ດ ບ ິ ອ , ArcPy calculation ຈ ະ ເ ກ ີ ດ ມ ີ ຂ ໍ ້ ພ ິ ດ ພ າ ດ .
- ແ ປ ້ ນ ພ ົ ມ ຄ ອ ມ ພ ິ ວ ເ ຕ ີ ້ ຂ ອ ງ FIPD, ສ ັ ນ ຍ າ ລ ັ ກ "¥" ແ ມ ່ ນ "＼".
- ໃ ຫ ້ ແ ນ ່ ໃ ຈ ວ ່ າ ມ ີ ໄ ຟ ລ ์ ທ ີ ່ ຈ ຳ ເ ປ ັ ນ. ຖ ້ າ ຜ າ ຍ ບ ໍ ່ ມ ີ, ຂ ໍ ້ ຄ ວ າ ມ ສ ະ ແ ດ ງ ຂ ໍ ້ ຜ ິ ດ ພ າ ດ ຈ ະ ຖ ື ກ ສ ະ ແ ດ ງ ໃ ນ ລ ະ ຫ ວ ່ າ ງ ກ າ ນ ປ ະ ຕ ິ ບ ັ ດ ແ ລ ະ ກ າ ນ ຄ ິ ດ ໄ ລ ່ ຖ ື ກ ຍ ົ ກ ເ ລ ີ ກ. ກ ວ ດ ສ ອ ບ ຂ ໍ ້ ຄ ວ າ ມ ສ ະ ແ ດ ງ ຂ ໍ ້ ຜ ິ ດ ພ າ ດ ແ ລ ະ ກ ວ ດ ເ ບ ິ ່ ງ ວ ່ າ ໄ ຟ ລ ์ ມ ີ ຍ ູ ່, ບ ໍ ່ ແ ລ ະ ເ ບ ິ ່ ງ ຕ ື ່ ມ ອ ີ ກ ວ ່ າ ວ ິ ທ ີ ກ າ ນ ກ ຳ ນ ົ ດ ຕ ົ ວ ແ ປ ແ ມ ່ ນ ຖ ື ກ ຕ ້ ອ ງ ແ ລ ້ ວ ບ ໍ ່ ແ ລ ະ ອ ີ ່ ນ ໆ.
  - ກ ວ ດ ສ ອ ບ ຜ ົ ນ ໄ ດ້ ຮ ັ ບ

ວ ັ ນ ທ ີ ສ້ າ ງ	2017/7/5			
ວ ັ ນ ທ ີ ປ ັ ບ ປ ຸ ງ	2017/11/28	NFMS (ລ ະ ບ ົ ບ ຕ ິ ດ ຕ າ ມ ກ ວ ດ ກ າ ບ ່ າ ໄ ມ ້ ແ ຫ ່ ງ ຊ າ ດ)	ຄ ູ ່ ມ ື ກ ານ ນ ຳ ຂ ໍ ້ ມ ູ ນ ເ ຂ ົ ້ າ ໃ ນ ລ ະ ບ ົ ບ NFMS	21
ສ ະ ບ ັ ບ ທ ີ	Ver.1.0			

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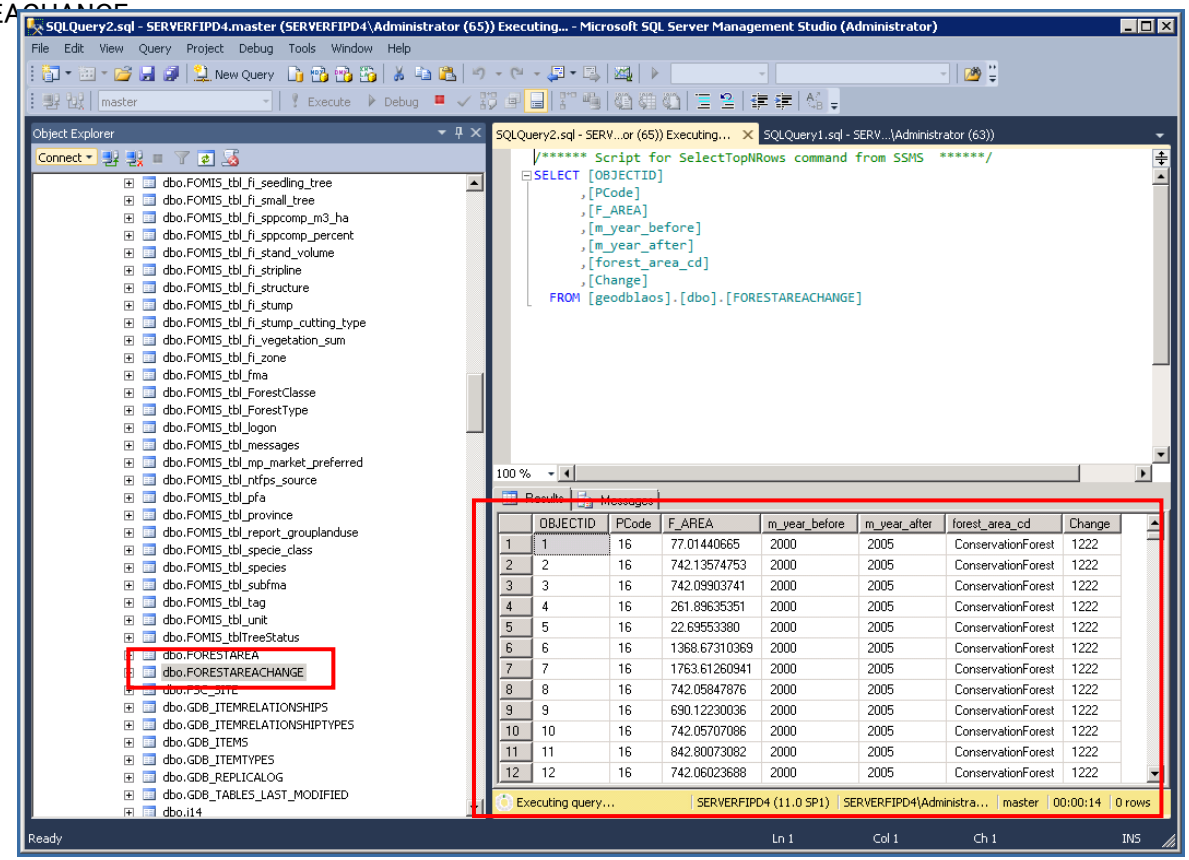
ໃຫ້ແນ່ໃຈວ່າຕາຕະລາງໄດ້ຖືກສ້າງແລະນຳເຂົ້າຂໍ້ມູນແລ້ວ. ຊື່ຕາຕະລາງ : dbo.FORESTAREACHANGE



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ຂ້າງຂຶ້ນ:ການກວດສອບຕາຕະລາງລວມທະບຽນການຄົດໄລ່.

ສຳລັບຄ່າຕົວແປຂອງພື້ນທີ່ປະເພດປ່າໄມ້ ແລະ ພື້ນທີ່ການປ່ຽນແປງຂອງປ່າໄມ້ໃນຕາຕະລາງ, ມີທັງໝົດ 8 ກໍລະນີດ້ຽວຕາຕະລາງຂ້າງລຸ່ມນີ້:

ກໍລະນີ #	ລະຫັດຂອງປະເພດປ່າໄມ້(FIX) /ລະຫັດການປ່ຽນແປງຂອງປ່າໄມ້(Change)	ລະຫັດຂອງແຂວງ (PCode)	ລະຫັດຂອບເຂດຂອງປະເພດປ່າ (forest_area_cd)	ໝາຍເຫດ
1	Except “0”	Except null character	A (Available)	
2	Except “0”	Except null character	N/A	ຂອບເຂດຂອງປະເພດປ່າ (CSA, PFA, PTA, OtherArea) ລວມເອົາເນື້ອທີ່ທັງໝົດຂອງ ປະ ເ ທດ, ສົມມຸດຖານອ່າກໍລະນີນີ້ບໍ່ມີ.
3	Except “0”	null character	A	ກໍລະນີນີ້ບໍ່ມີ.
4	Except “0”	null character	N/A	ຂອບເຂດຂອງປະເພດປ່າ (CSA, PFA, PTA, OtherArea)ລວມເອົາເນື້ອທີ່ທັງໝົດຂອງ ປະ ເ ທດ, ສົມມຸດຖານອ່າກໍລະນີນີ້ບໍ່ມີ.
5	”0”	Except null character	A	

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6	”0”	Except null character	N/A	ຂອບເຂດຂອງປະເພດປ່າ (CSA, PFA, PTA, OtherArea) ລວມເອົາເນື້ອຫາຫັງໝົດຂອງປະເທດ, ສົມມຸດຖານວ່າກໍລະນີນີ້ບໍ່ມີ.
7	”0”	null character	A	
8	”0”	null character	N/A	ຂອບເຂດຂອງປະເພດປ່າ (CSA, PFA, PTA, OtherAreaລວມເອົາເນື້ອຫາຫັງໝົດຂອງປະເທດ, ສົມມຸດຖານວ່າກໍລະນີນີ້ບໍ່ມີ.

ລວມຕໍ່ໄປນີ້ສະແດງໃຫ້ເຫັນເຖິງແປດກໍລະນີຂ້າງເທິງ. ການພິຈາລະນາຄະດີແຕ່ລະກໍລະນີຖືກປະຕິບັດໂດຍ.

ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	24
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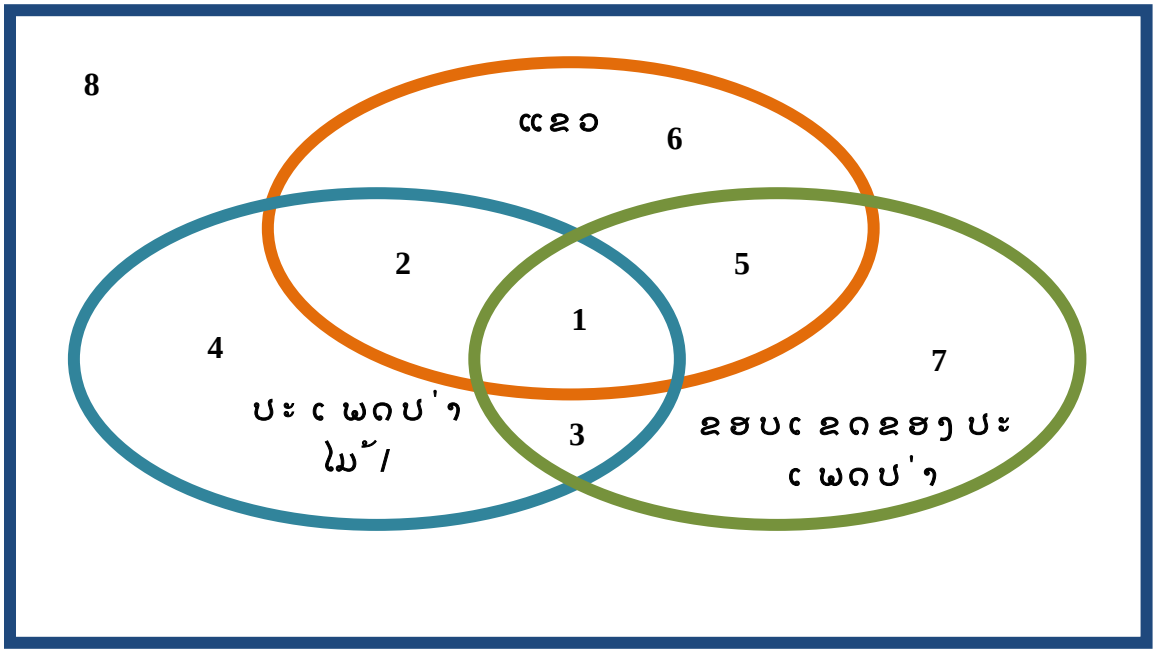

ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບ ປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	25
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ເຫນືຶ່ອງຈາກຕາຕະລາງທີ່ນຳເຂົ້າໃນຂໍ້ມູນແມ່ນຕາຕະລາງ SDE, ຈົ່ງບໍ່ມີຂໍ້ມູນດ້ານເລຂາຄະນິດ. ຖ້າຫາກຕ້ອງການທີ່ຈະກວດສອບທັງສອງຄ່າ ແລະ ຕາຕະລາງອາສຕົບົວ, ໃຫ້ໄປກວດສອບຕາຕະລາງດັ່ງຕໍ່ໄປນີ້ໃນ FGDB ທີ່ ArcPy ດ້ວຍ ArcMap (ເບິ່ງທີ່ FGDB path ແລະ FGDB ຊຶ່ໃນຕາຕະລາງນິຍາມ ແລະ ລາຍລະອຽດຂອງຕົວແປ 1 ແລະ 2). FGDB ຈະບໍ່ລົບໃຫ້ແບບອໍໂຕ້ດັ່ງນັ້ນໃຫ້ລົບໄປເທຶ່ອລະຢ່າງ.

- ຫົວໜ່ວຍພື້ນທີ່ປ່າໄມ້ຂອງແຕ່ລະປີ (FGDB)
  CSAFTM_YYYY_Calc (Province × YYYY of Forest Type × Union of CSA)
  PTAFTM_YYYY_Calc (Province × YYYY of Forest Type × Union of PTA)
  PFAFTM_YYYY_Calc (Province × YYYY of Forest Type × Union of PFA)
  OtherFTM_YYYY_Calc (Province × YYYY of Forest Type × Union of area except Forest Administrative Category)
- ຫົວໜ່ວຍການປ່ຽນແປງ ພື້ນທີ່ປ່າໄມ້ຕາມແຕ່ລະປີ (FGDB)
  CSAChangeYYYY2_YYYY1_Calc (Province × YYYY2_YYYY1 of Forest Type Change × Union of CSA)
  PTAChangeYYYY2_YYYY1_Calc (Province × YYYY2_YYYY1 of Forest Type Change × Union of PTA)
  PFAChangeYYYY2_YYYY1_Calc (Province × YYYY2_YYYY1 of Forest Type Change × Union of PFA)
  OtherChangeYYYY2_YYYY1_Calc (Province × YYYY2_YYYY1 of Forest Type Change × Union of area except Forest Administrative Category)

YYYY ປີຂອງແຜນທີ.
YYYY 1 ປີຂອງແຜນທີ່ກ່ອນການປ່ຽນແປງ.
YYYY 2 ປີຂອງແຜນທີ່ຫຼັງການປ່ຽນແປງ.
ຕາຕະລາງເຫຼົ່ານີ້ບໍ່ລວມເອົາພື້ນທີ່ ແລະມູນຄ່າປີຂອງແຜນທີ່, ປີຂອງແຜນທີ່ (ກ່ອນທີ່ການປ່ຽນແປງ), ປີຂອງແຜນທີ່ (ຫຼັງການປ່ຽນແປງ) ແລະ ລະຫັດຂອບເຂດພື້ນທີ່ປ່າໄມ້.

ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດການປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	26
ສະບັບທີ	Ver.1.0			

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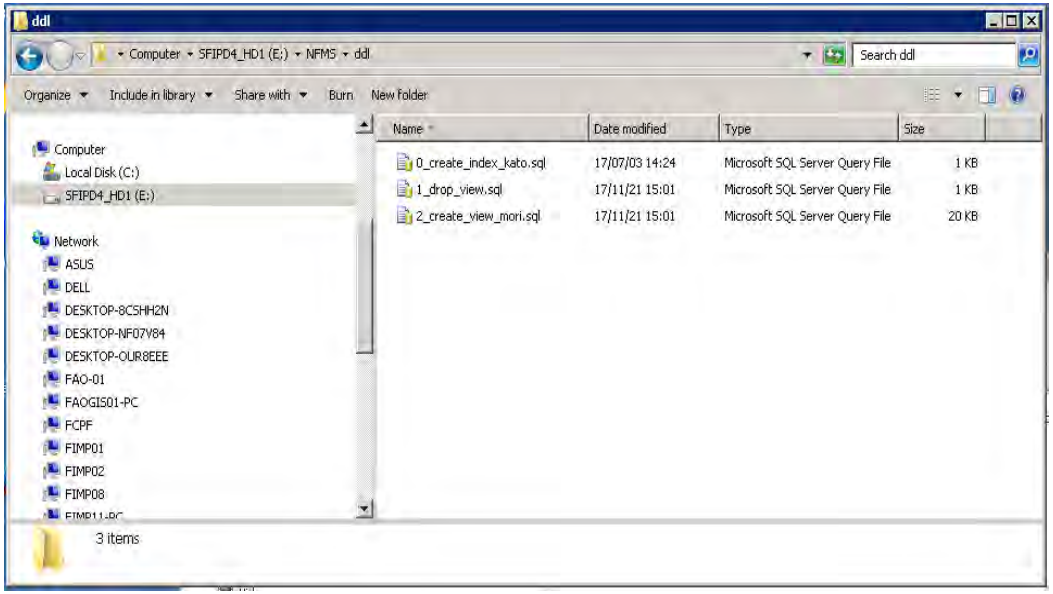
1.2.4.3 ການຄຶດໄລ່ຈາກຕາຕະລາງຄຶດໄລ່ທີ່ໄດ້ລົງທະບຽນ

- ດຳເນີນ sql scripts ທຸກຄັ້ງໃນ ArcPy ແກ້ໄຂທັງສອງຕາຕະລາງຄື “dbo.FORESTAREA” ແລະ ” dbo.FORESTAREACHANGE” ແມ່ນອັບເດດ.
- The scripts ແມ່ນໄດ້ຖືກເກັບໄວ້ໃນ serverfipd4.
  - E:¥NFMS¥ddl.



ການເພີ່ມ Index ເຂົ້າໃນຕາຕະລາງລົງທະບຽນຕາຕະລາງພື້ນທີ່ປ່າໄມ້ ແລະ ຕາຕະລການປ່ຽນແປງຂອງພື້ນທີ່ປ່າໄມ້ ດຳເນີນການລັນຄລິກ Execute “0_create_index_kato.sql” ໃຊ້ສຳລັບເພີ່ມ Index ໃນ SQL Server Management Studio.

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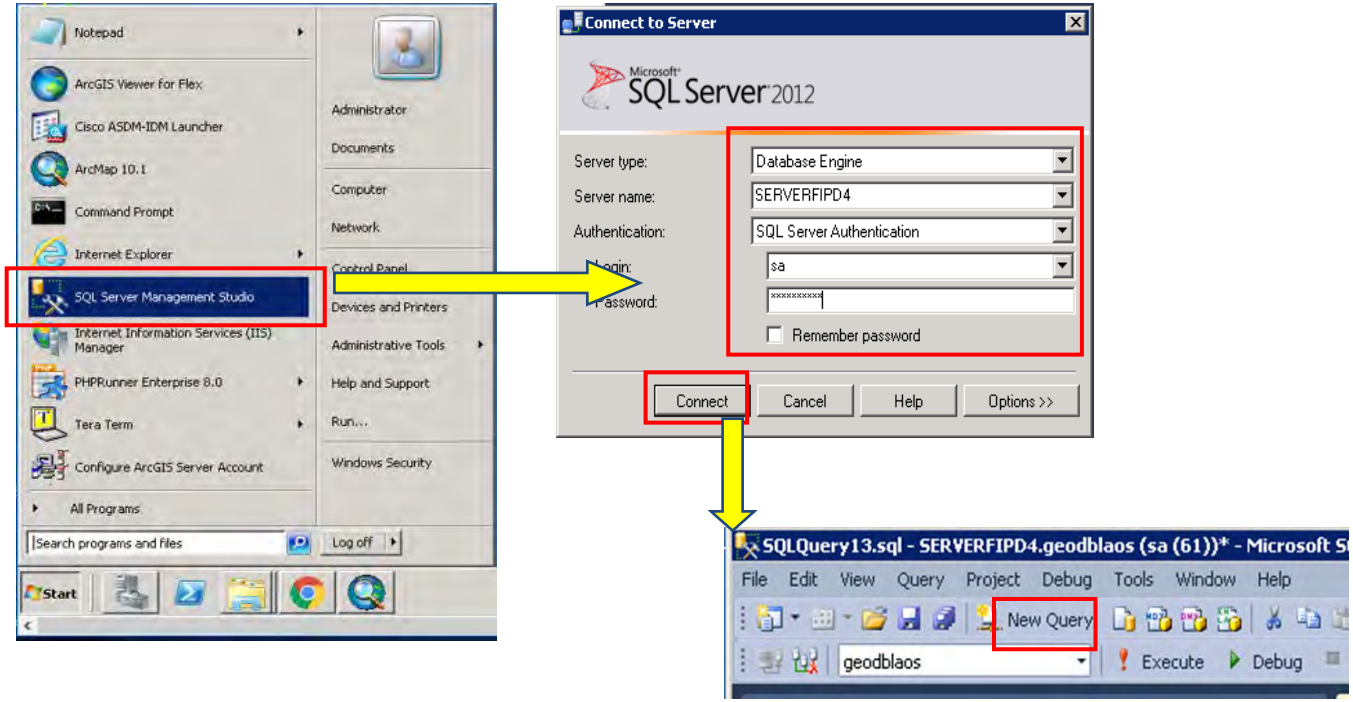
: ເປີດໃຊ້ງານ Microsoft SQL Server Management Studio, ເຂົ້າສູ່ລະບົບແລະ ຄລິກ [New Query]



ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	28
ສະບັບທີ	Ver.1.0			

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: ເປີດ “0_create_index_kato.sql” ໂດຍ text editor, e.g. Notepad++, copy all scripts, ແລະ paste ລົງໃນ new Query window. ຈາກນັ້ນຄລິກ [Execute] ເພື່ອໃຫ້ scripts ເລີ່ມດຳເນີນການ.

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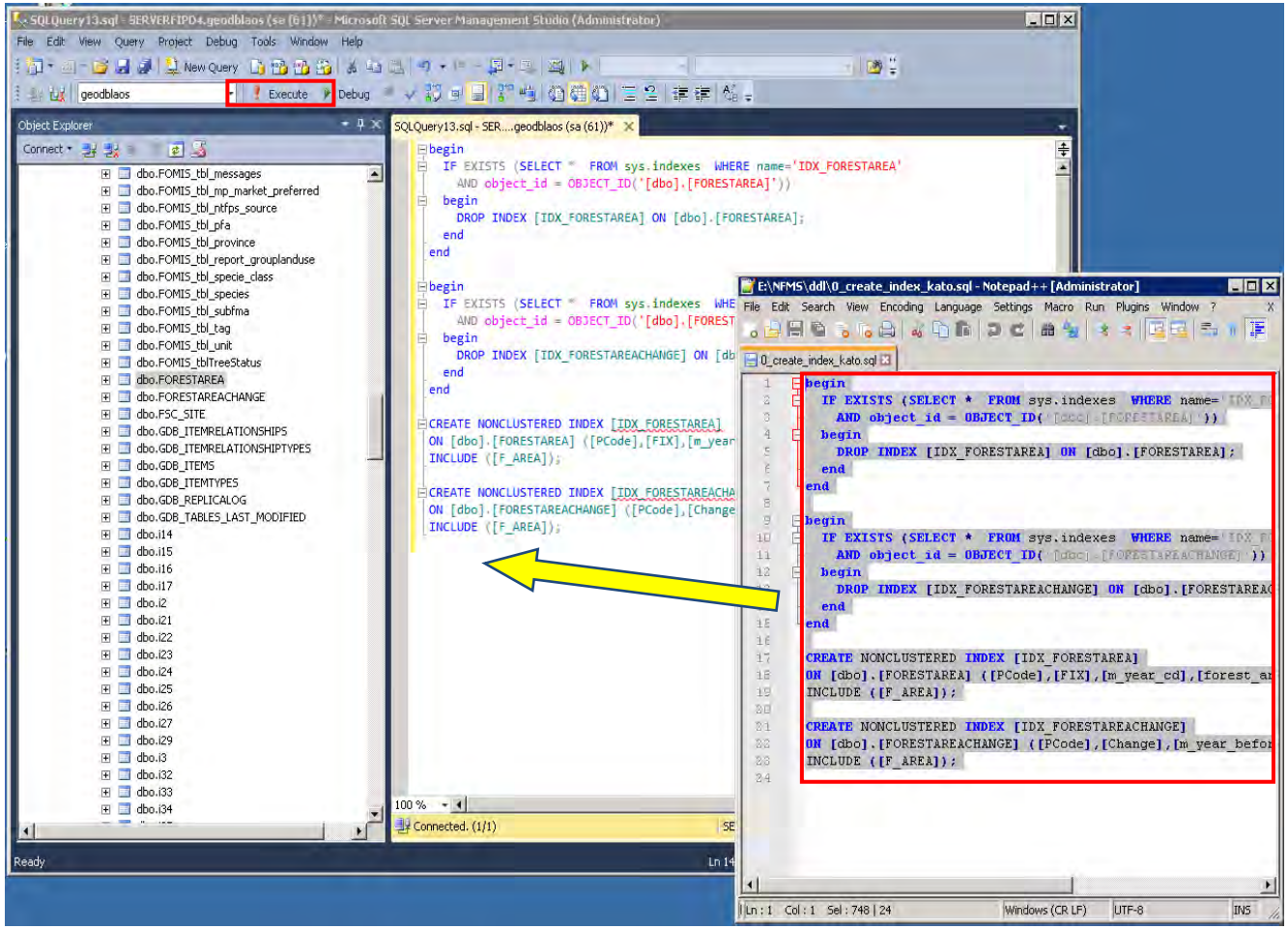

ອັນທີ່ສ້າງ	2017/7/5			
ອັນທີ່ປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	30
ສະບັບທີ່	Ver.1.0			

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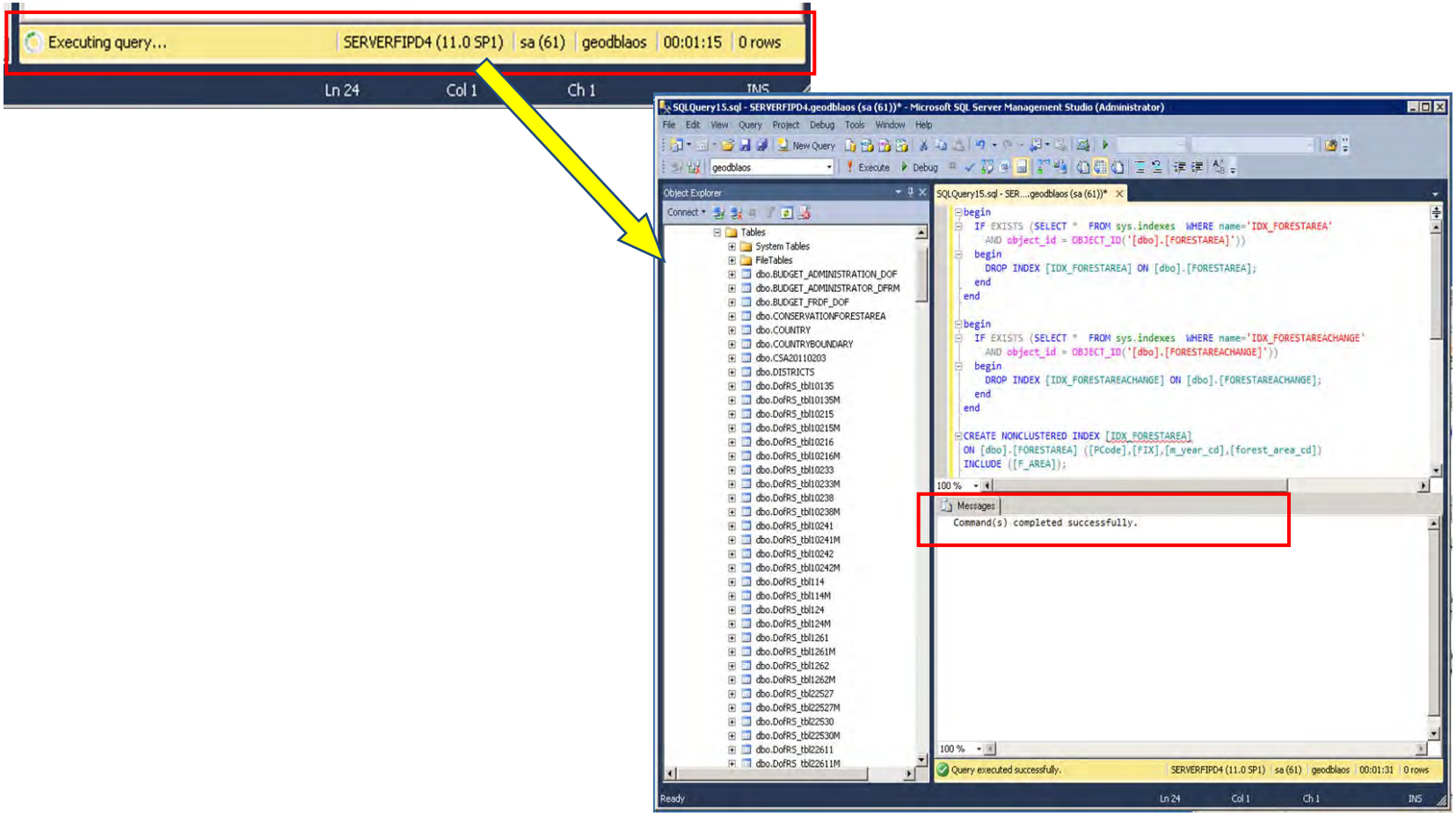
ຫາກວ່າມີຂໍ້ຄວາມສະແດງຂຶ້ນມາດ້ວຍຂ້າງລຸ່ມນີ້ສະແດງວ່າຂັ້ນຕອນການດຳເນີນງານແມ່ນສຳເລັດ



➢ ສ້າງ View ເພື່ອຄົ້ນຫາ

ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	31
ສະບັບທີ	Ver.1.0			

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ດຳເນີນການ Execute “1_drop_view.sql” and “2_create_view_mori.sql”

: ເປີດ “1_drop_view.sql” ໂດຍ text editor, e.g. Notepad++, copy all scripts, ແລະ paste ລົງໃນ new Query window. ຄລິກ [Execute] ເພື່ອ ໃຫ້ scripts ເລີ່ມດຳ ເນີນການ..

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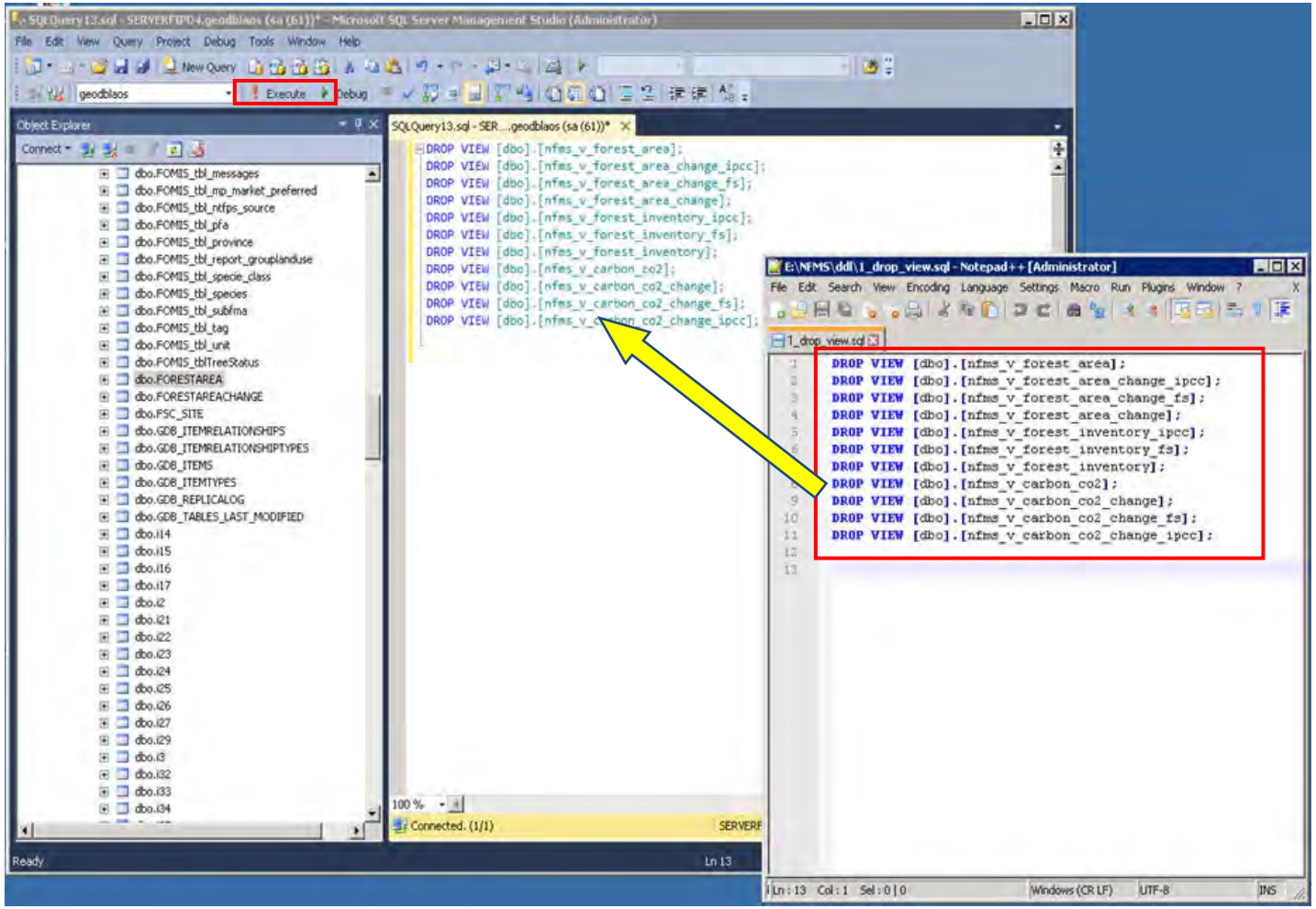

ອັນທີ່ສ້າງ	2017/7/5			
ອັນທີ່ປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	33
ສະບັບທີ່	Ver.1.0			

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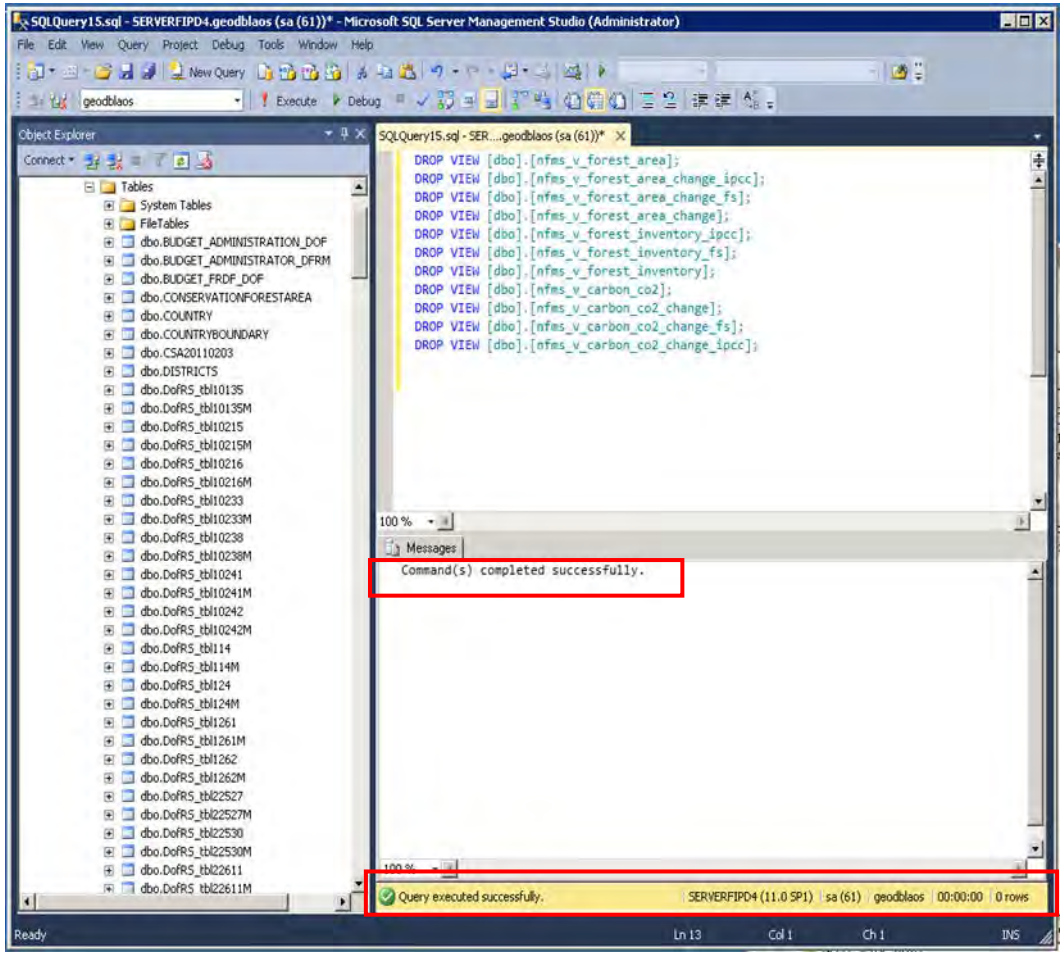
ຫາກມີຂໍ້ຄວາມສະແດງຂึ້ນມາດັ່ງຂ້າງລຸ່ມນี้ສະແດງວ່າຂັ້ນຕອນການດຳເນີນງານແມ່ນສຳເລັດ



ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	34
ສະບັບທີ	Ver.1.0			

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: ເປີດ “2_create_view_mori.sql” ໂດຍ text editor, e.g. Notepad++, copy all scripts, ແລະ paste ລົງໃນ new Query window. ຄລິກ [Execute] ເພື່ອໃຫ້ scriptsເລີ່ມດຳເນີນການ.

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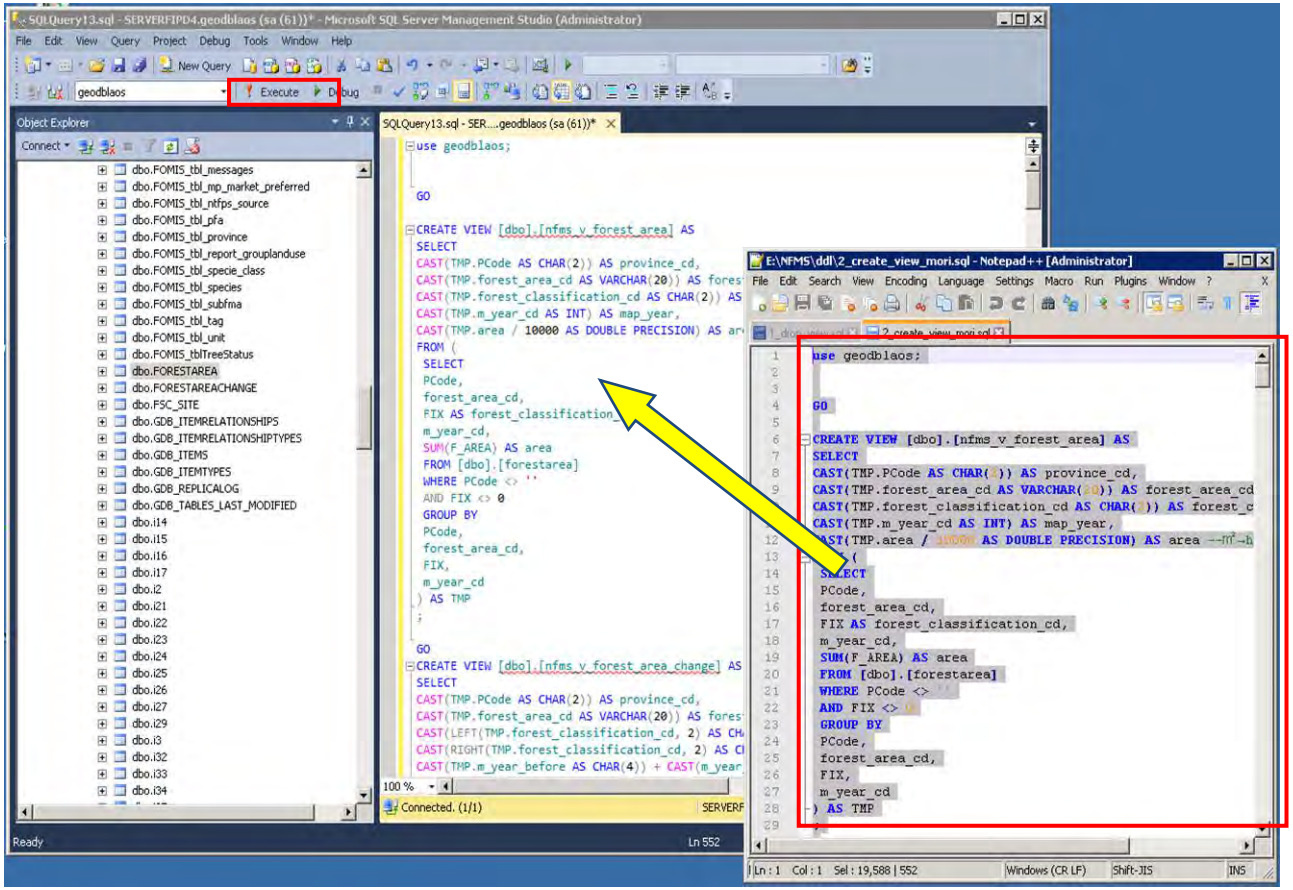

: ຫາ ກມີຂໍ້ຄວາ ມສະ ແດງ ຂຶ້ນມາ ດັ່ງຂ້າງລຸ່ມນີ້ສະ ແດງວ່າຂັ້ນຕອນກາ ນດຳ ເນີນງ າ ນແມ່ນສຳ ເລັດ

ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	36
ສະບັບທີ	Ver.1.0			

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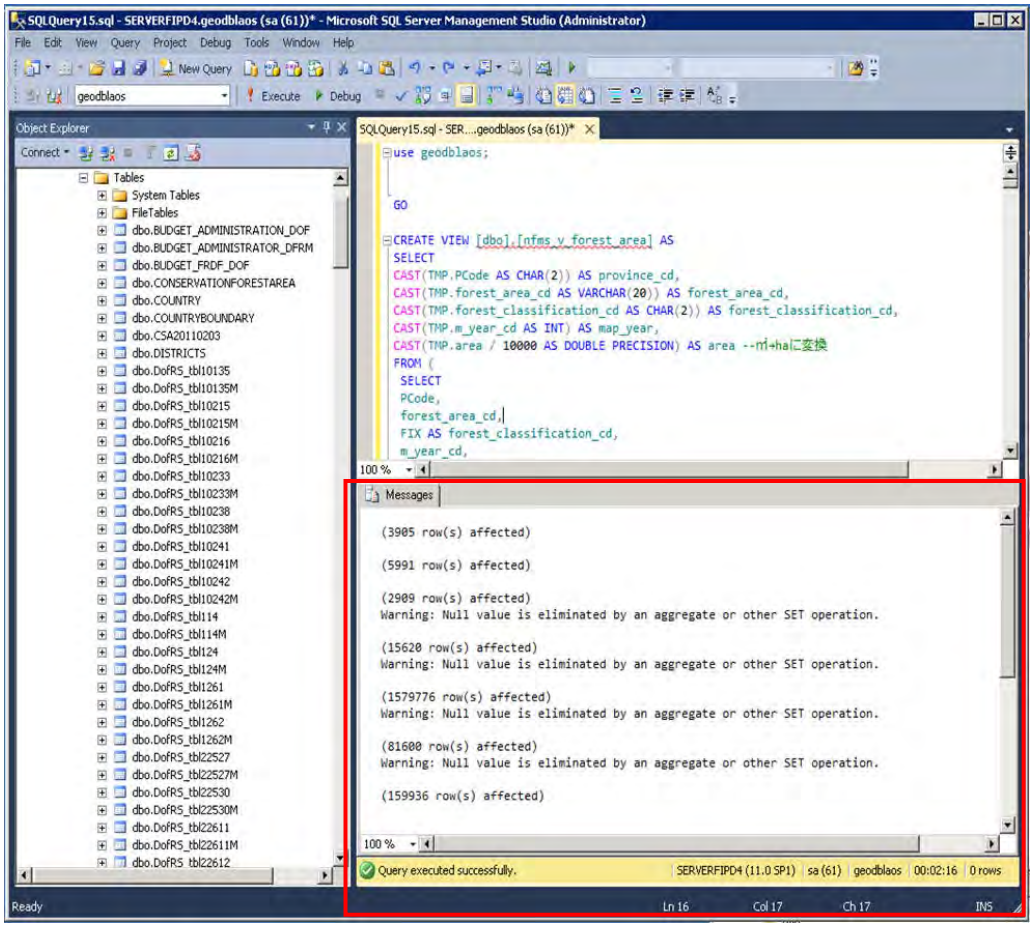

ອັນທີ່ສ້າງ	2017/7/5			
ອັນທີ່ປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	37
ສະບັບທີ່	Ver.1.0			

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1.2.5. ລົງທະ ບຽນຂໍ້ມູນ NFI.

"NFIOutputSettingSheetMaster.xls" ຕ້ອງໄດ້ຕື່ມຂໍ້ມູນໃສ່ຕາ ຕລາ ງ ຖາ ນຂໍ້ມູນຂອງ NFI. ໂ ດຍ, SQL scripts ຈະ ຖືກສ້າງຂຶ້ນໂ ດຍອໍໂຕ້. ລະ ບົບປະ ຕິບັດກາ ນຂອງ NFMS ຈະ ອັບເ ດດຂໍ້ມູນ NFI ໃ ນ DB ໂ ດຍກາ ນດຳ ເນີນ ງ າ ນຂອງ scripts ໃ ນ SQL Server. ລະ ບົບປະ ຕິບັດກາ ນຂອງ NFMS ຈະ ຖາ ມຜູ້ປ້ອນຂໍ້ມູນ NFI ວ່າຂໍ້ມູນທີ່ ກະ ກຽມນັ້ນຖືກຕ້ອງຕາ ມຮູບແບບຂອງ "NFIOutputSettingSheetMaster.xls"

- "nfms_m_forest_inventory" sheet of "NFIOutputSettingSheetMaster.xls"

ໂດຍຜ່ານກາ ນຕື່ມຂໍ້ມູນໃ ສຕາ ຕະ ລາ ງ ນີ້, SQL script ເພື່ອເພີ່ມແຖວຂອງ ຕາ ຕະ ລາ ງ "nfms_m_forest_inventory" ຂອງ geodblaos ທີ່ ຖືກສ້າງຂຶ້ນ.

forest_inventory_cd ຕ້ອງເຮັດໃຫ້ມັນຖືກຕ້ອງໃ ນ SQL script ຂອງ "nfms_m_forest_inventory_detail"

forest_inventory_cd*	forest_inventory_name	forest_inventory_name_lao	description	description_lao	disp_order	DML
NFI_2nd	2'nd NFI	2'nd NFI	Result of the 2'nd NFI.	Result of the 2'nd NFI.	1	insert into nfms_m_forest_inventory values('NFI_2nd','2"nd NFI','2"nd NFI','Result of the 2"nd NFI.','Result of the 2"nd NFI.',1);

NFI_1st or NFI_2nd

Shown in NFMS user interface

Shown in NFMS user interface

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➢ “forest_inventory_equation_used” ຫນ້າຂອງ “NFIOutputSettingSheetMaster.xls” ໂດຍຜ່ານການຕື່ມຂໍ້ມູນໃສ່ຕາຕະລາງນີ້, SQL script ເພື່ອເພີ່ມເຂົ້າຂອງຕາຕະລາງ “forest_inventory_equation_used” ຂອງ geodblaos ທີ່ຖືກສ້າງຂຶ້ນ.

ອັບເດດຕາຕະລາງ “forest_inventory_equation_used” ຂອງ geodblaos ຖ້າຫາກຈະແກ້ໄຂ ຫຼື ເພີ່ມສູດຜ່ານຕາຕະລາງນີ້ຍ່າງດັ່ງນີ້.

forest_inventory_cd	forest_classification_cd	equation_used	equation_used_lao	DML
NFI_2nd	11	2nd NFI_Lao original AE	2nd NFI_Lao original AE	insert into nfms_m_forest_inventory_equation_used values('NFI_2nd','11','2nd NFI_Lao original AE','2nd NFI_Lao original AE');
NFI_2nd	12	2nd NFI_Lao original AE	2nd NFI_Lao original AE	insert into nfms_m_forest_inventory_equation_used values('NFI_2nd','12','2nd NFI_Lao original AE','2nd NFI_Lao original AE');
NFI_2nd	13	2nd NFI_Lao original AE	2nd NFI_Lao original AE	insert into nfms_m_forest_inventory_equation_used values('NFI_2nd','13','2nd NFI_Lao original AE','2nd NFI_Lao original AE');
NFI_2nd	14	2nd NFI_Vietnam AE	2nd NFI_Vietnam AE	insert into nfms_m_forest_inventory_equation_used values('NFI_2nd','14','2nd NFI_Vietnam AE','2nd NFI_Vietnam AE');
NFI_2nd	15	2nd NFI_Vietnam AE	2nd NFI_Vietnam AE	insert into nfms_m_forest_inventory_equation_used values('NFI_2nd','15','2nd NFI_Vietnam AE','2nd NFI_Vietnam AE');
NFI_2nd	16	GPG GL(2003) Anx_3A_1_Data_Tables(Other species)	GPG GL(2003) Anx_3A_1_Data_Tables(Other species)	insert into nfms_m_forest_inventory_equation_used values('NFI_2nd','16','GPG GL(2003) Anx_3A_1_Data_Tables(Other species)','GPG GL(2003) Anx_3A_1_Data_Tables(Other species)');
NFI_2nd	21	Vietnam modeified REL report	Vietnam modeified REL report	insert into nfms_m_forest_inventory_equation_used values('NFI_2nd','21','Vietnam modeified REL report','Vietnam modeified REL report');
NFI_2nd	22	RV survey	RV survey	insert into nfms_m_forest_inventory_equation_used values('NFI_2nd','22','RV survey','RV survey');
NFI_2nd	31	IPCC EF DB 513130	IPCC EF DB 513130	insert into nfms_m_forest_inventory_equation_used values('NFI_2nd','31','IPCC EF DB 513130','IPCC EF DB 513130');
NFI_2nd	32	2006 IPCC guideline V4 Chp4 Table4.7	2006 IPCC guideline V4 Chp4 Table4.7	insert into nfms_m_forest_inventory_equation_used values('NFI_2nd','32','2006 IPCC guideline V4 Chp4 Table4.7','2006 IPCC guideline V4 Chp4 Table4.7');
NFI_2nd	41	LUCF Sector Good Practice Guidance P3.109 Table3.4.2	LUCF Sector Good Practice Guidance P3.109 Table3.4.2	insert into nfms_m_forest_inventory_equation_used values('NFI_2nd','41','LUCF Sector Good Practice Guidance P3.109 Table3.4.2','LUCF Sector Good Practice Guidance P3.109 Table3.4.2');
NFI_2nd	42			insert into nfms_m_forest_inventory_equation_used values('NFI_2nd','42','.');

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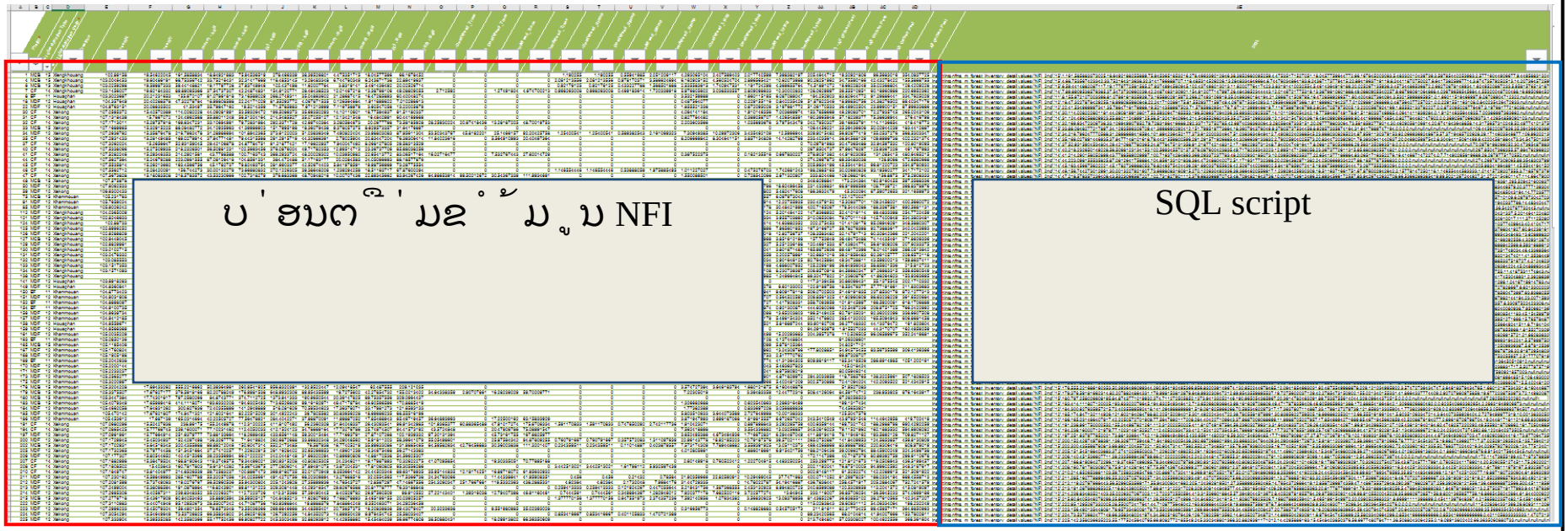
➢ “nfms_m_forest_inventory_detail” ຫນ້າຂອງ “NFIOutputSettingSheetMaster.xls” ໂດຍຜ່ານການຕິດມຂໍ້ມູນໃສ່ຕາຕະລາງນີ້, SQL script ເພື່ອເພີ່ມແຖວຂອງຕາຕະລາງ “forest_inventory_equation_used” ຂອງ geodblaos.ທີ່ຖືກສ້າງຂຶ້ນ.



ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	40
ສະບັບທີ	Ver.1.0			

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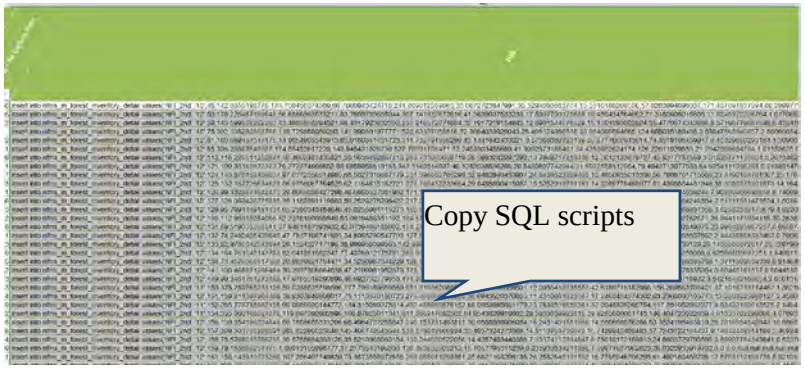
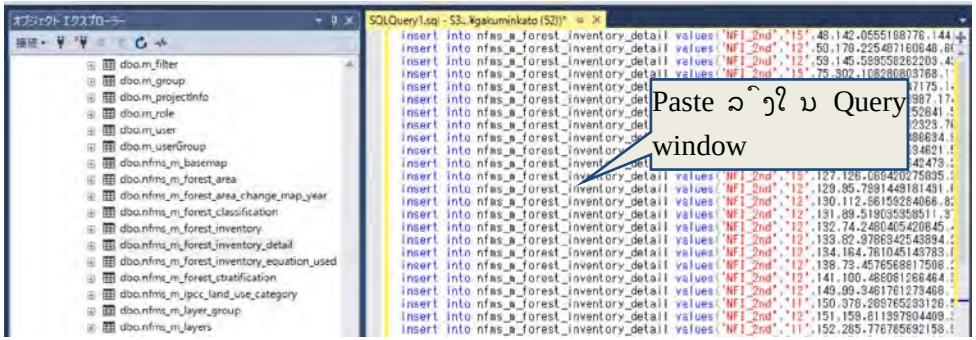


ຖ້າທ່ານຕ້ອງການປ່ຽນຂໍ້ມູນ NFI, ທ່ານຕ້ອງລຶບຂໍ້ມູນເກົ່າໃນຕາ ຕະ ລາ ງ "nfms_m_forest_inventory_detail" **ກ່ອນ ປ້ອນ** ຂໍ້ມູນໃຫມ່.

ເປີດ new query window

Paste ລົງ ໃ ນ query window



ວັນທີ ສ້າ ງ	2017/7/5			
ວັນທີ ປັ ບ ປ ຸ ງ	2017/11/28	NFMS (ລະບົ ບ ຕິ ດ ຕາ ມ ກ ວ ດ ກ າ ປ່ າ ໄ ມ້ ແ ຫ ່ ງ ຊ າ ດ)	ຄ ູ ່ ມ ື ການນ ຳ ຂ ໍ້ ມ ູ ນ ເ ຂ ົ້ າ ໃ ນ ລ ະ ບ ົ ບ NFMS	41
ສະ ບ ັ ບ ທ ີ	Ver.1.0			

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ຄລິກ Execute the query

ໄປກວດສອບໃນຕາຕະລາງ “nfms_m_forest_inventory_detail”

ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	42
ສະບັບທີ	Ver.1.0			

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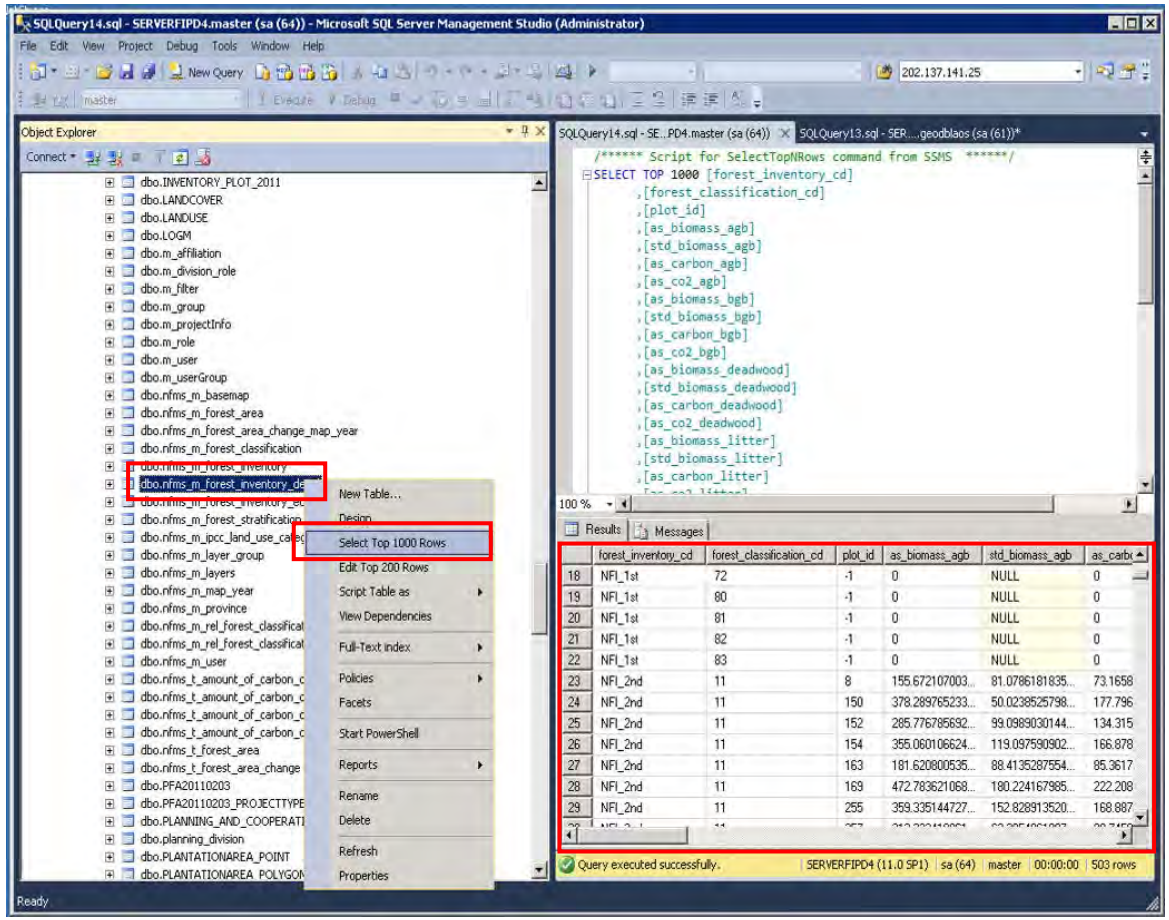

ອັນທີ່ສ້າງ	2017/7/5			
ອັນທີ່ປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	43
ສະບັບທີ່	Ver.1.0			

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1.2.6. ພາບລວມຂອງ Map Services ໃຊ້ສໍາລັບ NFMS

ຕາຕະລາງຕໍ່ໄປນີ້ສະແດງໃຫ້ເຫັນລາຍລະອຽດ services ທີ່ນໍາໃຊ້ປັດຈຸບັນໃນລະບົບ NFMS.

ລດ	ກຸ່ມ	ຊື່ຂອງ Service	ປະເພດຂອງ Service	ລັກສະນະ	ສອດຄ່ອງກັບ MXD	ຂະໜາດຂອງ Cache	ໝາຍເຫດ
1	Data Set-up	NFMS¥ForestCover_2000	Map Service	ສ້າງ cached map tiles ສໍາລັບ thematic layers	setup_mxd¥ForestCover_2000.mxd	6-15	
2		NFMS¥ForestCover_2005	Map Service	ສ້າງ cached map tiles ສໍາລັບ thematic layers	setup_mxd¥ForestCover_2005.mxd	6-15	
3		NFMS¥ForestCover_2010	Map Service	ສ້າງ cached map tiles ສໍາລັບ thematic layers	setup_mxd¥ForestCover_2010.mxd	6-15	
		NFMS¥ForestCover_2015	Map Service	ສ້າງ cached map tiles ສໍາລັບ thematic layers	setup_mxd¥ForestCover_2015.mxd	6-15	
4		NFMS¥ForestChange2000_2005	Map Service	ສ້າງ cached map tiles ສໍາລັບ thematic layers	setup_mxd¥ForestChange2000_2005.mxd	6-11	Vector data ແມ່ນຊຸມໃນລະດັບ 12
5		NFMS¥ForestChange2005_2010	Map Service	ສ້າງ cached map tiles ສໍາລັບ thematic	setup_mxd¥ForestChange2005_2010.mxd	6-11	Vector ແມ່ນ ຊຸມໃນລະດັບ

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				layers			12
		NFMS¥ForestChange2010_2015	Map Service	ສ້າງ cached map tiles ສຳ ລັ ບ thematic layers	setup_mxd¥ForestChange2010_2015.mxd	6-11	Vector data ແມ່ ນ ຂຶ້ ນ ກັ ບ 12
6	Background Layer	NFMS¥LANDSAT_False_2000	Map Service	Background layer	background_mxd¥LANDSAT_False_2000.mxd	6-15	
7		NFMS¥SPOT_False_2005	Map Service	Background layer	background_mxd¥SPOT_False_2005.mxd	6-15	
8		NFMS¥RapidEye_False_2010	Map Service	Background layer	background_mxd¥RapidEye_False_2010.mxd	6-15	
9		NFMS¥RapidEye_False_2015	Map Service	Background layer	background_mxd¥RapidEye_False_2015.mxd	6-15	
		NFMS¥LANDSAT_True_2000	Map Service	Background layer	background_mxd¥LANDSAT_True_2000.mxd	6-15	
		NFMS¥SPOT_True_2005	Map Service	Background layer	background_mxd¥SPOT_True_2005.mxd	6-15	
		NFMS¥RapidEye_True_2010	Map Service	Background layer	background_mxd¥ RapidEye_True_2010.mxd	6-15	
		NFMS¥RapidEye_True_2015	Map Service	Background layer	background_mxd¥ RapidEye_True_2015.mxd	6-15	
10	Thematic Layer tree	NFMS¥NFMS_LayerTree	Map Service	Thematic layer	thematic_mxd¥NFMS_LayerTree.mxd	(no tile cache)	Dynamic Map Service

:ປະ ເ ພດ ຂ ອ ງ services ໃ ນ "Data Set-up" ກ ຸ ່ ມ ນ ີ້ ແ ມ ່ ນ ຖ ືກ ນ ຳ ໃ ຊ້ ກ ັ ບ caching map tiles. ຫ ຼ ັ ງ ຂ າ ກ ທ 	d map tiles ຖ ືກ ສ ້ າ ງ ຂ ຶ້ ນ , ບ ໍ ່ ຈ ຳ ເ ປ ັ ນ ທ ີ ່ ຈ ະ ລ ັ ນ services ໄ ວ ຕ ະ ຫ ຼ ອ ດ ເ ວ ລ າ ເ ພ ີ ່ ອ ກ ັ ບ ຮ ັ ກ ສ າ ພ ້ ນ ທ ີ ່ ຄ ວ າ ມ ຈ ຳ ຂ ອ ງ ທ ່ າ ນ ສ າ ມ າ ດ

ວ ັ ນ ທ ີ ສ ້ า ງ	2017/7/5			
ວ ັ ນ ທ ີ ປ ັ ບ ປ ຸ ງ	2017/11/28	NFMS (ລ ະ ບ ົ ບ ຕ ິ ດ ຕ າ ມ ກ ວ ດ ກ າ ປ ່ າ ໄ ມ ້ ແ ຫ ່ ງ ຊ າ ດ)	ຄ ູ ່ ມ ື ການນ ຳ ຂ ໍ ້ ມ ູ ນ ເ ຂ ົ ້ າ ໃ ນ ລ ະ ບ ົ ບ NFMS	45
ສ ະ ບ ັ ບ ທ ີ	Ver.1.0			

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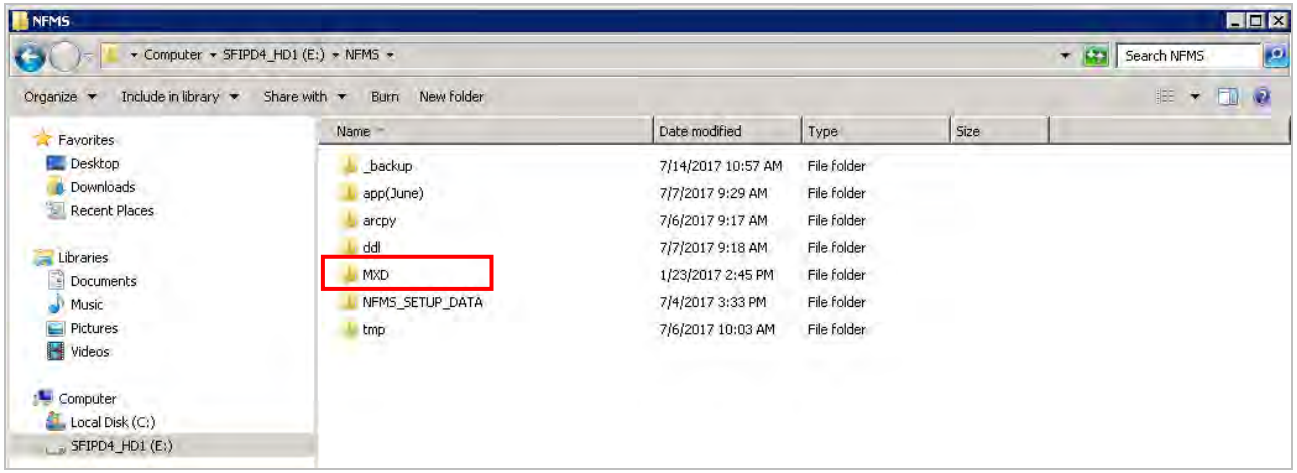
ສ້າງຍຸດ services ໄດ້.

mxd files ແມ່ນຟາຍພື້ນຖານ map services ຊຶ່ງນອນຢູ່ໃນ FIPD server(serverfipd4).
E:¥NFMS¥MXD



ອັນທີສ້າງ	2017/7/5			
ອັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາບ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	46
ສະບັບທີ	Ver.1.0			

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1.2.7. ລົງທະ ບຽນ Background layer

1.2.7.1 ການ ນກຽມ MXD

MXD ໃຊ້ເພື່ ່ອລົງທະ ບຽນ background layers ຖືກເກັບໄວ້ໃນໂ ຟເດີຕໍ ່ໄ ປນີ້.

E:¥NFMS¥MXD¥ background_mxd

ວັນທີສ້ າງ	2017/7/5			
ວັນທີປັບ ປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ ່າໄມ້ແຫ ່ງຊາດ)	ຄູ ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	47
ສະບັບທີ	Ver.1.0			

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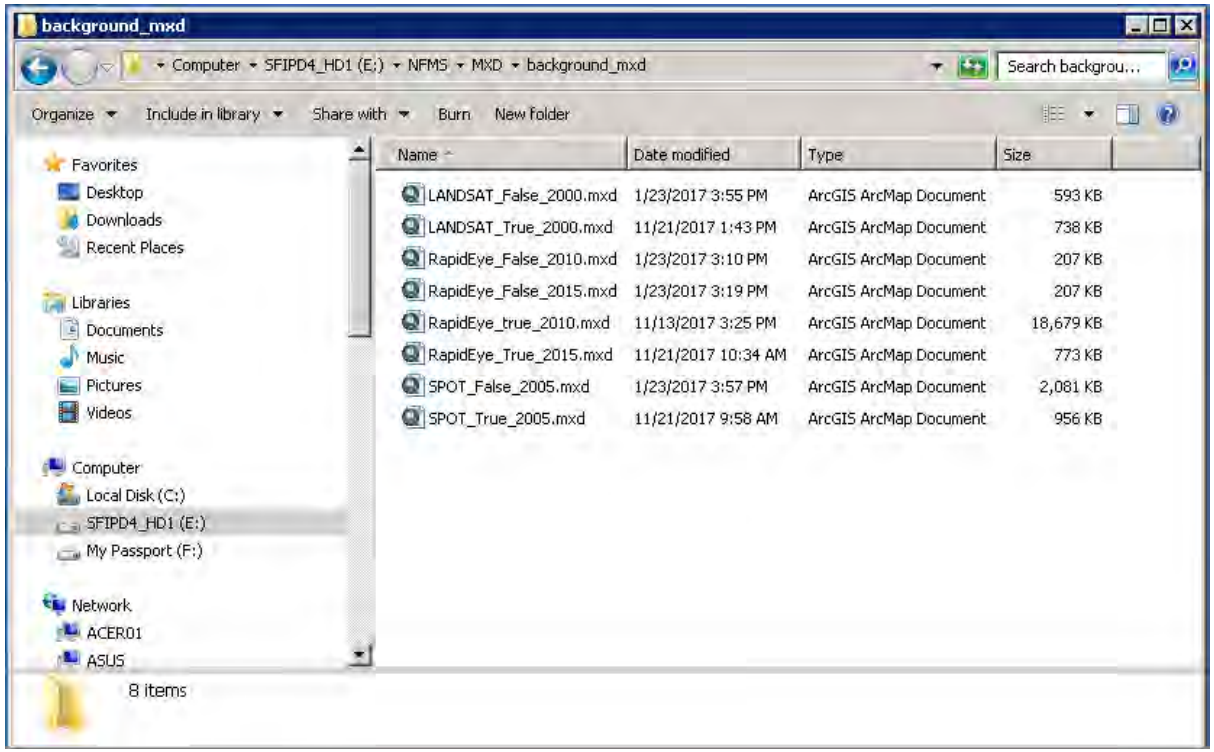

- ໃນກໍລະນີທີຮັບເດດ background layers, ທີ່ມີ MXD ຟາຍທີ່ມີຢູ່. ໃຫ້ເປີດ MXD.
- ໃນກໍລະນີທີ່ເພີ່ມ background layer, ທີ່ບໍ່ມີ MXD ຟາຍຢູ່. Copy MXD ຟາຍທີ່ມີຢູ່, paste ໃນໂ ຟເດີດບົວກັນ, ປ່ບົນຊື່ໃໝ່ຕາມຄວາມເໝາະສົມແລ້ວເປີດຟາຍດັ່ງກ່າວ.

Set data set

ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	48
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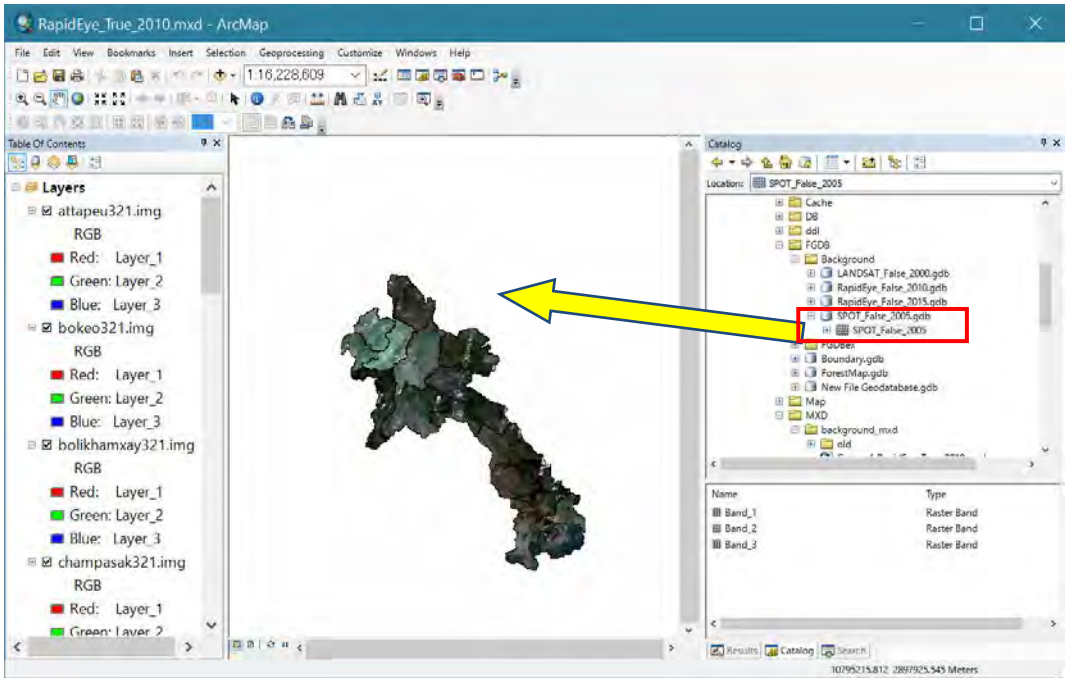
ເພື່ມຊຸດຂໍ້ມູນ (dataset) ໃນ MXD, remove ຊຸດຂໍ້ມູນ (dataset) ທີ່ບໍ່ຈຳເປັນຮຮກ, ແລະ ກວດສອບເບິ່ງໃນ ArcMap, ວ່າຂໍ້ມູນນັ້ນຖືກຕ້ອງແລ້ວບໍ່ ແລະ save MXD.



ສຳລັບຂໍ້ມູນພາບຖ່າຍດາວທບົມ, ຄ່າເດີມຂອງພາບທີ່ບໍ່ມີຂໍ້ມູນໃນ ArcMap ບາງພາບແມ່ນຖືກຕັ້ງຄ່າໄວ້ເປັນສີດຳ. ໃນກໍລະນີດັ່ງກ່າວ, ປ່ບົນແປງການຕັ້ງຄ່າແມ່ນປະຕິບັດຕາມຂັ້ນຕອນດັ່ງຕໍ່ໄປນີ້.

ຄລິກຂວາໃສ່ພາບດັ່ງກ່າວໄປທີ່ [Properties]. ເລືອກ [Display Background Value (0,0,0)] ໃຫ້ແນ່ໃຈວ່າມັນຕັ້ງໄວ້ທີ່ຄ່າເດີມຄືບໍ່ມີສີ. ຄລິກ [OK] ກວດສອບຄືນວ່າສີດຳພື້ນຫຼັງຂອງແຜນທີ່ປ່ບົນເປັນສີໂປ່ງ

ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	49
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ໃ ສ (transparent).

ອັນທີ່ສ້າ ງ	2017/7/5			
ອັນທີ່ປັບ ປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	50
ສະບັບທີ່	Ver.1.0			

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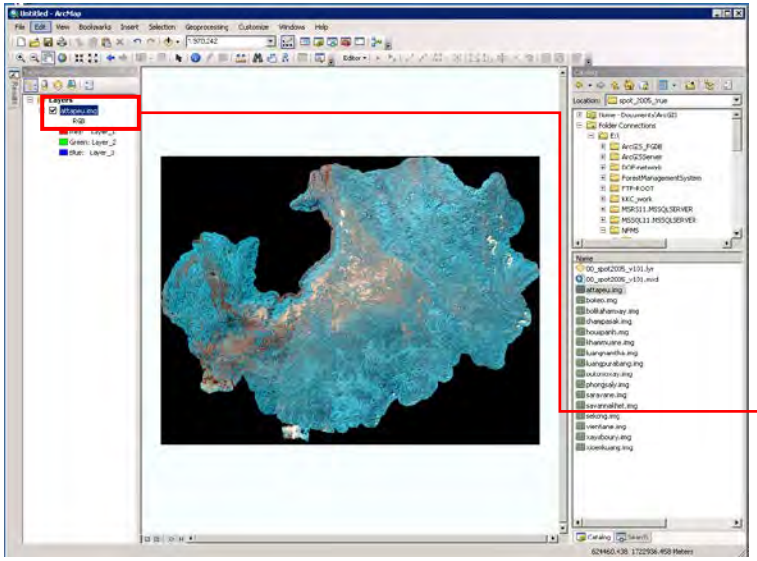

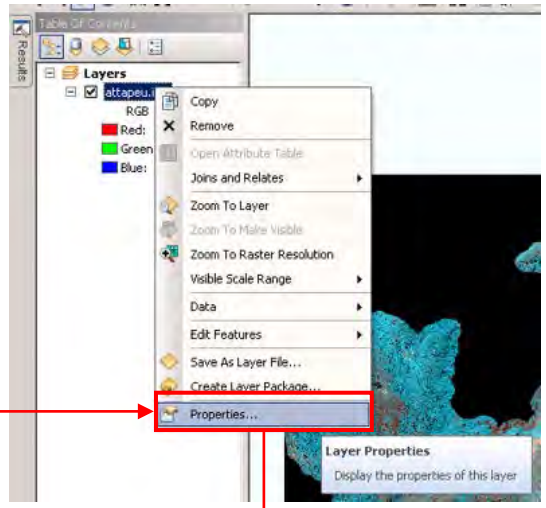

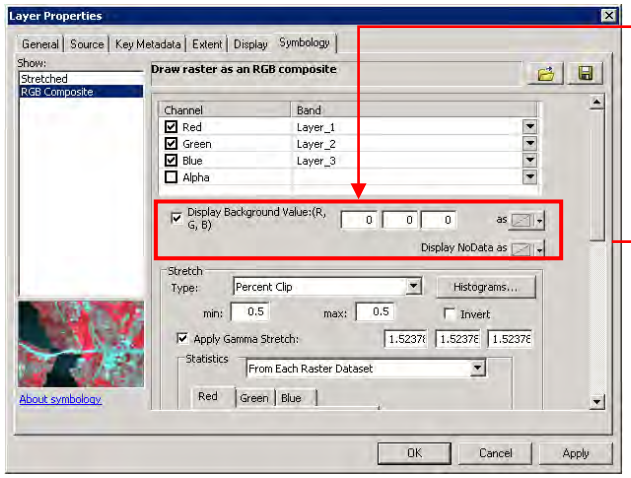

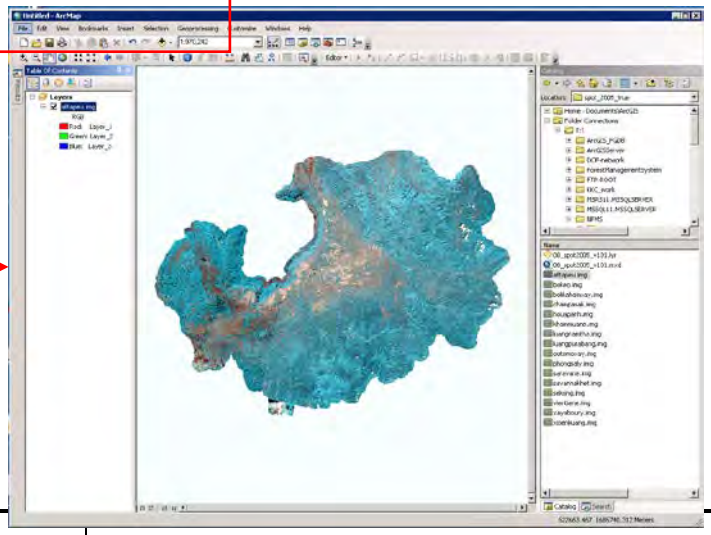

ອັນທີ່ສ້າງ	2017/7/5			
ອັນທີ່ປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	51
ສະບັບທີ່	Ver.1.0			

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1.2.7.2 ການ Publish Map Service

ຜາ ຍ MXD ທີ່ ກະ ກບົ ມແລ້ ວ, ການ publish map service. ໃຫ້ ປະ ຕິ ບັ ດຕາ ມຂັ້ ນຕອນດັ່ ງຕໍ່ ໄ ປນີ້, ບາ ງ ຈຸດ ຕ້ ອງໄດ້ ມີ ການ ກວດສອບ.

1. ແຫຼ ່ ງຂໍ້ ມ ູນໃ ນ MXD (Data source in MXD)

ການ ດັ ດປັ ບ Data source path ສຳ ລັ ບ mxd (ຖ້ າຫາ ກ MXD ກ່ ອບປີ້ ມາ ຈາ ກຜາ ຍທີ່ ມີ ຍູ ່, ມັ ນຈະ ຍັ ງຄົ ງຮັ ກສາ ການ ຕັ້ ງຄ່ າແບ ບເດີ ມໄວ້. ຈຳ ເປັ ນຕ້ ອງໄດ້ ກວດສອບເບິ່ ງ).

ວັ ນທີ ສ້ າ ງ	2017/7/5			
ວັ ນທີ ປັ ບ ປຸ ງ	2017/11/28	NFMS (ລະບົ ບຕິ ດຕາມກວດກາປ່ າໄມ້ ແຫ່ ງຊາດ)	ຄູ ່ ມື ການນຳຂໍ້ ມ ູນເຂົ້ າໃນລະບົ ບ NFMS	52
ສະບັ ບທີ	Ver.1.0			

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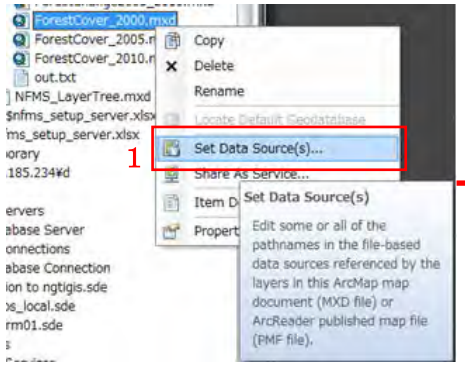

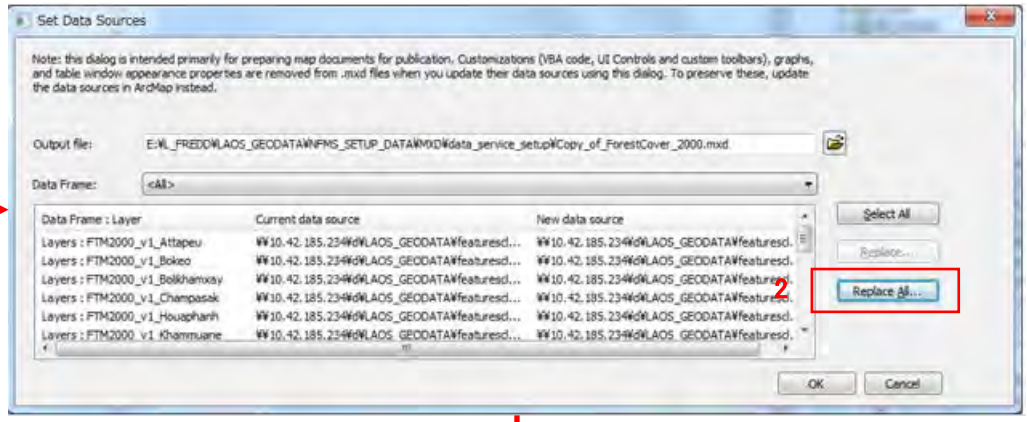

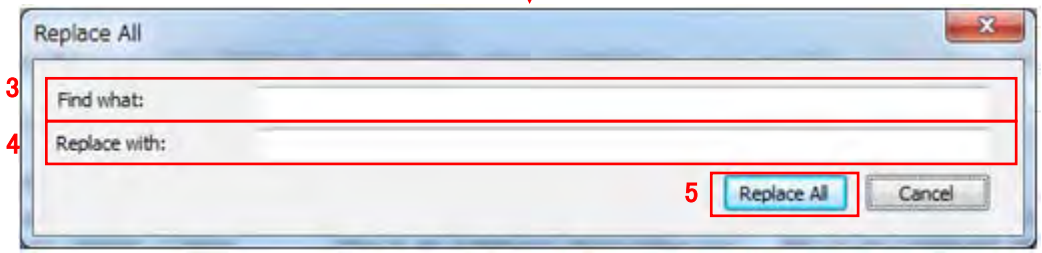

2. ລະ ບ ົບພ ົກ ັດສ ຳ ລ ັບກ ອ ບ ຂ ອ ງ ຂ ໍ ້ ມ ູ ນ (Coordinate system for data frame)

ຖ ້ າຫາ ກ ມ ັນບ ໍ ່ ເປ ັນຕາ ມ ຄ ່ າທ ີ ເ ໝາ ະ ສ ົ ມ, ໃຫ ້ ປ ່ ບົນລ ະ ບ ົບພ ົກ ັດກ ອ ບ ຂ ອ ງ ຂ ໍ ້ ມ ູ ນເປ ັນ "WGS_1984_Web_Mercator_Auxiliary_Sphere".

ວ ັ ນທ ີ ສ ້ າ ງ	2017/7/5			
ວ ັ ນທ ີ ປ ັ ບ ປ ຸ ງ	2017/11/28	NFMS (ລະບ ົ ບຕ ິ ດຕາມກວດກາປ ່ າໄມ ້ ແຫ ່ ງຊາດ)	ຄ ູ ່ ມ ື ການນ ຳຂ ໍ ້ ມ ູ ນເຂ ົ ້ າໃນລະບ ົ ບ NFMS	53
ສະບ ັ ບທ ີ	Ver.1.0			

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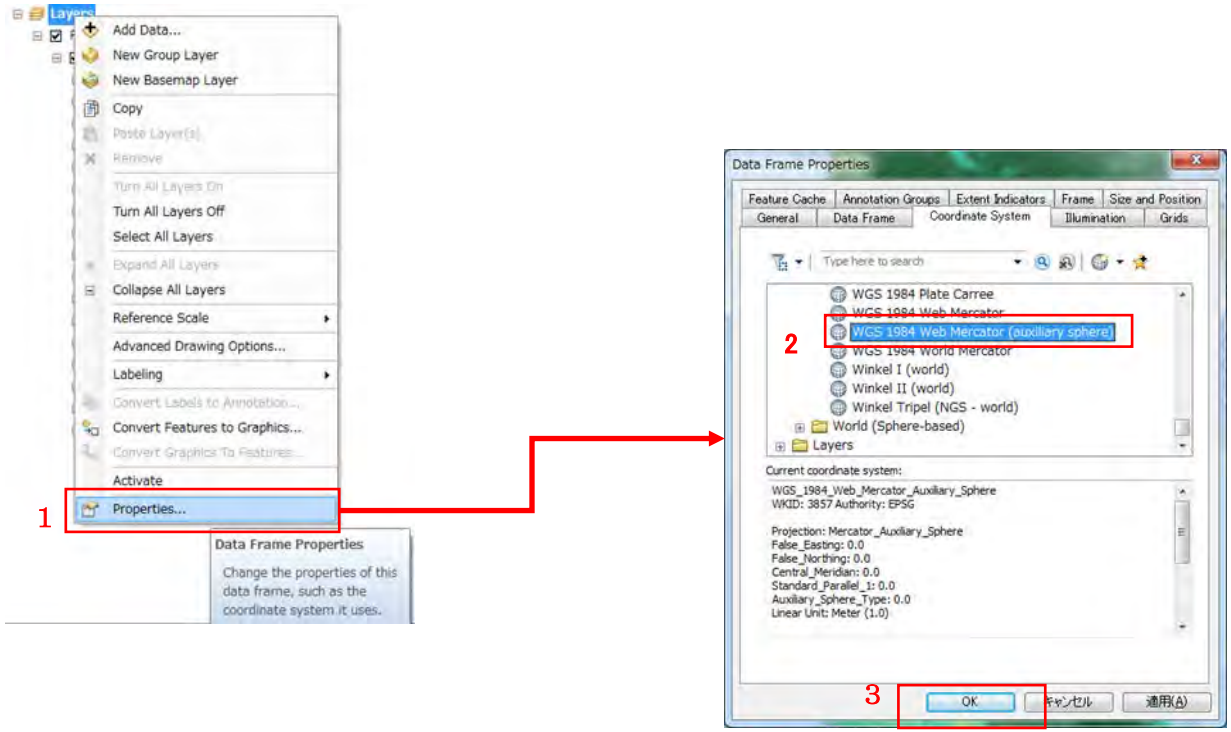

3. ການ ນ າ ຫະ ບ ບ ນ ຂ ້ ມ ູ ນ ໃ ນ ArcGIS Server (Data Store for ArcGIS Server)

ອ ັ ນ ທ ີ ສ ້ า ງ	2017/7/5			
ອ ັ ນ ທ ີ ປ ັ ບ ປ ຸ ງ	2017/11/28	NFMS (ລະ ບ ົ ບ ຕ ິ ດ ຕ າ ມ ກ ວ ດ ກ າ ປ ່ า ໄ ມ ້ ແ ຫ ່ ງ ຊ າ ດ)	ຄ ູ ່ ມ ື ການ ນ ຳ ຂ ້ ມ ູ ນ ເ ຂ ົ ້ า ໃ ນ ລ ະ ບ ົ ບ NFMS	54
ສ ະ ບ ັ ບ ທ ີ	Ver.1.0			

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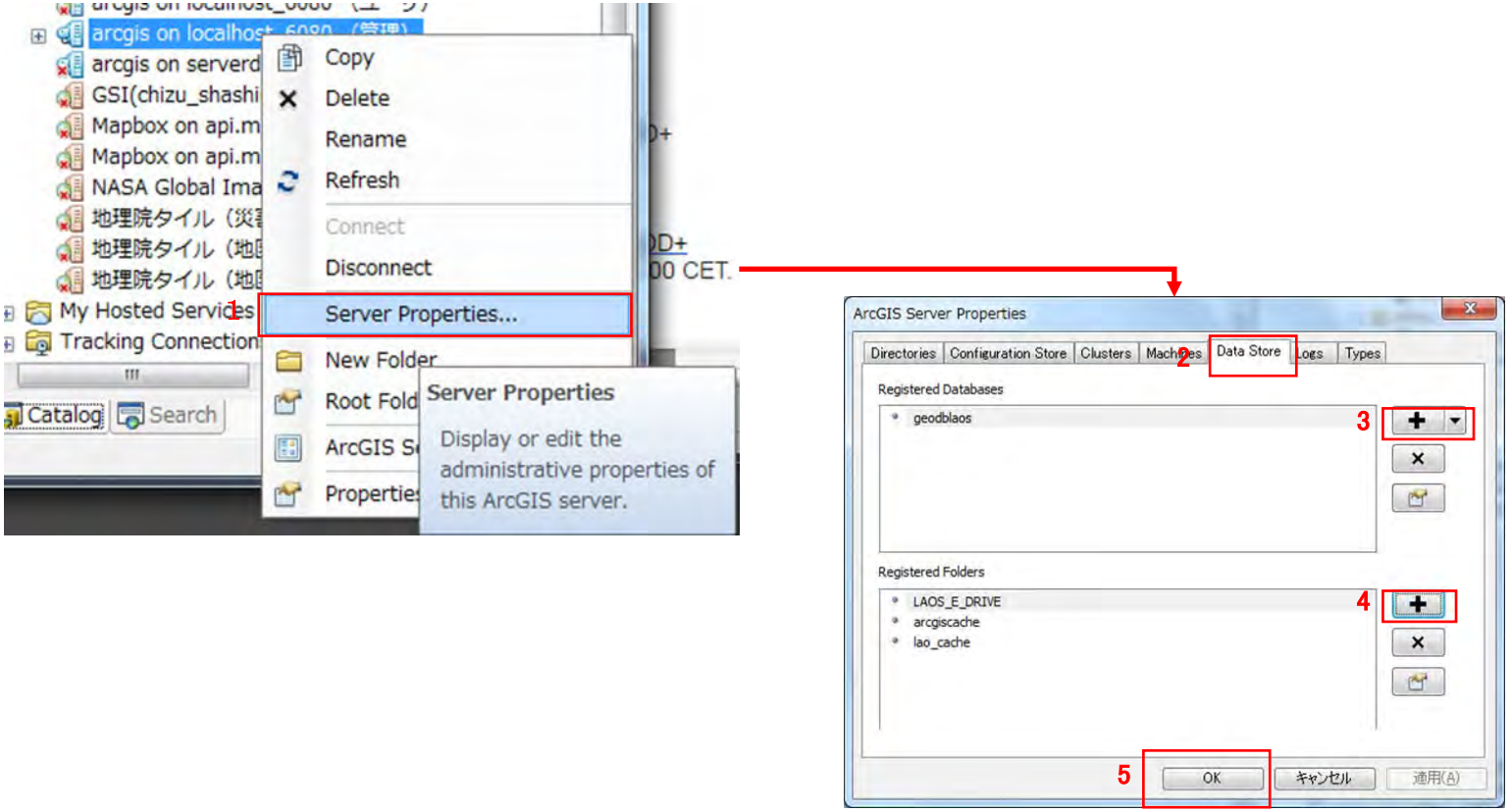
ການລົງທະບຽນຂໍ້ມູນໃນ ArcGIS Server ກ່ອນທີຈະ publishing service (e.g. ຊື່ຂອງ ໂຟເດີ້ = "NFMS_FGDB").

ການລົງທະບຽນ data store ເພື່ອຫຼີກເວັ້ນການກ່ອບປີ້ຂໍ້ມູນດັ້ງເດີມໄປໄວ້ໃນ directories ຂອງ ArcGIS ເວລາ publishing map services.



ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	55
ສະບັບທີ	Ver.1.0			

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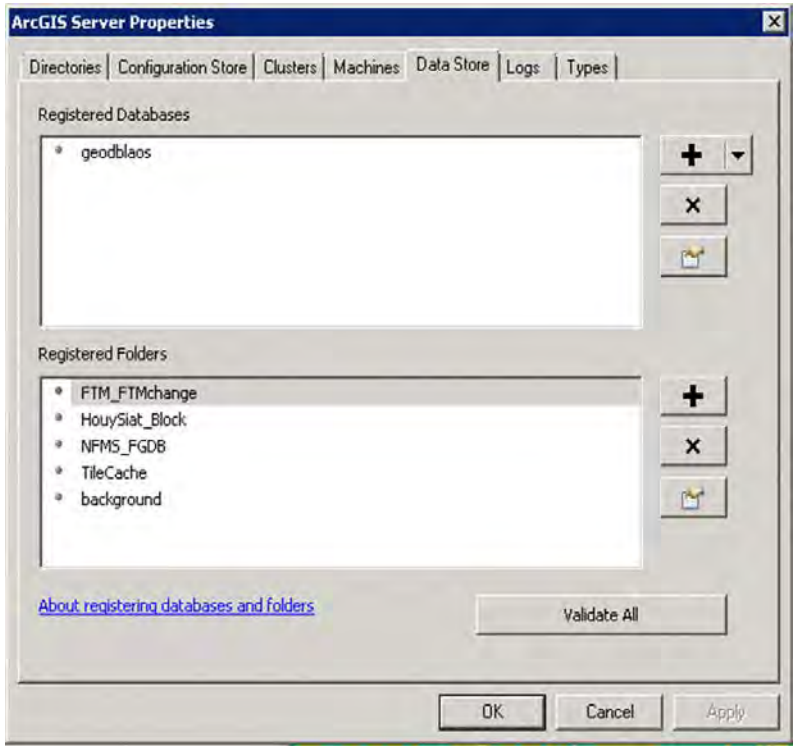
ບັດຈຸບັນນີ້ ArcGIS Server ສຳ ລັບ serverfipd4 ແມ່ນໄດ້ລົງທະ ບຽນບາງ directories ເປັນ data source ແລ້ວ.



FTM_FTMchange	E:¥NFMS¥NFMS_SETUP_DATA¥Map
background	E:¥NFMS¥NFMS_SETUP_DATA¥Background

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NFMS_FGDB	E:¥ArcGIS_FGDB
TileCache	E:¥ArcGISServer¥directories¥arcgiscache
HouySiat_Block	¥¥ServerFIPD20¥GISFIPD¥09_Production_forest¥Province_Vientiane¥PFA_Houay_Siat

4. ການລົງທະບຽນເພີ່ມ Cache Directory (Optional)

ການລົງທະບຽນເພີ່ມ Cache Directory ຖ້າຫາກທ່ານຕ້ອງການທີ່ຈະບ່ຽນແປງ cache directory ນີ້. ແຕ່ປັດຈຸບັນນີ້ລະບົບ NFMS ໃຊ້ "arcgiscache" directory.

ການຕັ້ງຄ່າຂອງ Map service ຕ້ອງໄດ້ເລືອກປາຍທາງບ່ອນເກັບມ້ຽນ (destination derectory)ສຳລັບ caching ຈາກ derectoreis ທີ່ໄດ້ລົງທະບຽນໄວ້.

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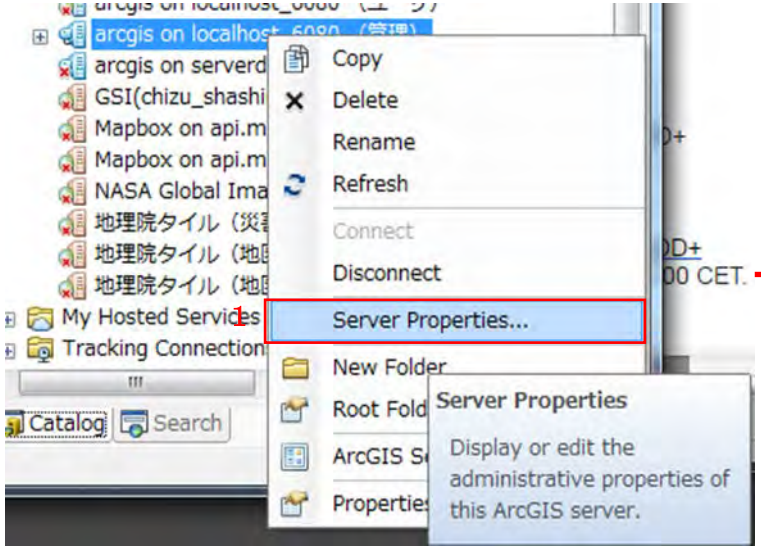

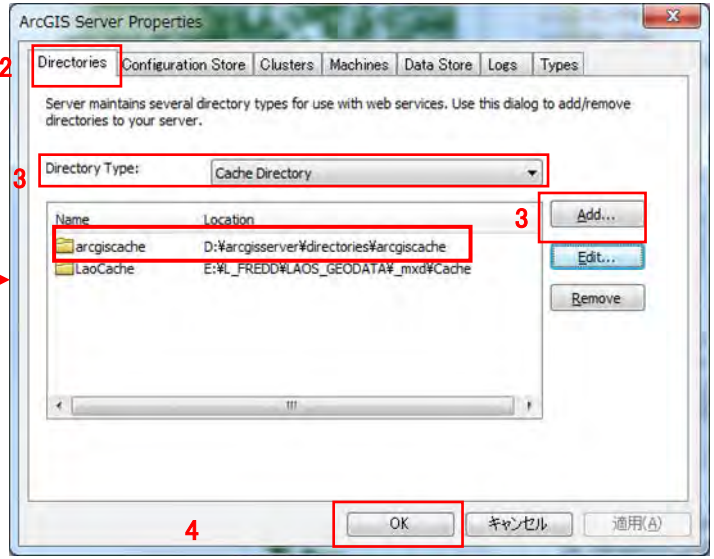

5. ການ Share as service (with tile)

ການ Publish a map service ຈາກ mxd ຜາຍທີ່ກະກຽມໄວ້ແລ້ວ. ວິທີປະຕິບັດຄື່ຄລິກຂວາທີ່ MXD ເບີ່ງທີ່

ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	58
ສະບັບທີ	Ver.1.0			

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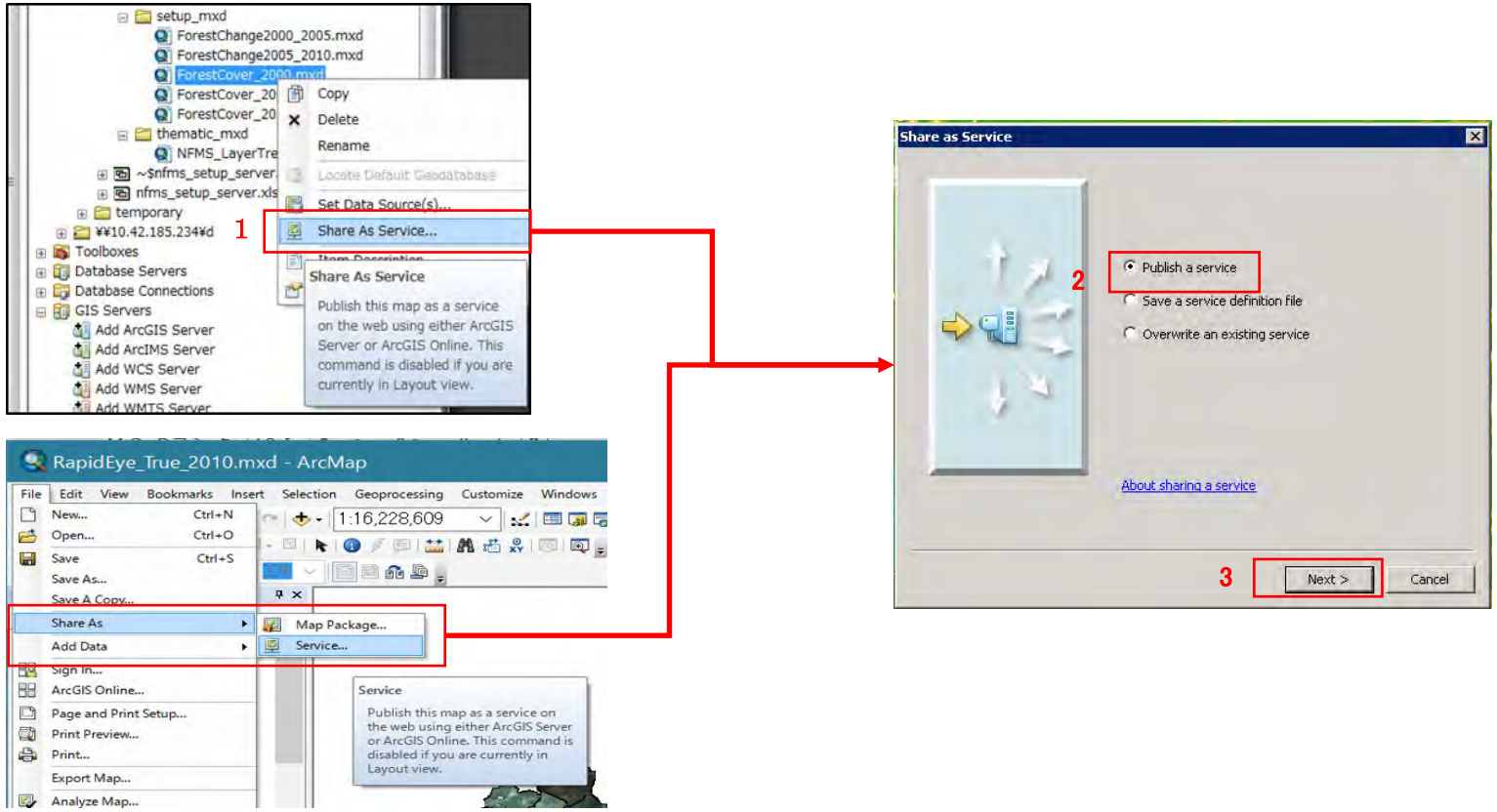
ArcCatalogue, ແລະ ເລືອກ [Share As Service] (At ArcMap, [File] > [Share As] > [Service..]). [Share As Service] ຫນ້າຕ່າງຈະ ສະ ແດງ ຂຶ້ນມາ . ໃ ນ ກໍ ລະ ນ ີທ ີ່ ສ້ າງ new service, ເລືອກ [Publish a service] ແລະ ຄ ິລ ິກ [Next]



ວ້ນທ ີສ້ າງ	2017/7/5			
ວ້ນທ ີປ້ບ ປ ຸງ	2017/11/28	NFMS (ລະບ ົບຕ ິດຕາມກວດກາປ່ າໄມ້ແຫ່ງຊາດ)	ຄ ູ່ມ ືການນຳຂໍ້ມ ູນເຂ ົ້າໃນລະບ ົບ NFMS	59
ສະບ້ບທ ີ	Ver.1.0			

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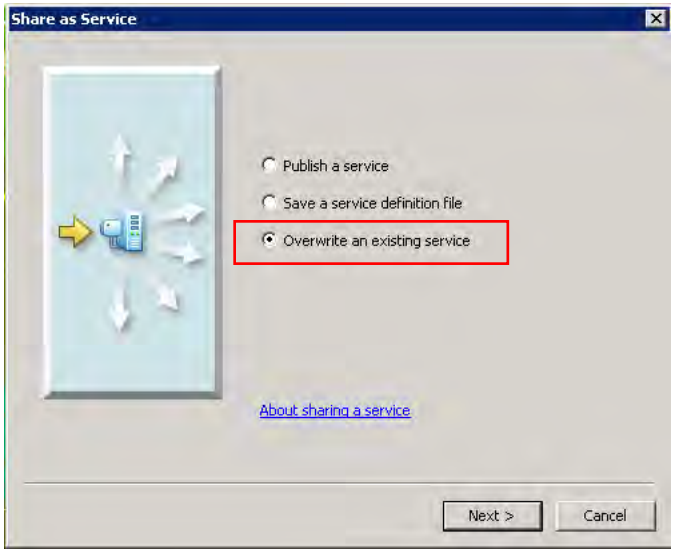
ໃນກໍລະນີຮັບເດດ map service ທີ່ມີຢູ່ແລ້ວ. ໃນກໍລະດັ່ງກ່າວນີ້, ເລືອກ [Overwrite an existing service], ຄລິກ[Next].



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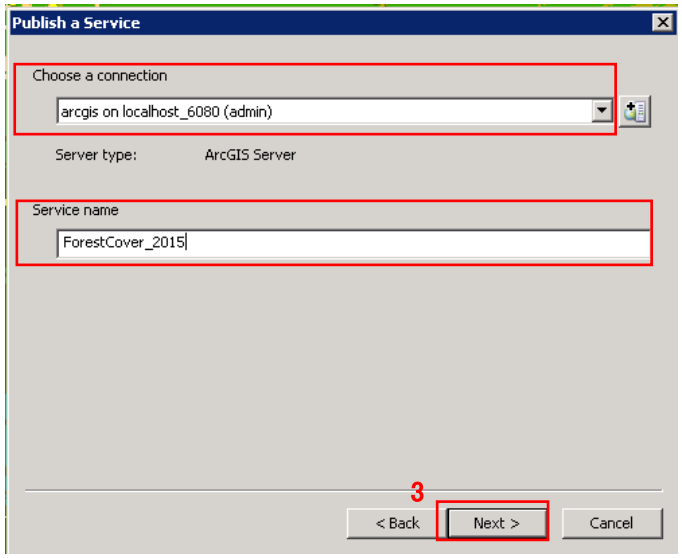
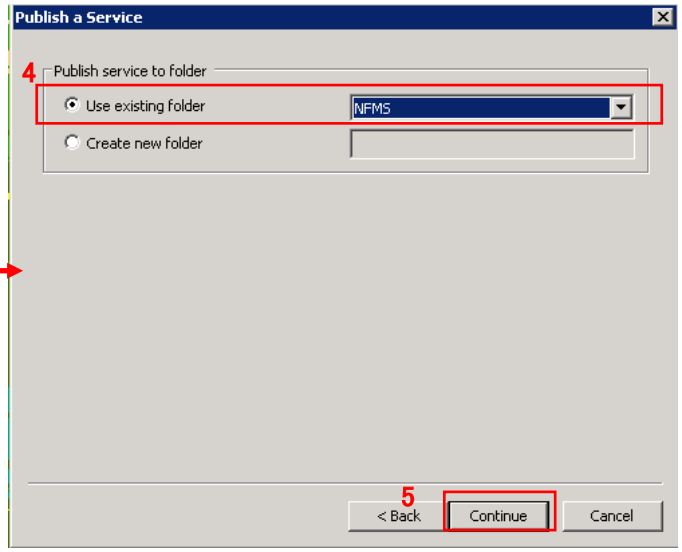
ການກຳນົດ【Choose a connection】ແລະ ໃສ່ຊື່ 【Service name】. ຄລິກ [Next]. ເລືອກt [Use existing folder] ແລະ “NFMS”, ເປັນ NFMS ໄດ້ສ້າງໄວ້ໃນ serverfipd4 ແລ້ວ.





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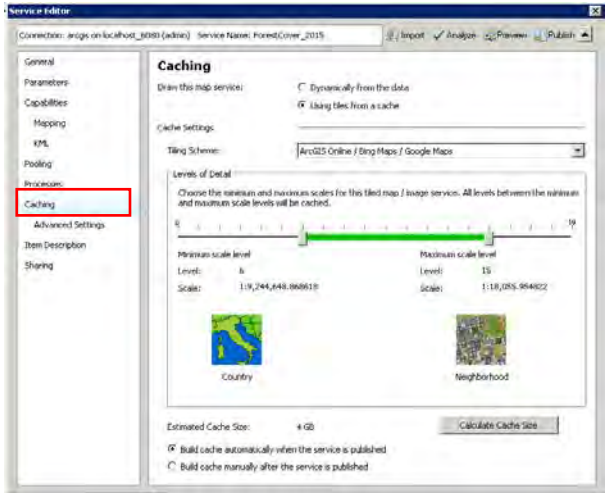
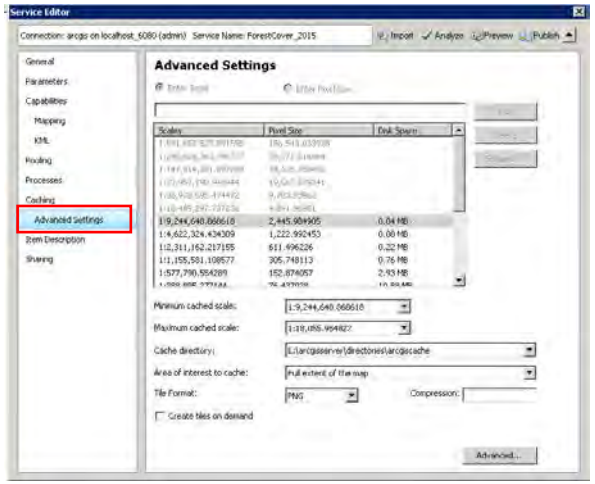
ການແກ້ໄຂຕັ້ງຄ່າ [Service Editor] ດັ່ງໜ້າຕ່າງທີ່ສະແດງນີ້.ແມ່ນໜ້າຕ່າງທີ່ສາມາດປັບແລະ ຕັ້ງຄ່າ service. ຕົວຢ່າງ, ໃນ 【Caching】 ແທບ, ທ່ານສາມາດປັບລະດັບການຊຸມໄດ້. ໃນ [Advance Settings] ແທບ, [Cache Directory] ທ່ານສາມາດປັບປ່ຽນຈາກຄ່າເດີມເປັນຄ່າຫີ່ນ.

ລະດັບການຊຸມ【Caching】ໄດ້ກຳນົດໄວ້ໃນຕາຕະລາງ 1.2.6.





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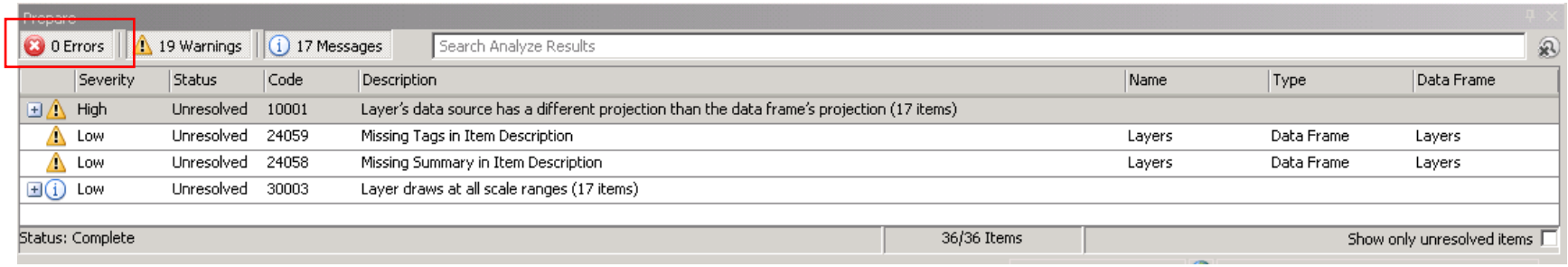
.ຫຼັງຈາກຕັ້ງຄ່າສຳເລັດແລ້ວໃຫ້ເລືອກ [Analyze] , ຈາກນັ້ນຕິດຕາມເບິ່ງວ່າມີຂໍ້ຜິດພາດຫຍັງເກີດຂຶ້ນຫຼືບໍ່



ຄລິກ [Preview], ເພື່ອກວດສອບເບິ່ງວ່າ service ສະ ແດງ ຜົນຕາ ມທີ່ຕ້ອງການຫຼືບໍ່. ແລ້ວ ຄລິກPublish]

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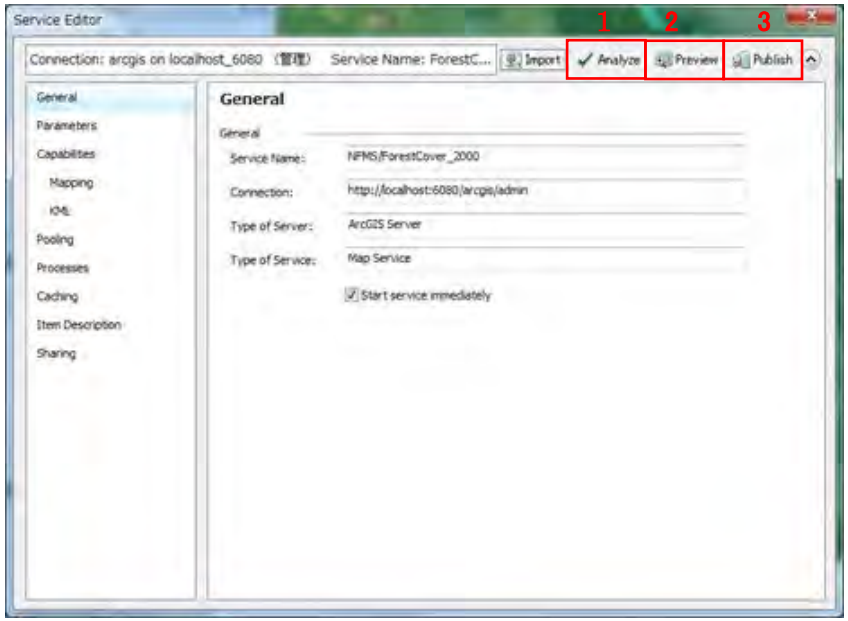
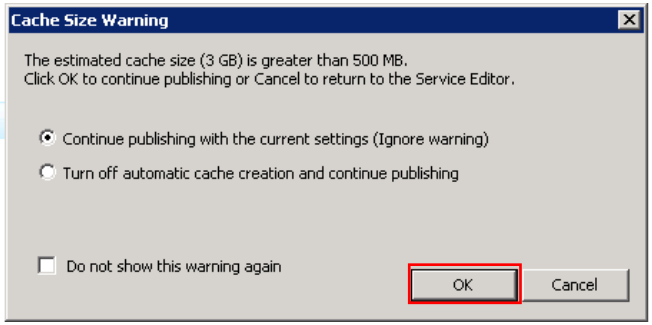


ຂະໜາດຂອງຟາຍ Cache ໃຫຍ່ກວ່າ 500 MB ດັ່ງນັ້ນ ArcGIS ຈະມີຂໍ້ຄວາມເຕືອນ ຄລິກ OK.



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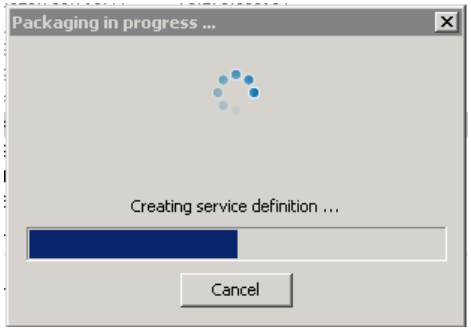
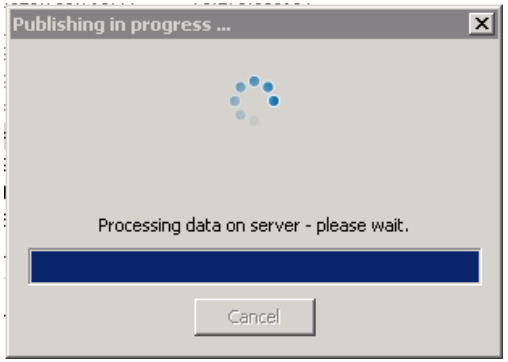
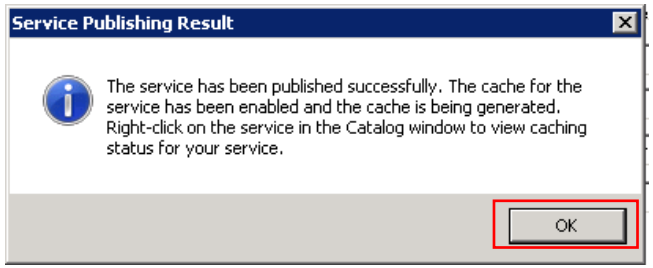
ການແຊ published service ສຳເລັດແລ້ວ, ຄລິກ OK ເພື່ອປິດໜ້າຕ່າງຂໍ້ຄວາມ.







ເຂົ້າໄປກວດສອບບເບື່ອງ created ໃນ ArcCatalog. ຄລິກຂວາໃສ່ service ທີ່ສ້າງຂຶ້ນ, ເລືອກ [View Cache Status]. ເພື່ອເບິ່ງລາຍລະອຽດ, ຄລິກ [Show details]

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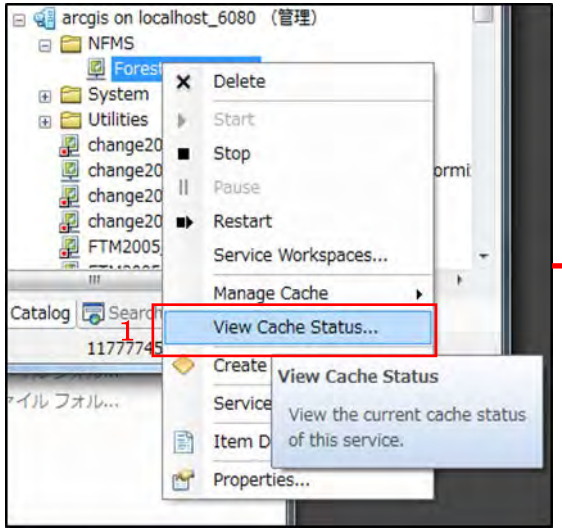

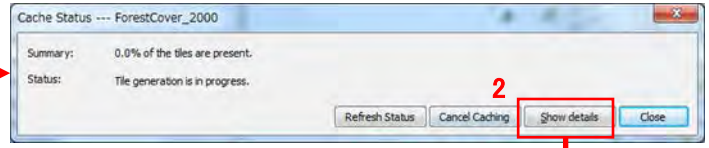

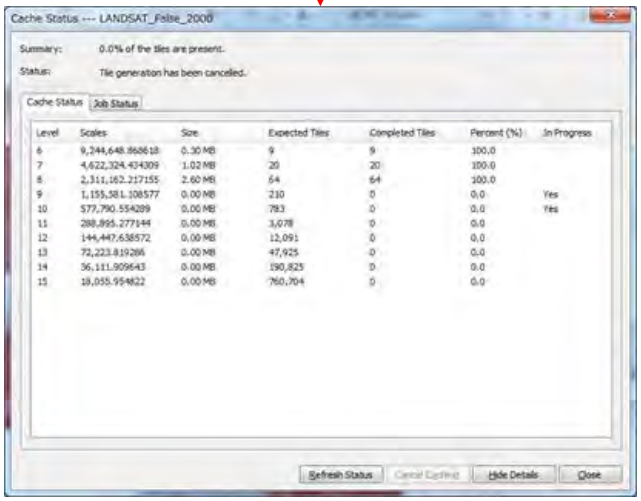

ອັນທີ່ສ້າງ	2017/7/5			
ອັນທີ່ປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	66
ສະບັບທີ່	Ver.1.0			

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ພາຍຫຼັງຂັ້ນຕອນການສ້າງ caching ສຳເລັດ, ກວດສອບຜົນໄດ້ຮັບທີ່ ArcGIS Server Manager. ໃນຫນ້າຕ່າງ ArcCatalog, ຄລິກຂວາ GIS Servers ສຳລັບ NFMS, e.g. arcgis ໃນ localhost 6080 (admin), ເລືອກ [ArcGIS Server Manager]. ArcGIS Server Manager ເປີດໃນ browser. ເຂົ້າສູ່ລະບົບລົງຊື່ຜູ້ໃຊ້ ແລະ ລະຫັດ.

ກະລຸນາກວດສອບຂໍ້ມູນຂ່າວສານກັບຜູ້ຄຸ້ມຄອງຂອງລະບົບຂອງ FIPD Server.

ອັນທີສ້າງ	2017/7/5			
ອັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	67
ສະບັບທີ	Ver.1.0			

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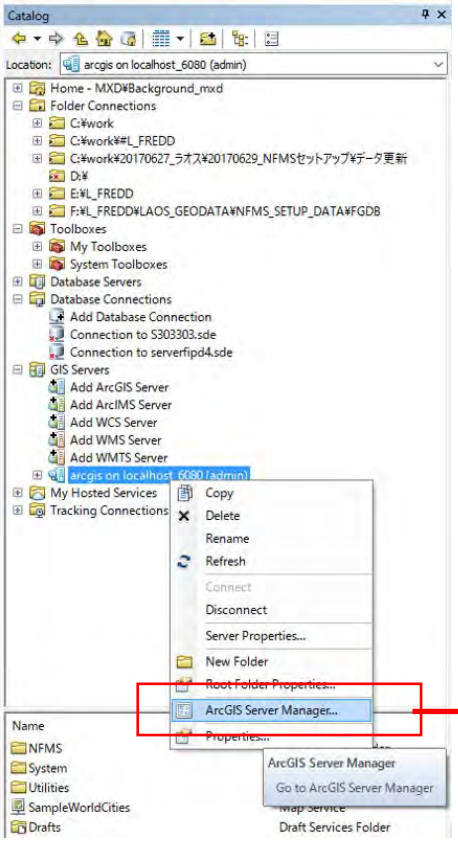

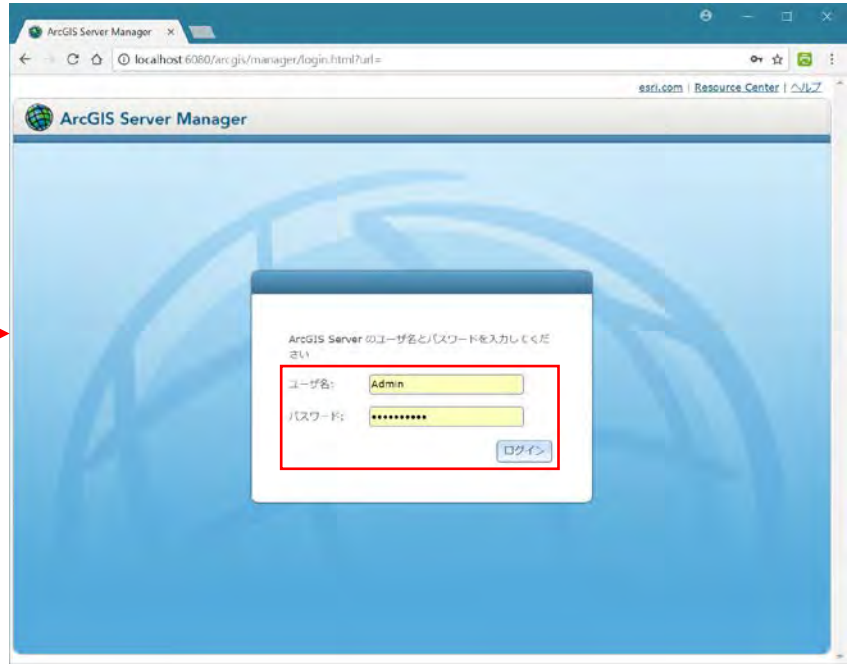

ໃນ ArcGIS Server Manager, ເລືອກ [NFMS], ຄລິກ [View] ຂອງ service ທີ່ໄດ້ສ້າງຂຶ້ນ. service

ອັນທີ່ສ້າງ	2017/7/5			
ອັນທີ່ປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	68
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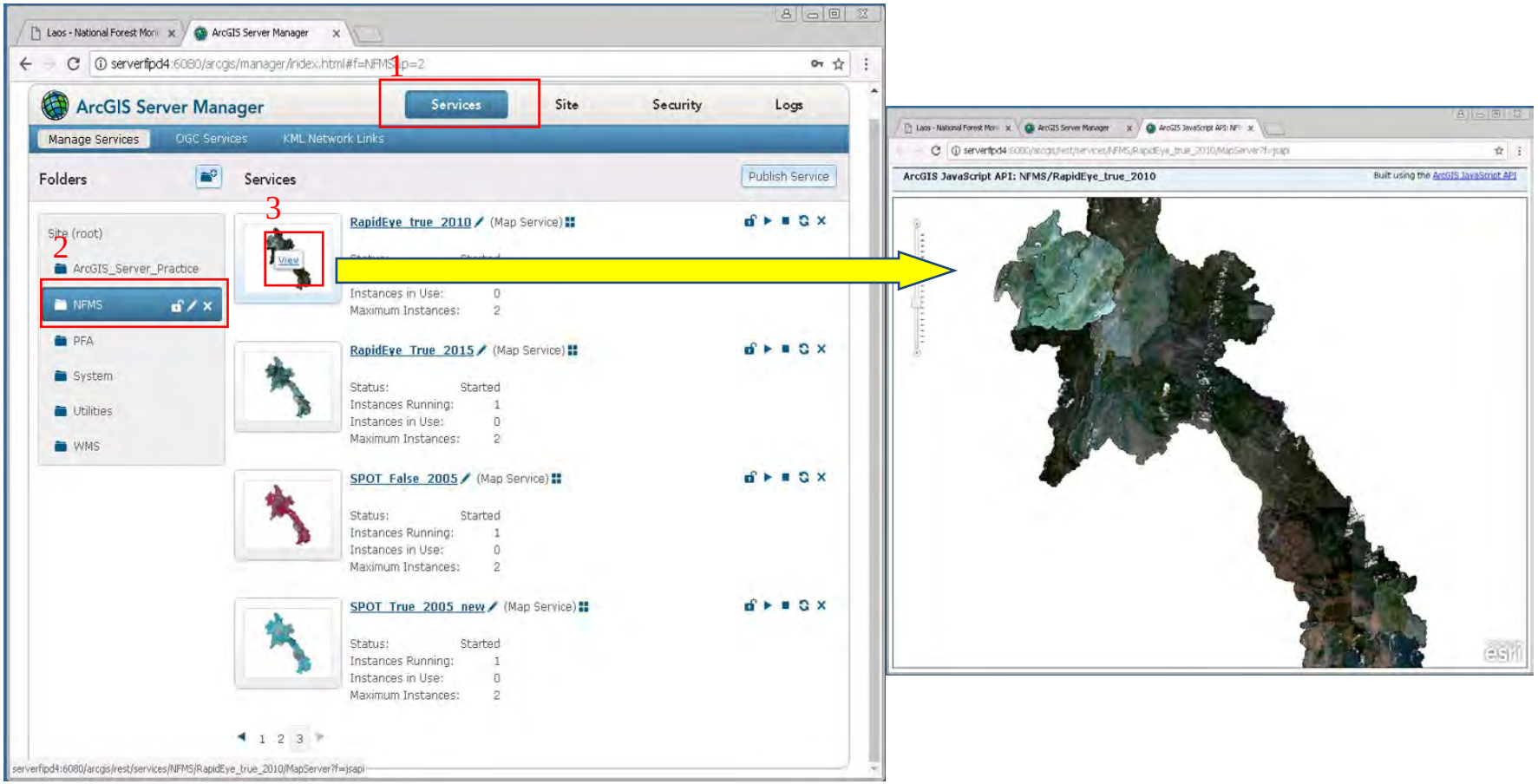
ຈະສະແດງດ່ຽນໜ້າຕ່າງຂ້າງລຸ່ມນີ້ ແລະ ທ່ານສາມາດກວດສອບວ່າ service ແລະ cache tile map ໄດ້ສ້າງຂຶ້ນຖືກຕ້ອງຕາມຂໍ້ກຳນົດຫຼືບໍ່.



ອັນທີສ້າງ	2017/7/5			
ອັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	69
ສະບັບທີ	Ver.1.0			

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Cache map tile ໄດ້ຖືກເກັບຍູ່ທີ່ serverfipd4.

.

ອັນທີສ້າງ	2017/7/5			
ອັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	70
ສະບັບທີ	Ver.1.0			

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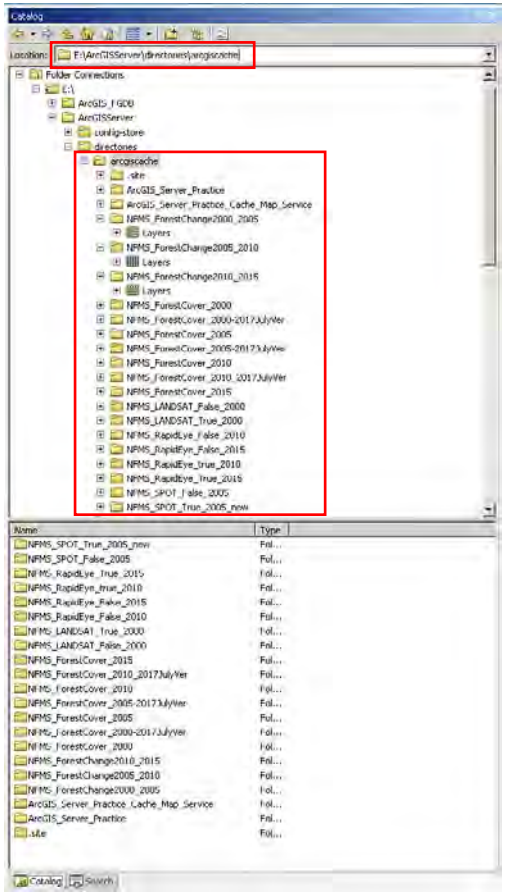

ອັນທີ່ສ້າງ	2017/7/5			
ອັນທີ່ປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	71
ສະບັບທີ່	Ver.1.0			

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1.2.7.3 ການດັດປັບ DB

ໃນກໍລະນີການເພີ່ມ back ground layer ໃຫມ່, ທຳອິດຕ້ອງໄດ້ລົງບັນທຶກໃນຕາຕະລາງ DB. ກ່ອນອື່ນຫມົດ, ເປີດ DB ໂດຍ Microsoft SQL Server Management Studio. ຄລິກຂວາທີ່ຕາຕະລາງ “nfms_m_basemap” ເລືອກ [edit top 200]. ລົງບັນທຶກໃສ່ໃນຕາຕະລາງ ແລະ ຕື່ມຄ່າຕ່າງໆໃສ່ໃນແຕ່ລະຊ່ອງ.

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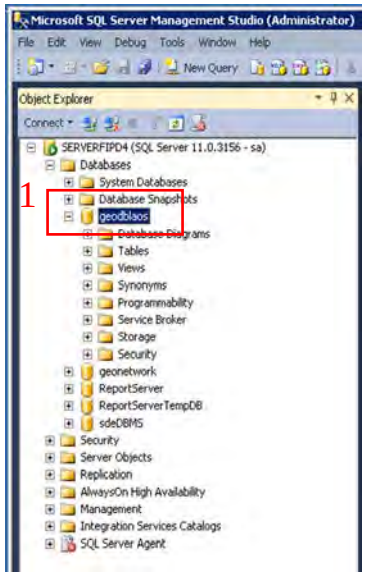

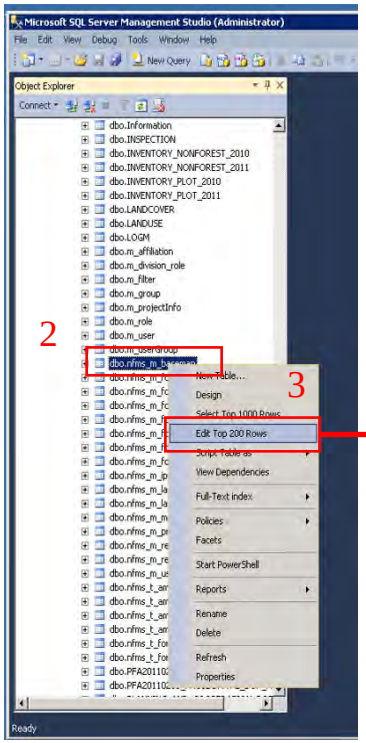

	basemap_id	map_name	map_name_lao	type	map_url	disp_order
1	gray	GrayMap	GrayMap	gray	NULL	1
2	landsat2000	Landsat2000	Landsat2000	ImageService	http://localhost:6080/arcgis/rest/services/NFMS/LANDSAT_False_2000/MapServer	11
3	RapidEye2010	RapidEye2010	RapidEye2010	ImageService	http://localhost:6080/arcgis/rest/services/NFMS/RapidEye_False_2010/MapServer	13
4	RapidEye2010True	RapidEye2010(True)	RapidEye2010(True)	MapService	http://localhost:6080/arcgis/rest/services/NFMS/RapidEye_True_2010testKato/MapServer	15
5	RapidEye2015	RapidEye2015	RapidEye2015	ImageService	http://localhost:6080/arcgis/rest/services/NFMS/RapidEye_False_2015/MapServer	14
6	satellite	Arc - Satellite	Arc - Satellite	satellite	NULL	2
7	spot2005	Spot2005	Spot2005	ImageService	http://localhost:6080/arcgis/rest/services/NFMS/SPOT_False_2005/MapServer	12

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- ລະຫັດຂອງແຜນທີ່ພື້ນຖານ(basemap_id): ລະຫັດຂອງລະບົບທີ່ບໍ່ຊ້ຳກັນ(Unique system id)
- ຊື່ຂອງແຜນທີ່: ຊື່ຂອງແຜນທີ່ສະແດງໃນລະບົບ NFMS (ເປັນພາສາອັງກິດ)
- ຊື່ຂອງແຜນທີ່ເປັນພາສາລາວ: ຊື່ຂອງແຜນທີ່ສະແດງໃນລະບົບ NFMS (ເປັນພາສາລາວ)
- ພິມ: Enter “MapService” ສຳລັບ background layer
- _url ຂອງແຜນທີ່: Rest Endpoint URL
- disp_order: ກຳນົດແລະລຽງລຳດັບຂອງຊັ້ນທີ່ສະແດງໃນລະບົບ NFMS

ກະລຸນາອ້າງອີງຖືງລະບົບ NFMS ຖານຂໍ້ມູນຂອງ DB ລາຍລະອຽດເພີ່ມເຕີມແມ່ນເອກສານນິຍາມຕ່າງໆ.

ວິທີເບິ່ງ Rest Endpoint URL ສຳລັບ url ຂອງແຜນທີ່.

ເປີດ ArcGIS Server Manager, ຄລິກ [Services] ແທບ, ແລ້ວຄລິກ [NFMS]. ຈາກນັ້ນເລືອກຊື່ຂອງແຜນທີ່ map service ຕ້ອງການແລ້ວຄລິກ. ໃນຫນ້າຕ່າງທີ່ປາກົດຂຶ້ນມາເລືອກ, ຄລິກ [Capabilities] ແທບ, ທ່ານຈະເຫັນ [REST URL]. ຈາກນັ້ນ Copy ລິ້ງ URL.

ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	74
ສະບັບທີ	Ver.1.0			

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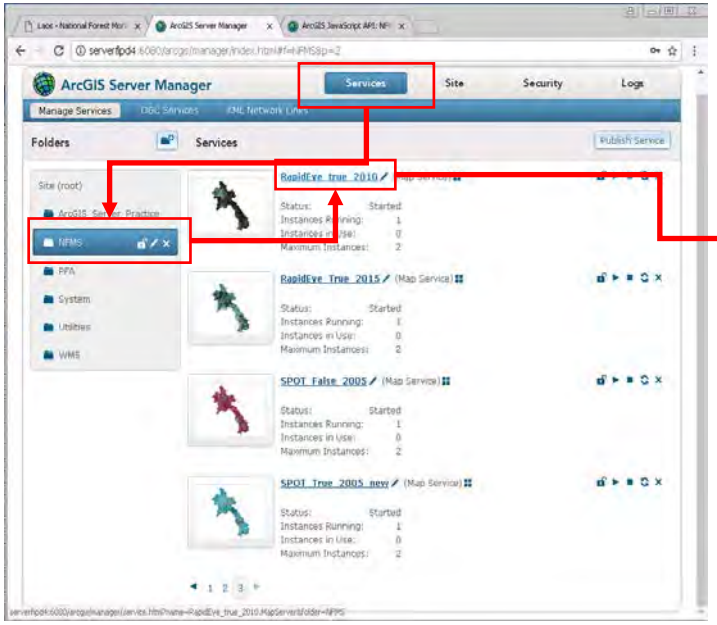

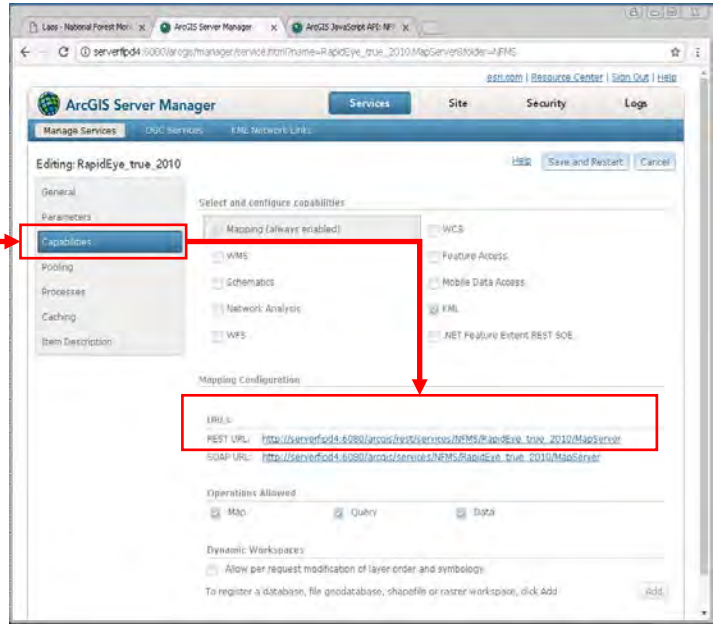

- “disp_order” ລາຍລະອຽດ່າງໆຂອງແຜນທີ່ແມ່ນຈະລຽງຕາມລຳດັບຍູ່ໃນຊ່ແຕງຂອງລະບົບ NFMS.

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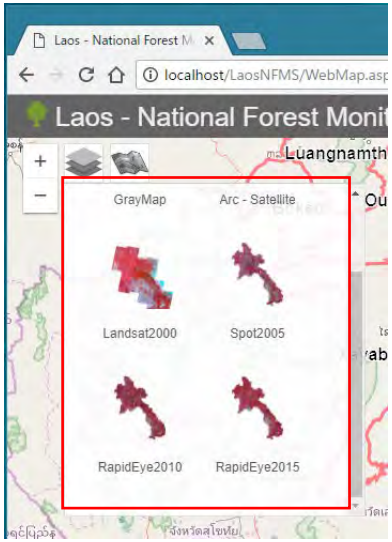

1.2.7.4 ການກວດສອບລະບ ົບ NFMS

ເປ ີດ ລ ີ ເຂ ົ ້າລະບ ົບ NFMS ຜ ່ານ URL ກວດສອບເບ ິ ່ງວ ່າ background layer ຖ ືກລ ົງທະບຽນໄວ ້ໃນລະບ ົບ.

- URL: http://serverfipd4:4242/nfms

ກະລ ຸນາກວດສອບຂ ໍ ້ມ ູນຂ ່າວສານກ ັບຜ ູ ້ຄ ຸ ້ມຄອງຂອງລະບ ົບຂອງ FIPD Server.

ວ ັນທ ີສ ້າ ງ	2017/7/5			
ວ ັນທ ີປ ັບ ປ ຸງ	2017/11/28	NFMS (ລະບ ົບຕ ິດຕາມກວດກາປ ່າໄມ ້ແຫ ່ງຊາດ)	ຄ ູ ່ມ ືການນຳຂ ໍ ້ມ ູນເຂ ົ ້າໃນລະບ ົບ NFMS	76
ສະບ ັບທ ີ	Ver.1.0			

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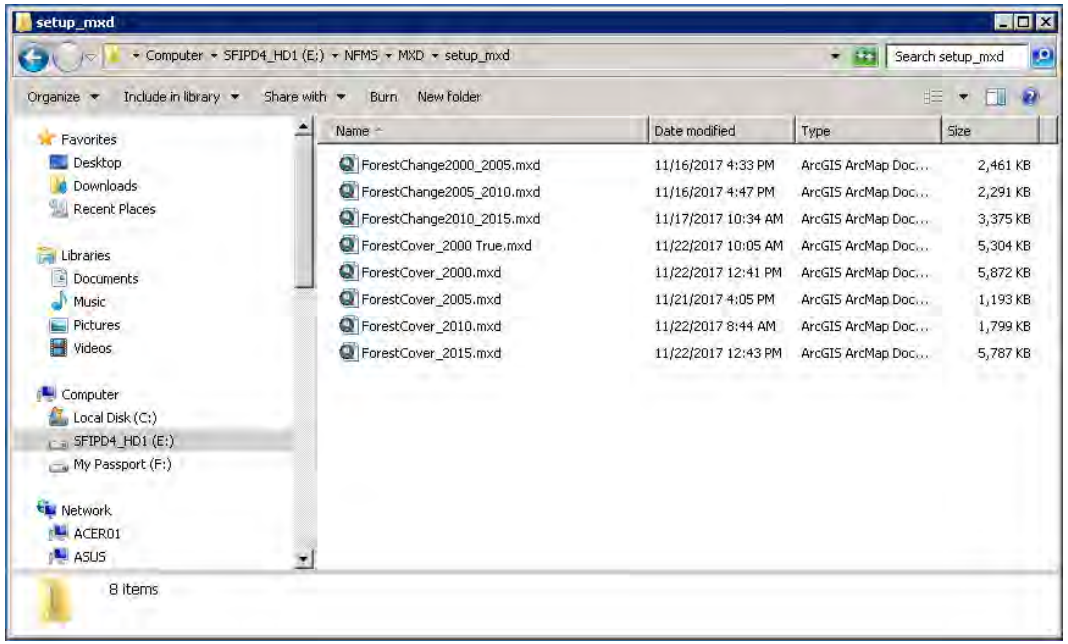
1.2.8. Register Thematic Layer

1.2.8.1 ກະກຽມ ແລະ ຕັ້ງຄ່າ MXD.

MXD ສຳລັບ thematic layers ແມ່ນໄດ້ຖືກເກັບໄວ້ໃນ directory ດັ່ງຕໍ່ໄປນີ້.

- E:¥NFMS¥MXD¥setup_mxd

mxd ເຫຼົ່ານີ້ແມ່ນມີໄວ້ສະເພາະການສ້າງ cache map tile ຂອງ thematic layers.



ໃນກໍລະນີຮັບເດດ thematic layers, ທີ່ມີພາຍ MXD ຢູ່, ເຊິ່ງຢູ່ໃນ setup_mxd folder ໂຟເດີ້. ເປີດພາຍ MXD.

ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	77
ສະບັບທີ	Ver.1.0			

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- ໃນກໍລະນີເພີ່ມ thematic layer, ທີ່ບໍ່ມີຟາຍ MXD ຢູ່. Copy MXD ທີ່ມີຢູ່, paste ໃສ່ໃນບ່ອນດຽວກັນ, ປ່ຽນຊື່ຟາຍທີ່ເໝາະສົມ ແລະ ເປີດຟາຍດັ່ງກ່າວ.

ຕັ້ງຄ່າຊຸດຂໍ້ມູນ Set data set

ເພີ່ມຊຸດຂໍ້ມູນໃນ MXD, remove ຊຸດຂໍ້ມູນທີ່ບໍ່ຈຳເປັນ, ແລະ ກວດສອບວ່າຂໍ້ມູນໃນ ArcMap ແມ່ນຖືກຕ້ອງແລ້ວບໍ່ຈາກນັ້ນ save MXD ຟາຍ.

ໃສ່ສັນຍາລັກຂອງຊຸດຂໍ້ມູນໃຫ້ຖືກຕ້ອງ. ຖ້າຫາກມີກໍ່ໃຫ້ຕັ້ງເປັນ data set.

ຖ້າເປັນໄປໄດ້, ແນະນຳໃຫ້ຜູ້ສ້າງ Layer ຟາຍໃຫ້ຕັ້ງຄ່າສັນຍາລັກຂອງຊຸດຂໍ້ມູນດັ່ງກ່າວ.

- ໃຊ້ຟາຍ Layer ກັບຊຸດຂໍ້ມູນ (data set)

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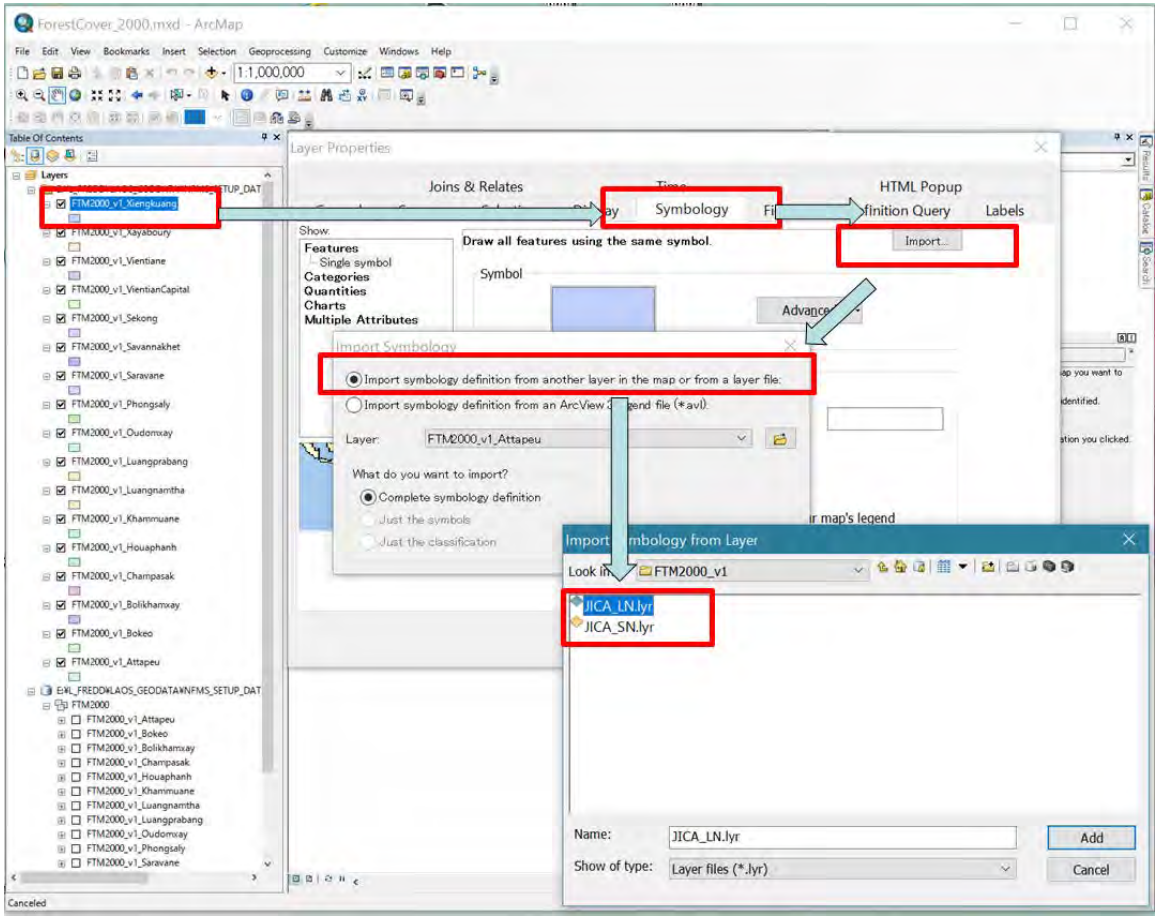

ນຳໃຊ້ batch function ຂອງເຄື່ອງມືໃນ Geoprocessing tool ໃສ່ສັນຍາລັກ"Apply Symbology From Layer"ເຊິ່ງສາມາດໃສ່ສັນຍາລັກຜາຍຂອງ Layer ໃຫ້ຫຼາຍຊຸດຂອງຂໍ້ມູນ. ຢ່າງໃດກໍ່ຕາມ,

ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	79
ສະບັບທີ	Ver.1.0			

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ໃນລະຫວ່າງການຟຶກອົບຮົມການໃສ່ສັນຍາລັກໂດຍວິທີນີ້ບາງຄັ້ງກໍ່ເກີດມີຂໍ້ຜິດພາດເຊິ່ງໃສ່ສັນຍາລັກບໍ່ຖືກ. ດັ່ງນັ້ນເພື່ອຄວາມຖືກຕ້ອງແລະປ້ອງກັນຂໍ້ຜິດພາດການໃສສັນຍາລັກຂອງຟາຍ Layer ແມ່ນໃຫ້ໃສ່ສັນຍາລັກເທື່ອລະໂຕ, ແລະ ກວດສອບວ່າສັນຍາລັກແຕ່ລະຊັ້ນແມ່ນຖືກຕ້ອງຫຼືບໍ່ກ່ອນທີ່ publishing Map Services.

ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	80
ສະບັບທີ	Ver.1.0			

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1.2.8.2 ການ Publish Map Service ສຳລັບການສ້າງ map cache tile

ຫຼັງໃສ່ການກະກຽມ MXD, ເພື່ອ publish map service. ແຕ່ລະຂັ້ນຕອນແມ່ນປະຕິບັດຄືກັນກັບ background layers.

ເບິ່ງຕາມຂໍ້ທີ 1.2.7.2 Publish Map Service

map services ເຫຼົ່ານີ້ແມ່ນໃສ່ສຳລັບສ້າງ cache map tile ຂອງ thematic layers ເທົ່ານັ້ນ. ດັ່ງນັ້ນ, ພາຍຫຼັງທີ່ສຳເລັດຂັ້ນຕອນໃນການສ້າງ cache, ທ່ານສາມາດສັ່ງຍຸດ map services ເພື່ອຮັກສາພື້ນທີ່ຂອງ server.

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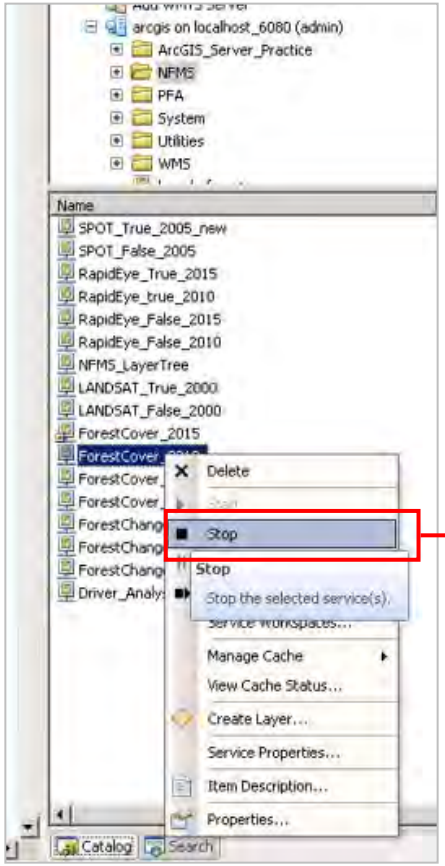

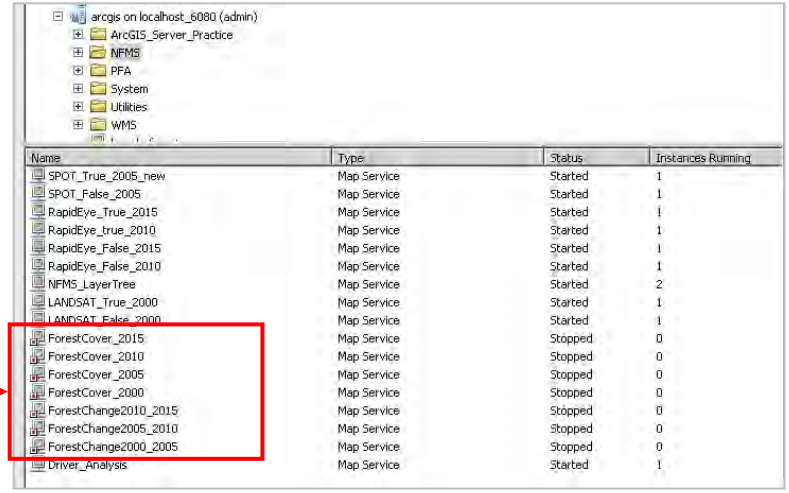

1.2.8.3 ການກະກຽມ MXD ສຳລັບ Thematic Layers

MXD ສຳລັບການລົງທະບຽນ thematic layers ແມ່ນໄດ້ຖືກເກັບໄວ້ໃນ directory ດັ່ງຕໍ່ໄປນີ້, ເປີດ “NFMS_LayerTree.mxd”

- E:¥NFMS¥MXD¥thematic_mxd

ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	82
ສະບັບທີ	Ver.1.0			

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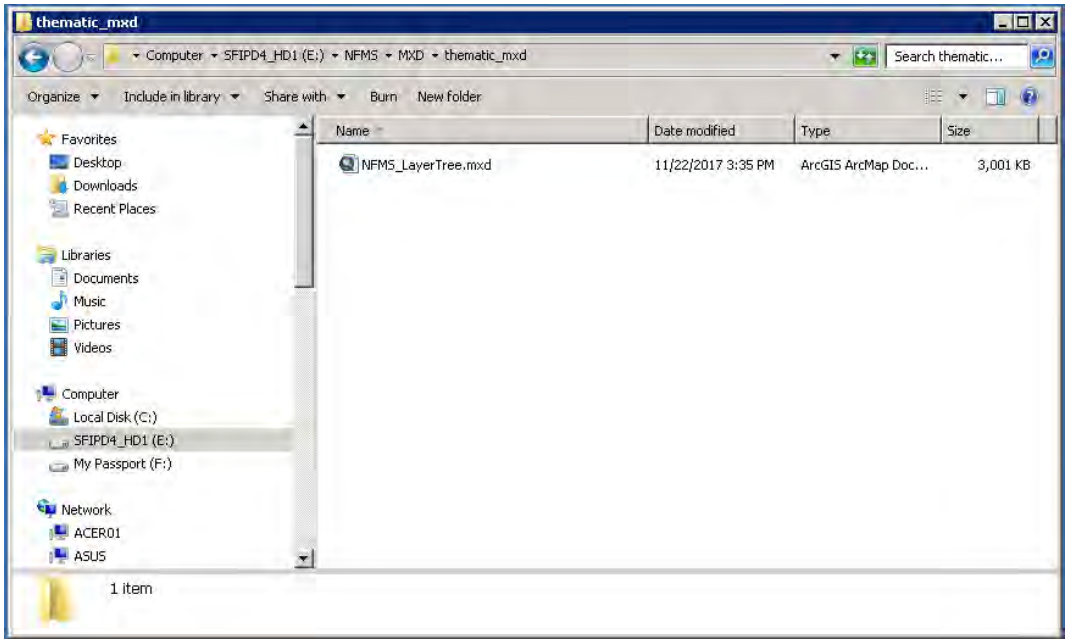

ອັນທີສ້າງ	2017/7/5			
ອັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	83
ສະບັບທີ	Ver.1.0			

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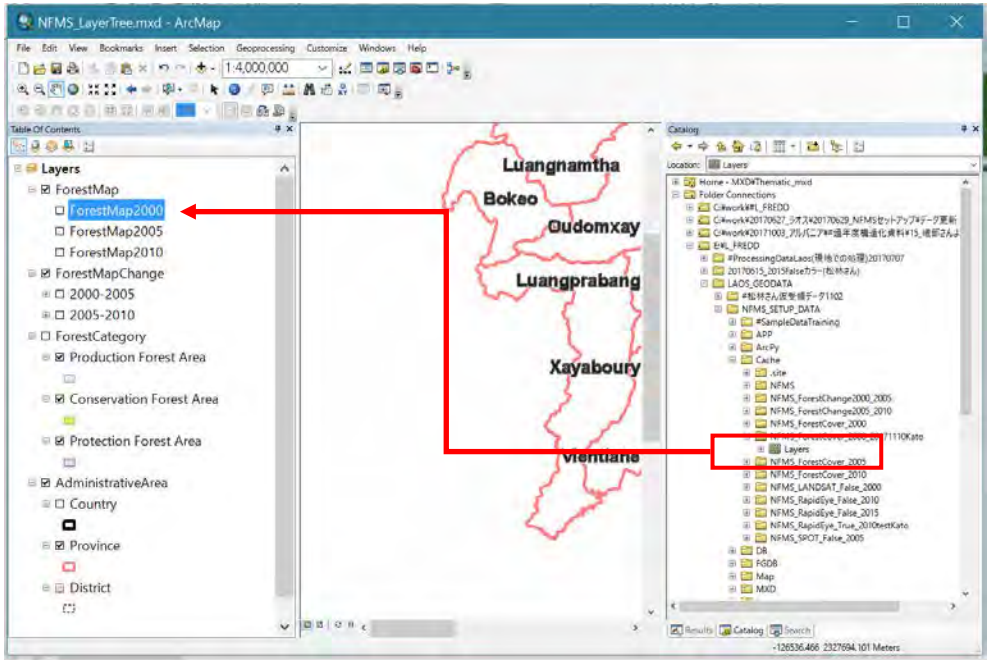
ໃນກໍລະນີຂອງແຜນທີ່ປະເພດປ່າໄມ້ (FTM)

ການເພີ່ມ cache tile map ທີ່ສ້າງຂຶ້ນມາໃໝ່ໃນຂໍ້ທີ 1.2.8.2 Publish Map Service ສຳລັບການສ້າງ map cache tile.

ໃນກໍລະນີຮັບເດດ layer ຜາຍທີ່ມີຢູ່, ທັບຜາຍເກົ່າດ້ວຍຊຸດຂໍ້ມູນໃໝ່.

ໃນກໍລະນີເພີ່ມ layer ຜາຍໃໝ່, ເພີ່ມຜາຍ ແລະ ໃສ່ຊື່ໃໝ່ທີ່ເໝາະສົມ.



ອັນທີສ້າງ	2017/7/5			
ອັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	84
ສະບັບທີ	Ver.1.0			

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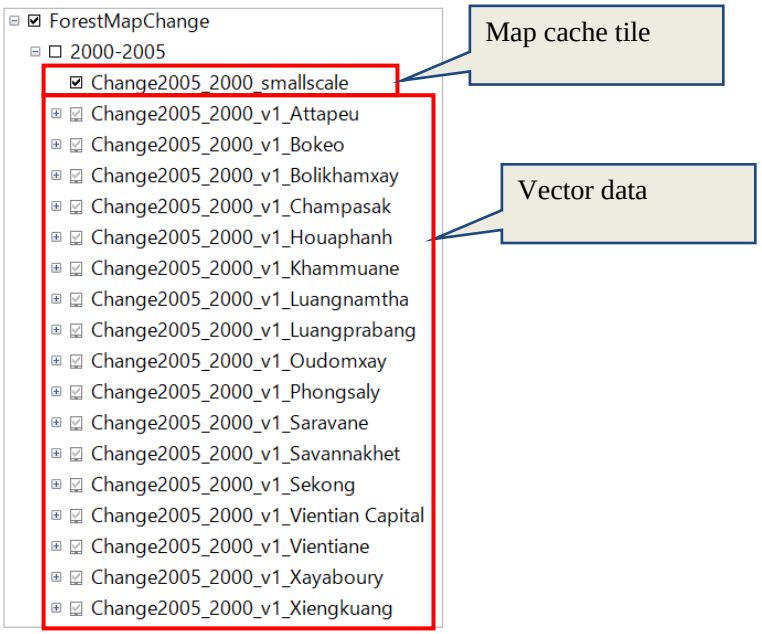
ໃນກໍລະນີ FTM (ການປ່ຽນແປງ)

ສຳລັບ FTM (ການປ່ຽນແປງ), map cache tile ໃຊ້ມາດຕາສ່ວນຂະໜາດນ້ອຍ (ຊູມລະດັບ 6 ເຖິງ 11). ໃນມາດຕາສ່ວນຂະໜາດ, ແມ່ນໃຊ້ vector data. ດັ່ງນັ້ນຊຸດຖານຂໍ້ມູນທັງສອງແມ່ນຕ້ອງໄດ້ຕັ້ງຄ່າໃນ MXD.



ໃນກໍລະນີຮັບເດດຝາຍທີ່ມີຢູ່, ທັບຝາຍເກົ່າດ້ວຍຊຸດຂໍ້ມູນໃໝ່.

ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	85
ສະບັບທີ	Ver.1.0			

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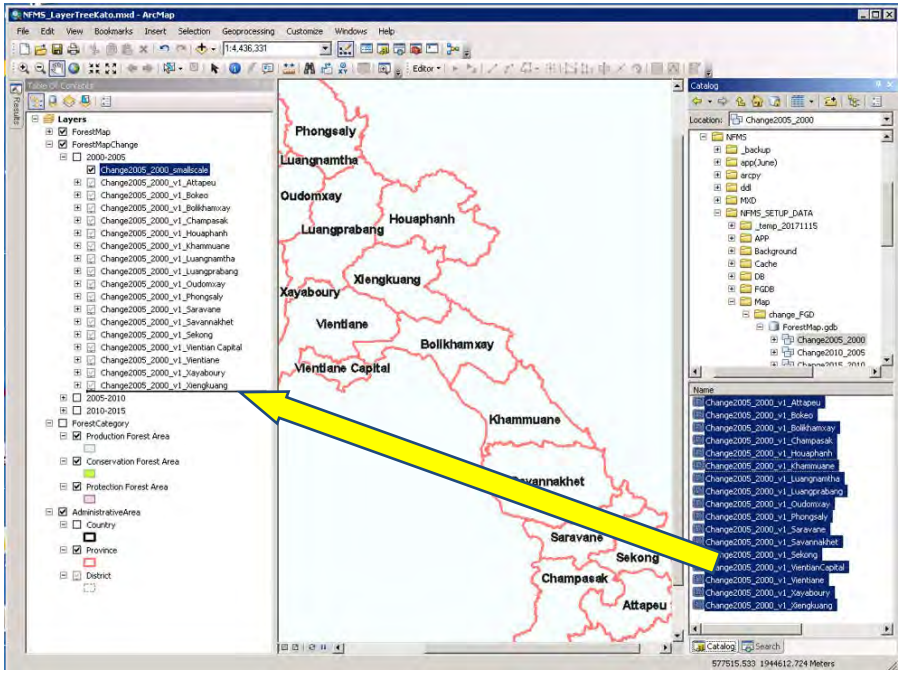
ຂ້ຍ້ນຕອນການຈັດຕັ້ງປະຕິບັດແມ່ນແບບດຽວກັນກັບ FTM. ອາງອີງເຖິງວິທີການທີ່ໄດ້ປະຕິບັດມາ.
ໃນກໍລະນີເພີ່ມ layer ຟາຍໃໝ່, ເພີ່ມຟາຍ ແລະ ໃສ່ຊື່ໃໝ່ທີ່ເໝາະສົມ.

ສຳລັບ vector data, ການຕັ້ງຄ່າສັນຍາລັກ ແລະ ມາດຕາສ່ວນແມ່ນມີຄວາມຈຳເປັນ.

- ການເພີ່ມຊຸດຖານຂໍ້ມູນ.



ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	86
ສະບັບທີ	Ver.1.0			

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- ສັນຍາລັກ(Symbology)

  ເບິ່ງຄືນຂໍ້ທີ 1.2.8.1 ລາຍລະອຽດໃນການໃສ່ Layer ຝາຍ.

- ການກຳນົດມາດຕາສ່ວນ

  ຕັ້ງຄ່າມາດຕາສ່ວນ “1:288,893”ໃນ ArcMap. ເລືອກ vector layers ໃນຊ່ອງ, ຄລິກຂວາ, ເລືອກ[Visible Scale Range] ແລະເລືອກ [Set Minimum Scale].

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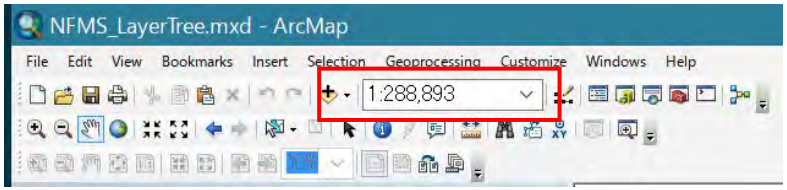

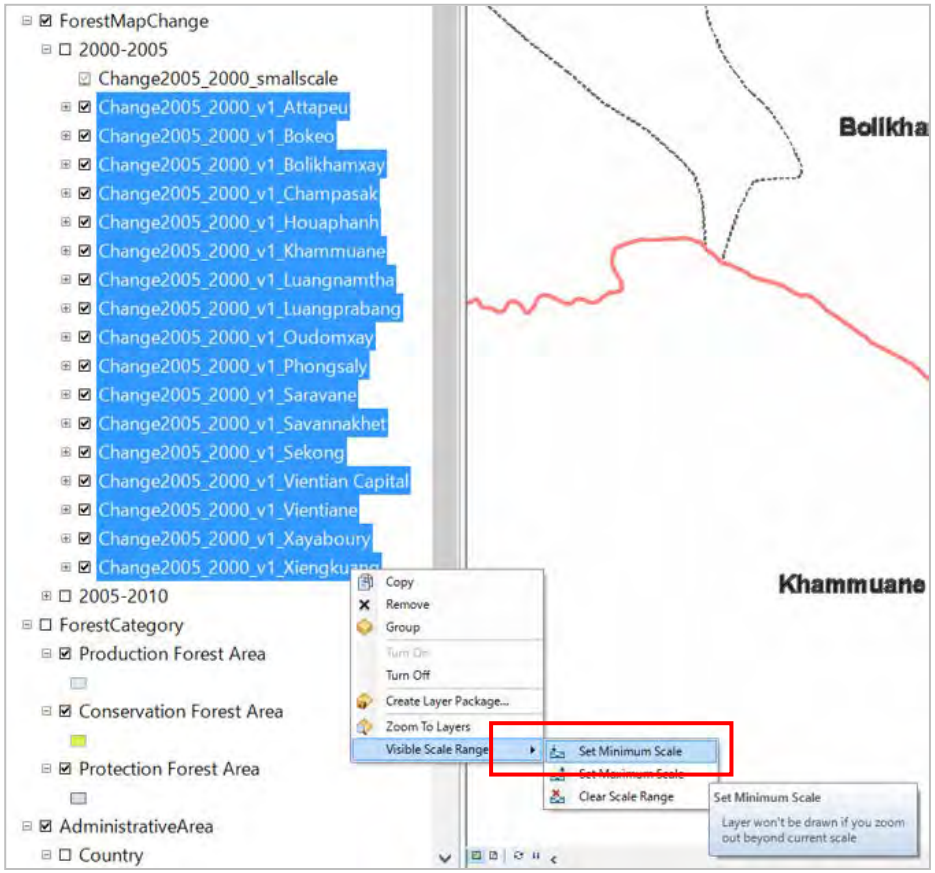

ອັນທີສ້າງ	2017/7/5			
ອັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	88
ສະບັບທີ	Ver.1.0			

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1.2.8.4 ການ Publish Map Service ສຳລັບ thematic layer

ທີ່ "NFMS_LayerTree.mxd", ເລືອກ [File], [Share as], ແລະ [Service]. ເລືອກ [Overwrite and existing service] ຄລິກ [Next]. ເລືອກ [NFMS_LayerTree] service ແລະ ຄລິກ [Continue]. ທີ່ [Caching] ແທບ, ໃຫ້ແນ່ໃຈວ່າ[Dynamically from the data] ຖືກເລືອກ. ຈາກນັ້ນ, ຄລິກ [Analyze][Preview] ແລະ [Publish]

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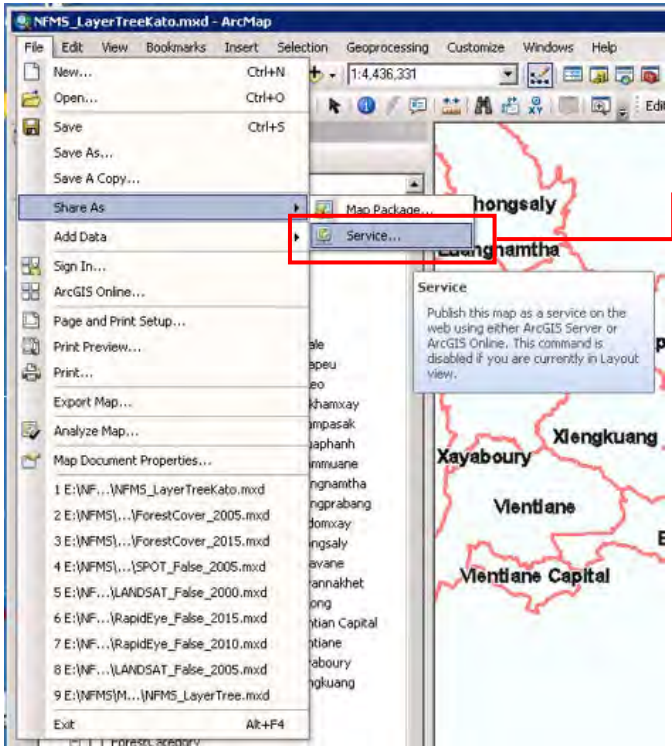

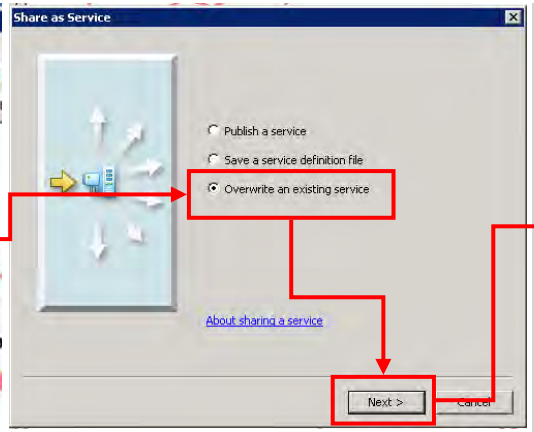

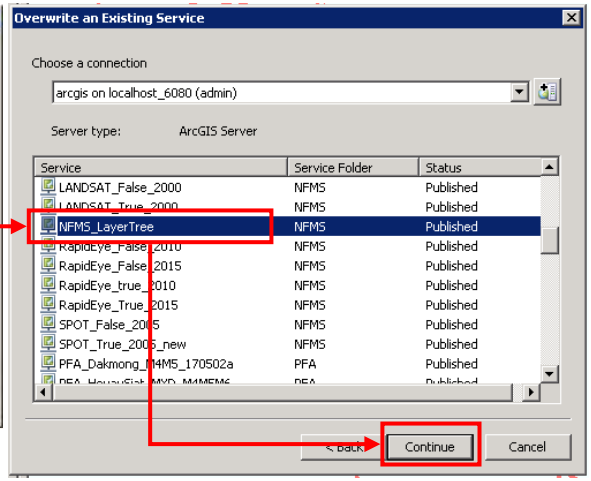

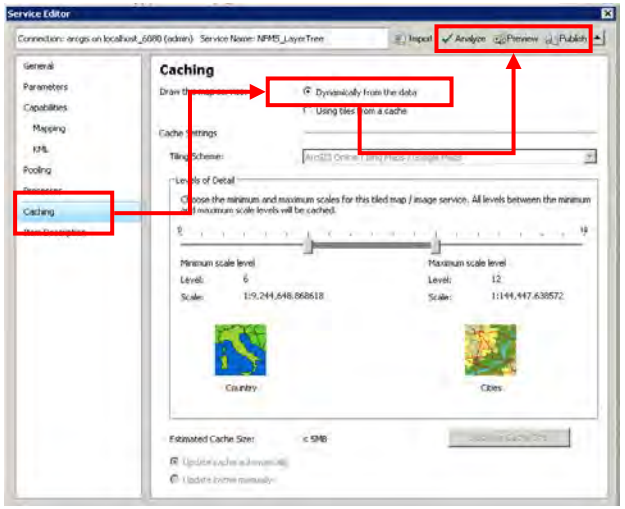

ອັນທີສ້າງ	2017/7/5			
ອັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	90
ສະບັບທີ	Ver.1.0			

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1.2.8.5 ດັດປັບ DB

ໃນກໍລະນີການເພີ່ມ thematic layer ໃໝ່, ເພີ່ມແລະບັນທຶກລາຍໃນຕາຕະລາງຂອງ DB. ຈາກນັ້ນ, ເປີດ DB ໂດຍ Microsoft SQL Server Management Studio. ຄລິກຂວາທີ່ຕາຕະລາງ "nfms_m_layers" ເລືອກ [edit top 200]. ບັນທຶກລາຍໃນຕາຕະລາງແລະຕື່ມຄ່າຕ່າງໆໃນແຕ່ລະຊ່ອງ.

	layer_group_id	layer_name_arcgis	layer_name	layer_name_lao	legend_url	legend_width	legend_height
41	11	Country	Country	îæîsÉièE	/legend/administrativ_boundary.html	170	100
42	11	District	District	îSîsÉièE	/legend/administrativ_boundary.html	170	100
43	11	EXù?iµo¬E}(o∑er)	EXù?iµo¬E}(o∑er)	ÉXù¬ïµò¬É}(ö∑èr)		NULL	NULL
44	11	ForestCategory	ForestCategory	ÉXù¬3ïµò¬É}		NULL	NULL
45	11	ForestMap	ForestClassificationMap	ÉXù¬ïµò¬É}(ÆPöN)		NULL	481
46	11	ForestMap2000	ForestMap2000	ForestMap2000	/legend/forest_class.html	380	380
47	11	ForestMap2005	ForestMap2005	ForestMap2005	/legend/forest_class.html	380	380
48	11	ForestMap2010	ForestMap2010	ForestMap2010	/legend/forest_class.html	380	380
49	11	ForestMapChange	ForestClassificationMap(Change)	ÉXù¬ïµò¬É}(ö∑èr)		NULL	481
50	11	Production Forest Area	ProductionForestArea	É‖ÄYù¬	/legend/forest_area.html	230	100
51	11	Protection Forest Area	ProtectionForestArea	ò▄∞Sù¬	/legend/forest_area.html	230	100
52	11	Province	Province	î°îsÉièE	/legend/administrativ_boundary.html	170	100

layer_group_id: ID ຊື່ກຸ່ມຂອງ layer. ປັດຈຸບັນນີ້ layer ນອນຢູ່ໃນ "NFMS Layer" ດັ່ງນັ້ນ "11" ແມ່ນຄ່າເດີມ.

layer_name_arcgis: ຊື່ຂອງ Layer published ໃນ ArcGIS Server

layer_name: ຊື່ຂອງ Layer ສະແດງໃນລະບົບ NFMS (English)

layer_name_lao: ຊື່ຂອງ Layer ສະແດງໃນລະບົບ NFMS (Laos)

legend_url: URL ສຳລັບ html ຂອງ legend. ເລືອກໂຕທີ່ເໝາະສົມ.

legend_width ແລະ legend_height: Width ແລະ height ຂອງ legend window

"NFMS Layer" ເປັນກຸ່ມຂອງ layer ດຽວທີ່ກຳນົດໃນລະບົບ NFMS ໃນຕາຕະລາງ "nfms_m_layer_group"as ຂອງເດືອນພະຈິກ 2017.

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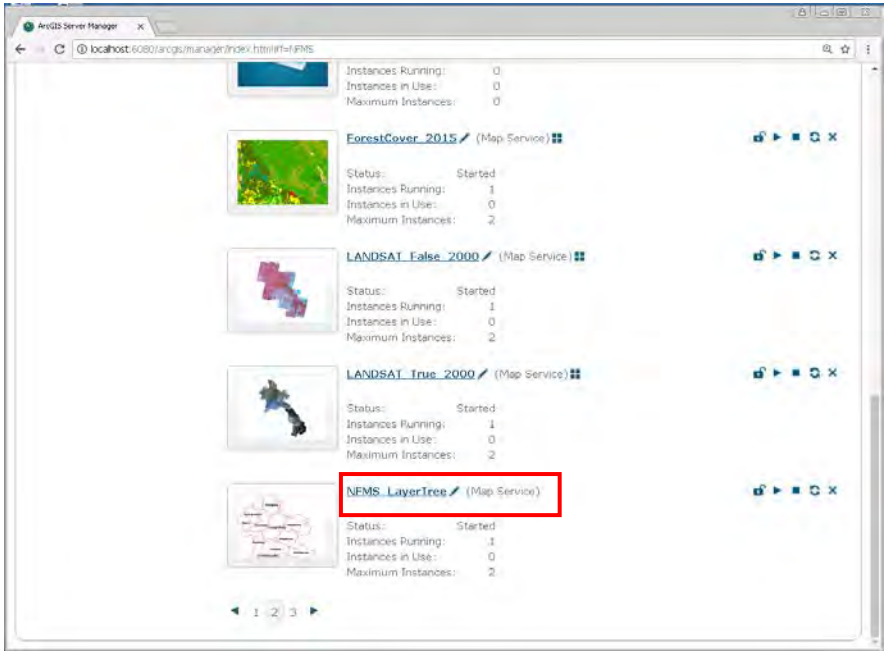
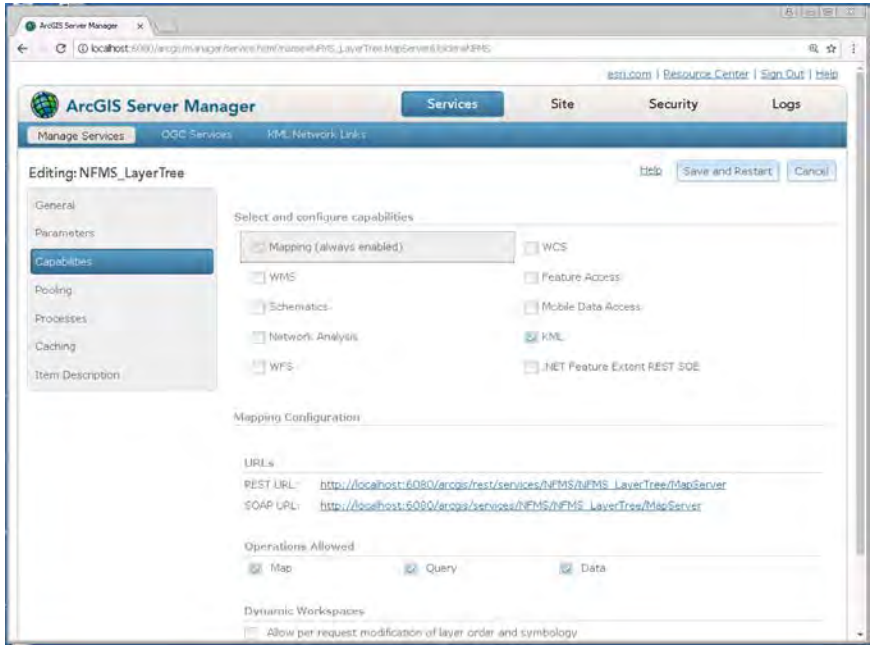
	layer_group_id	layer_group_name	layer_group_name_lao	map_url	disp_order
1	11	NFMS Layer	NFMS Layer	http://localhost:6080/arcgis/rest/services/NFMS/NFMS_LayerTree/MapServer	1

:ວິທີເຂົ້າກວດສອບຊັ້ນຂອງ “layer_name_arcgis”

ເປີດ ArcGIS Server Manager ແລະ ໄປທີ່ “NFMS_LayerTree” service. ທີ່ [Capabilities] ແທບ, ຄລິກ [REST URL].





ວັນທີສ້າງ	2017/7/5			
ວັນທີປັບປຸງ	2017/11/28	NFMS (ລະບົບຕິດຕາມກວດກາປ່າໄມ້ແຫ່ງຊາດ)	ຄູ່ມືການນຳຂໍ້ມູນເຂົ້າໃນລະບົບ NFMS	92
ສະບັບທີ	Ver.1.0			

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ພາຍໃຕ້ [Layers], ຊື່ຂອງ Layer published ໃນ ArcGIS Server ສະແດງເປັນລາຍຊື່. Copy ຊື່ຂອງ layer ທີ່ກົງກັນ ແລະ paste ລົງໃນຕາຕະລາງ DB.

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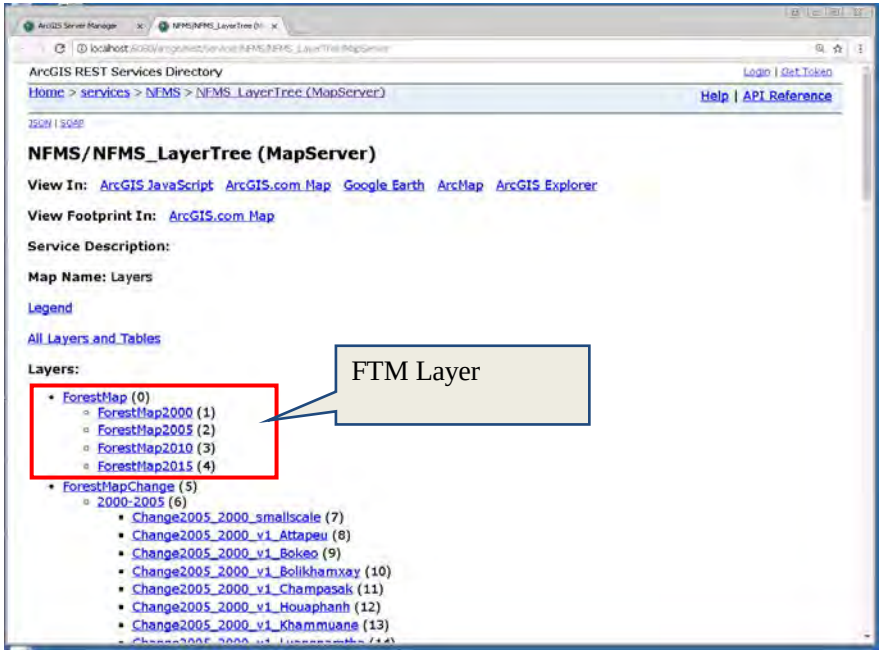

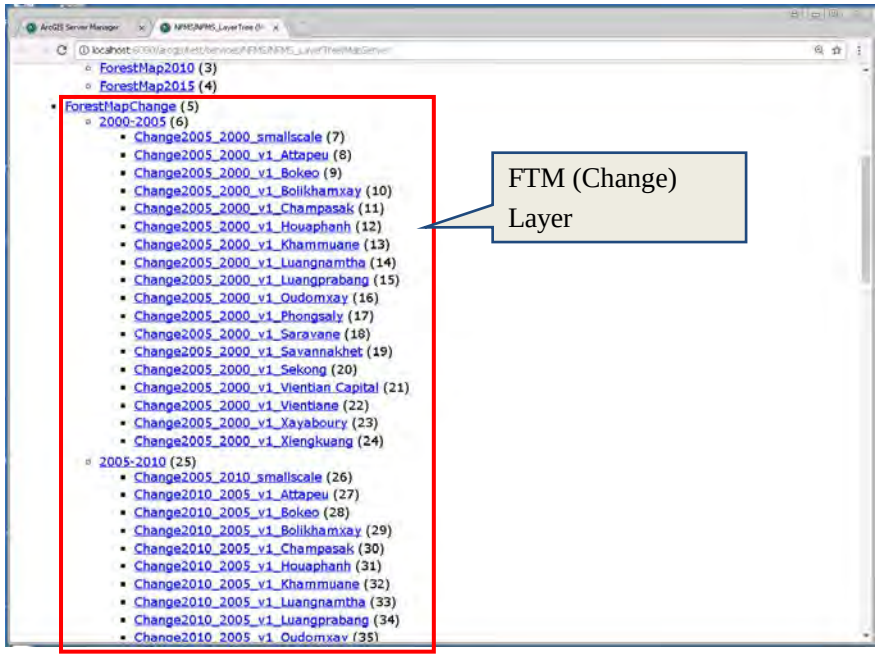

1.2.8.6 ການກວດສອບລະບ ບ ໃນລະບ ບ NFMS

ເປ ດ ລ ເຂ ້າລະບ ບ NFMS ຜ ່ານ URL ກວດສອບເບ ິ່ ງ ອ ່ າ background layer ຖ ກ ວ ງ ທະບຽນ ໄວ ້ ໃນລະບ ບ.

- URL: http://serverfipd4:4242/nfms

ກະລ ຸ ນາກວດສອບ ຂ ້ ມ ູ ນ ຂ ່ າ ວ ສານ ກ ັ ບ ຜ ູ ້ ຄ ຸ ້ ມ ຄ ອ ງ ຂ ອ ງ ລະບ ບ ຂ ອ ງ FIPD Server.

ອ ັ ນ ທ ີ ສ ້ า ง	2017/7/5			
ອ ັ ນ ທ ີ ປ ັ ບ ປ ຸ ง	2017/11/28	NFMS (ລະບ ບ ຕ ິ ດ ຕ າ ມ ກ ວ ດ ກ າ ປ ່ າ ໄ ມ ້ ແ ຫ ່ ງ ຊ າ ດ)	ຄ ູ ່ ມ ື ການ ນ ຳ ຂ ້ ມ ູ ນ ເ ຂ ້ າ ໃ ນ ລ ະ ບ ບ NFMS	94
ສ ະ ບ ັ ບ ທ ີ	Ver.1.0			

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Separate Volume

2-11 NFMS DB Definition Document

NFMS DB Definition

- 2017.12.01 Last Updated -

Name	List of Entities

No.	Entity Name	Physical name	Type	Definition/Note
1	IPCC Land Use Category	nfms_m_ipcc_land_use_category		
2	User	nfms_m_user		
3	Layer Group	nfms_m_layer_group		Define layer group in layetree(1'st level).
4	Layer	nfms_m_layers		Define layer and layergroup in layertree(2'nd level and 3'rd level) * layername will be obtained from ArcGIS Server. * maximum level dept is level3
5	Map Year	nfms_m_map_year		
6	Forest Area Change	nfms_t_forest_area_chang		
7	Forest Category	nfms_m_forest_area		
8	Forest Classification	nfms_m_forest_classification		
9	Forest Classification IPCC Definition	nfms_m_rel_forest_classification_ipcc_definition		
10	Forest Classification Stratum	nfms_m_rel_forest_classification_stratification		
11	Forest Classificaion Change Map Year	nfms_m_forest_area_change_map_year		
12	Forest Classification	nfms_m_forest_stratificatio		
13	Forest Inventory	nfms_m_forest_inventory		
14	Forest Inventory Equation	nfms_m_forest_inventory_equation_used		
15	Forest Inventory Detail	nfms_m_forest_inventory_detail		
16	Forest Area Transaction	nfms_t_forest_area		

17	Forest Area Transaction	nfms_t_amount_of_carbon_co2		
18	Carbon and CO2 Amout Change Transaction	nfms_t_amount_of_carbon_co2_change		
19	Carbon and CO2 Amout Change Transaction(Stratum)	nfms_t_amount_of_carbon_co2_change_fs		
20	Carbon and CO2 Amout Change Transaction(IPCC)	nfms_t_amount_of_carbon_co2_change_ipcc		
21	Province	nfms_m_province		
22	Basemap	nfms_m_basemap		If type = ImageService, value of map_url is needed. If type != ImageService, map which ESRI offers will be used.

Name	**Logical Name**	IPCC Land Use Category
	Physical Name	nfms_m_ipcc_land_use_category
Type		
Definition		

No.	Logical Name	Physical Name	PK	FK	AK	IE	NN	Type	Length	Default Value	Definition/Note
1	IPCC land use category code	ipcc_land_use_category_cd	○				○	VARCHAR	20		"space" is not allowed
2	IPCC land use cateogry(English)	ipcc_land_use_category_name						VARCHAR	40		ForestLand Grassland Wetlands .... OtherLand
3	IPCC land use cateogry(Lao)	ipcc_land_use_category_name_lao						NCHAR VARYING	40		
4	Forest Flag	forest_land_flg						INT			2 : Other 1 : Forest Land 0 : Other than Forest Land
5	Display order	disp_order						INT			

Name	**Logical Name**	User
	Physical Name	nfms_m_user
Type		
Definition		

No.	Logical Name	Physical Name	PK	FK	AK	IE	NN	Type	Length	Default Value	Definition/Note
1	UserID	user_id	○				○	VARCHAR	256		
2	Password	password						VARCHAR	20		
3	User role	role						CHAR	1		* for future use. 0:System Administrator 1:System User

Name	**Logical Name**	Layer Group
	Physical Name	nfms_m_layer_group
Type		
Definition	Define layer group in layetree(1'st level).	

No.	Logical Name	Physical Name	PK	FK	AK	IE	NN	Type	Length	Default Value	Definition/Note
1	Layer group ID	layer_group_id	○				○	INT			
2	Layer group name(English)	layer_group_name					○	VARCHAR	40		
3	Layer group name(Lao)	layer_group_name_lao					○	NCHAR VARYING	40		
4	Map URL	map_url					○	VARCHAR	250		Define ArcGIS Server RestURL
5	Display order	disp_order					○	INT			

Name	**Logical Name**	Layer
	Physical Name	nfms_m_layers
Type		
Definition	Define layer and layergroup in layertree(2'nd level and 3'rd level) * layername will be obtained from ArcGIS Server. * maximum level dept is level3	

No.	Logical Name	Physical Name	PK	FK	AK	IE	NN	Type	Length	Default Value	Definition/Note
1	Layer Group ID	layer_group_id	○	○			○	INT			Relate to "nfms_m_layer_group"
2	Layer Name(ArcGIS)	layer_name_arcgis	○				○	VARCHAR	40		Define ArcGIS Server layer name
3	Layer Name(English)	layer_name					○	VARCHAR	40		Layer name(English) for display
4	Layer Name(Lao)	layer_name_lao					○	NCHAR VARYING	40		Layer name(Lao) for display
5	Legend URL	legend_url						VARCHAR	250		Define url of legend image or html. * you only can define this for layer(not group layer)
6	Legend width	legend_width						INT			if "null", default value defined in web.config will be used.
7	Legend height	legend_height						INT			if "null", default value defined in web.config will be used.

Name	**Logical Name**	Map Year
	Physical Name	nfms_m_map_year
Type		
Definition		

No.	Logical Name	Physical Name	PK	FK	AK	IE	NN	Type	Length	Default Value	Definition/Note
1	Map year	map_year	○				○	INT			This column is also use for sorting data.
2	Display order	display_name						VARCHAR	40		

Name	**Logical Name**	Forest Area Change Transaction
	Physical Name	nfms_t_forest_area_change
Type		
Definition		

No.	Logical Name	Physical Name	PK	FK	AK	IE	NN	Type	Length	Default Value	Definition/Note
1	Province code	province_cd	○	○			○	CHAR	2		
2	Forest category code	forest_area_cd	○	○			○	VARCHAR	20		
3	Forest classification code(before)	forest_classification _cd_before	○	○			○	CHAR	2		
4	Forest classification code(after)	forest_classification _cd_after	○	○			○	CHAR	2		
5	Change map year code	change_map_year_ cd	○	○			○	CHAR	8		
6	Area(ha)	area						DOUBLE PRECISION			

Name	**Logical Name**	Forest Category
	Physical Name	nfms_m_forest_area
Type		
Definition		

No.	Logical Name	Physical Name	PK	FK	AK	IE	NN	Type	Length	Default Value	Definition/Note
1	Forest category code	forest_area_cd	○				○	VARCHAR	20		"space" is not allowed
2	Forest category code(English)	forest_area_name						VARCHAR	40		
3	Forest category code(Lao)	forest_area_name_lao						NCHAR VARYING	40		
4	Display order	disp_order						INT			

Name	Logical Name	Forest Classification
	Physical Name	nfms_m_forest_classification
Type		
Definition		

No.	Logical Name	Physical Name	PK	FK	AK	IE	NN	Type	Length	Default Value	Definition/Note
1	Forest classification code	forest_classification_cd	○				○	CHAR	2		11 12 21 ... 83
2	Forest classification name(abbreviation)	forest_classification_short_name						VARCHAR	5		EF MD DD ... SH
3	Forest classification name(English)	forest_classification_name						VARCHAR	40		Evergreen Forest Mixed Deciduous Forest Dry Dipterocarp Forest ... Cloud Shadow
4	Forest classification name(Lao)	forest_classification_name_lao						NCHAR VARYING	40		
5	Display order	disp_order						INT			

Name	**Logical Name**	Forest Classification IPCC Definition
	Physical Name	nfms_m_rel_forest_classification_ipcc_definition
Type		
Definition		

No.	Logical Name	Physical Name	PK	FK	AK	IE	NN	Type	Length	Default Value	Definition/Note
1	Forest classification code	forest_classification_cd	○	○			○	CHAR	2		
2	IPCC land use category code	ipcc_land_use_category_cd	○	○			○	VARCHAR	20		
3	Last update	last_update_date					○	DATETIME			

Name	**Logical Name**	Forest Classification Stratum
	Physical Name	nfms_m_rel_forest_classification_stratification
Type		
Definition		

No.	Logical Name	Physical Name	PK	FK	AK	IE	NN	Type	Length	Default Value	Definition/Note
1	Forest classification code	forest_classification_cd	○	○			○	CHAR	2		
2	Forest stratification code	forest_stratification_cd	○	○			○	VARCHAR	10		
3	Last update	last_update_date					○	DATETIME			

Name	**Logical Name**	Forest Classificaion Change Map Year
	Physical Name	nfms_m_forest_area_change_map_year
Type		
Definition		

No.	Logical Name	Physical Name	PK	FK	AK	IE	NN	Type	Length	Default Value	Definition/Note
1	Change map year code	change_map_year_cd	○				○	CHAR	8		YYYY1+YYYY2 e.g. Map year(from) : 2005 Map year(to) : 2010 then、define "20052010" This column is used for sorting data also.
2	Map year(from)	map_year_before		○			○	INT			
3	Map year(to)	map_year_after		○			○	INT			
4	Display name	s						VARCHAR	40		

Name	**Logical Name**	Forest Classification Stratification
	Physical Name	nfms_m_forest_stratification
Type		
Definition		

No.	Logical Name	Physical Name	PK	FK	AK	IE	NN	Type	Length	Default Value	Definition/Note
1	Forest stratification code	forest_stratification_cd	○				○	VARCHAR	10		"space" is not allowed
2	Forest stratification name(English)	forest_stratification_name						VARCHAR	20		
3	Forest stratification name(Lao)	forest_stratification_name_lao						NCHAR VARYING	20		
4	Display order	disp_order						INT			This display order is used for forest area change matrix and carban amount change matrix.

Name	**Logical Name**	Forest Inventory
	Physical Name	nfms_m_forest_inventory
Type		
Definition		

No.	Logical Name	Physical Name	PK	FK	AK	IE	NN	Type	Length	Default Value	Definition/Note
1	Forest inventory code	forest_inventory_cd	○				○	VARCHAR	20		"space" is not allowed
2	Forest inventory name(English)	forest_inventory_name						VARCHAR	50		
3	Forest inventory name(Lao)	forest_inventory_name_lao						NCHAR VARYING	50		
4	Explanation(English)	description						VARCHAR	255		
5	Explanation(Lao)	description_lao						NCHAR VARYING	255		
6	Display order	disp_order						INT			

Name	Logical Name	Forest Inventory Equation
	Physical Name	nfms_m_forest_inventory_equation_used
Type		
Definition		

No.	Logical Name	Physical Name	PK	FK	AK	IE	NN	Type	Length	Default Value	Definition/Note
1	Forest inventory code	forest_inventory_cd	○	○			○	VARCHAR	20		
2	Forest classification code	forest_classification_cd	○	○			○	CHAR	2		
3	Equation(English)	equation_used						VARCHAR	100		
4	Equation(Lao)	equation_used_lao						NCHAR VARYING	100		

Name	Logical Name	Forest Inventory Detail
	Physical Name	nfms_m_forest_inventory_detail
Type		
Definition		

No.	Logical Name	Physical Name	PK	FK	AK	IE	NN	Type	Length	Default Value	Definition/Note
1	Forest inventory code	forest_inventory_cd	○	○			○	VARCHAR	20		
2	Forest classification code	forest_classification_cd	○	○			○	CHAR	2		
3	Plot ID	plot_id	○				○	INT			
4	Average Biomass(AGB)	as_biomass_agb						DOUBLE PRECISION			Unit : t/ha
5	Std Biomass(AGB)	std_biomass_agb						DOUBLE PRECISION			Unit : t/ha
6	Average Carbon Stock(AGB)	as_carbon_agb						DOUBLE PRECISION			Unit : t/ha
7	Average CO2(AGB)	as_co2_agb						DOUBLE PRECISION			Unit : t/ha
8	Average Biomass(BGB)	as_biomass_bgb						DOUBLE PRECISION			Unit : t/ha
9	Std Biomass(BGB)	std_biomass_bgb						DOUBLE PRECISION			Unit : t/ha
10	Average Carbon Stock(BGB)	as_carbon_bgb						DOUBLE PRECISION			Unit : t/ha
11	Average CO2(BGB)	as_co2_bgb						DOUBLE PRECISION			Unit : t/ha
12	Average Biomass(DeadWood)	as_biomass_deadwood						DOUBLE PRECISION			Unit : t/ha

13	Std Biomass(DeadWood)	std_biomass_deadwood						DOUBLE PRECISION			Unit : t/ha
14	Average Carbon Stock(DeadWood)	as_carbon_deadwood						DOUBLE PRECISION			Unit : t/ha
15	Average CO2(DeadWood)	as_co2_deadwood						DOUBLE PRECISION			Unit : t/ha
16	Average Biomass(Litter)	as_biomass_litter						DOUBLE PRECISION			Unit : t/ha
17	Std Biomass(Litter)	std_biomass_litter						DOUBLE PRECISION			Unit : t/ha
18	Average Carbon Stock(Litter)	as_carbon_litter						DOUBLE PRECISION			Unit : t/ha
19	Average CO2(Litter)	as_co2_litter						DOUBLE PRECISION			Unit : t/ha
20	Average Biomass(Soil)	as_biomass_soil						DOUBLE PRECISION			Unit : t/ha
21	Std Biomass(Soil)	std_biomass_soil						DOUBLE PRECISION			Unit : t/ha
22	Average Carbon Stock(Soil)	as_carbon_soil						DOUBLE PRECISION			Unit : t/ha
23	Average CO2(Soil)	as_co2_soil						DOUBLE PRECISION			Unit : t/ha
24	Average Biomass(All carbon pool)	as_biomass_all						DOUBLE PRECISION			Unit : t/ha
25	Std Biomass(All carbon pool)	std_biomass_all						DOUBLE PRECISION			Unit : t/ha
26	Average Carbon Stock(All carbon pool)	as_carbon_all						DOUBLE PRECISION			Unit : t/ha

27	Average CO2(All carbon pool)	as_co2_all						DOUBLE PRECISION			Unit : t/ha

Name	**Logical Name**	Forest Area Transaction
	Physical Name	nfms_t_forest_area
Type		
Definition		

No.	Logical Name	Physical Name	PK	FK	AK	IE	NN	Type	Length	Default Value	Definition/Note
1	Province code	province_cd	○	○			○	CHAR	2		
2	Forest category code	forest_area_cd	○	○			○	VARCHAR	20		
3	Forest classification code	forest_classification_cd	○	○			○	CHAR	2		
4	Map year	map_year	○	○			○	INT			
5	Area(ha)	area						DOUBLE			

Name	Logical Name	Carbon and CO2 Amout Transaction
	Physical Name	nfms_t_amount_of_carbon_co2
Type		
Definition		

No.	Logical Name	Physical Name	PK	FK	AK	IE	NN	Type	Length	Default Value	Definition/Note
1	Province code	province_cd	○	○			○	CHAR	2		
2	Forest category code	forest_area_cd	○	○			○	VARCHAR	20		
3	Forest classification code	forest_classification_cd	○	○			○	CHAR	2		
4	Map year	map_year	○	○			○	INT			
5	Forest inventory code	forest_inventory_cd	○	○			○	VARCHAR	20		
6	Carbon(t)	amount_of_carbon						DOUBLE			
7	CO2(t)	amount_of_co2						DOUBLE			

Name	Logical Name	Carbon and CO2 Amout Change Transaction
	Physical Name	nfms_t_amount_of_carbon_co2_change
Type		
Definition		

No.	Logical Name	Physical Name	PK	FK	AK	IE	NN	Type	Length	Default Value	Definition/Note
1	Province code	province_cd	○	○			○	CHAR	2		
2	Forest category	forest_area_cd	○	○			○	VARCHAR	20		
3	Forest classification code(before)	forest_classification _cd_before	○	○			○	CHAR	2		
4	Forest classification code(after)	forest_classification _cd_after	○	○			○	CHAR	2		
5	Change map year code	change_map_year_ cd	○	○			○	CHAR	8		
6	Forest inventory code(before)	forest_inventory_cd _before	○	○			○	VARCHAR	20		
7	Forest inventory code(after)	forest_inventory_cd _after	○	○			○	VARCHAR	20		
8	Carbon change(t)	amount_of_carbon_						DOUBLE			
9	CO2 change(t)	amount_of_co2_cha						DOUBLE			

Name	Logical Name	Carbon and CO2 Amout Change Transaction(Stratum)
	Physical Name	nfms_t_amount_of_carbon_co2_change_fs
Type		
Definition		

No.	Logical Name	Physical Name	PK	FK	AK	IE	NN	Type	Length	Default Value	Definition/Note
1	Province code	province_cd	○	○			○	CHAR	2		
2	Forest category code	forest_area_cd	○	○			○	VARCHAR	20		
3	Forest stratification code(before)	forest_stratification_cd_before	○	○			○	VARCHAR	10		
4	Forest stratification code(after)	forest_stratification_cd_after	○	○			○	VARCHAR	10		
5	Change map year code	change_map_year_cd	○	○			○	CHAR	8		
6	Forest inventory code(before)	forest_inventory_cd_before	○	○			○	VARCHAR	20		
7	Forest inventory code(after)	forest_inventory_cd_after	○	○			○	VARCHAR	20		
8	Carbon change(t)	amount_of_carbon_change						DOUBLE PRECISION			
9	CO2 change(t)	amount_of_co2_change						DOUBLE PRECISION			

Name	Logical Name	Carbon and CO2 Amout Change Transaction(IPCC)
	Physical Name	nfms_t_amount_of_carbon_co2_change_ipcc
Type		
Definition		

No.	Logical Name	Physical Name	PK	FK	AK	IE	NN	Type	Length	Default Value	Definition/Note
1	Province code	province_cd	○	○			○	CHAR	2		
2	Forest category code	forest_area_cd	○	○			○	VARCHAR	20		
3	IPCC forest land category code(before)	ipcc_land_use_category_cd_before	○	○			○	VARCHAR	20		
4	IPCC forest land category code(after)	ipcc_land_use_category_cd_after	○	○			○	VARCHAR	20		
5	Change map year code	change_map_year_cd	○	○			○	CHAR	8		
6	Forest inventory code(before)	forest_inventory_cd_before	○	○			○	VARCHAR	20		
7	Forest inventory code(after)	forest_inventory_cd_after	○	○			○	VARCHAR	20		
8	Carbon change(t)	amount_of_carbon_						DOUBLE			
9	CO2 change(t)	amount_of_co2_cha						DOUBLE			

Name	**Logical Name**	Province
	Physical Name	nfms_m_province
Type		
Definition		

No.	Logical Name	Physical Name	PK	FK	AK	IE	NN	Type	Length	Default Value	Definition/Note
1	Province code	province_cd	○				○	CHAR	2		
2	Province name(English)	province_name						VARCHAR	20		
3	Province name(Lao)	province_name_lao						NCHAR VARYING	20		
4	Display order	disp_order						INT			

Name	**Logical Name**	Basemap
	Physical Name	nfms_m_basemap
Type		
Definition	If type = ImageService, value of map_url is needed. If type != ImageService, map which ESRI offers will be used.	

No.	Logical Name	Physical Name	PK	FK	AK	IE	NN	Type	Length	Default Value	Definition/Note
1	Basemap ID	basemap_id	○				○	VARCHAR	20		
2	Basemap name(English)	map_name					○	VARCHAR	40		
3	Basemap name(Lao)	map_name_lao					○	NCHAR VARYING	40		
4	type	type					○	VARCHAR	20		Below 11 type can be defined. (dark-gray, gray, hybrid, national-geographic, oceans, osm, satellite, streets, terrain, topo, MapService) * If you define "MapService", user defined map published in ArcGIS map service will be background layer. Set URL for the map service in "Map URL". * If you define "osm", map from OpenStreetMap.org will be used as background layer. * If you define others, ArcGIS standard background layer will be used.
5	Map URL	map_url						VARCHAR	250		
6	Display order	disp_order					○	INT			

ນິຍາມຂອງລະບົບ NFMS DB

- 2017.12.01 ສະບັບປັບປຸງໃໝ່ -

Name	List of Entities

ລດ	ຊື່	ຊື່ຟາຍ	ປະເພດ	ນິຍາມ/ຫມາຍເຫດ
1	ປະເພດການນຳໃຊ້ທີດິນຂອງ IPCC	nfms_m_ipcc_land_use_category		
2	ຜູ້ນຳໃຊ້	nfms_m_user		
3	ກຸ່ມຂອງຊັ້ນ Layer Group	nfms_m_layer_group		Define layer group in layetree(1'st level).
4	ຊັ້ນ Layer	nfms_m_layers		Define layer and layergroup in layertree(2'nd level and 3'rd level) * layername will be obtained from ArcGIS Server. * maximum level dept is level3
5	ປີຂອງແຜນທີ	nfms_m_map_year		
6	ການປ່ຽນແປງຂອງພື້ນທີ	nfms_t_forest_area_chang		
7	ປະເພດປ່າ	nfms_m_forest_area		
8	ການຈັດແບ່ງປະເພດປ່າໄມ້	nfms_m_forest_classification		
9	ການຈັດແບ່ງປະເພດປ່າໄມ້ນິຍາມຂອງ IPCC	nfms_m_rel_forest_classification_ipcc_definition		
10	ການຈັດຊັ້ນປະເພດປ່າໄມ້	nfms_m_rel_forest_classification_stratification		
11	ແຜນທີ່ປີການປ່ຽນແປງຂອງປະເພດປ່າໄມ້	nfms_m_forest_area_change_map_year		
12	ການຈັດແບ່ງປະເພດປ່າໄມ້	nfms_m_forest_stratificatio		
13	ການສຳຫຼວດປ່າໄມ້	nfms_m_forest_inventory		
14	ສູດທີ່ໃຊ້ໃນການສຳຫຼວດປ່າໄມ້	nfms_m_forest_inventory_equation_used		
15	ລາຍລະອຽດການສຳຫຼວດປ່າໄມ້	nfms_m_forest_inventory_detail		
16	ຄ່າໃຊ້ຈ່າຍໃນການຈັດການປ່າ	nfms_t_forest_area		

17	ຄ່າໃຊ້ຈ່າຍໃນການຈັດການປ່າ	nfms_t_amount_of_carbon_co2		
18	ການປ່ຽນແປງຂອງມູນຄ່າໃນການຊື້ຂາຍ ການກບອນ ແລະ CO2	nfms_t_amount_of_carbon_co2_change		
19	ການປ່ຽນແປງຂອງມູນຄ່າໃນການຊື້ຂາຍ ການກບອນ ແລະ CO2 (ການຈັດຊັ້ນ)	nfms_t_amount_of_carbon_co2_change_fs		
20	ການປ່ຽນແປງຂອງມູນຄ່າໃນການຊື້ຂາຍ ການກບອນ ແລະ CO2 (IPCC)	nfms_t_amount_of_carbon_co2_change_ipcc		
21	ແຂວງ	nfms_m_province		
22	ແຜນທີ່ພື້ນຖານ	nfms_m_basemap		If type = ImageService, value of map_url is needed. If type != ImageService, map which ESRI offers will be used.

ຊື່	ຊື່ສາມັນ	ປະເພດການນຳໃຊ້ທີ່ດິນຂອງ IPCC
	ຊື່ລັກສະນະ	nfms_m_ipcc_land_use_category
ປະເພດ		
ນິຍາມ		

ລດ	ຊື່ສາມັນ	ຊື່ລັກສະນະ	PK	FK	AK	IE	NN	ປະເພດ	ຄວາມຍາວ	ຄ່າເດີມ	ນິຍາມ/ໝາຍເຫດ
1	ລະຫັດປະເພດການນຳໃຊ້ທີ່ດິນຂອງ IPCC	ipcc_land_use_category_cd	○				○	VARCHAR	20		"space" ຫ້າມຍະຫວ່າງ
2	ປະເພດການນຳໃຊ້ທີ່ດິນຂອງ IPCC(ພາສາອັງກິດ)	ipcc_land_use_category_name						VARCHAR	40		ທີ່ດິນ/ປ່າໄມ້ ທົ່ງຫຍ້າ ດິນບໍ່ເວນນ້ຳ .... ດິນອື່ນໆ
3	ປະເພດການນຳໃຊ້ທີ່ດິນຂອງ IPCC(	ipcc_land_use_category_name_lao						NCHAR VARYING	40		
4	ສັນຍາລັກຂອງປ່າໄມ້	forest_land_flg						INT			2 : ອື່ນໆ 1 : ທີ່ດິນ/ປ່າໄມ້ 0 : ນອກເໜືອຈາກ ທີ່ດິນ/ປ່າໄມ້
5	ລຳດັບການສະແດງ	disp_order						INT			

ຊື່	ຊື່ສາມັນ	ຜູ້ໃຊ້
	ຊື່ວັດສະນະ	nfms_m_user
ປະເພດ		
ນິຍາມ		

ລດ	ຊື່ສາມັນ	ຊື່ວັດສະນະ	PK	FK	AK	IE	NN	ປະເພດ	ຄວາມຍາວ	ຄ່າເດີມ	ນິຍາມ/ໝາຍເຫດ
1	ID ຜູ້ໃຊ້	user_id	○				○	VARCHAR	256		
2	ລະຫັດຜ່ານ	password						VARCHAR	20		
3	ພາລະບົດບາດຂອງຜູ້ໃຊ້	role						CHAR	1		* ສຳລັບນຳໃຊ້ໃນອະນາຄົດ. 0:ຜູ້ຄວບຄຸມລະບົບ 1:ຜູ້ນຳໃຊ້ລະບົບ

ຊື່	ຊື່ສາມັນ	ຊັ້ນຂອງກຸ່ມ Layer Group
	ຊື່ວັດສະນະ	nfms_m_layer_group
ປະເພດ		
ນິຍາມ	ກຳນົດກຸ່ມຂອງຊັ້ນຂອງກຸ່ມລາຍການ (1'st level).	

ລດ	ຊື່ສາມັນ	ຊື່ວັດສະນະ	PK	FK	AK	IE	NN	ປະເພດ	ຄວາມຍາວ	ຄ່າເດີມ	ນິຍາມ/ໝາຍເຫດ
1	Layer group ID	layer_group_id	○				○	INT			
2	ຊື່ຂອງ Layer group (ພາສາອັງກິດ)	layer_group_name					○	VARCHAR	40		
3	ຊື່ຂອງ Layer group (ພາສາລາວ)	layer_group_name_lao					○	NCHAR VARYING	40		
4	Map URL	map_url					○	VARCHAR	250		Define ArcGIS Server RestURL
5	ລຳດັບການສະແດງ	disp_order					○	INT			

ຊື່	ຊື່ສາມັນ	ຊັ້ນ
	ຊື່ວັກສະນະ	nfms_m_layers
ປະເພດ		
ນິຍາມ	ກຳນົດ layer ແລະ layergroup ໃນ layertree(2'nd level ແລະ 3'rd level) * layername ຈະປາກົດໃນ ArcGIS Server. * dept ລະດັບສູງສຸດຄືລະດັບ 3	

ລດ	ຊື່ສາມັນ	ຊື່ວັກສະນະ	PK	FK	AK	IE	NN	ປະເພດ	ຄວາມຍາວ	ຄ່າເດີມ	ນິຍາມ/ໝາຍເຫດ
1	Layer Group ID	layer_group_id	○	○			○	INT			ກຽວຂ້ອງກັບ "nfms_m_layer_group"
2	ຊື່ຂອງ Layer (ArcGIS)	layer_name_arcgis	○				○	VARCHAR	40		ກຳນົດ ArcGIS Server layer name
3	ຊື່ຂອງ Layer (ພາສາອັງກິດ)	layer_name					○	VARCHAR	40		ຊື່ Layer (ພາສາອັງກິດ) ສຳລັບການສະແດງຜົນ
4	ຊື່ຂອງ Layer (ພາສາລາວ)	layer_name_lao					○	NCHAR VARYING	40		ຊື່ Layer (ພາສາລາວ) ສຳລັບການສະແດງຜົນ
5	ສັນຍາລັກ URL	legend_url						VARCHAR	250		ກຳນົດ url ຂອງສັນຍາລັກຮູບພາບ ຫຼື html. * ທ່ານສາມາດກຳນົດພຽງແຕ່ layer(ບໍ່ແມ່ນ group layer)
6	ສັນຍາລັກຂອງຄວາມກວ້າງ	legend_width						INT			ຖ້າ "null", ຄ່າເດີມແມ່ນກຳນົດຢູ່ໃນ web.config ຈະຖືກນຳໃຊ້.
7	ສັນຍາລັກຂອງຄວາມສູງ	legend_height						INT			ຖ້າ "null", ຄ່າເດີມແມ່ນກຳນົດຢູ່ໃນ web.config ຈະຖືກນຳໃຊ້.

ຊື່	ຊື່ສາມັນ	ປີຂອງແຜນທີ່
	ຊື່ວັດສະນະ	nfms_m_map_year
ປະເພດ		
ນິຍາມ		

ລດ	ຊື່ສາມັນ	ຊື່ວັດສະນະ	PK	FK	AK	IE	NN	ປະເພດ	ຄວາມຍາວ	ຄ່າເດີມ	ນິຍາມ/ໝາຍເຫດ
1	ປີຂອງແຜນທີ່	map_year	○				○	INT			ຫ້ອງນີ້ໄວ້ສຳລັບເກັບລວບລວມຂໍ້ມູນ
2	ສຳດັບການສະແດງ	display_name						VARCHAR	40		

ຊື່	ຊື່ສາມັນ	ການປ່ຽນແປງຂອງມູນຄ່າໃນການຈັດການປ່າ
	ຊື່ວັກສະນະ	nfms_t_forest_area_change
ປະເພດ		
ນິຍາມ		

ລດ	ຊື່ສາມັນ	ຊື່ວັກສະນະ	PK	FK	AK	IE	NN	ປະເພດ	ຄວາມຍາວ	ຄ່າເດີມ	ນິຍາມ/ໝາຍເຫດ
1	ລະຫັດແຂວງ	province_cd	○	○			○	CHAR	2		
2	ລະຫັດປະເພດປ່າ	forest_area_cd	○	○			○	VARCHAR	20		
3	ລະຫັດການຈັດແບ່ງປະເພດປ່າໄມ້(ກ່ອນ)	forest_classification_cd_before	○	○			○	CHAR	2		
4	ລະຫັດການຈັດແບ່ງປະເພດປ່າໄມ້(ຫຼັງ)	forest_classification_cd_after	○	○			○	CHAR	2		
5	ລະຫັດແຜນທີ່ປີ ຂອງການປ່ຽນແປງ	change_map_year_cd	○	○			○	CHAR	8		
6	ພື້ນທີ່ (ເຮັກຕາ)	area						DOUBLE PRECISION			

ຊື່	ຊື່ສາມັນ	ປະເພດປ່າ
	ຊື່ວັກສະນະ	nfms_m_forest_area
ປະເພດ		
ນິຍາມ		

ລດ	ຊື່ສາມັນ	ຊື່ວັກສະນະ	PK	FK	AK	IE	NN	ປະເພດ	ຄວາມຍາວ	ຄ່າເດີມ	ນິຍາມ/ໝາຍເຫດ
1	ລະຫັດປະເພດປ່າ	forest_area_cd	○				○	VARCHAR	20		"space" ຫ້າມບໍ່ໃຫ້ມີຍະຫວ່າງ
2	ລະຫັດປະເພດປ່າ (ພາສາອັງກິດ)	forest_area_name						VARCHAR	40		
3	ລະຫັດປະເພດປ່າ (ພາສາລາວ)	forest_area_name_lao						NCHAR VARYING	40		
4	ລຳດັບການສະແດງ	disp_order						INT			

ຊື	ຊື່ສາມັນ	ການຈັດແບ່ງປະເພດປ່າໄມ້
	ຊື່ລັກສະນະ	nfms_m_forest_classification
ປະເພດ		
ນິຍາມ		

ລດ	ຊື່ສາມັນ	ຊື່ລັກສະນະ	PK	FK	AK	IE	NN	ປະເພດ	ຄວາມຍາວ	ຄ່າເດີມ	ນິຍາມ/ໝາຍເຫດ
1	ລະຫັດຊື່ການຈັດແບ່ງປະເພດປ່າໄມ້	forest_classification_cd	○				○	CHAR	2		11 12 21 ... 83
2	ຊື່ການຈັດແບ່ງປະເພດປ່າໄມ້(ໂຕຫຍໍ້)	forest_classification_short_name						VARCHAR	5		EF MD DD ... SH
3	ຊື່ການຈັດແບ່ງປະເພດປ່າໄມ້(ພາສາອັງກິດ)	forest_classification_name						VARCHAR	40		ປ່າດົງດິບ ປ່າປະສົມພັດໃບ ປ່າໂຄກ ... ເງົາເມກ
4	ຊື່ການຈັດແບ່ງປະເພດປ່າໄມ້(ພາສາລາວ)	forest_classification_name_lao						NCHAR VARYING	40		
5	ລຳດັບການສະແດງ	disp_order						INT			

ຊື່	ຊື່ສາມັນ	ນິຍາມການຈັດແບ່ງປະເພດປ່າໄມ້ຂອງ IPCC
	ຊື່ວັກສະນະ	nfms_m_rel_forest_classification_ipcc_definition
ປະເພດ		
ນິຍາມ		

ລດ	ຊື່ສາມັນ	ຊື່ວັກສະນະ	PK	FK	AK	IE	NN	ປະເພດ	ຄວາມຍາວ	ຄ່າເດີມ	ນິຍາມ/ໝາຍເຫດ
1	ລະຫັດການຈັດແບ່ງ ປະເພດປ່າໄມ້	forest_classification _cd	○	○			○	CHAR	2		
2	ລະຫັດປະເພດການ ນຳ ໃຊ້ທີ່ດິນຂອງ	ipcc_land_use_cate gory_cd	○	○			○	VARCHAR	20		
3	ອັບເດດລ່າສຸດ	last_update_date					○	DATETIME			

ຊື່	ຊື່ສາມັນ	ການຈັດແບ່ງຊັ້ນຂອງປະເພດປ່າໄມ້
	ຊື່ວັກສະນະ	nfms_m_rel_forest_classification_stratification
ປະເພດ		
ນິຍາມ		

ລດ	ຊື່ສາມັນ	ຊື່ວັກສະນະ	PK	FK	AK	IE	NN	ປະເພດ	ຄວາມຍາວ	ຄ່າເດີມ	ນິຍາມ/ໝາຍເຫດ
1	ລະຫັດການຈັດແບ່ງ ປະເພດປ່າໄມ້	forest_classification_cd	○	○			○	CHAR	2		
2	ລະຫັດການຈັດແບ່ງ ຊັ້ນຂອງປະເພດປ່າໄມ້	forest_stratification_cd	○	○			○	VARCHAR	10		
3	ອັບເດດລ້າສຸດ	last_update_date					○	DATETIME			

ຊື	ຊື່ສາມັນ	ປີຂອງແຜນທີ່ການປ່ຽນແປງປະເພດປ່າໄມ້
	ຊື່ລັກສະນະ	nfms_m_forest_area_change_map_year
ປະເພດ		
ນິຍາມ		

ລດ	ຊື່ສາມັນ	ຊື່ລັກສະນະ	PK	FK	AK	IE	NN	ປະເພດ	ຄວາມຍາວ	ຄ່າເດີມ	ນິຍາມ/ໝາຍເຫດ
1	ລະຫັດປີຂອງການ ປ່ຽນແປງ	change_map_year_cd	○				○	CHAR	8		YYYY1+YYYY2 e.g. ປີຂອງແຜນທີ່(ຈາກ) : 2005 ປີຂອງແຜນທີ່(ຫາ) : 2010 ກຳ ນົດຮັນ "20052010" ຄໍລ້ຳນີ້ໃຊ້ສຳ ລັຊອກຫາຂໍ້ມູນ
2	ປີຂອງແຜນທີ່(ຈາກ)	map_year_before		○			○	INT			
3	ປີຂອງແຜນທີ່(ຫາ)	map_year_after		○			○	INT			
4	ລາຍຊື່ທີ່ສະແດງ	s						VARCHAR	40		

ຊື່	ຊື່ສາມັນ	ການຈັດແບ່ງຊັ້ນຂອງປະເພດປ່າໄມ້
	ຊື່ວັກສະນະ	nfms_m_forest_stratification
ປະເພດ		
ນິຍາມ		

ລດ	ຊື່ສາມັນ	ຊື່ວັກສະນະ	PK	FK	AK	IE	NN	ປະເພດ	ຄວາມຍາວ	ຄ່າເດີມ	ນິຍາມ/ໝາຍເຫດ
1	ລະຫັດການຈັດແບ່ງຊັ້ນຂອງປະເພດປ່າໄມ້	forest_stratification_cd	○				○	VARCHAR	10		"space" ຫ້າມບໍ່ໃຫ້ມີຍະຫว่าง
2	ຊື່ການຈັດແບ່ງປະເພດປ່າໄມ້(ພາສາ	forest_stratification_name						VARCHAR	20		
3	ຊື່ການຈັດແບ່ງປະເພດປ່າໄມ້(ພາສາ	forest_stratification_name_lao						NCHAR VARYING	20		
4	ລຳດັບການສະແດງຜົນ	disp_order						INT			ລຳດັບການສະແດງຜົນແມ່ນໃຊ້ສຳລັບຕາຕະລາງການປ່ຽນແປງຂອງພື້ນທີ່ປ່າໄມ້ ແລະ ປະລິມານການປ່ຽນແປງຂອງທາດກາກບອນ

ຊື່	ຊື່ສາມັນ	ການສຳຫຼວດປ່າໄມ້
	ຊື່ວັກສະນະ	nfms_m_forest_inventory
ປະເພດ		
ນິຍາມ		

ລດ	ຊື່ສາມັນ	ຊື່ວັກສະນະ	PK	FK	AK	IE	NN	ປະເພດ	ຄວາມຍາວ	ຄ່າເດີມ	ນິຍາມ/ໝາຍເຫດ
1	ລະຫັດການສຳຫຼວດປ່າໄມ້	forest_inventory_cd	○				○	VARCHAR	20		"space" ຫ້າມບໍ່ໃຫ້ມີຍະຫว่างๆ
2	ຊື່ຂອງການສຳຫຼວດປ່າໄມ້(ພາສາອັງກິດ)	forest_inventory_name						VARCHAR	50		
3	ຊື່ຂອງການສຳຫຼວດປ່າໄມ້(ພາສາລາວ)	forest_inventory_name_lao						NCHAR VARYING	50		
4	ການອະທິບາຍ(ພາສາອັງກິດ)	description						VARCHAR	255		
5	ການອະທິບາຍ(ພາສາລາວ)	description_lao						NCHAR VARYING	255		
6	ລຳດັບການສະແດງ	disp_order						INT			

ຊື່	ຊື່ສາມັນ	ສູດທີ່ໃຊ້ໃນການສຳຫຼວດປ່າໄມ້
	ຊື່ວັດສະນະ	nfms_m_forest_inventory_equation_used
ປະເພດ		
ນິຍາມ		

ລດ	ຊື່ສາມັນ	ຊື່ວັດສະນະ	PK	FK	AK	IE	NN	ປະເພດ	ຄວາມຍາວ	ຄ່າເດີມ	ນິຍາມ/ໝາຍເຫດ
1	ລະຫັດການສຳຫຼວດປ່າໄມ້	forest_inventory_cd	○	○			○	VARCHAR	20		
2	ລະຫັດການຈັດແບ່ງປະເພດປ່າໄມ້	forest_classification_cd	○	○			○	CHAR	2		
3	ສູດ(ພາສາອັງກິດ)	equation_used						VARCHAR	100		
4	ສູດ(ພາສາລາວ)	equation_used_lao						NCHAR VARYING	100		

ຊື່	ຊື່ສາມັນ	ລາຍລະອຽດຂອງການສຳຫຼວດປ່າໄມ້
	ຊື່ລັກສະນະ	nfms_m_forest_inventory_detail
ປະເພດ		
ນິຍາມ		

ລດ	ຊື່ສາມັນ	ຊື່ລັກສະນະ	PK	FK	AK	IE	NN	ປະເພດ	ຄວາມຍາວ	ຄ່າເດີມ	ນິຍາມ/ໝາຍເຫດ
1	ລະຫັດການສຳຫຼວດປ່າໄມ້	forest_inventory_cd	○	○			○	VARCHAR	20		
2	ລະຫັດການຈັດແບ່ງປະເພດປ່າໄມ້	forest_classification_cd	○	○			○	CHAR	2		
3	ID ລະຫັດດອນຕົວຢ່າງ	plot_id	○				○	INT			
4	ຄ່າສະເລັ່ຍຊີວະມວນສານຢູ່ເທິງໜ້າດິນAGB)	as_biomass_agb						DOUBLE PRECISION			ຫົວໜ່ວຍ : t/ha
5	Std ຊີວະມວນສານ(AGB)	std_biomass_agb						DOUBLE PRECISION			ຫົວໜ່ວຍ : t/ha
6	ຄ່າສະເລັ່ຍຂອງທາດກາກບອນ (AGB)	as_carbon_agb						DOUBLE PRECISION			ຫົວໜ່ວຍ : t/ha
7	ຄ່າສະເລັ່ຍຂອງ CO2(AGB)	as_co2_agb						DOUBLE PRECISION			ຫົວໜ່ວຍ : t/ha
8	ຄ່າສະເລັ່ຍຊີວະມວນສານ (BGB)	as_biomass_bgb						DOUBLE PRECISION			ຫົວໜ່ວຍ : t/ha
9	Std ຊີວະມວນສານ(BGB)	std_biomass_bgb						DOUBLE PRECISION			ຫົວໜ່ວຍ : t/ha
10	ຄ່າສະເລັ່ຍຂອງທາດກາກບອນ (BGB)	as_carbon_bgb						DOUBLE PRECISION			ຫົວໜ່ວຍ : t/ha
11	ຄ່າສະເລັ່ຍຂອງ CO2(BGB)	as_co2_bgb						DOUBLE PRECISION			ຫົວໜ່ວຍ : t/ha
12	ຄ່າສະເລັ່ຍຊີວະມວນສານ(ໄມ້ຕາຍ)	as_biomass_deadwood						DOUBLE PRECISION			ຫົວໜ່ວຍ : t/ha
13	Std ຂີວະມວນສານ(ໄມ້ຕາຍ)	std_biomass_deadwood						DOUBLE PRECISION			ຫົວໜ່ວຍ : t/ha

14	ຄ່າສະເລັ່ຍຂອງທາດກາກບອນ (ໄມ້ຕາຍ)	as_carbon_deadwood						DOUBLE PRECISION			ຫົວໜ່ວຍ : t/ha
15	ຄ່າສະເລັ່ຍຂອງ CO2(ໄມ້ຕາຍ)	as_co2_deadwood						DOUBLE PRECISION			ຫົວໜ່ວຍ : t/ha
16	ຄ່າສະເລັ່ຍຊີວະມວນສານ(ຊາກເສດ)	as_biomass_litter						DOUBLE PRECISION			ຫົວໜ່ວຍ : t/ha
17	Std ຊີວະມວນສານ(ຊາກເສດ)	std_biomass_litter						DOUBLE PRECISION			ຫົວໜ່ວຍ : t/ha
18	ຄ່າສະເລັ່ຍຂອງທາດກາກບອນ (ຊາກເສດ)	as_carbon_litter						DOUBLE PRECISION			ຫົວໜ່ວຍ : t/ha
19	ຄ່າສະເລັ່ຍຂອງ CO2(ຊາກເສດ)	as_co2_litter						DOUBLE PRECISION			ຫົວໜ່ວຍ : t/ha
20	ຄ່າສະເລັ່ຍຊີວະມວນສານ(ດິນ)	as_biomass_soil						DOUBLE PRECISION			ຫົວໜ່ວຍ : t/ha
21	Std ຊີວະມວນສານ(ດິນ)	std_biomass_soil						DOUBLE PRECISION			ຫົວໜ່ວຍ : t/ha
22	ຄ່າສະເລັ່ຍຂອງທາດກາກບອນ (ດິນ)	as_carbon_soil						DOUBLE PRECISION			ຫົວໜ່ວຍ : t/ha
23	ຄ່າສະເລັ່ຍຂອງ CO2(ດິນ)	as_co2_soil						DOUBLE PRECISION			ຫົວໜ່ວຍ : t/ha
24	ຄ່າສະເລັ່ຍຊີວະມວນສານ (ແຫຼ່ງສະສົມທັງໝົດ)	as_biomass_all						DOUBLE PRECISION			ຫົວໜ່ວຍ : t/ha
25	Std ຊີວະມວນສານ(ແຫຼ່ງສະສົມທັງໝົດ)	std_biomass_all						DOUBLE PRECISION			ຫົວໜ່ວຍ : t/ha
26	ຄ່າສະເລັ່ຍຂອງທາດກາກບອນ (ແຫຼ່ງສະສົມທັງໝົດ)	as_carbon_all						DOUBLE PRECISION			ຫົວໜ່ວຍ : t/ha
27	ຄ່າສະເລັ່ຍຂອງ CO2(ແຫຼ່ງ ສະສົມທັງໝົດ)	as_co2_all						DOUBLE PRECISION			ຫົວໜ່ວຍ : t/ha

ຊື່	ຊື່ສາມັນ	ຄ່າໃຊ້ຈ່າຍໃນການຈັດການປ່າ
	ຊື່ວັກສະນະ	nfms_t_forest_area
ປະເພດ		
ນິຍາມ		

ລດ	ຊື່ສາມັນ	ຊື່ວັກສະນະ	PK	FK	AK	IE	NN	ປະເພດ	ຄວາມຍາວ	ຄ່າເດີມ	ນິຍາມ/ໝາຍເຫດ
1	ລະຫັດແຂວງ	province_cd	○	○			○	CHAR	2		
2	ລະຫັດປະເພດປ່າ	forest_area_cd	○	○			○	VARCHAR	20		
3	ລະຫັດການຈັດແບ່ງ ປະເພດປ່າ	forest_classification _cd	○	○			○	CHAR	2		
4	ປີຂອງແຜນທີ	map_year	○	○			○	INT			
5	ພື້ນທີ(ເຮັກຕາ)	area						DOUBLE			

ຊື່	ຊື່ສາມັນ	ມູນຄ່າໃນການຊື້ຂາຍ ກາກບອນ ແລະ CO2
	ຊື່ວັກສະນະ	nfms_t_amount_of_carbon_co2
ປະເພດ		
ນິຍາມ		

ລດ	ຊື່ສາມັນ	ຊື່ວັກສະນະ	PK	FK	AK	IE	NN	ປະເພດ	ຄວາມຍາວ	ຄ່າເດີມ	ນິຍາມ/ໝາຍເຫດ
1	ລະຫັດແຂວງ	province_cd	○	○			○	CHAR	2		
2	ລະຫັດປະເພດປ່າ	forest_area_cd	○	○			○	VARCHAR	20		
3	ລະຫັດການຈັດແບ່ງ ປະເພດປ່າ	forest_classification _cd	○	○			○	CHAR	2		
4	ປີຂອງແຜນທີ່	map_year	○	○			○	INT			
5	ລະຫັດການສຳຫຼວດ ປ່າໄມ້	forest_inventory_cd	○	○			○	VARCHAR	20		
6	ທາດກາກບອນ(t)	amount_of_carbon						DOUBLE			
7	CO2(t)	amount_of_co2						DOUBLE			

ຊື່	ຊື່ສາມັນ	ການປ່ຽນແປງຂອງມູນຄ່າໃນການຊື້ຂາຍ ການກບອນ ແລະ CO2
	ຊື່ວັດສະນະ	nfms_t_amount_of_carbon_co2_change
ປະເພດ		
ນິຍາມ		

ລດ	ຊື່ສາມັນ	ຊື່ວັດສະນະ	PK	FK	AK	IE	NN	ປະເພດ	ຄວາມຍາວ	ຄ່າເດີມ	ນິຍາມ/ໝາຍເຫດ
1	ລະຫັດແຂວງ	province_cd	○	○			○	CHAR	2		
2	ລະຫັດປະເພດປ່າ	forest_area_cd	○	○			○	VARCHAR	20		
3	ລະຫັດການຈັດແບ່ງ ປະເພດປ່າໄມ້(ກ່ອນ)	forest_classification _cd_before	○	○			○	CHAR	2		
4	ລະຫັດການຈັດແບ່ງ ປະເພດປ່າໄມ້(ຫຼັງ)	forest_classification _cd_after	○	○			○	CHAR	2		
5	ລະຫັດຂອງແຜນທີ່ ການປ່ຽນແປງ	change_map_year_ cd	○	○			○	CHAR	8		
6	ລະຫັດການສຳຫຼວດ ປ່າໄມ້(ກ່ອນ)	forest_inventory_cd _before	○	○			○	VARCHAR	20		
7	ລະຫັດການສຳຫຼວດ ປ່າໄມ້(ຫຼັງ)	forest_inventory_cd _after	○	○			○	VARCHAR	20		
8	ການປ່ຽນແປງຂອງ	amount_of_carbon_						DOUBLE			
9	ການປ່ຽນແປງຂອງ	amount_of_co2_cha						DOUBLE			

ຊື່	ຊື່ສາມັນ	ມູນຄ່າໄນການຊຶ່ຂາຍ ການບອນ ແລະ CO2(ການຈັດຊັ້ນ)
	ຊື່ລັກສະນະ	nfms_t_amount_of_carbon_co2_change_fs
ປະເພດ		
ນິຍາມ		

ລດ	ຊື່ສາມັນ	ຊື່ລັກສະນະ	PK	FK	AK	IE	NN	ປະເພດ	ຄວາມຍາວ	ຄ່າເດີມ	ນິຍາມ/ໝາຍເຫດ
1	ລະຫັດແຂວງ	province_cd	○	○			○	CHAR	2		
2	ລະຫັດປະເພດປ່າ	forest_area_cd	○	○			○	VARCHAR	20		
3	ການຈັດຊັ້ນປະເພດປ່າ(ກ່ອນ)	forest_stratification_cd_before	○	○			○	VARCHAR	10		
4	ການຈັດຊັ້ນປະເພດປ່າ(ຫຼັງ)	forest_stratification_cd_after	○	○			○	VARCHAR	10		
5	ລະຫັດປີແຜນທີ່ການປ່ຽນແປງ	change_map_year_cd	○	○			○	CHAR	8		
6	ລະຫັດການສຳຫຼວດປ່າໄມ້(ກ່ອນ)	forest_inventory_cd_before	○	○			○	VARCHAR	20		
7	ລະຫັດການສຳຫຼວດປ່າໄມ້(ຫຼັງ)	forest_inventory_cd_after	○	○			○	VARCHAR	20		
8	ການປ່ຽນແປງຂອງທາດກາກບອນ(t)	amount_of_carbon_change						DOUBLE PRECISION			
9	ການປ່ຽນແປງຂອງCO2 (t)	amount_of_co2_change						DOUBLE PRECISION			

ຊື່	ຊື່ສາມັນ	ການປ່ຽນແປງຂອງມູນຄ່າໃນການຊື້ຂາຍ ການກບອນ ແລະ CO2 ຂອງ(IPCC)
	ຊື່ວັກສະນະ	nfms_t_amount_of_carbon_co2_change_ipcc
ປະເພດ		
ນິຍາມ		

ລດ	ຊື່ສາມັນ	ຊື່ວັກສະນະ	PK	FK	AK	IE	NN	ປະເພດ	ຄວາມຍາວ	ຄ່າເດີມ	ນິຍາມ/ໝາຍເຫດ
1	ລະຫັດແຂວງ	province_cd	○	○			○	CHAR	2		
2	ລະຫັດປະເພດປ່າ	forest_area_cd	○	○			○	VARCHAR	20		
3	ລະຫັດປະເພດທີ່ດິນ/ປ່າໄມ້ຂອງ IPCC (ກ່ອນ)	ipcc_land_use_category_cd_before	○	○			○	VARCHAR	20		
4	ລະຫັດປະເພດທີ່ດິນ/ປ່າໄມ້ຂອງ IPCC (ຫຼັງ)	ipcc_land_use_category_cd_after	○	○			○	VARCHAR	20		
5	ລະຫັດແຜນທີ່ປີທີ່ມີການປ່ຽນແປງ	change_map_year_cd	○	○			○	CHAR	8		
6	ລະຫັດການສຳຫຼວດປ່າໄມ້(ກ່ອນ)	forest_inventory_cd_before	○	○			○	VARCHAR	20		
7	ລະຫັດການສຳຫຼວດປ່າໄມ້(ຫຼັງ)	forest_inventory_cd_after	○	○			○	VARCHAR	20		
8	ການປ່ຽນແປງຂອງ	amount_of_carbon_						DOUBLE			
9	ການປ່ຽນແປງຂອງ	amount_of_co2_cha						DOUBLE			

ຊື່	ຊື່ສາມັນ	ແຂວງ
	ຊື່ວັກສະນະ	nfms_m_province
ປະເພດ		
ນິຍາມ		

ລດ	ຊື່ສາມັນ	ຊື່ວັກສະນະ	PK	FK	AK	IE	NN	ປະເພດ	ຄວາມຍາວ	ຄ່າເດີມ	ນິຍາມ/ໝາຍເຫດ
1	ລະຫັດແຂວງ	province_cd	○				○	CHAR	2		
2	ຊື່ຂອງແຂວງ(ພາສາອັງກິດ)	province_name						VARCHAR	20		
3	ຊື່ຂອງແຂວງ(ພາສາລາວ)	province_name_lao						NCHAR VARYING	20		
4	ລຳດັບການສະແດງຜົນ	disp_order						INT			

ຊື່	ຊື່ສາມັນ	ແຜນທີ່ພື້ນຖານ Basemap
	ຊື່ວັກສະນະ	nfms_m_basemap
ປະເພດ		
ນິຍາມ	If type = ImageService, value of map_url is needed. If type != ImageService, map which ESRI offers will be used.	

ລດ	ຊື່ສາມັນ	ຊື່ວັກສະນະ	PK	FK	AK	IE	NN	ປະເພດ	ຄວາມຍາວ	ຄ່າເດີມ	ນິຍາມ/ໝາຍເຫດ
1	Id ຂອງແຜນທີ່	basemap_id	○				○	VARCHAR	20		
2	ຊື່ຂອງແຜນທີ່ພື້ນ, ຖານ(ພາສາອັງກິດ)	map_name					○	VARCHAR	40		
3	ຊື່ຂອງແຜນທີ່ພື້ນ, ຖານ(ພາສາລາວ)	map_name_lao					○	NCHAR VARYING	40		

4	ປະເພດ	type					○	VARCHAR	20		11 .ປະເພດຂ້າງລຸ່ມນີ້ສາມາດກຳນົດໄດ້. (ສີຂີ້ເຖົ່າແກ່(dark-gray), ສີຂີ້ເຖົ່າ(gray), ແບບປະສົມ (hybrid), ພູມສັນຖານແຫ່ງຊາດ (national-geographic), ມະຫາສະມຸດ(oceans), osm, ດາວທຽມ(satellite), ຖະໜົນ, terrain, topo, MapService). * ຖ້າທ່ານກຳນົດ "MapService",ກຳນົດໂດຍຜູ້ໃຊ້ໃນ ArcGIS map serviceມັນຈະເປັນ background layer. ຕ້ອງຄ່າ URL ສຳລັບ map service ໃນ "Map URL". * ຖ້າທ່ານກຳນົດ "osm", ແຜນທີ່ຈາກ OpenStreetMap.org ຈະຖືກນຳໃຊ້ເປັນ background layer. * ຖ້າທ່ານກຳນົດເປັນຄ່າຍ່າງອື່ນ, ລະບົບ ArcGIS ຈະໃຊ້ຄ່າມາດຕະຖານ background layer ຈະຖືກນຳໃຊ້.
5	URL ຂອງ	map_url						VARCHAR	250		
6	ລຳດັບການສະແດງ	disp_order					○	INT			

Separate Volume

2-16 Luang Prabang

Provincial REDD+ Action Plan (English)

PROVINCIAL REDD+ ACTION PLAN (PRAP)

LUANG PRABANG PROVINCE
LAO PDR

December 2017

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ABBREVIATIONS

ADB	Asian Development Bank
CBA	Cost Benefit Analysis
CF	FCPF Carbon Fund
CliPAD	Climate Protection through Avoided Deforestation Project
DAFO	District Agriculture and Forestry Office
DONRE	District Office for Natural Resources and Environment
DPIO	District Planning and Investment Office
DRAP	District REDD+ Action Plan Unit
ER-P	Emission Reductions Program
ERR	Expected Rate of Return
ER-PD	Emission Reductions Program Document
ER-PIN	Emission Reductions Program Idea Note
FCPF	Forest Carbon Partnership Facility
FLEGT	Forest Law Enforcement, Governance and Trade
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
IRR	Internal Rate of Return
Lao PDR	Lao Peoples´ Democratic Republic
LDC	Least Developed Country
LFNC	Lao Front for National Construction
LUP	Land Use Planning
LWU	Lao Women's Union
M&E	Monitoring and Evaluation
MAF	Ministry of Agriculture and Forestry
MEM	Ministry of Energy and Mining
MONRE	Ministry of Natural Resources and Environment
MPI	Ministry of Planning & Investment
MRV	Measurement, Reporting and Verification
NDC	Nationally Determined Contribution
NEC	National Environment Committee
NPV	Net Present Value
NSCC	National Strategy on Climate Change
NTFP	Non-timber Forest Products
PAMs	Policies and Measures
PPIO	Provincial Planning and Investment Office
PLUP	Participatory Land Use Planning
PONRE	Provincial Office of Natural Resources and Environment
PRAP	Provincial REDD+ Action Plan
PRO	Provincial REDD+ Office
REDD+	Reducing Emissions from Deforestation and Degradation, Conservation of Forest Carbon Stocks, Sustainable Management of Forests, Enhancement of Forest Carbon Stocks
RL/REL	Reference Level/ Reference Emissions Level
R-Package	Readiness Package
R-PIN	Readiness Plan Idea Note (R-PIN)
SEDP	Socio-Economic Development Plans
UNFCCC	United Nations Framework Convention on Climate Change
UN-REDD	United Nations REDD Program
VFM	Village Forest Management
WG	Working Group

EXECUTIVE SUMMARY

Executive summary of the PRAP	
Planning Period: 2018 - 2025	
PRAP Goal: To contribute to the national climate change mitigation goal through REDD+ activities while maintaining and enhancing the ecosystem services and biodiversity of the forests, enhancing the climate resilient development, and ensuring the secure livelihoods of the people	PRAP Objectives: Reduce deforestation in existing forested area Reduce forest degradation in existing forested area Promotion of afforestation and forest regeneration in degraded forest area Promotion of sustainable plantation management in degraded forest area
Project accounting area: Luang Prabang province Districts participating: 12 Districts (Luang Prabang, Chomphet, Xiengngun, Nan, Pak Ou, Pakseng, Phonxay, Nambak, Ngoi, Viengkham , Phonthong, Phoukoun) Kumban ss participating: TBD Date of start of the implementation of PRAP and completion dates: 1 Jan 2018 – 31 Dec 2025	Name and position of staff preparing PRAP: Mr. Houmchitsavath SODARAK, Deputy Head of PAFO/Provincial REDD+ Taskforce Mr. Phonekeo PHONHPHALY, PAFO, Head of Provincial REDD+ Office / PRAP WG Mr. Xang SANAPHONH, PAFO, Deputy Head of Provincial REDD+ Office / PRAP WG Mr. Hongkham SAENANACHACK, PAFO, member Provincial REDD+ Office / PRAP WG Mr. Soulideth BOUNMANEE, PAFO, member Provincial REDD+ Office / PRAP WG Mr. Somchith MALALOY, Technical Coordinator , F-REDD/JICA Takayuki NAMURA, consultant, F-REDD/JICA

Brief description of the plan

Summary provincial socio-economic situation

Luang Prabang province is located in the Northern part of Lao PDR. The province covers an area of 20.009 square kilometer and range of sea level is 260-2,257 meter. The province has 12 districts, 96 village clusters and 10 municipalities. There are a total of 752 villages, 77,717 households and 454,095 people including 278,000 females in 2015. The province is notable for the diversity of ethnic groups present in the province, including Tai-Kadai (Tai Lao, Tai Dam, and Tai Deng), Mon-Khmer (including Khm'u), and Hmong-Mien (including Hmong).

Agriculture is the main livelihood activity in the province, primarily paddy and upland farming. Due to mountainous terrain in the province, suitable land for paddy rice is limited. Upland production systems, on the other hand, saw considerable changes over the last decade due to the proliferation of cash crop production including Maize, job's tears, sesame, etc. coupled with government efforts to eradicate shifting cultivation practices.

Hydropower development is one of the priority policies in socio-economic development plan 2015-2020. There will be total 9 hydropower dam projects that have been designed to generate around 733.2 MW of power for the national grid.

Summary provincial forest resources

In 2015, Luang Prabang province has forests covered 1,824,795 hector which is 91.7% of the province, of which 48.4% is current forest and 43.3% is regenerating vegetation. This high percentage of regenerating vegetation is a function of the shifting agricultural production methods employed by the majority of inhabitants of the province. The remaining forest area is predominantly mixed deciduous forest.

Summary of deforestation and forest degradation

The main drivers of deforestation are agricultural activities including pioneering shifting cultivation and expansion of agricultural land. Others are infrastructure sector including hydropower dam, mining, road construction and irrigation.

The drivers of forest degradation are, industrial tree planation in natural forest area, illegal logging and forest fire. Illegal logging is a major driver of forest degradation.

Various underlying causes have been identified as influencing the drivers of deforestation and forest degradation, including demographic, economic, and policy and institutional factors. Those having the main impact includes: population growth, poverty, market demand, lack of alternatives, poor governance and enforcement, and government development policies

Main agents of deforestation and forest degradation include small scale farmers and villagers as well as commercial businesses.

Protection Forest Area and Outside three forest categories is the area where deforestation and degradation were significantly occurred. Those two areas are priority area for PAMs.

Summary of interventions

PAMs in three main focal areas are proposed as follows.

<u>Component 1: Integrated Land Management</u>

Improved Provincial Land Use Planning

Participatory Land Use Planning at Village Level

Land registration and land titling

Law enforcement and governance of land concession and contract farming on cash crop and tree plantation

Law enforcement and governance of land use sectors

Component 2: Forest Management
Re-delineation/Re-confirmation of 3 forest categories (3FCs) at National, Provincial and District level with forest landscape approach
Forest landscape management in protection forest area
Village forest management
Afforestation and forest regeneration
Sustainable teak plantation management and improvement of value chain
Law enforcement and governance for illegal logging
Forest fire prevention
Payment for Forest Ecosystem Services
Component 3: Social (Livelihood) Management
Alternative cash crop production system in upland
Livestock raising and fodder production
Development of community based ecotourism

Summary of consultations
PRAP was formulated through various rounds of consultations at provincial, district and village cluster level.

Local Consultation	Date	Contents
1st District consultation	Feb. 2016	・Correct primary data on priority hotspot , drivers and possible measures to address drivers
1st Provincial Consultation Workshop	Aug. 2016	・ Share the result of driver analysis ・ Discuss possible solution in Luang Prabang Province
2nd Provincial Consultation Workshop	Oct. 2016	・ Identify possible PAMs to reducing deforestation, forest degradation and forest conservation and rehabilitation in Luang Prabang Province
2nd District consultation	Mar. 2017	・ Prioritize driver and underlying cause of defoerstation and forest degradation. ・ Identify possible PAMs to reducing deforestation, forest degradation and forest conservation and rehabilitation in Luang Prabang Province
Kumban/ village cluster consultation	Mar. 2017	・ Prioritize driver and underlying cause of defoerstation and forest degradation. ・ Identify possible PAMs to reducing deforestation, forest degradation and forest conservation and rehabilitation in Luang Prabang Province
Final Provincial Consultation Workshop	Sep. 2017	・ Discuss the results from the district and village cluster consultations, and final consent on draft PRAP

Series of trainings for capacity development of REDD+ and PRAP was conducted during 2016-2017 including basic understanding of REDD, safeguard and gender mainstreaming. Training are conducted in Luang Prabang and Bangkok and cumulative participants are 126 people from provincial and district staff who engaged in the REDD+ at both policy and activity level.

Summary of the budget and source of the funds

The total cost of implementing the PRAP over a period of eight years (2018-2025) is $20.14 million which equals LAK 161.09 billion. Of this, $3.73 million will be dedicated to the Integrated Land Management PAMs (Component 1), $11.16 million to the Forest Management PAMs (Component 2), and $5.25 million to the Social and Livelihood Management PAMs (Component 3). While the PRAP will contribute to the overarching ER programme, additional funding sources are required to contribute to the implementation of the PRAP to achieve early results and unlock results-based payments. Limited provincial funding is considered a bottle neck for PRAP implementation, and additional external support will be required to support the implementation of the PRAP.

Operation and institutional arrangements

The Provincial REDD+ Taskforce is the body with the ultimate responsibility for the implementation of REDD+ in the province. Day-to-day operational management of the Provincial REDD+ Taskforce responsibilities lies with the Provincial REDD+ Office – this is the body responsible for overall PRAP coordination and management. The Provincial Department of Planning and Investment and Provincial Agriculture and Forestry Office will play a central role in the monitoring and evaluation of PRAP implementation. A variety of government agencies as well as the private sector will be responsible for the actual implementation of PAMs.

1. BACKGROUND AND INTRODUCTION

Lao PDR is a Party of the United Nations Framework Convention on Climate Change (UNFCCC). REDD+ is a key national strategy which is further reflected in the country´s commitment to contributing to the implementation of the ultimate objective of the UNFCCC. The Government of Laos ratified the Paris Agreement in 2016, and the country´s Intended Nationally Determined Contribution highlights the importance of REDD+ for achieving their national climate change and sustainable development goals. Lao PDR is engaged with the Forest Carbon Partnership Facility´s Readiness and Carbon Funds, as well as the United Nations REDD Programme (UN-REDD)[1].

Engagement with the FCPF began when the country submitted their application to participate in the Readiness Fund in 2007. In 2008, the country submitted its Readiness Plan Idea Note (R-PIN), and by 2009 the country received a REDD+ Readiness Preparation Proposal (R-PP) grant from the FCPF. The country´s R-PP was submitted and approved in 2010. The country´s Readiness Package (R-Package) is currently being prepared and is anticipated to be submitted in 2017. Furthermore, the country submitted its Emission Reductions Program Idea Note (ER-PIN) in 2015, and in 2016 the country received a US$650,000 grant to support the elaboration of an Emission Reduction Program Document (ER-PD) which is to be submitted to the FCPF Carbon Fund by January 2018. If the country´s Emission-Reductions Program Document (ER-PD) will be accepted, the country would be eligible for performance-based payments for the selected eligible REDD+ activities[2].
The Lao ER Program aims to build on the following key activities[3]:

- Governance and law enforcement
- Forest landscape management planning and integrated spatial planning
- Participatory land use planning and sustainable livelihood development
- Payment for Environmental Services
- Sustainable forest management certification
- Forest restoration and afforestation

Six provinces in the north of the country have been selected within the framework of the ER-PD: Bokeo, Houaphan, Luang Namtha, Luang Prabang, Oudomxay and Sayabouri. In order to support the elaboration of an ER-PD, the country intends to develop six Provincial REDD+ Action Plans (PRAPs) which will act as the frameworks through which national policies, strategies and action plans for REDD+ will be mainstreamed into local-level plans to guide their implementation. They need to be aligned with national, provincial and district-level development plans and sectoral strategies and plans, while also showing a direct linkage on how they will address the main drivers of deforestation and forest degradation in the province.
PRAP provides clear and consistent information which will serve as a key framework at the Provincial and district levels, providing guidance for the implementation of policies and measures for REDD+. This document provides an overview on necessary background information, as well as on the province and its unique socio-economic and institutional context. It further presents the key analytical basis necessary to understand the relevant drivers of deforestation and forest degradation in the province, and summarizes the prioritized policies and measures (PAMs) to address them. Concise PAMs are described and justified based on their significance in regards to their alignment with key socio-economic development plans and government strategies, their likeliness to effectively address the main drivers of deforestation and degradation, as well as apparent barriers to successful implementation of REDD+.
Furthermore, the specific considerations and planning for the implementation of the PAMs are presented, including operational, institutional and financial planning for the PRAP. This also entails a proposed monitoring and evaluation (M&E) system for the robust, and effective assessment of the PRAP which shall ensure that critical feedback can be effectively addressed in a timely manner (during the implementation period).

1.1. Environmental and socio-economic conditions in PRAP area

Luang Prabang province is located in the Northern part of Lao PDR and connecting borders with Vientiane province in the south, Xienkhuang province in the southeast, Huaphanh province in northeast, Phonsaly province and Vietnam in the north, Xaiyaboury province in the Southwest and Oudomsay province in the northwest.
The province covers an area of 20.009 square kilometer and range of sea level is 260-2,257 meter. The lowest point is 260 meter Phak Khan River and the highest peak is the 2,257 meter Soy Dao Mountain in Viengkham district. The mountainous area covers 85% of total land area and the paddy land is limited.
The province has 12 districts, 96 village clusters and 10 municipalities. There are a total of 752 villages, 77,717 households and 454,095 people including 278,000 females in 2015. The province is notable for the diversity of ethnic groups present in the province, including Tai-Kadai (Tai Lao, Tai Dam, and Tai Deng), Mon-Khmer (including Khm'u), and Hmong-Mien (including Hmong), most of whom rely on agricultural activity and the exploitation of forest resources to meet their livelihood needs. The distributed nature of the population means untouched forest resources within the province are rare; deforestation

[1] In 2012, the UN-REDD Programme accepted Lao PDR as a partner country, and is supporting the country with its readiness preparations. In 2015, UN-REDD approved targeted support for the country´s REDD+ program focusing on capacity building of national and provincial government authorities related to forest land and resource governance and participatory forest management[1].
[2] Paragraph 70 of the Cancun decision states the following eligible REDD+ activities (FCCC/CP/2010/7/Add.1): a) reducing emissions from deforestation; b) reducing emissions from forest degradation; c) conservation of forest carbon stocks, d) sustainable management of forests; e) enhancement of forest carbon stocks.
[3] Lao PDR. 2015. Emission Reductions Program Idea Note (ER-PIN). Forest Carbon Partnership Facility Carbon Fund (FCPF-CF)

and degradation can be observed throughout almost the entire province.
In 2015, forests covered 1,824,795 hector of the province which is 91.7% of the province, of which 48.4% is current forest and 43.3% is regenerating vegetation. This high percentage of regenerating vegetation is a function of the shifting agricultural production methods employed by the majority of inhabitants of the province. The remaining forest area is predominantly mixed deciduous forest. Detail information on forest status and its change is described in the chapter 3.1.1.

The province has Conservation, Protection and Production Forest at national provincial and district level. Protection Forest Area is a largest forest category in the province which covers 61.4% of total land and 60.4% of current forest of the province. Nam-Et Phou Louey National Conservation Area is only the area to protect biological diversity.

Table 1 List of 3 Forest Categories in Luang Prabang Province

	Name	Area (ha	District	Remark
	National Conservation Area			
1	Nam Et-Phouleuy	11,448	Viengthong Viengkham	
	Provincial Conservation Area			
1	Kiewtaloun Nyai (Lao sung)	1,370	XiengNgern	
	District Conservation Area			
1	Thamkheo	114	Phonsay	
2	Phadungkhouay	2,450	Nan	
3	Phavee	5,000	Phonsay	Not approved yet
4	LongLan	5,000	Luang Prabang	
5	Nam Tan(Phouluangtai)	690	Chomphet	
6	PhaEan-Moklek	213	Pak Ou	
7	Phanak-Phateung	1,340	Pak Ou	
8	Phaphou Namta	1,560	Pak Ou	
9	Nam Thamting	60	Chomphet	
10	PhouPhaNgeun	394	Phoukhoun	
11	PhouKiewYuak	3,330	Phoukhoun	
12	PhouFa-NongPi	54,300	Phoukhoun	
13	PhouChomNgae	3,530	Xiengngun	
14	Phouvieng	315	Xiengngun	
15	PhouPaPheo	1,100	Xiengngun	
16	KeangLuang	1,260	Xiengngun	
17	Phakuang	1,950	Ngoi	
18	PhaNor	1,870	Ngoi	
19	Phouhuay-Taluang	30	Nam Bak	
20	Phou XonKua	105	Nam Bak	
21	Phoukieng-Phouvieng	1,050	Nam Bak	
	Nam Yao watershed area	3,000	Phonthong	Not requested to Province yet
	National Protection Area			
1	Nam Merk-Nam Mut watershed	84,524	Phonthong	
2	Nam Bak-Nam Pak watershed	112,547	NamBak	
3	Ngoi			
4	Nam Ngao-Nam Outai	127,994	Ngoi	
5	NamBak			
6	Pak Ou			
7	Nam Xeung-Nam Xeng watershed	491,274	Ngoi	
8	Phonthong			
	Provincial Protection Area			

1	Phoupeung-Phouphatoun-Tadkuangsi-Phouchong	34,934	Luangprabang	
District Protection Area				
1	Nam Ngeu	10,388	Nambak	
2	Phoudam	187	Chomphet	
3	Houaydor	1,862	Chomphet	
4	Phakook-PhaNgoua	971	Chomphet	
5	Phoutao-Phounang	528	Chomphet	
6	Phoulek	1,394	Luang Pabang	
7	Phouxuang-Phounaluang	744	Luang Pabang	
8	PhouNongkai	410	Luang Pabang	
9	Phouteanseua	146	Luang Pabang	
10	KhetFaiFa	360	Luang Pabang	
11	HouaySae	256	Luang Pabang	
12	Houayluang-Houayxa	848	Phonxay	

Source: Minutes of meeting on consultation workshop for certification of national, provincial and district protection and conservation forest in Luang Prabang (1171/PONRE,LPB 19 March 2014)

	Name	Area (ha	District	Remark
National Production Area				
1	Say Nam Khan	64,038	Phonsay	
2	Phou Laung_tai	83,004	Chomphet	

(Source: DFRM, MAF)

The entire province is considered the accounting area for the purposes of the ERPD no exclusion areas have been considered.

1.2. Expected lifetime of the proposed PRAP

Proposed duration of PRAP would be 8 years from 2018 to 2025.
In order to align the PRAP lifetime with GoL planning and monitoring periods the PRAP for Luang Prabang includes the current socio-economic development planning period (2016-2020) as well as the following 9th SEDP period from 2021 to 2025. Since the 5 year SEDP is broken down into annual plans the PRAP needs to be mainstreamed into the 2018, 2019 and 2020 annual plans before the PAMs can be mainstreamed into the next 5 year planning period.

2. Institutional context

2.1. Institutional context and cross sectoral coordination

2.1.1. Institutional context of REDD+ at the national level

In Lao PDR, governmental Decree No. 1313 (2008) established the National REDD+ Task Force, a multi-sector body responsible for the development of REDD+ in the country. This includes the development and implementation of REDD+ in the country, supporting capacity development related to REDD+, ensuring cross-sectoral communication and coordination, and participating in international climate change policy discussions and negotiations. Members of the task-force represent diverse key economic sectors including agriculture, forestry, mining, energy, and land use planning. In 2011, additional representatives were added into the Task Force including representatives from the Ministry of Justice, Ministry of Finance, Ministry of Planning and Investment, the Lao National Front for Reconstruction (LNFR), Lao Women´s Union (LWU) & Lao Chamber of Commerce.
Six distinct technical working groups related to REDD+ were established in 2015 to support the REDD+ Task Force and the National REDD+ Office with the development of key elements of the country´s REDD+ strategy, specifically the legal framework, land tenure, MRV/REL, safeguards, benefit sharing and law enforcement. At the provincial level the Provincial REDD+ Office (PRO) and the Provincial REDD+ Task Force are the main actors responsible for coordinating REDD+ at the provincial level. Similar to the national task force, the Provincial REDD+ Task Force includes participants from diverse governmental sectors at the provincial level. Luang Prabang was the second Province, after Huaphanh, in the northern provinces of the country to establish a Provincial REDD+ Task Force on May 20, 2016, for supporting REDD+ related activities and processes. In December 2016, all members of the PRTF as well as district staff have been receiving intensive training on REDD+ in preparation for PRAP development.

2.1.2. Institutional arrangement for PRAP development in Luang Prabang

This Provincial REDD+ Action Plan (PRAP) seeks to guide the implementation of necessary policies and measures and institutional and financial arrangements to reduce emissions from deforestation and forest degradation at the provincial level. The PRAP outlines how a jurisdiction designs and implements cross-sectoral approaches for mitigating forest sector emissions (from deforestation and forest degradation) and enhancing carbon sequestration. For this it seeks to set a basis for inter-sectoral coordination, based on a transparent and inclusive process.

In Luang Prabang Province, activities related to the development of PRAP are mainly undertaken by the Provincial REDD+ Office and Provincial Agriculture and Forestry Office (PAFO), with support from F-REDD/JICA and the newly established Division of REDD+ under Department of Forestry, Ministry of Agriculture and Forestry.

The preparatory work for PRAP development at district level is supervised by District REDD+ Action Plan Committee (DRAP) which is established by district decisions as a coordination body with stakeholders concerned in different sector at district and village cluster (kumban) level. Members of DRAP are mainly from District Agriculture and Forestry Office (DAFO), District Office of Natural Resources and Environment (DONRE), District Planning and Investment Office (DPIO). DRAPs were responsible for organizing and conducting consultations at the kumban level in each of the districts. DRAP units were further responsible for coordinating with the relevant district line agencies (District governor's office, DAFO, DONRE, DPIO, Military and Security, Lao Women's Union, District Mines and Energy Office, Lao National Front for Reconstruction at district level, District Office of Transport and Public Works, to provide inputs to the PRAP.

Various rounds of consultations were conducted for the elaboration of the PRAP in Luang Prabang Province. During each round of consultations diverse stakeholders were consulted, including the Lao Women's Union who provided targeted feedback to ensure that gender aspects were effectively considered in the design and elaboration of the PRAP, as well as the Lao National Front for Reconstruction on ethnic minority concerns.

In February 2016, the initial data collection with emphasis on hotspots of deforestation and forest degradation was conducted in 12 districts of Luang Prabang province. After that, results of the data collection were presented in the first consultations which conducted in August 2016 with participation from relevant sectors in the province. Likewise, the workshop was focused on capacity building and awareness raising on the PRAP process and establishing the institutional structure and consultation plans. The second round of consultations, held at the provincial level, in October 2016 focused on discussions and brainstormed a list of the most important policies and measures (PAMs) to address drivers of deforestation and forest degradation identified in the field survey. In March 2017, further consultations were conducted in each District, a central district workshop was conducted in addition to consultations at the kumban level. These consultations focused on identifying and prioritizing the drivers of deforestation and forest degradation and their underlying causes at the District level, as well as identifying PAMs to address these drivers and underlying causes. After this consultation, a provincial validation workshop for the PRAP was conducted in April 2017 to discuss and finalize the PAMs to be included in the first draft of the PRAP. Further information on the consultations, dates, and participants can be found in Table A1 of Annex1.

2.2. Alignment with national strategies and plans

2.2.1. Alignment with national socio-economic development plans and sectoral strategies

The PRAP for Luang Prabang Province has been designed to ensure alignment with key national strategies and targets, including MoNRE Strategy to the year 2025 and MoNRE *Vision 2030*, and the *8th Five-Year Development Plan (2016-2020)*. Of particular importance is the government´s *Forestry Strategy to the Year 2020* which outlines the specific objectives, targets and plans for the forestry sector. In addition it is linked to relevant sectoral strategies, including the *Agriculture Development Strategy to 2025 with Vision to 2030*, and the *National Agro-Biodiversity Programme and Action Plan (2016-2025)*. Table 2 provides an overview of the key government interventions that are aligned with REDD+ in the country and the proposed PRAP. With this comprehensive approach, the PRAP will support the government to make progress towards achieving its development objectives related to the protection and sustainable use of its natural resources.

Table 2. Relevant sector goals/ targets of national development plans and strategies

Strategy/ Plan	Description of actions/targets/objectives
Vision 2030[4]	Transition to a middle- to high-income developing country, with inclusive, stable & sustainable economic growth, balancing socio-economic development & environmental protection Agriculture & forestry sector are sustainably developed for food security, & environmental protection Natural resource utilization is more effective
Strategy 2025[5]	Graduation from Least Developed Country (LDC) Status by 2025 Economic diversification, poverty eradication, reduced population growth Enhancing agricultural productivity to promote inclusive growth Environmental management is needed to address the effects of climate change, to strengthen resilience to natural disasters, & ensure that the social, environmental & economic impacts of activities in the resource sector are fully understood
8th Five-Year Development	Land use classification to be completed for all parts of the country Proper allocation of agricultural production areas by classifying & identifying land use areas

[4] Included within the 8th Five-Year Development Plan (Lao PDR 2015a)
[5] Ibid

Table 2. Relevant sector goals/ targets of national development plans and strategies

Strategy/ Plan	Description of actions/targets/objectives
Plan (2016-2020)[6]	Forest cover to reach 70% of the total land area by 2020 (6 million ha of naturally regenerating forest, & 500,000 ha of planted forest in un-stocked forest areas; also mentioned within the Forestry Strategy to the Year 2020); Reforestation area to reach 1.5 million ha by 2020 Establishment of mechanisms to manage & use forest resources efficiently & sustainably Establishment financial mechanisms & regulations, & a database for studying, managing & reducing GHG emissions arising from deforestation & forest degradation to ensure that revenue from the forestry sector is used to restore & manage forests
Forestry Strategy to the Year 2020[7]	**Policy Directions** To formulate national land policy & introduce land use planning both at a macro & field level To enhance village based natural resource management for poverty eradication To control unsustainable harvest & export of NTFPs, & promote sustainable participatory management & processing of NTFPs To improve the performance of the wood industry including bringing processing capacity into closer accord with the sustainable timber supply To promote tree planting & management by setting clear purposes with relevant target owners & markets, & investment schemes to strengthen the national timber supply & farmer incomes To prevent encroachment unauthorized activities & biodiversity degradation through strengthened law enforcement, capacity building & assisted participation of villagers in forest management
Agriculture Development Strategy to 2025 with Vision to 2030[8]	Stabilization of shifting cultivation & climate change adaptation measures are adapted to the specific socio-economic & agro-ecological conditions of each region Support the widespread adoption of ecologically sustainable production practices adapted to the region-specific context Increased & modernized production of agricultural commodities will lead to pro-poor & green value chains, targeting domestic, regional & global markets based on the organization of smallholder farmers & partnering investments with the private sector Sustainable forest management will preserve biodiversity & lead to significant quantitative & qualitative improvements of the national forest cover, providing valuable environmental services & fair benefits to rural communicates as well as public & private forest & processing enterprises
National Biodiversity Strategy and Action Plan (2016-2025)[9]	Protection of the country´s diverse & economically important ecosystems (e.g. monitoring & enforcement of forest protection rules; increase in number of household beneficiaries from village forestry-oriented projects in biodiversity hotspots) Integration of the value of biodiversity to socio-economic decision making (e.g. integrating integrated spatial planning in development/planning activities) Strengthen the knowledge base on biodiversity information & value Improved communication, education & public awareness on biodiversity Effective preparation & implementation of plans & programs

2.2.2. Alignment with climate change strategies and plans

The country´s *Strategy on Climate Change*[10] provides an initial framework to help guide the implementation of climate change objectives and key measures across sectors (Table 3). Lao PDR is in the process of developing their *Climate Change and Disaster Law,* which is due to be completed in 2017. The PRAP further supports the goals and targets identified in the country´s Strategy on Climate Change and the commitments highlighted in the country´s Intended Nationally Determined Contribution (INDC) submitted to the United Nations Framework Convention on Climate Change (UNFCCC).

Lao PDR´s INDC highlights the national agreements and efforts in Lao PDR to mainstream climate change across sectors. It reflects major national commitments highlighted in key national development and sector strategies, as well as the country´s climate change strategy. In terms of mitigation this includes increasing forest cover to a total of 70% of its land area by 2020, increasing the export of hydropower to neighboring countries and increasing the share of biofuels in transport fuels, among other measures[11]. In terms of adaptation the INDC reflects the government´s intention to increase the resilience of key economic sectors and natural resources to climate change and its impact, as well as enhancing cooperation, alliances and partnerships to reduce the vulnerability of the country to climate change[12]. In summary, the general aims of the NDC are to "*…strengthen capacities to monitor and evaluate policy implementation success, with a view to producing new policy, guidance and data… and to develop and implement effective, efficient and economically viable climate change mitigation and*

[6] Lao PDR (2015a)
[7] Lao PDR (2005)
[8] MAF (2010)
[9] MoNRE (2016)
[10] Lao PDR (2010b)
[11] Lao PDR (2015b)
[12] Ibid

adaptation measures"[13]. So far the government has earmarked $12.5 million for the implementation of the measures identified in the NDC, but has at the same time noted the need for external finance equivalent to nearly $1.5 billion.

Table 3. Relevant sector goals/ targets of the Lao PDR Strategy on Climate Change (2010)[14]

Sector	Description of goals/targets
Agriculture	Mainstreaming climate change into key sectors, & enhancing the adaptive capacity of the agricultural sector Promoting conservation agriculture, & climate-smart/ resilient agricultural practices Improving & monitoring water resources & water supply system, & rehabilitation of flood control system Strengthening financial instruments & capacity development for farmers; supporting community based adaptation measures Enhancing sector based research on climate change adaptation Enhancing information dissemination & extension support (to staff & farmers) Improving cross-sectoral coordination mechanisms & cooperation
Forestry & Other Land Use	Mainstreaming climate change in forest policy & management activities Promoting the adoption of climate-resilient practices Improving forest management systems for rural livelihoods Enhancing the adaptive capacity of forest-dependent peoples Enhancing biodiversity conservation & management Stop slash & burn agriculture by forest management & forest landscape restoration Increasing forest cover & enhancing carbon sinks by promoting climate-smart & sustainable land use options, in addition to alternative livelihood opportunities Promoting alternative fuels for forest-dependent communities, including the use of harvest residues or community-based fuel wood plantations Reducing forest fires by setting regulations & necessary measures to raise awareness, intercept & prevent forest fires Integrating forest management to include forest-food production systems, NTFPs, & community-based forest management Mapping & planning land use for different purposes over the medium & long-term; minimizing encroachment into national protected areas Pursuing carbon market opportunities & early introduction into REDD+ by developing & implementing more reforestation & afforestation programs
Water/ Hydropower	Assess the hydropower industry´s vulnerability to climate change; Development of relevant climate change adaptation strategies to enhance resilience & adaptive capacity Integrating climate change measures into risk management strategies & planning/design processes

2.2.3. Alignment with provincial and district-level socio-economic development plans

PRAP is a strategic document for better forest management and its contribution to climate change mitigation that is consistent with national and provincial forest programs. As a master plan of provincial forest management, Provincial and District Agriculture and Forestry Development Plan 2016-2020 are key provincial strategies and targets of the forestry sector at Provincial level.

In addition, as the drivers of deforestation and forest degradation are often associated with the factors outside the forestry sector, PRAP is required for inter-sectoral coordination with other sectors development goal and plan. Therefore, review of Provincial Five Year Socio-Economic Development Plan (SEDPs) and strategy 2025 and vision 2030 is indispensable not only for avoiding conflicts between different sectors, but also to promote and enhance the synergies among them.

Agriculture and Forestry Sector

Agriculture and Forestry Development Plan (2016-2020) of Luang Prabang Province

Sector	Description of objectives, targets and activities
Forestry	・ Demarcation of forest regeneration area and forest planting area to increase 70percent of forest cover to the year 2020. ・ 12,500 ha will be planted and 255,271 ha of forest area will be protected for forest regeneration. ・ Demarcation and allocation of agriculture land will be completed in the whole province ・ Plantation of teak, vernicia montana (tree&liana), fruit tree, various species of industrial tree will be continually promoted to ensure regeneration of income in the present and future
Agricultural Food Crops Production	In 2020, rice will be produced 120.659 ton with a total area of 34.108 ha including rainy season paddy land is 15.370 ha, dry season paddy land is 2.338 ha and permanent upland for agricultural is 16.500 ha

[13] Ibid

[14] Lao PDR (2010)

Agricultural Commodity Production	Production of commercial agriculture will be promoted as follows: production of maize is 44, 391 ton with an area of 10,320 ha, job's tears is 28,874 ton with an area of 11,511 ha and sesame is 4,823 ton with an area of 3,711 ha.
Livestock	・Target number of livestock until 2020 is as follows: 94.932 cows (2 percent increase), 56.799 buffalos (1.5 percent increase), 225.796 pigs (2 percent increase), 137.260 goats (12 percent increase) and 3.216.949 poultries (6 percent increase). ・Smallholder livestock production as well as small-, medium- and large-scale livestock farming will be promoted which bases on t household conditions
Irrigation	・8 irrigations systems will be constructed in 2016-2020. It also focuses on construction of irrigation system, reparation of water storage and canal, construction of concrete canal with length of 12.600 meter. In the year 2020, irrigation system will be used for agriculture with a total area of 13.928 ha including dry season agriculture land with an area of 3.768 ha
(Cross sectoral)	・Commercial agriculture and livestock production (Model: 2 agriculture and 1livestock or 1 livestock and 2 agriculture) and plantation of industrial crops in short-,medium- and long-terms with livestock production will be especially promoted which bases on different local conditions

Forestry Sector

Forestry Implementation Plan (2016-2020) of Provincial Office of Agriculture and Forestry (PAFO), Luang Prabang Province (No. 452/FS.LPB, 23 June 2016)

	Description of objectives, targets and activities
1	Increase existing forest cover to reach 70%;
2	Reduce GHG from deforestation.
3	Develop and improve the forestry related legal documents to ensure the consistency of socio-economic development in each period, disseminate the guidance and policy of the Party, laws and regulations of the government for the general public;
4	Designate reforestation area to reach 128,000 ha in 2 production forest areas
5	Promote Plantation to reach 12,500 ha by public and private sector in 2 production forest areas
6	Survey and classify 3 forest types and forests that have not been classified yet to reach 686,475 ha equivalent to 34% (water reservoir protection area – total 498,237.41 ha tributaries of Mekong river throughout the province);
7	Environmental protection, soil protection, water source and climate protection;
8	Animal and plant species protection as well as their habitats and which their specific characteristics are being threatened;
9	Institutional improvement and human resource development in the forestry sector from provincial to grassroots (village) level

Five year Plan (2016-2020) of Provincial Office of Natural Resource and Environment (PONRE) Luang Prabang Province (No.793/PONRE.LPB, 4th February 2015)

	Description of objectives, targets and activities
1	Increase existing forest cover to reach 70%;
2	Reducing Emissions from Deforestation and Forest Degradation (REDD+)
3	Disseminate forestry law, other laws and regulations for sustainable forest management, protection, reforestation and rehabilitation of natural resources, as well as enforcing the laws
4	Designate area for reforestation to cover 434,153 ha, in which natural regeneration 433,953 ha and plantation 200 ha
5	Promote the sustainable management and monitoring of forest resource and biodiversity
6	Survey and create an inventory of bio-diversity, wildlife including prohibited species, rare species and species that are near extinction
7	Survey and install demarcation post for conservation and protection forest in 12 districts

Land Sector

Targets and focal point activities of the 5-year plan (2016 – 2020) for land management and development in Luang Prabang province (Source: Land Management Section/ PONRE)

	Description of objectives, targets and activities
1	Conduct Land use classification at provincial and district level
2	Conduct Land use classification at village, village cluster in 8 districts: Luang Prabang, Chomphet, Xiengngeun, Nan, PakOu, Nambak, Ngoi, Viengkham
3	Review land use classification plan in 4 districts: Phoukhoun, Phonxay, Pakxeng and Phonthong
4	Issue 30,000 land titles in the whole province

5	Land census of village land and household in 12 districts
6	Monitor land concession, land lease projects in order to implement in accordance with the contract
7	Improve data management system in relation to land from hard copy keeping system to digital system or program LLMS for being able to use throughout the province
8	Mapping for evaluation of land price in 12 districts
9	Collect land fees/levies throughout the province to reach 24,630,939,000 Kips

Climate Change and Disaster Management

Five year Plan (2016-2020) of Provincial Office of Natural Resource and Environment (PONRE) Luang Prabang Province (No.793/PONRE.LPB, 4th February 2015)

	Description of objectives, targets and activities
1	The work plan and strategy on provincial disaster management (2016-2020), provincial action plan on climate change adaptation in long term and action plan on REDD+ will be formulated
2	The National Disaster Prevention and Control Committee, Provincial Climate Change Committee will be appointed to study the sensitive areas on climate change and disaster risk areas, and then contribute it into the adaptation plan and readiness preparation proposal for climate change and disaster at provincial and district levels.
3	The activities on climate change, disaster risk reduction and REDD+ will be integrated into the strategy and action plan of the Forest Section and Public Works- Transportation Section in order to develop capacity on climate change adaptation and REDD+
4	The natural disaster management and prevention plan (alarming system, response measure, emergency assistance, migration of people and property as well as rehabilitation system) will be efficiently and effectively implemented at provincial level.
5	The pilot project on climate change adaptation and disaster risk reduction will be integrated into PAFO's work plan
6	Raising awareness on impacts of climate changes will be implemented to ensure sustainable and effective natural resources utilization, the Government policy on natural resource management, local participation in climate change adaptation and resolution.

Other Sectors

Policy	Description of objectives, targets and activities
Socio Economic Development Strategy 2025 and Vision 2030 of Luang Prabang Province	[Vision 2030] ・ To 2030. Ensuring to be a center of tourism with international standard linking with preservation of world heritage, to be center of traditional custom and knowledge, to promote organic agriculture and better-off household. [Strategy 2025] ・ Promoting tourism, hydropower and clean agriculture for sustainable economic development in the province ・ Poverty eradication and achieve GDP per capita: 3,500-4,000 USD in 2025 and 5,500 USD in 2030.
The 7th Five Year Socio-Economic Development Plan (2016-2020)	[Hydropower Dam] ・ In 2020, there will be total 9 projects that have been designed to generate around 733.2 MW of electric power for the national grid. [Road] ・ Road: 95% of village can access to the road and 85% access to all-weather road. [Tourism] ・ Promoting tourism sector with quality of international standard and associated with local custom, tradition, culture, nature and history in 4a sustainable way. ・ Encourage local people to participate in promoting tourism.
Luang Prabang Province Natural Resource and Environment Development Plan in 2016-2020	[Water Resource, Meteorology and Hydrology] -Develop and revise the watershed management plan. Furthermore, survey and monitor the status of water resource including water quantity, quality, hydrological and physical status, chemical and biophysical status of surface and underground water; Classify the river, watershed and water quality to ensure sustainable water resource management; Collaborate with concerned sections and provinces where connected with watershed area to protect ecosystem in 2 priority watershed areas such as Ou and Ngum river as well as other catchment; Establish the water resource database and connecting network at central and local levels. •A provincial disaster warning centre will be constructed in Luang prabang district [Mineral Resource] - Mineral exploration of the domestic and foreign companies will be continually promoted, facilitated, monitored, inspected and evaluated to reduce negative impacts on environment,

	nature and society. Furthermore, also ensure rich ecosystem, environmental protection, prevention of soil erosion, protection and remediation of soil quality in 8 districts such as Phon Thong, Vieng Kham, Ngoy, Pak Ou, Chom Phet, Nan, Xieng Ngun and Phou Khoun districts.

3. ANALYSIS OF DRIVERS AND UNDERLYING CAUSES OF DEFORESTATION AND FOREST DEGRADATION

3.1. Deforestation and forest degradation in Luang Prabang Province

3.1.1. Recent Forest Status and Historical change of land and forest cover in Luang Prabang Province

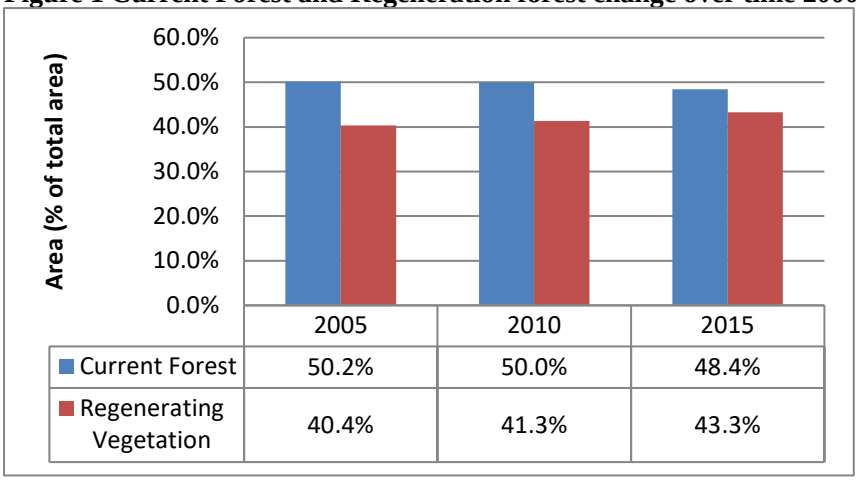
Based on the most recent land and forest cover maps, the province has 1,824,795 hector of forests, accounting for 91.7% of the province in 2015, of which 48.4% is current forest and 43.3% is regenerating vegetation. The province has 963,837 ha of forest, accounting for 48.4 % of total land area in 2015 (see **Table 4**). Since 2005, Current Forest has been gradually and continuously decreased and 34,428 ha of forest which covers 1.73% of the total land area has been loss in the last 10 years. Regeneration vegetation has slightly been increased from 2005 onward largely due to pioneer type shifting cultivation. On the other hand, planted forest has been on increase 2,366 ha since 2005 and has reached 0.12% of forest in Luang Prabang.

Table 4 Land and forest cover change over time 2005-2015 in Luang Prabang

		ha	2015		%	2010		%	2005		%
Current Forest	Evergreen Forest	EF	19,518			19,554			19,647		
	Mixed Deciduous Forest	MD	928,211			958,397			964,803		
	Dry Dipterocarp Forest	DD	8,098			8,153			8,170		
	Coniferous Forest	CF	5			5			5		
	Mixed Coniferous and	MCB	0			0			0		
	Forest Plantation	P	8,005	963,837	48.4%	8,028	994,138	50.0%	5,640	998,264	50.2%
Regenerating Vegetation	Bamboo	B	2,725			2,792			2,229		
	Regenerating Vegetation	RV	858,234	860,959	43.3%	819,297	822,089	41.3%	801,007	803,236	40.4%
Other Vegetated Areas	Savannah	SA	229			229			229		
	Scrub	SR	18,289	18,518	0.9%	18,299	18,528	0.9%	18,231	18,460	0.9%
	Grassland	G	43,637			44,072			44,077		
	Swamp	SW	0	43,637	2.2%	0	44,072	2.2%	0	44,077	2.2%
Cropland	Upland Crop	UC	17,054	17,054	0.9%	36,384	36,384	1.8%	65,249	65,249	3.3%
	Rice Paddy	RP	12,020			11,932			10,447		
	Other Agriculture	OA	51,807			40,844			28,821		
	Agriculture Plantation	AP	328	64,155	3.2%	514	53,289	2.7%	174	39,442	2.0%
Non Vegetated	Urban	U	4,565			4,250			4,214		
	Barren Land and Rock	BR	114	4,680	0.2%	114	4,364	0.2%	114	4,328	0.2%
Other Land	Other Land	O	2,339	2,339	0.1%	2,323	2,323	0.1%	2,133	2,133	0.1%
Water	Water	W	14,950	14,950	0.8%	14,940	14,940	0.8%	14,937	14,937	0.8%
	Total		1,990,128	1,990,128	100%	1,990,128	1,990,128	100%	1,990,128	1,990,128	100%

Source: Forest Type Map/DOF (2017)

Figure 1 Current Forest and Regeneration forest change over time 2000-2015 in Luang Prabang



The resulting forest change matrix was as follows.

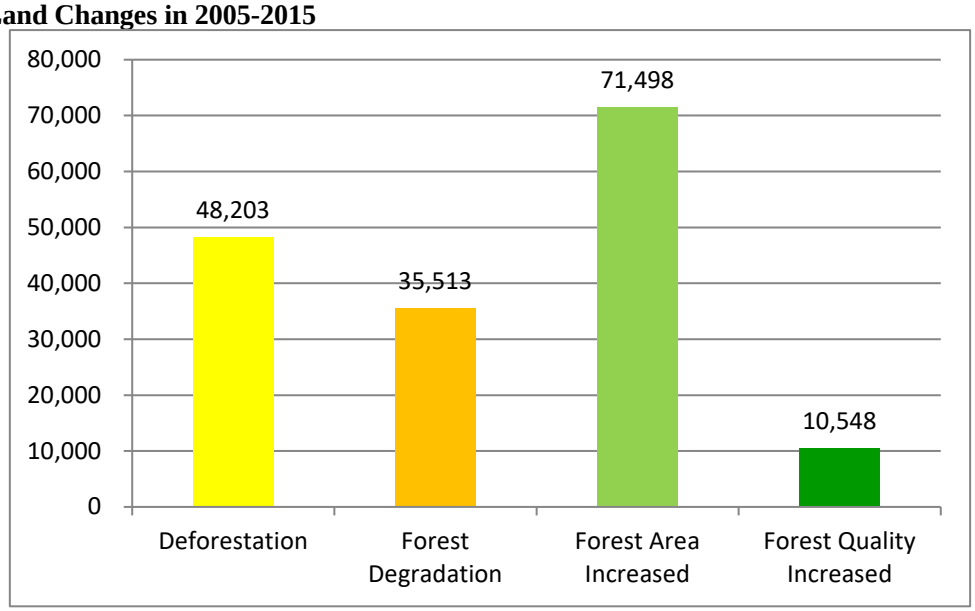
Table 5 Land/Forest Change Matrix in 2005-2015 in Luang Prabang Province

			2015									
			Current Forest		Regeneration	Crop Land		Water	Other Vegetated area	Other land	Total	Change from 2005 to 2015
		ha	1) Natural Forest	2) Forest Plantation		1) Upland Crop	2) Permanent Agri Land					
2005	Current Forest	1) Natural Forest	945,483	102	35,489	4,929	6,423	0	1	197	992,625	-36,793
		2) Forest Plantation	0	5,404	24	4	206	0	0	2	5,640	2,366
	Regeneration		10,305	243	756,248	9,959	26,046	31	6	399	803,236	57,722
	Crop Land	1) Upland Crop	37	0	62,659	1,113	1,342	0	89	10	65,249	-48,196
		2) Permanent Agri Land	7	2,257	6,497	953	29,693	0	0	36	39,442	24,713
	Water		0	0	0	0	15	14,919	0	3	14,937	13
	Other Vegetated area		0	0	20	83	363	0	62,060	11	62,537	-381
	Other land		0	0	22	11	67	0	0	6,362	6,461	557
Total			955,831	8,005	860,959	17,054	64,155	14,950	62,155	7,019	1,990,128	0

Forest Quality Increased
Forest Area Increased
Forest Degradation
Deforestation

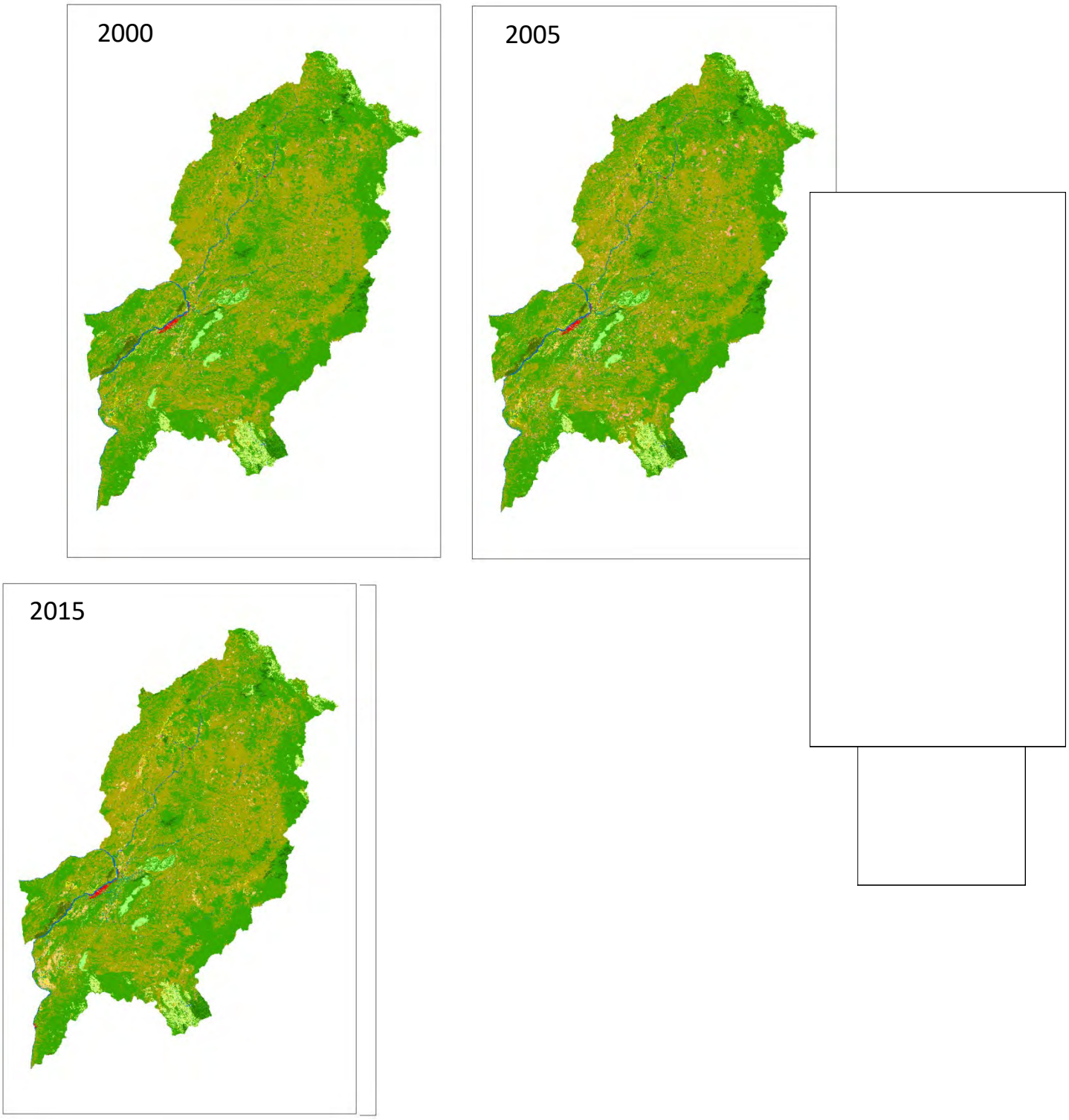
Source: Forest Type Map/DOF (2017)

Figure 2 Forest Land Changes in 2005-2015



The deforestation area was 48,203 ha while the forest area increase was 71,498 ha (net increase of 23,294 ha). The table 5 indicates that upland crop area was significantly decreased in 2005-2015 and fallow land has been recovered mainly as regeneration vegetation. On the other hand, forest degradation area was 35,513 ha while the forest quality increase was 10,548 ha.

Figure 3 Land and forest cover change over time 2000-2015 in Luang Prabang



3.1.2. Forest Management Status and Historical Change in Luang Prabang Province

Luang Prabang Province promotes sustainable forest management based on the three Forest Categories including Conservation, Protection and Production Forest. Current forest includes 34,943.0 ha (3.6%) of Conservation Forest Area; 582,550.1 ha (60.4%) of Protection Forest Area; 75,931.7 ha (7.9%) of Production Forest Area and 270,347.3 ha (28.1%) of forests outside of 3 Forest Area Categories. Protection Forest Area (PTA) is a largest forest category in the province that covers 61.4% of total land and 60.4% of current forest of Luang Prabang Province.

Figure 4 Conservation, Protection and Production Forest in Luang Prabang

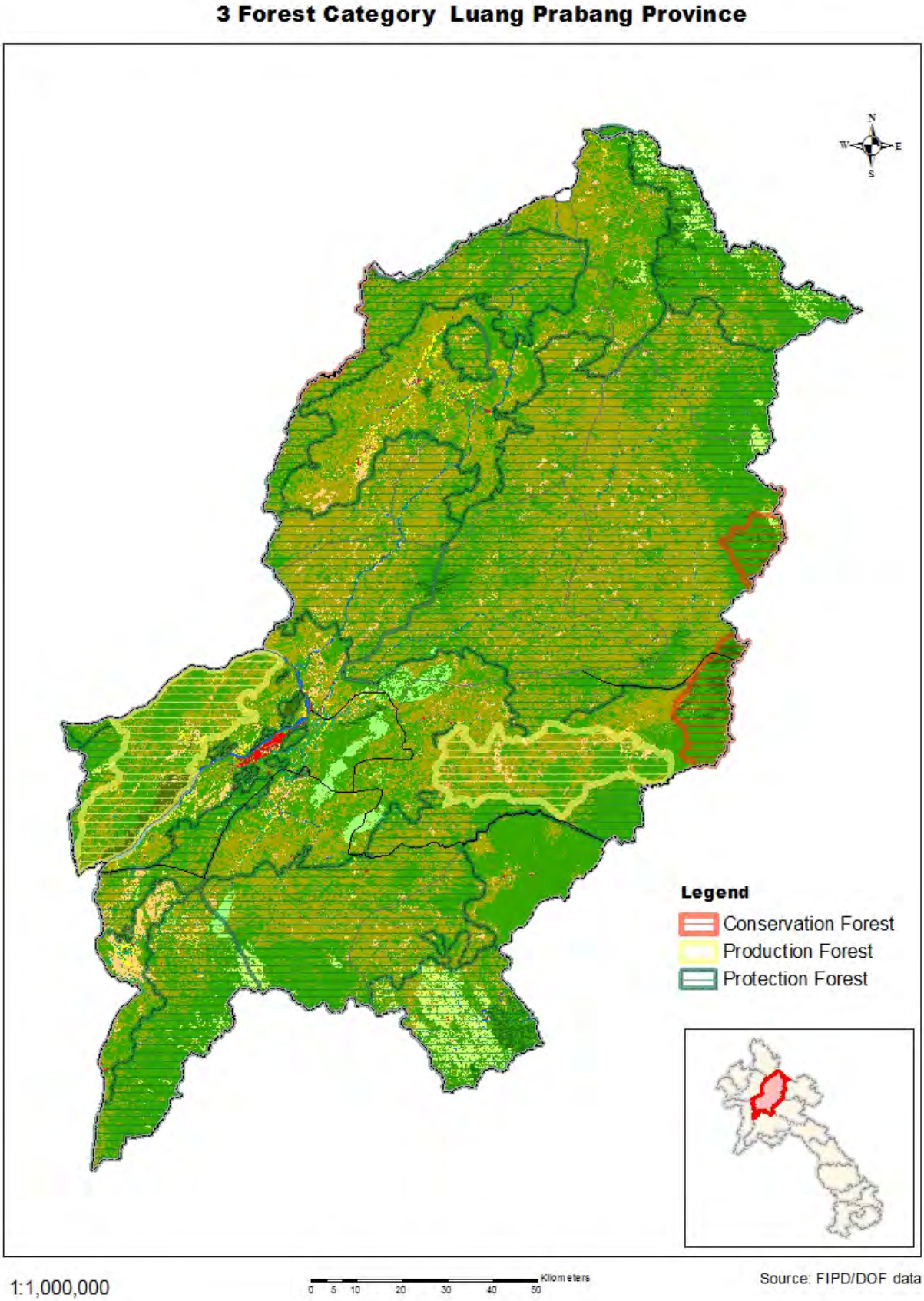


Table 6 Land and forest cover by 3 Forest categories

	Category	(ha)	Conservation	Protection	Production	Outside 3FC
Current Forest	Evergreen Forest	EF	5,212.2	11,654.9	86.8	2,563.7
	Mixed Deciduous Forest	MD	29,725.8	567,901.0	69,386.9	261,132.6
	Dry Dipterocarp Forest	DD	0.0	957.7	6,345.0	795.1
	Coniferous Forest	CF	4.9	0.0	0.0	0.0
	Forest Plantation	P	0.0	2,036.6	113.0	5,855.9
Regenerating Vegetation	Bamboo	B	16.9	1,844.1	345.2	518.7
	Regenerating Vegetation	RV	1,377.0	549,815.5	62,721.4	244,245.7
Other Vegetated Areas	Savannah	SA	0.0	225.7	0.0	3.3
	Scrub	SR	0.0	3,850.2	15.9	14,423.6
	Grassland	G	941.1	41,247.4	52.5	1,396.2
Cropland	Upland Crop	UC	48.0	10,454.4	1,841.1	4,706.5
	Rice Paddy	RP	0.0	2,370.1	1,094.0	8,555.4
	Other Agriculture	OA	3.6	21,246.3	4,480.0	26,074.4
	Agriculture Plantation	AP	0.0	246.4	31.3	50.6
Non Vegetated Areas	Urban	U	0.0	981.9	109.4	3,474.3
	Barren Land and Rock	BR	0.0	114.3	0.0	0.0
Other Land	Other Land	O	0.0	1,378.8	132.4	827.9
Water	Water	W	4.6	5,795.3	274.1	8,875.1
Total			37,334	1,222,121	147,029	583,499
Area %			1.9%	61.4%	7.4%	29.3%

Source: Forest Type Map/DOF (2017)

Figure 5 Current Forest composition by Forest categories

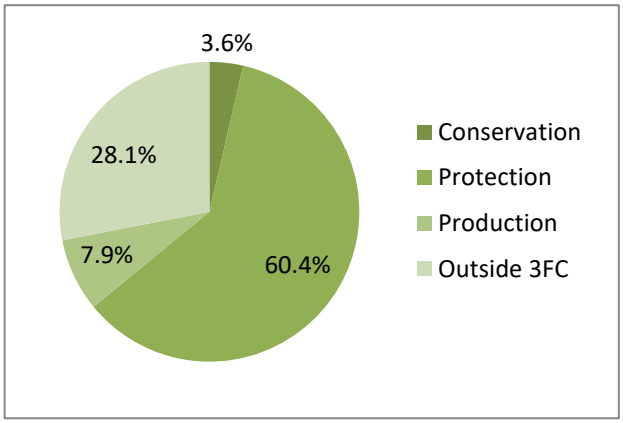


Table 7 Forest Change Matrix in 2005-2015 in Conservation Forest Area

		ha	2015									
			Current Forest		Regeneration	Crop Land		Water	Other Vegetated area	Other land	Total	Change from 2005 to 2015
			1) Natural Forest	2) Forest Plantation		1) Upland Crop	2) Permanent Agri Land					
2005	Current Forest	1) Natural Forest	34,915	0	57	46	0	0	0	0	35,018	75
		2) Forest Plantation	0	0	0	0	0	0	0	0	0	0
	Regeneration		28	0	1,337	2	4	0	0	0	1,370	-24
	Crop Land	1) Upland Crop	0	0	0		0	0	0	0	0	-48
		2) Permanent Agri Land	0	0		0	0	0	0	0	0	-4
	Water		0	0	0	0	0	5	0	0	5	0
	Other Vegetated area		0	0	0	0	0	0	941	0	941	0
	Other land		0	0	0	0	0	0	0	0	0	0
Total			34,943	0	1,394	48	4	5	941	0	37,334	

Forest Quality Increased
Forest Area Increased
Forest Degradation
Deforestation

Source: Forest Type Map/DOF (2017)

Table 8 Forest Change Matrix in 2005-2015 in Protection Forest Area

			2015									
			Current Forest		Regeneration	Crop Land		Water	Other Vegetated area	Other land	Total	Change from 2005 to 2015
		ha	1) Natural Forest	2) Forest Plantation		1) Upland Crop	2) Permanent Agri Land					
2005	Current Forest	1) Natural Forest	573,075	88	21,404	2,772	2,824			19	600,182	-19,668
		2) Forest Plantation		1,727	15	2	41			2	1,787	250
	Regeneration		7,402	164	488,213	6,371	10,737	8		174	513,068	38,591
	Crop Land	1) Upland Crop	37		39,841	636	928		11	6	41,458	-31,004
		2) Permanent Agri Land		59	2,167	603	8,945			16	11,789	12,073
	Water						8	5,787		2	5,798	-2
	Other Vegetated area				2	65	358		45,312	11	45,747	-424
	Other land				18	6	21			2,247	2,291	184
Total			580,514	2,037	551,660	10,454	23,863	5,795	45,323	2,475	1,222,121	-
											1,222,121	

Forest Quality Increased
Forest Area Increased
Forest Degradation
Deforestation

Source: Forest Type Map/DOF (2017)

Table 9 Forest Change Matrix in 2005-2015 in Production Forest Area

			2015									
			Current Forest		Regeneration	Crop Land		Water	Other Vegetated area	Other land	Total	Change from 2005 to 2015
		ha	1) Natural Forest	2) Forest Plantation		1) Upland Crop	2) Permanent Agri Land					
2005	Current Forest	1) Natural Forest	75,375		3,293	637	1,358		1	7	80,672	-4,853
		2) Forest Plantation		111							111	1
	Regeneration		444	1	54,605	1,015	2,319		6	6	58,396	4,671
	Crop Land	1) Upland Crop			4,305	107	192			1	4,604	-2,763
		2) Permanent Agri Land			864	79	1,730			1	2,674	2,932
	Water							274			274	0
	Other Vegetated area								62		62	7
	Other land					4	6			226	236	6
Total			75,819	113	63,067	1,841	5,605	274	68	242	147,029	-
											147,029	

Forest Quality Increased
Forest Area Increased
Forest Degradation
Deforestation

Source: Forest Type Map/DOF (2017)

Table 10 Forest Change Matrix in 2005-2015 in outside of three Forest categories

			2015									
			Current Forest		Regeneration	Crop Land		Water	Other Vegetated area	Other land	Total	Change from 2005 to 2015
		ha	1) Natural Forest	2) Forest Plantation		1) Upland Crop	2) Permanent Agri Land					
2005	Current Forest	1) Natural Forest	262,073	14	10,662	1,470	2,238			171	276,628	-12,137
		2) Forest Plantation		3,566	9	2	165				3,742	2,114
	Regeneration		2,412	77	212,093	2,572	12,986	23		218	230,382	14,382
	Crop Land	1) Upland Crop			18,512	371	221		78	4	19,185	-14,479
		2) Permanent Agri Land	7	2,198	3,466	271	19,019			19	24,980	9,701
	Water						7	8,852		1	8,860	15
	Other Vegetated area				18	18	6		15,745		15,787	36
	Other land				4	2	39			3,890	3,935	368
Total			264,491	5,856	244,764	4,706	34,680	8,875	15,823	4,302	583,499	-
											583,499	

Forest Quality Increased
Forest Area Increased
Forest Degradation
Deforestation

Source: Forest Type Map/DOF (2017)

Table 11 Historical forest change by 3 Forest categories in 2005-2015

Forest Categories (ha)	Deforestation	%	Forest Degradation	%	Forest Area Increased	%	Forest Quality Increased	%
Conservation Forest	52	0%	57	0%	0	0%	28	0%
Protection Forest	22,950	48%	21,419	60%	42,123	59%	7,565	72%
Production Forest	5,349.3	11%	3,293.4	9%	5,168.4	7%	445.0	4%
Total	28,351.4	59%	24,769.7	70%	47,291.4	66%	8,038.8	76%
Outside 3 FCs	19,845.4	41%	10,670.8	30%	24,205.2	34%	2,489.5	24%

Source: Forest Type Map/DOF (2017)

The forest changes by forest categories are summarized in following table and figure. The deforestation generally occurred in Protection Forest, Production Forest and outside area of 3 forest categories (**Table 11**). In particularly, largest deforestation

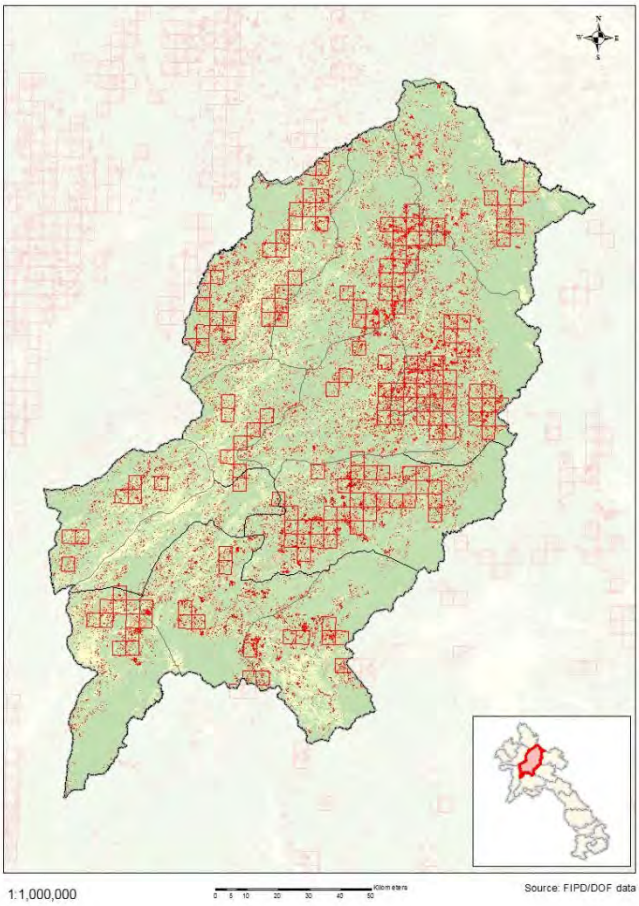
took place in **Protection Forest Area** which has reached 48% of deforestation in the province and 22,950 ha was lost in 2005-2015. Second largest deforestation took place in **Area of outside 3 forest categories** which has reached 41% of deforestation and 19,845 ha was lost in 2005- 2015. During this period, croplands including upland crop and permanent agricultural land significantly affect forest change in terms of its area and quality, Therefore, agricultural land use for upland crop and permanent agriculture is a main driver of deforestation and forest degradation in the area.

Under these circumstances, **Protection Forest Area** and **Area of outside 3 forest categories** will be a priority area for Provincial REDD+ Action Plan (PRAP) of Luang Prabang Province. It can contribute to mitigate emission of GHG from deforestation and forest degradation, as well as for sustainable forest management and socio-economic development in the province.

3.2. Overview of drivers of deforestation and Forest Degradation

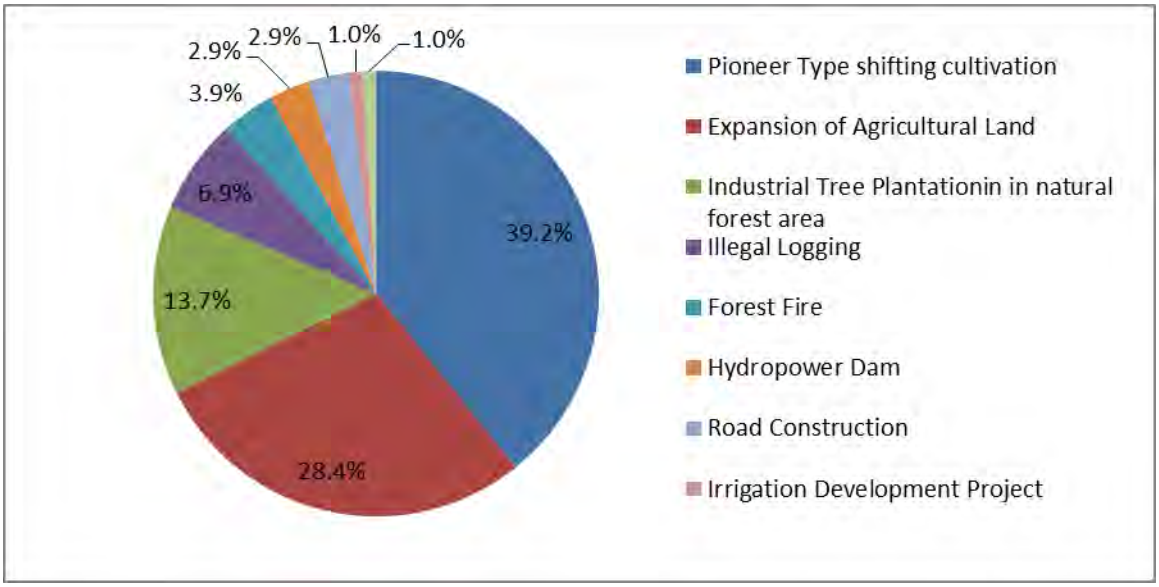
In order to identify of drivers of deforestation and forest degradations, consultation meetings are organized in 2016 and 2017. Prior to the consultation, Hansen global forest change data 2010-2014 (forest loss data) in each district of Luang Prabang was prepared as a reference of spatial distribution of deforestation. This data helps participant to facilitate the discussion on identification of deforestation hot spot and its driver and underlying causes in the consultation process.

Figure 6 Tree Cover Loss in Luang Prabang Province 2010-2014



The main driver of deforestation is agricultural activities such as pioneer type shifting cultivation and expansion of agricultural land. Infrastructure development including road and hydropower, and mining were listed as other deforestation drivers. Industrial tree plantation in natural forest area, illegal logging, and forest fire were listed as drivers of forest degradation. Figure 7 provides a description of the prioritization of the main drivers and forest degradation at the district level, as developed in the district level consultations.

Figure 7 Prioritization of main drivers



Note: percentage is calculated based on aggregated number of responses of drivers identified in each hotspots through consultation process.

3.2.1. Deforestation: Pioneering Shifting Cultivation and Expansion of Agricultural Land

Agricultural activities, primarily pioneering shifting cultivation and expansion of agricultural land, are identified as a main driver of deforestation in PRAP consultation process in all districts and village clusters. According to the most recent forest change data in 2005-2015, permanent agricultural areas including rice paddy, other agriculture and agriculture plantation are rapidly expanding from 39,442 ha in 2005 to 64,155 in 2015. 14,892 ha of upland crop area and 32,675 ha of permanent agricultural areas were converted from forested area including regeneration vegetation in 2005-2015. Official statistics also indicates that agro-forestry gross domestic product increased by 3.47% on average per year (socio-economic data 2011-2015), with substantial increases in agricultural land.

These figures indicate that agricultural cash crop production is rapidly increased instead of upland rice production and lead to deforestation in the province.

Maize, job's tears, sesame, beans and vegetables is a major cash crop in the province. Maize is the most abundant cash-crop that has grown extensively since the introduction of contract farming systems. At present, the total area in the province for growing maize stands at 20,160 ha, compared to job's tears 9,430 ha, sesame 9,090 ha, beans 2,901 ha and vegetables 12,198 ha. Provincial SEDPs encourage agricultural sector to increase the total amount of production for cash crop with expanding the area for cash crop in the province. Therefore, the pressure of agricultural expansion into forests is projected to increase in the future.

3.2.2. Deforestation: Infrastructure development: Hydropower

According to the provincial government and under its 7th 5-year socio-economic development plan, until 2020 there will be total 9 hydropower dam projects that have been designed to generate around 733.2 MW of power for the national grid. Along with the planned inundated area, construction road, transmission line and resettlement area are required land use change that may lead to deforestation in and surrounding area of hydropower dam. Logging operations are permitted in inundated area of hydropower dam. However, it was reported that business operators expanded logging operation beyond the permitted area in some cases, Although it remains a challenge to quantify the full extent of the impacts of hydropower on forest areas, it was assumed that illegal logs in Luang Prabang are mainly came from overcutting in the dam project areas.

3.2.3. Deforestation: Mining

In the past five years, a total of 657,000 cubic meters of mountain rock have been produced and the materials supplied for local construction. There is a total of 22 businesses engaged in extracting this material in Luang Prabang province. In the early 2015, the central government has granted a concession for gold mining in "Phapon village area", Pak Ou district, Luang Prabang province, on approximately 6 square kilometers of land.

3.2.4. Deforestation: Infrastructure development

With regard to infrastructure development, the province has developed 4,061 km of road network in 2015 and tends to increase in the coming years.

While the development of infrastructure, especially roads, electricity lines, irrigation systems, urban expansion, and railway construction leads to limited deforestation, the largest impact is the role of improved infrastructure as an underlying cause of deforestation by improving access to previously remote places. However, improving connectivity to markets and urban centers is an important element of the country´s development strategy, and the government has invested in improving road networks and transportation in the country to support rural socio-economic development. Logging companies will receive a logging quota in exchange for agreeing to build a road, and there have been various instances where companies have cut more forest than agreed upon with the central government. The lack of effective control, law enforcement and monitoring has often led

to increased unauthorized and unplanned clearing of forested land due to infrastructure development. Direct and indirect deforestation and forest degradation is anticipated together with future planned infrastructure projects.

3.2.5. Forest Degradation: Industrial Tree Planation in natural forest area

Lao government have expressly promoted the development and management of tree plantations in order to reduce pressure on natural forest, supply wood processing factories and provided villages with an alternative livelihood option to shifting cultivation. According to the provincial agricultural statistic, Teak plantation covers 27,481 ha, rubber 18,191 ha and oil tree 7,241 ha in the province in 2015[15].

Tree plantation can contribute to supply wood resource with less impact for natural forest as well as to ensure carbon sequestration in the context of REDD+. On the other hand, in some cases, inappropriate tree plantation took place with clearing natural forest vegetation in the province despite that forestry law clearly states that forest plantation areas should be delineated at degraded forestland and bare forestland.

3.2.6. Forest Degradation: Illegal logging

The full extent of illegal logging in Luang Prabang province is unclear, but it is acknowledged as having a major impact in forest landscapes in the province. In the district level consultations, every district identified illegal logging as one of the main activities driving forest degradation in their district, and as a prioritized activity that needs to be addressed within the context of PRAP.

Illegal logging is particularly arisen in the districts where infrastructure projects approved by the government as well as districts that have borders with neighboring countries, where a thriving timber market and depletion of natural forest have driven up prices for native timber species.

3.2.7. Forest Degradation: Forest Fire

Conversion from forest into agricultural land by slashing and burning of forest vegetation is popular land use practice in upland area of Northern Laos. Forest fires in the province are primarily caused by the agricultural practices. Burning understory of teak plantation area and livestock areas, and to a lesser extent by traditional hunting practices are also the causes of forest fire. The majority of consulted districts further stated that forest fires from slash-and burn agricultural practices have a major impact on forest resources in their districts. To date, instructions have been implemented for fire control, by issuing warnings prior to farming season in districts and villages with a high fire risk. However those efforts are limited due to lack of resources and poor fire management practices. There is a need for further educational efforts and trainings targeted to promote forest fire prevention practices and fire management in all districts.

3.3. Agents of deforestation and forest degradation

Deforestation and forest degradation in Luang Prabang province can be linked to specific agents, p drivers of deforestation and underlying causes.

Small-scale farmers and villagers

Small-scale farmers and villagers are main actors engaged in pioneering shifting cultivation and expanding agriculture for both subsistence and commercial purposes. They further use forest resources for local construction materials, firewood, and for sale in the region.

Infrastructure developers

Infrastructure development activities including, but not limited to, hydropower dam, road building, mining, irrigation construction are planned and operated along with national, provincial and/or district plans authorized by government. These activities lead to planned and unplanned deforestation and needs to manage forest recourse to meet compliance requirement of law and regulation.

Commercial businesses

Commercial businesses have contributed to increase cash crop and other industrial tree plantations such as rubber and oil trees. Those investors can obtain land through long-term state land leases, concession contracts and contract farming. Concession refers to a type of investment whereby state land is transferred to companies who are responsible for all their investment and cultivation/construction. Large concessions are usually the preferred form of investment since it maximizes company control over the land. Contract farming is an investment scheme that provides farmers with critical investments in exchange for a guaranteed share of the profits or harvest. Unlike concession farming, farmers retain rights to their land. Contract farming schemes for cash crops have been developed in Luang Prabang in the early 2000s since the government promoted “2+3” contract farming[16] as a better approach to FDI in the agricultural sector that would ensure local level benefits.. Commercial logging companies from neighboring countries are also active in the province, and significant amounts of the illegally harvested timber in the province are taken across the border back to their countries.

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[15] According to the land and forest cover change data in table 4, forest plantation has 8,005 ha in the province and there has a gap between this official statistic and this figure derived from the map.

[16] The land owner provides land and labour and the investor offers funding, materials and market.

3.4. Underlying causes of deforestation and forest degradation

3.4.1. Demographic Factors

Luang Prabang has a growing population, increasing by an average rate of 2.4% per annum (2005) to a total population of 454,095 people in 2015, even though Pakseng and Xienngun district tend to decrease population and rate of increment is vary in each district. The increasing population puts pressure on forest resources in the province. Given the limited appropriate terrain for lowland agriculture in the province, upland cultivation will remain an important crop for ensuring food security and cash income in the province. Increasing population leads to unsustainable land use, particularly shifting cultivation and the over-harvesting of forest products resulting in deforestation and forest degradation. With the increasing competition of agricultural with population growth, fallow periods are becoming shorter, leading to lower productivity, increased soil degradation and the need to clear more space for subsistence and cash crops.

3.4.2. Economic Factors

Poverty is underlying cause for deforestation and forest degradation. Laos is still a Least Developed Country, where more than 80% of the economically active population directly depends on the agriculture and natural resources. Substantial efforts have been made in reducing poverty in the province, with a target of poor households set at not more than 4% of the total households of the province by 2015. Poverty indicators have declined in the province in recent years, largely due to promoting income generating activities, especially in the agriculture and tourism sectors.

The lack of alternative livelihood options has been identified as major underlying causes of deforestation and degradation. Many people are clearing forest resources to maintain their livelihood and to ensure food security.

Increased market demand of agricultural product leads to expand agricultural land in the province. High demand from other countries in the region, especially Vietnam and China, has a strong influence on land use activities and production of in-demand commodities in Luang Prabang province. Since the contract farming systems have been in place in early 2000, farmers are planting less upland rice and investing more in cash crops and industrial tree plantation export largely to Vietnam and China or domestic markets. Rapid expansion of cash crop and industrial tree plantation leads to deforestation and forest degradation. This trend has a potential risk of vulnerability on food security if market prices drastically drop. The importance of these activities for the province is evident in the provincial SEDP and sectoral plans, which emphasize the importance of these industries for economic growth and poverty reduction. While strong regional markets will continue to drive the production of key export commodities in Luang Prabang in the future.

Increased regional demand for timber is also underlying causes of illegal logging largely driven by the Vietnamese and Chinese export markets. Weak forest governance and law enforcement allowed the expansion of illegal activities in the forest sector in Lao PDR.

3.4.3. Policy and Institutional Factors

Ineffective land use planning in the province leads to extensive and unplanned deforestation, either through the complete absence of plans or through the lack of compliance with designed plans. Uncertainty of boundary demarcation, especially in forest area leads unclear rules in verification of the legality of the proposed plan and allows the business/projects in overexploitation of natural resources. Monitoring and evaluating the overall compliance with land use plans is also extremely weak at village and district level.

Weak law enforcement has led to widespread clearing of forests for other land use purposes and illegal logging. Promoting cash crop, industrial trees plantation and hydropower dam, which was listed as key drivers of deforestation, was strongly supported in line with Provincial and District SEDPs aiming to the rapid expansion of economic growth in Luang Prabang Province. Nevertheless, these policies are important for the country to meet its development targets and support the provincial and district economy, it was reported that cash crop and industrial tree plantation was expanded into forested area and companies harvested timber exceeding their allocated quotas, in where infrastructure was developed especially for inundated area of hydropower, road side and transmission lines. Efforts are made to ensure those operations in complying with their agreements, however, land concession and contract farming granting process are sometime not sufficiently comply with existing regulations. Provincial and district staff does not have sufficient human and financial capacity and resources to complete technical assessment.

Unclear land use rights and land allocation remains a challenge for addressing deforestation and forest degradation in the Province. Since 1990's the province promotes land forest allocation program and provide land titling for individual, families and groups in rural area. In the past 5 years, land certification has been issued for 68,730 plots of land in 762 villages in 12 Districts. However, land title was mainly issued only for building land, lowland agricultural land including paddy and forest plantation area along the road. Due to lack of appropriate land allocation for agricultural and forest area in mountainous sloping area, individuals, families and communities do not have incentive for a long-term invest in sustainable land use activities.

Extension services in rural development in the province, district and kumban level play an important role in preliminary

assessment for issuing land concession and contract farming. Extension support services also provide technical support on agricultural and forestry practices to scale up and disseminate sustainable land management practices, but also to provide marketing support to help villagers better position themselves in key value chains and enhance their negotiation power. However, those services are limited due to lack of capacity and budget. .

It is evident that improved productivity and yields will also be supported by improved land use planning and land allocation, , as these processes can help ensure that activities are implemented in suitable areas and comply with set regulations and approved practices.

3.5. Assessment of the major drivers and possible intervention to REDD+

Based on the analysis of drivers of deforestation and forest degradation as in Section 3.2 and 3.4, the following drivers, underlying causes and possible interventions are prioritized in the **Table 12**.

Table 12 Assessment of the major drivers, underlying causes and possible interventions

	Drivers	Underlying Causes	Possible Interventions
Deforestation			
1	Pioneering Shifting Cultivation and Expansion of Agricultural Land	・ Weak coordination between spatial land use planning and SEDP targets lead to ineffective land use plans.	・ Improved Provincial and District Land Use Planning for well-coordinated integration between land use sectors and forestry sector ・ Forest landscape management in protection forest area ・ Village forest management to ensure protection, plantation and regeneration of village forest area, as well as to control local land use over forest area
		・ Unclear zoning of degradation area for agricultural land use leads to increased deforestation. ・ Increased market demand of agricultural product lead to agricultural expansion	・ Standardization of methods and procedures to identify “degraded areas” Re-delineation/Re-confirmation of 3 forest categories (3FCs) at National, Provincial and District level ・ Forest landscape management in protection forest area
		・ Weak monitoring and law enforcement of agricultural land concession and contract farming	・ Review of the agricultural concession contracts improve the contract to ensure no encroachment to forest areas in accordance with the Forestry Law
		・ Slow land allocation and unclear land use rights leads to less incentive for long-term use of permanent agricultural land.	・ Village Forest Management to ensure protection, plantation and regeneration of village forest area, as well as to control local land use over forest area ・ Land registration and land titling
		・ Increasing soil and land degradation by cash crop production is leading to lower productivity which leads to further encroachment into forest area	・ Sustainable cash crop production system in upland
		・ Poverty, population increase and limited livelihood options lead to agricultural expansion into the forest area	・ Alternative livelihood options in upland
2	Infrastructure development: Hydropower	・ Logging is conducted beyond the planned inundated area of hydropower dam. Weak governance and law enforcement leads to unplanned forest degradation. ・ It was unclear whether the bio-diversity conservation and watershed forest management including off-set, forest rehabilitation and afforestation in the hydropower concession agreement are implemented and monitored.	・ Ensure planning and implementation of Environmental and Social Management and Monitoring Plan (ESMMP) part of ESIA and Concession Agreement. ・ Strengthen monitoring for logging over inundated area. ・ Introduction of PFES payment for forest protection and management activities in the water catchment areas.
3	Mining	・ It was unclear whether the bio-diversity conservation and forest management including off-set, forest rehabilitation and afforestation in the mining concession agreement are implemented and monitored	・ Ensure planning and implementation of Environmental and Social Management and Monitoring Plan (ESMMP) part of ESIA and Concession Agreement.
4	Infrastructure development: irrigation and road construction	・ Weak coordination between spatial land use planning SEDP targets lead to ineffective land use plans, monitoring and evaluation ・ Unclear zoning of totally protected zone (TPZ) of protection forest leads to further encroachment into forest area ・ Logging is conducted beyond the planned road area for payment of	・ Improved Provincial and District Land Use Planning for well-coordinated integration between infrastructure sectors (road and irrigation) and forestry sector ・ Forest landscape management in protection forest area ・ Strengthen compliance, enforcement, monitoring and sanction

		road construction	mechanism in case of breach
Forest Degradation			
5	Industrial Tree Planation in natural forest area	・ Unclear zoning of degradation area for tree plantation leads to further encroachment into forest area	・ Standardization of methods and procedures to identify “degraded areas” Re-delineation/Re-confirmation of 3 forest categories (3FCs) at National, Provincial and District level ・ Forest landscape management in protection forest area
		・ Weak law enforcement and monitoring for tree plantation. Tree plantation concessions are granted without required documents	・ Continue PM Order 13 on Suspension of concession for rubber and eucalyptus until the area for concession area defined and institutional capacity developed.
6	Illegal logging	・ Weak governance and law enforcement for illegal logging	・ Awareness raising and dissemination of forestry related policies, laws and regulations ・ Law enforcement of logging quotas ・ Enforcement of PM order no.15, including closing of illegal sawmills and factories ・ Develop monitoring system for illegal logging
		・ Increased regional demand for logs and unfinished timber	・ Develop and modernize value added processing of forest products
7	Forest Fire	・ Slash-and burn cultivation practices are a leading cause of uncontrolled fires ・ Burn the forest for hunting ・ Accidental fires ・ Natural disaster	・ Awareness raising campaign on forest fire prevention ・ Developing forest fire monitoring system ・ Enhance the capacity for forest fire fighting management

4. DESCRIPTION OF POLICIES AND MEASURES (PAMS)

To address the aforementioned drivers of deforestation and forest degradation and to promote sustainable forest management, cross cutting and sector-based policies and measures (PAMs) have been developed thorough consultation process at Provincial, District and Village Cluster level. 1) Integrated Land Management, 2) Forest Management and 3) Social (Livelihood) Management PAMs have been identified to achieve goal and management objectives of PRAP.

4.1. PRAP Goal

To contribute to the climate change mitigation through REDD+ activities while maintaining and enhancing the ecosystem services and biodiversity of the forests, enhancing the climate resilient development, and ensuring the secure livelihoods of the people.

4.2. PRAP Management Objectives (MOs)

1. Reduce deforestation in existing forested area
2. Reduce forest degradation in existing forested area
3. Promotion of afforestation and forest regeneration in degraded forest area
4. Promotion of sustainable plantation management in degraded forest area
5. Increase ecosystem resilience and enhance livelihoods of peoples

4.3. Description of PAMs

Component 1: Integrated Land Management

As described in the section 3.2, deforestation was derived from other land use activities including agriculture, mining, infrastructure including hydropower and road construction, therefore, strengthening coordination mechanism among land use sectors are critical to reduce deforestation and forest degradation in existing forested area of the Province. Integrated Land Management PAMs, that are relevant to the entire land use sector, have been organized into five core activities: i) Improved Provincial Land Use Planning, ii) Participatory Land Use Planning at Village Level, iii) Land registration and land titling, iv) Law enforcement and governance of land concession and contract farming on cash crop and tree plantation, and v) Law enforcement and governance of infrastructure projects.

Sub-Component 1: Improved Provincial Land Use Planning [MOs:1]

Improved land use planning at provincial and district level is a priority target in provincial SEDPs and land sector 5 year plan. The planning process requires well-coordinated integration between land use sectors and forestry sector to ensure how and where activities of each sector concerned should take place to avoid deforestation. 3 forest categories and its zones are revised and agreed with other sectors, the result will integrate into provincial and land use classification and planning.

Sub-Component 2: Participatory Land Use Planning at Village Level [MOs:1.2]

Technical and financial assistant are provided to implement participatory land use planning (PLUP) at village level in order to control village land use over forested area.

Sub-Component 3: Agriculture and forest land registration and land titling [MOs:1]

Promoting land registration and land titling for agriculture and forest land is also a priority target in provincial SEDPs and land sector 5 year plan. Capacity development of government staff and awareness raising campaign for dissemination of land right is provided and land registration and land titling will be implemented. By clarifying land use rights and allocating land, land owners will have a greater incentive to invest in more sustainable longer-term land use activities and avoid excessive land use over forest area.

Sub-Component 4: Law enforcement and governance of land concession and contract farming on cash crop and tree plantation [MOs:1]

Inappropriate concession process on cash crop and tree plantation without enough social and environmental safeguard consideration leads to illegal clearing of forested area. Human capacity and financial resources are insufficient to take appropriate measure in preliminary survey and issuing process. As immediate actions, detailed assessment of the current agricultural concession contracts and improve the contract to ensure no encroachment to forest areas in accordance with the Forestry Law. Awareness raising and training in managing and monitoring on agricultural concession and contract farming need to be provided for government officials based on the revised documents and demonstrate land concession and contract farming management in Luang Prabang Province.

Sub-Component 5: Law enforcement and governance of Infrastructure Projects [MOs:1]

Thought the consultation process of PRAP, inappropriate concession of land development without enough social and environmental safeguard consideration leads to illegal clearing of forested area. Even though legal basis to avoid negative impact on social and natural environment has been taken place, capacity and resources for formulation and implementation of Environment and Social Management and Monitoring Plan (ESMMP) are still insufficient to manage forest and forest

resources as appropriate. Those planning and implementation are mainly initiated by Environmental division of PONRE, however PAFO should be involved in order to strengthen the planning, implementation and monitoring of forest management under ESMMP.

Awareness raising and training on law enforcement for government officials in social and environmental impact assessment, ESMM planning, consultation process and grievance mechanism are provided to ensure compliance with law on infrastructure development and to avoid over exploitation of the forest. Once the capacity development is conducted, pilot activity of ESMMP formulation and implementation shall be conducted in the planned hydropower project.

Component 1: Integrated Land Management

	Policy and Measures (PAMs)	Scale	Targets
Sub-Component 1: Improved Provincial and District Land Use Planning *[MOs:1.2]*			
Activity 1.1	Institutional set up land coordination mechanism involving forestry sector	Province-wide	Provincial coordination committee of land use planning established
Activity 1.2	Provision of technical support to integration of the 3FCs into provincial land use classification, land use planning and the provincial SEDPs		6 training courses have been carried out. Government staff was able to independently implement land use planning
Activity 1.3	Procurement of tools and equipment to support the improved land use planning		Necessary equipment to implement improved land use planning has been procured and used
Activity 1.4	Implementation of improved land use planning at provincial and district level		12 District Land use classification and Plan completed
Sub-Component 2: Participatory Land Use Planning at Village Level *[MOs:1.2]*			
Activity 2.1	Training for capacity building of government staff on Participatory Land Use Planning (PLUP)	Province-wide	6 trainings implemented on PLUP. Government staff was able to independently implement PLUP
Activity 2.2	Implementation of PLUP at village level		PLUP was developed in 180 villages (3 village*5 years*12 districts)
Sub-Component 3: Agriculture and forest land registration and land titling *[MOs:1.2]*			
Activity 3.1	Training for capacity building of government staff on land registration and land titling process	Province-wide	6 training courses have been carried out. Government staff was able to independently implement land registration and land titling
Activity 3.2	Implementation of agriculture and forest land registration and land titling with awareness raising and dissemination of land law, inheritance law, family law, other land related laws and		Land of 100 villages been successfully registered & been titled to respective households
Sub-Component 4: Law enforcement and governance of land concession and contract farming on cash crop and tree plantation *[MOs:1]*			
Activity 4.1	Detailed assessment of current land concession and contract farming on cash crop and tree plantation in the province	Province-wide	Detailed review on of current land concession and contract farming including policies, laws and capacities is available. Gaps have been identified and approaches on how to close gaps are laid out.
Activity 4.2	Training for capacity building of government staff to manage the approval process and monitoring on land concession and contract farming		6 training courses have been carried out. Government staff was able to independently implement
Activity 4.3	Management and monitoring on land concession and contract farming in the pilot site of Luang Prabang Province		Monitoring Plan was formulated and implemented in the pilot area
Sub-Component 5: Law enforcement and governance of infrastructure projects *[MOs:1]*			
Activity 5.1	Awareness raising for provincial and district government staff on forest law enforcement, governance and REDD+	Province-wide	26 awareness raising campaigns have been carried out for provincial and district government staff
Activity 5.2	Training for capacity building on Environment and Social Management and Monitoring Plan (ESMMP) of the infrastructure projects		26 training courses have been carried out. Government staff was able to independently design Environment and Social Management and Monitoring Plan (ESMMP) of the infrastructure projects
Activity 5.3	Training for capacity building of participatory consultation process and grievance mechanism of the project		26 training courses have been carried out. Government staff was able to independently carry out adequate consultation process and grievance mechanism

Activity 5.4	Piloting the formulation and implementation of Environment and Social Management and Monitoring Plan (ESMMP) in selected Hydropower project		ESMMP was formulated and implemented in pilot hydropower project.

Component 2: Forest Management

Ensuring sustainable forest management was proposed as the critical policies and measures to achieve the goal and management objectives of PRAP. Forest sector PAMs is the largest component of PAMs under PRAP that includes i) Re-delineation/Re-confirmation of 3 forest categories (3FCs) at National, Provincial and District level with forest landscape approach ii) Forest landscape management in Protection Forest Area, iii) Village Forest Management, iv) Forest regeneration and afforestation, v) Forest fire prevention, vi) Sustainable teak plantation management and improvement of value chain, vii) Law enforcement and governance for illegal logging, viii) Payment for Forest Ecosystem Services. Due to its size and high deforestation rate, Protection Forest Area and Area of outside 3 forest categories will be a priority area for Forest Management PAMs..

Sub-Component 1: Re-delineation/Re-confirmation of 3 forest categories (3FCs) at National, Provincial and District level with forest landscape approach [MOs: 1,2,3,4]

Sustainable forest management is promoted based on the 3 Forest Categories (3FCs) in Luang Prabang. However other land use sectors including agriculture, hydropower, and mining are widely planned and operated within the 3FCs and these activities are main drivers of deforestation in the province. Unclear zoning of 3 FCs especially Protection Forest Area, is one of the main obstacles for integrated special planning at province and district level. In 2015, the National Assembly has requested the relevant ministries to review and re-delineate the 3 Forest Categories nationwide as the current classification does not represent reality on the ground. Therefore 1) institutional setup of each 3FCs for ensuring responsible organization and mandate for 3FCs management, and 2) reviewing/re-delineation of 3FC in consultation with other land use sectors need to be supported.

Geographical information on 3 forest categories, especially Protection Forest Area, is inconsistent for each department at central, provincial and district level. This is one of the obstacles to promote integrated land use planning and forest management, as well as to coordinate with other land use sectors in the process of planning. Forest data management and monitoring section in PAFO is set up and database is established to store the all official spatial data and forest information of the province. Capacity development and facility/equipment for forest information management need to be supported.

Sub-Component 2: Forest landscape management in protection forest area [MOs:1,2,3,4]

Strengthening protection forest management is one of the priority activities in PAMs. Protection Forest Area (PTA) covers 61.4% of total land, as well as 60.4% of current forest of Luang Prabang Province and wide range of activity including agriculture, infrastructure development are planned and operated. Therefore, careful integration is required to ensure how and where those activities take place to mitigate deforestation. Forest landscape management shall apply for coordination and integration across sectors in planning process. Inter-sectoral management committee for Protection Forest Area needs to set up and forest landscape management will be demonstrated in priority PTA.

Sub-Component 3: Village forest management [MOs:1,2,3,4,5]

The development of Village Forestry in Laos is embedded in legislation on land and natural resource management. The government promotes village forest and land use planning, management and allocation, with the aim of promoting community-based management of natural resources including forestland. Most of deforestation and degradation drivers are often associated with local land and forest use, therefore, promoting integrated village based forest management is priority PAMs in the context of PRAP. Luang Prabang Province was a pilot province for land allocation programme since the early 1990s and SIDA, JICA and SDC used to support PLUP and village forest management including livelihoods development activities in the last few decades. Village Forest Management Project is expected to launch in Phonsay District since 2018 supported by kfw. This initiative will provide appropriate models and approaches to strengthen village forest management and contribute to climate change mitigation based on the past experience and lesson learnt of village forest management in the province.

Sub-Component 4: Afforestation and forest regeneration [MOs:3]

Promotion of afforestation and forest regeneration in degraded forest area is clearly indicated as a priority activity in Provincial SEDPs. However, unclear zoning of degradation area for tree plantation leads to further encroachment into forest area In order to establish an enabling environment to implement and scale up of afforestation and forest regeneration, PRAP will support to undertake feasibility assessment of potential forest restoration area. PRAP also support direct investment for afforestation and forest regeneration in degraded lands.

Sub-Component 5: Sustainable teak plantation management and improvement of value chain [MOs:4,5]

Teak plantation was increasing rapidly in the 1990's as revised government policies provided security of land tenure and encouraged the teak plantation as an alternative to shifting cultivation. Improving the teak sector provides great potential for rural livelihood improvement. Since 2008, the teak sector in Luang Prabang has been supported by the Luang Prabang Teak Program (LPTP). To boost grower incomes, LPTP encouraged the formation of grower groups that would access higher value certified markets. The Forest Stewardship Council (FSC) certification model was initially selected as technical and operational standard of the plantation. The LPTP has led to remarkable achievements in the improved management of teak plantations and better environmental protection. The program has increased awareness and knowledge among farmers and governmental officials regarding forest and environmental management, FSC certification, teak markets and wood sales. This model will

disseminate into other districts by provision of technical and financial support. In addition, technical support is provided to improve wood processing and to promote small scale enterprises for value addition of teak products.

Sub-Component 6: Law enforcement and governance for illegal logging [MOs: 2]

Illegal logging is one of the main drivers of forest degradation. Concerns raised in consultation process, logging volume exceeded allowed quota in some projects, in particularly, in planned inundated area of hydropower project. In addition, unplanned logging was conducted beyond the planned road area for payment of road construction. The Prime Minister's Order No. 15 was issued on May 2016 and high-level and multi-sectoral provincial task force was established to strengthen the law enforcement for timber harvesting The specific activities listed in PAMs, which are in line with POFI 5 year plan, support for capacity development on inspection and monitoring for sound wood harvesting, processing and trading to the local authority and village forest patrol team to increase compliance with laws and regulation on forest management.

Sub-Component 7: Forest fire prevention [MOs:2]

Based on the result of consultation in province and district, forest fire is one of the key activities for mitigation of forest degradation. At the end of the dry season when the slash and burn cultivation begins, awareness raising campaign of forest fire prevention and training on forest break is supported at focal area. Village forest patrolling is indispensable for its prevention. Awareness raising campaign on forest fire prevention and developing forest fire monitoring system need to be supported.

Sub-Component 8: Payment for Forest Ecosystem Services [MOs:1,2,3,4]

Sustainable funding in forestry sector is one of the critical issues to overcome the budgetary obstacles in Laos including Luang Prabang Province. Policy arrangement for sustainable funding on forest management has already been in place. Prime Minster Decree 333 on Protection Forest states that forest service users such as hydropower project and eco-tourism company should contribute the fund for management to the Forest and Forest Resource Development Fund. In advanced cases of Payment for Forest Ecosystem Services (PFES), some entities of hydropower dam and water supply has contributed their part of revenue for watershed management. However, there are only a few such cases, and most of hydropower, water supply and eco-tourism projects in Luang Prabang Province seem not to be planned and involved in PFES. Feasibility study is conducted for introducing PFES in Luang Prabang and promote pilot activities on PFES in cooperated with forest service uses such as Water Supply Company, hydropower dam company, eco-tourism.

Component 2: Forest Management

	Policy and Measures (PAMs)	Scale	Targets
Sub-Component 1: Re-delineation/Re-confirmation of 3 forest categories (3FCs) at National, Provincial and District level with forest landscape approach *[MOs:1.2]*			
Activity 1.1	Institutional set up inter-sectoral management committee for 3FCs	Province-wide	Management committee of 24 Conservation, Protection and Production at National, Provincial and District level established
Activity 1.2	Detailed assessment of land cover, concession area, watershed, biodiversity corridor and other forest ecosystem services within and surrounding area of 3FCs		An assessment has been conducted for 24 Conservation, Protection and Production at National, Provincial and District level
Activity 1.3	Mapping land cover/use and landscape zones in 3FCs based on the result of assessment Activity 1.2		Landscape zoning map of 24 Conservation, Protection and Production at National, Provincial and District level developed
Activity 1.4	Consultation meeting involving concerned sectors in the Province and Districts for agreement		Boundary of 24 Conservation, Protection and Production at National, Provincial and District level was agreed.
Activity 1.5	Procurement of office equipment, software and GPS to develop information management on forest related information including 3FCs and official documents		Necessary equipment provided to information management section in PAFO and DAFO
Activity 1.6	Provision of technical support for data storage and management		Provincial and District government staff has managed forest information of Luang Prabang Province
Sub-Component 2: Forest landscape management in Protection Forest Area *[MOs:1,2,3,4]*			
Activity 2.1	Piloting forest landscape management in priority PTA	Protection Forest Area	Landscape level protection forest management plan was developed and implementation and monitoring was promoted at 3 Protection Forest Area within Luang Prabang
Activity 2.2	Implementation and scaling up of forest landscape management in each PTA	Protection Forest Area	Landscape level protection forest management plan was developed and implementation and monitoring was promoted at remaining 18 Protection Forest Area within Luang Prabang
Sub-Component 3: Village Forest Management *[MOs:1,2,3,4,5]*			
Activity 3.1	Design and piloting sustainable finance mechanisms for Village Forest Management	Province-wide	Village Forest Management model in sustainable finance mechanisms was developed.
Activity 3.2	Design and piloting livelihoods options through village based forestry activities.	Province-wide	Livelihood options through village based forestry activities were developed.
Activity 3.3	Design and piloting value addition of village forest products.	Province-wide	Models of value additional village forest products were established.
Activity 3.4	Design and piloting village forest management to maintain and improve Ecosystem services, biodiversity values, watershed services and carbon stocks through village based forestry activities.	Province-wide	Models of village based forestry activities to maintain and improve Ecosystem services, biodiversity values, watershed services and carbon stocks were proposed.
Activity 3.5	Implementation and scaling up of VFI Models	Province-wide	VFM plans was developed and implemented in 50 villages
Sub-Component 4: Forest regeneration and afforestation *[MOs:3]*			
Activity 4.1	Detailed assessment of potential forest restoration area in degraded lands	3 Forest Categories	Potential area for afforestation and forest regeneration was identified to avoid deforestation derived from inappropriate public and private plantation
Activity 4.2	Implementation of forest regeneration in degraded forest area	3 Forest Categories	Forest regeneration activities established on an additional 2,000 ha in in degraded forest land
Activity 4.3	Provision of up-front financing to villagers for implementation of afforestation activity in degraded forest area	6,250 ha in Protection Forest Area	Up-front finance provided to local communities in order to support the implementation of afforestation activities in 6,250 ha of degraded forest land

Sub-Component 5: Forest fire prevention *[MOs:2]*			
Activity 5.1	Awareness raising for forest fire prevention at village level	Province-wide	8 awareness raising campaigns in each district have been carried out
Activity 5.2	Develop the system for monitoring forest fires and piloting the system in selected area		Forest monitoring system for forest fire was designed.
Activity 5.3	Implementation of forest monitoring for forest fire prevention		Forest monitoring system for forest fire was implemented.
Sub-Component 6: Sustainable teak plantation management and improvement of value chain *[MOs:4,5]*			
Activity 6.1	Detailed assessment of potential teak plantation area for scaling up sustainable forest management certification	10 Districts	Potential area for promoting sustainable teak plantation certification was identified.
Activity 6.2	Provision of technical support to strengthen farmers group and its network		Farmer groups were organized for teak plantation management in 40 villages.
Activity 6.3	Provision of technical support to implement standard operation on teak plantation		Teak plantation management was conducted along with standard operation in 40 villages.
Activity 6.4	Provision of technical support to develop and modernize value added processing of forest products		Processing of forest products was improved.
Activity 6.5	Provision of technical support to promote small scale enterprises for value addition of teak products		Small scale enterprises by using teak were developed in 40 villages.
Activity 6.6	Procurement of equipment and materials for promoting sustainable teak plantation management and improvement of value chain		Provincial and district government staff have sufficient equipment to conduct sustainable teak plantation management
Sub-Component 7: Law enforcement and governance for illegal logging *[MOs: 2]*			
Activity 7.1	Awareness raising and dissemination of forestry related policies, laws and regulations at district and village cluster level in priority area	Province-wide	All districts have conducted awareness raising campaign in every year.
Activity 7.2	Developing monitoring system for illegal logging		New monitoring system was developed.
Activity 7.3	Training for capacity building of log inspection at check points, logging field, wood processing factory and furniture workshop		3 training courses have been carried out. Government staff was able to independently carry out logging inspection.
Activity 7.4	Monitoring and patrolling logging areas, transporting timber in the secondary and main road, waterway and critical areas		Government staff has carried out inspection of illegal logging at logging site and check points.
Activity 7.5	Inspection of wood processing factory, furniture factory, warehouse of wood and non-timber forest product		Provincial and district government staff has carried out inspection of illegal logs at factory and warehouse.
Activity 7.6	Inspection of logging over the quota permitted in reservoir area of planned hydropower dam		Provincial and district government staff has carried out inspection of logging activity for clearing inundated area of hydropower dam in compliance with the contract.
Activity 7.7	Procurement of office equipment, tablet, GPS and other necessary tools to enhance law enforcement		Provincial and district government staff have sufficient equipment to conduct inspections for controlling illegal logging
Activity 7.8	Monitoring and patrolling illegal logging in Protection Forest Areas.		Provincial and district government staff has carried out monitoring activity for patrolling illegal logging in Protection Forest areas..
Sub-Component 8: Payment for Forest Ecosystem Services *[MOs:1,2,3,4]*			
Activity 8.1	Assessment of potential PFES in Luang Prabang Province	Province-wide	Feasibility study of introducing PFES in water supply, hydropower dam and eco-tourism has been conducted in Luang Prabang Province
Activity 8.2	Promoting pilot activities on PFES in cooperated with forest service uses such as water supply company, hydropower dam company, eco-tourism, etc.	Province-wide	One pilot activity of PFES was conducted in selected area in the Province.

Component 3: Social (Livelihood) Management

Through the PRAP consultation meeting, all districts and village clusters proposed to support diversification of livelihood options to make villagers less dependent on pioneer type shifting cultivation and rotational agriculture, which is major forest degradation driver in the province. Reduction of shifting cultivation area leads to prolong fallow period and also promotes the transition from fallow to forested area. Provincial SEDPs promotes agriculture and livestock production (Model: 2 agriculture and 1 livestock or 1 livestock and 2 agriculture) and plantation of industrial crops in short-, medium- and long-terms with livestock production based on different local conditions.

Those activities should be promoted based on the agreed village land use planning to reduce pressure on forest area.

Sub-Component 1: Sustainable cash crop production system in upland [MOs:1,2,5]

Improvement of cash crop cultivation systems will be promoted by the PRAP. The activities aim to improve productivity of the main cash crops, reducing soil degradation, and diversifying incomes. In addition, provincial SEDPs promote clean and organic agriculture with environmental friendly techniques including, but not limited to, organic compost and intercropping to improve soil fertility and prevent soil erosion.

Sub-Component 2: Livestock raising and fodder production [MOs:1,2,5]

Investments in livestock raising and fodder production have been identified as an important activity to improve rural livelihoods and poverty reduction in Luang Prabang. Technical training and up-front financing to encourage farmers invest in livestock and fodder production is supported. With regard to improving livestock value chain, activities will include business training for smallholder livestock production and marketing groups to ensure commercial livestock operations including basic bookkeeping, marketing and contract farming; and the preparation of group and individual business plans. The business plans will enhance access to credit from any source.

Sub-Component 3: Development of community based ecotourism [MOs:1,2,5]

The tourism in Luang Prabang have contributed to the provincial economy and created job opportunities for urban and rural people. The Promoting tourism is a priority policy in Provincial SEDPs. Ecotourism has a potential livelihood option to achieve for sustainable community development and forest conservation. Ecotourism helps community development by providing the alternate source of income to local community, as well as provide incentive for forest conservation which bring ecological experience to travelers, conserve the ecological environment and gain economic benefit. Feasibility study for the potential of eco-tourism is conducted and pilot community based tourism is demonstrated in collaboration with private sectors.

Component 3: Social (Livelihood) Management

	Policy and Measures (PAMs)	Scale	Targets
Sub-Component 1: Sustainable cash crop production system in upland*[MOs:1,2,5]*			
Activity 1.1	Conducting research to identify best practices for sustainable cash crop production including agroforestry, NTFP and fruit tree plantation and agricultural intensification.	Province-wide	Best practice models of sustainable cash crop production were identified.
Activity 1.2	Training for capacity building of extension officers on sustainable cash crop production models and practices	Province-wide	10 training courses have been carried out. Government staff was able to independently promote sustainable cash crop production models.
Activity 1.3	Provision of up-front finance (tools, fertilizer, alternative crop seedling material) for the implementation of sustainable cash crop production practices	8,514 ha	Sustainable cash crop production models were promoted approximately one third of target cash crop area (25,542 ha) in SEDP in 2015-2020.
Activity 1.4	Development and support of agricultural cooperatives	Province-wide	Farmer cooperatives are enabled/established to act as independent entities to market and sell their goods
Sub-Component 2: Livestock raising and fodder production *[MOs:1,2,5]*			
Activity 2.1	Training for capacity building of extension officers on livestock raising techniques	Phonexay Phoukhuon	3 training courses have been carried out. Government staff was able to independently promote appropriate livestock raising techniques.
Activity 2.2	Provision of up-front finance (tools, fertilizer, alternative crop seedling material) for fodder production	4,800 ha	Improved fodder production practices were adopted on 4,800 ha
Activity 2.3	Provision of livestock & up-front finance for improving livestock production systems	4,800 households	4,800 households apply supported livestock production systems
Activity 2.4	Provision of technical support for improving credit access	Phonxay Phoukhuon	24 business training for commercial livestock operations have conducted.
Sub-Component 3: Development of community based ecotourism *[MOs:1,2,5]*			
Activity 3.1	Assessment of potential area for eco-tourism promotion	Luang Prabang Ngoi Nambak	Feasibility study of potential activities on community based eco-tourism has been conducted in 2 districts Luang Prabang Province
Activity 3.2	Training for capacity building of extension officers on community based eco-tourism	Luang Prabang Ngoi Nambak	3 trainings for community based eco-tourism have conducted.
Activity 3.3	Provision of up-front finance (sign-board, alternative livelihood development activities) for the eco-tourism promotion	Luang Prabang Ngoi Nambak	30 villages promotes the activity related to community based eco-tourism

4.4. Benefit and Risk analysis of the Policies and Measures (PAMs)

PAMs to address deforestation and degradation drives have been identified through a consultation process at provincial, district and village cluster level. In this process, especially in district and village cluster level, stakeholders have identified possible benefit and risk associated with proposed interventions and possible mitigation measure to address these risks in the local context. The below table provides an overview of non-carbon benefits and risks and mitigation measures envisaged.

4.4.1. Non-carbon Benefit associated with PAMs

	Proposed PAMs	Non-carbon Benefit (Social)	Non-carbon Benefit (Environmental)
1.	Integrated Land Management	・Clarify legal right on land and natural resources ・Secure accessibility to natural resource ・Increase local participation and express their opinion at decision making ・Ensure ownership of forest in forest management ・Create good environment for investment without social and environmental conflicts ・Secure social order	・Maintain/increase forest area and forest resource including NTFPs ・Maintain/restore biodiversity ・Maintain/increase water resource ・Reduce risk of natural disaster including flood, draught, soil erosion and land slide
2.	Forest Management	・Increase awareness for legal compliance on land and forest ・Secure long term harvesting of timber from plantation forest ・Increase timber from planted tree ・Ensure food security and income from forest resources	Ditto
3.	Social (Livelihood Development) Management	・Increase income and livelihood alternative to unsustainable land and forest use ・Poverty alleviation ・Increase soil productivity	・Less hazardous residue in nature and ecosystem and soil

4.4.2. Risk associated with PAMs and proposed mitigation measures

	Proposed PAMs	Social Risk	Environmental Risk	Mitigation Measure
1.	Integrated Land Management	・Create disagreement and social conflict over land and forest area ・Insufficient land to meet actual needs and demand in land allocation ・Continue land grabbing by business people ・Marginalized communities may be disadvantaged/excluded.	・Increase displacement of deforestation and degradation pressures	・Encourage participation of all concerned people in decision making. ・Develop and impose strict regulation for investors ・Grievance mechanism to be put in place.
2.	Forest Management	・Restriction of access to forest resource may increase poverty of poor households with high dependency on forest resources. ・Create disagreement and social conflict over forest area	・Increase displacement of deforestation and degradation pressures ・Replacement of natural forest with plantation	・Revise/amend policy, measures and regulations to align with actual local conditions ・Grievance mechanism to be put in place. ・Encourage participation of all concerned people in decision making.
3.	Social (Livelihood Development) Management	・Exclude marginalized groups from support (i.e. gender ethnicity and poor)	・New livelihood option may cause negative impact on natural environment	・Careful study are required to avoid negative impact to natural environment

		・Unstable demand and price of agricultural product		・Select appropriate livelihood option in local context

4.5. Analysis of laws, statutes and other regulatory frameworks

Amongst other international conventions, Lao PDR has signed the United Nations Framework Convention on Climate Change (UNFCCC, 1995), the Agreement on Cooperation for Sustainable Development of the Mekong River Basin (1995), the Convention on Biological Diversity (CBD, 1996), the United Nations Convention to Combat Desertification (UNCCD, 1996), the ASEAN agreement on trans-boundary haze pollution (2002), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES, 2004), and the Ramsar Convention on Wetlands (2010). Responsibility for reporting and communication on all these multilateral environmental agreements (MEAs) lies with the Ministry of Natural Resources and Environment (MoNRE).
In terms of climate change adaptation and mitigation, Lao PDR has submitted its intended nationally-determined contribution (INDC) to the UNFCCC in September 2015 covering topics from emissions reductions to reforestation efforts and increased resilience. Also, Laos through its UNFCCC Focal Point at the Department of Disaster Management and Climate Change (DDMCC) plans to submit its 3rd National Communication (NC) to the UNFCCC in 2018 and its 1st Biennial Update Report (BUR).

With regard to CITES, Laos committed to building synergies with the ASEAN Wildlife Enforce-ment Network (ASEAN WEN) to strengthen customs procedures and reduce the ongoing high volume cross-border wildlife trade. Lao WEN, a chapter of the ASEAN WEN has been instituted in Laos under the leadership of the Department of Forest Inspection (DOFI), bringing on board all law enforcement agencies responsible for forest and wildlife law enforcement and developing a coordinated strategy and activities. DOFI, which was established in 2008, is the primary agency responsible for investigation and enforcement activities under the Forestry Law 2007 No06/NA and the Wildlife and Aquatic Law 2007 No07/NA. It operates under the Terms of Reference No 1894/MAF 2012 and is directly accountable to the secretary body to the Minister, with regard to violation of forest, wildlife and aquatic laws and associated regulatory instruments. DOFI and its provincial line agencies, (Provincial Offices of Forest Inspection, POFIs under the Provincial Agriculture and Forestry Offices (PAFOs) as well as the Forest Inspection Units under the District Agriculture and Forestry Offices (DAFOs), are responsible for the implementation of the PAMs outlined under Section 4 in terms of law enforcement.
With respect to land and resource tenure, and ultimately the forest and agricultural related actions and measures outlined under section 4, the Constitution, Property Law 1990 and the Land Law 04/NA 2003 (under review) are the most important legal documents. The 1991 Lao Constitution, amended in 2003 and again more recently in 2015, provides the basis for all other national laws and regulations. According to the Constitution all land (including below and above ground resources such as forests or minerals) in the Lao PDR belongs to the national population as a whole; “The State protects the property rights (such as the rights of possession, use, usufruct and disposition) and the inheritance rights of organizations and individuals. Land is a national heritage, and the State ensures the rights to use, transfer and inherit it in accordance with the laws.” (Constitution, Art. 17). The amended 2015 Constitution also calls for the establishment of provincial assemblies to be responsible to oversee performance of local authorities as well as to approve provincial socio-economic development plans.
The Property Law 1990 establishes and defines five forms of property: state property; collective property; individual property; private property (property belonging to a private economic unit other than an individual or collective); and personal property (items for personal use). It also establishes that ownership of all land, underground resources, water, forests and wild animals is vested in the State, though the State may grant rights of possession, use, transfer and inheritance to other entities. In 2012 the President of the National Assembly of Lao's Committee on Economic Planning and Finance, announced the government's intention to undergo a nationwide formal process of large-scale land reform, and prioritize the need for increased local land management, given that access to land for rural households is fundamental for sustained poverty alleviation. The, at that time, newly established MoNRE took over the responsibility for all land-related matters from the National Land Management Authority (NLMA).

Since 2012, a National Land Policy for Lao PDR has been under preparation. In August 2016 the draft National Land Policy was presented and discussed in a national workshop chaired by the Deputy Prime Minister Dr Sonexay Siphandone with attendance of 18 sector ministries, the National Assembly, several ministry equivalent organizations, academia as well as representatives of donor partners and civil society. After the meeting, the final National Land Policy was expected to be tabled during the next meeting of the National Assembly. In the aftermath it was decided, however, that the Lao Government would no longer work on a National Land Policy but the Politburo should issue a Party Resolution instead.

Once the National Land Policy has been approved, the Government of Laos will continue with the revision of the Land Law of 2003 to reflect changes in the National Land Policy to provide more regulation for its implementation. . However, since it is not foreseen in the Lao lawmaking system to impose and partially negate existing law – current Land Law 2003 – with a new policy. In order to provide political directive for a revision of the existing legislation (including the land law, and other

laws, decrees etc), only a political resolution has validity. Thus the actual draft of the land policy will be transformed into a "Party" or "Politburo" Resolution. Then, MoNRE is charged as lead agency with the responsibility to finalize revisions of the Land Law and resubmit it to National Assembly. Once the Land Law is revised, then the Forestry Law and other natural resource laws would subsequently be revised, so that they would be harmonized with the Land Law. MAF plans to submit a revised Forestry Law to the Government in September 2017, but it is not clear when it would go to the National Assembly. MAF has already formally established a committee to undertake the revision, headed by the Vice-Minister Thongphat Vongmany.

The Land Law 04/NA 2003 is the principle legislative instrument governing the management, protection and use of land in Lao PDR. Article 3 of the Land Law reaffirms Article 17 of the Constitution, through which land is under the ownership of the national community, and the State is charged with the centralized and uniform management of land, including allocation. Land may be State land, State asset, public land asset or land for which 'ownership' or land use rights are held by individuals, communities or other organizations. Under the Land Law 04/NA 2003, all land is classified into a category for which boundaries must be determined. The eight Land Categories are:

· Agricultural Land;
· Forest Land;
· Water area Land;
· Industrial Land;
· Communication Land;
· Cultural Land;
· Land for national defense and security;
· Construction Land.

The category of land determines the scope of use, including allocation to the State, individuals or for lease, concessions or infrastructure development. The change of land from one Land Type to another Land Type can be made only if it is considered to be necessary to use the land for another purpose without having negative impact on the natural or social environment and must have the prior approval of the concerned management authorities (Article 14).

Land that is designated as Agricultural Land and Forest Land (which may support forest but may also be cleared land) has been assigned to the Ministry of Agriculture and Forestry (MAF) for management under the Law on Agriculture No 01-98/NA 1998 and Forestry Law 06/NA 2007. MAF has the responsibility to manage Forest Land (Land Law 04/NA 2003) and determine the different categories for management purposes, i.e., preservation (Protection and Conservation Forests) or development (Production Forests) according to the Forestry Law 06/NA 2007 . In addition to these three categories of national forest, there may also be areas of unclassified forests: however, no regulations for the management of such areas yet exist. The land within each of the three forest categories is further classified (Forestry Law Article 13) as dense forest, degraded forest, bare forestland and village use forest, and a forest zoning plan should be developed which determines the types of uses that are permitted. After forests and forestland have been categorized, classified and zoned, the government then allocates forests and forestland areas to the Provincial Administration Authorities (PAA), which then allocates them to District Administration Authorities (DAA), who further allocate them to Village Administration Authorities (VAA), who are responsible for their management. Through the development of a Forest Land Allocation Plan (article 82, Forestry Law 06/NA 2007), forest land can be allocated for use by individuals, households and organizations. Use rights are provided for in the Land Law04/NA 2003 and subordinate regulations.

The Forestry Law No 06/NA 2007 defines all natural forest land as the ultimate property of the national community, which is being represented by the State. This includes village forest land. Plantation forests, however, are the property of individuals or organizations who have planted the trees. The Forestry Strategy 2020 states clearly the official policy to adopt the participatory approach to management of production, protection and conservation forest areas, and to increase involvement of villagers in sustainable management and use of village forestland through participatory land use planning and land allocation. The Forestry Law No 06/NA 2007 sets out commitments to manage forests and forest resources with the participation of local people and the draft revision of the forestry law makes more explicit the intention to manage all forests with peoples' participation by including participation in overarching articles related to Forest Management, Forest Management Planning, and Management of Forest land.

In this regard and referring to PAMs outlined under section 4, of the PRAP explicitly contains Participatory Land Use Planning and Land Allocation as well as Village Forest Management as key interventions to manage land and forest resources in a sustainable manner. Village Forest Management is one of the key priorities of the Government of Lao PDR under the MAF and more specifically the Department of Forestry. The draft revised Forestry Law pays more attentions to the role and engagement of local communities in forest management. Village Forest Management refers to the management, preservation, development and sustainable use of the forest areas inside the village jurisdictional area which the government has allocated to the village. Forest and forest land owners are the organizations, households and individuals, to whom the State has allocated forest and forest land areas to manage, preserve, develop and use in accordance with laws and regulations (Article 17, Forestry Law No 06/NA 2007). The State encourages individuals, households, legal entities and organizations to carry out preservation and development of all forest types, in order to regenerate forest, and to plant trees and non-timber forest products (NTFPs) in degraded and badly degraded forestland and barren forest land areas. The aim is to rehabilitate these areas, to become

rich forests for environment and biodiversity protection and to enhance forest carbon stock and ecosystem services.

Further to the Constitution, Land Law 04/NA 2003 and Forestry Law No 06/NA 2007, other legal documents governing land administration include the Law on Investment Promotion No 02/NA 2009, Decree 192/PM on Compensation and Resettlement, 2005, Decree 88/PM on Implementation of the Land Law, 2008, and Decree 135/PM on State Land Lease or Concession, 2009. Policies on investment and concessions assign a leading role to the Ministry of Planning and Investment (MPI) for processing applications for commercial land concessions.

While the PRAPs were designed to ensure congruence with national and provincial SEDPs as well as sectoral strategies and plans, the PRAP will need to be further mainstreamed into the Provincial and District SEDPs 2016-2020 and 2021-2025. Elements of the PRAP will need to be included into planning processes (e.g. land use planning and village forest management), and efforts will need to be dedicated to mainstreaming the PRAP in annual and five-year provincial- and district-level plans.

5. Implementation Plan

The following **Table 13** presents the annual implementation plan for the entire duration of the PRAP (2018-2025), including a description of the specific activities and the institutions responsible for their implementation.

Table 13 PRAP implementation Plan

Component and Activities		Annual Implementation Plan								Responsibility
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	
Component 1: Integrated Land Management										
Sub-Component 1: Improved Provincial and District Land Use Planning *[MOs:1.2]*										
Activity 1.1	Institutional set up land coordination mechanism involving forestry sector									Land Management/PONRE Agri Land Management/PAFO
Activity 1.2	Provision of technical support to integration of the 3FCs into provincial land use classification, land use planning and the provincial SEDPs									Land Use planning Committee、Land Management/PONRE
Activity 1.3	Procurement of tools and equipment to support the improved land use planning									Land Use planning Committee、Land Management/PONRE
Activity 1.4	Implementation of improved land use planning at provincial and district level									Land Use planning Committee、Land Management/PONRE
Sub-Component 2: Participatory Land Use Planning at Village Level *[MOs:1.2]*										
Activity 2.1	Training for capacity building of government staff on Participatory Land Use Planning (PLUP)									Land Management/PONRE PAFO
Activity 2.2	Implementation of PLUP at village level									Land Management/PONRE PAFO
Sub-Component 3: Agriculture and forest land registration and land titling *[MOs:1.2]*										
Activity 3.1	Training for capacity building of government staff on land registration and land titling process									Land Management/PONRE
Activity 3.2	Implementation of agriculture and forest land registration and land titling with awareness raising and dissemination of land law, inheritance law, family law, other land related laws and									Land Management/PONRE
Sub-Component 4: Law enforcement and governance of land concession and contract farming on cash crop and tree plantation [MOs:1]										

Activity 4.1	Detailed assessment of current land concession and contract farming on cash crop and tree plantation in the provinceProvince-wide									PAFO Environment, Land Management/PONRE
Activity 4.2	Training for capacity building of government staff to manage the approval process and monitoring on land concession and contract farming									PAFO Environment, Land Management/PONRE
Activity 4.3	Piloting management and monitoring on land concession and contract farming in Luang Prabang Province									PAFO Environment, Land Management/PONRE
Sub-Component 5: Law enforcement and governance of infrastructure projects *[MOs:1]*										
Activity 5.1	Awareness raising for provincial and district government staff on forest law enforcement, governance and REDD+									Environmental/Land Management/PONRE
Activity 5.2	Training for capacity building on Environment and Social Management and Monitoring Plan (ESMMP) of the infrastructure projects									Environmental/Land Management/PONRE PAFO
Activity 5.3	Training for capacity building of participatory consultation process and grievance mechanism of the project									Environmental/Land Management/PONRE PAFO
Activity 5.4	Piloting the formulation and implementation of Environment and Social Management and Monitoring Plan (ESMMP) in selected Hydropower project									Environmental/Land Management/PONRE PAFO

Component and Activities		Annual Implementation Plan								Responsibility
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	
Component 2: Forest Management										
Sub-Component 1: Re-delineation/Re-confirmation of 3 forest categories (3FCs) at National, Provincial and District level with forest landscape approach *[MOs:1.2]*										
Activity 1.1	Institutional set up inter-sectoral management committee for 3FCs									Provincial government Office, District government Office, PAFO, DAFO
Activity 1.2	Detailed assessment of land cover, concession area, watershed, biodiversity corridor and other forest ecosystem services within and surrounding area of 3FCs									3FCs committee, PAFO, DAFO
Activity 1.3	Mapping land cover/use and landscape zones in 3FCs based on the result of assessment Activity 1.2									3FCs committee, PAFO, DAFO

Activity 1.4	Consultation meeting involving concerned sectors in the Province and Districts for agreement									3FCs committee, PAFO, DAFO
Activity 1.5	Procurement of office equipment, software and GPS to develop information management on forest related information including 3FCs and official documents									3FCs committee, PAFO, DAFO
Activity 1.6	Provision of technical support for data storage and management									3FCs committee, PAFO, DAFO
Sub-Component 2: Forest landscape management in Protection Forest Area *[MOs:1,2,3,4]*										
Activity 2.1	Piloting forest landscape management in priority PTA									PTA committee, PAFO, DAFO
Activity 2.2	Implementation and scaling up of forest landscape management in each PTA									PTA committee, PAFO, DAFO
Sub-Component 3: Village Forest Management *[MOs:1,2,3,4,5]*										
Activity 3.1	Design and piloting sustainable finance mechanisms for Village Forest Management									PAFO, DAFO
Activity 3.2	Design and piloting livelihoods options through village based forestry activities.									PAFO, DAFO
Activity 3.3	Design and piloting value addition of village forest products.									PAFO, DAFO
Activity 3.4	Design and piloting village forest management to maintain and improve Ecosystem services, biodiversity values, watershed services and carbon stocks through village based forestry activities.									PAFO, DAFO
Activity 3.5	Implementation and scaling up of VFI Models									PAFO, DAFO
Sub-Component 4: Forest regeneration and afforestation *[MOs:3]*										
Activity 4.1	Detailed assessment of potential forest restoration area in degraded lands									PAFO, DAFO
Activity 4.2	Implementation of forest regeneration in degraded forest area									PAFO, DAFO

Activity 4.3	Provision of up-front financing to villagers for implementation of afforestation activity in degraded forest area									PAFO, DAFO
Sub-Component 5: Forest fire prevention *[MOs:2]*										
Activity 5.1	Awareness raising for forest fire prevention at village level									POFI, PAFO, DAFO
Activity 5.2	Develop the system for monitoring forest fires and piloting the system in selected area									POFI, PAFO, DAFO
Activity 5.3	Implementation of forest monitoring for forest fire prevention									POFI, PAFO, DAFO
Sub-Component 6: Sustainable teak plantation management and improvement of value chain *[MOs:4,5]*										
Activity 6.1	Detailed assessment of potential teak plantation area for scaling up sustainable forest management certification									PAFO, DAFO
Activity 6.2	Provision of technical support to strengthen farmers group and its network									PAFO, DAFO
Activity 6.3	Provision of technical support to implement standard operation on teak plantation									PAFO, DAFO
Activity 6.4	Provision of technical support to develop and modernize value added processing of forest products									PAFO, DAFO
Activity 6.5	Provision of technical support to promote small scale enterprises for value addition of teak products									PAFO, DAFO
Activity 6.6	Procurement of equipment and materials for promoting sustainable teak plantation management and improvement of value chain									PAFO, DAFO
Sub-Component 7: Law enforcement and governance for illegal logging *[MOs: 2]*										
Activity 7.1	Awareness raising and dissemination of forestry related policies, laws and regulations at district and village cluster level in priority area									POFI, PAFO, DAFO
Activity 7.2	Developing monitoring system for illegal logging									POFI

Activity 7.3	Training for capacity building of log inspection at check points, logging field, wood processing factory and furniture workshop									POFI, PAFO, DAFO
Activity 7.4	Monitoring and patrolling logging areas, transporting timber in the secondary and main road, waterway and critical areas									POFI, PAFO, DAFO
Activity 7.5	Inspection of wood processing factory, furniture factory, warehouse of wood and non-timber forest product									POFI, PAFO, DAFO
Activity 7.6	Inspection of logging over the quota permitted in reservoir area of planned hydropower dam									POFI, PAFO, DAFO
Activity 7.7	Procurement of office equipment, tablet, GPS and other necessary tools to enhance law enforcement									POFI, PAFO, DAFO
Activity 7.8	Monitoring and patrolling illegal logging in Protection Forest Areas.									POFI, PAFO, DAFO
Sub-Component 8: Payment for Forest Ecosystem Services *[MOs:1,2,3,4]*										
Activity 8.1	Assessment of potential PFES in Luang Prabang Province									PAFO, PONRE
Activity 8.2	Promoting pilot activities on PFES in cooperated with forest service uses such as water supply company, hydropower dam company, eco-tourism, etc.									PAFO, PONRE

Component and Activities		**Annual Implementation Plan**								**Responsibility**
		Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	
Component 4: Social (Livelihood) Management										
Sub-Component 1: Sustainable cash crop production system in upland*[MOs: 1,2,5]*										
Activity 1.1	Conducting research to identify best practices for sustainable cash crop production including agroforestry, NTFP and fruit tree plantation and agricultural intensification.									Crop, Extension, Agri land development/ PAFO

Activity 1.2	Training for capacity building of extension officers on sustainable cash crop production models and practices									Crop, Extension, Agri land development/ PAFO
Activity 1.3	Provision of up-front finance (tools, fertilizer, alternative crop seedling material) for the implementation of sustainable cash crop production practices									Crop, Extension /PAFO
Activity 1.4	Development and support of agricultural cooperatives									Extension section /PAFO
Sub-Component 2: Livestock raising and fodder production *[MOs: 1,2,5]*										
Activity 2.1	Training for capacity building of extension officers on livestock raising techniques									Livestock/PAFO
Activity 2.2	Provision of up-front finance (tools, fertilizer, alternative crop seedling material) for fodder production									Livestock/PAFO
Activity 2.3	Provision of livestock & up-front finance for improving livestock production systems									Livestock/PAFO
Activity 2.4	Provision of technical support for improving credit access									Livestock/PAFO
Sub-Component 3: Development of community based ecotourism *[MOs: 1,2,5]*										
Activity 3.1	Assessment of potential area for eco-tourism promotion									Tourism Office, PAFO, DAFO
Activity 3.2	Training for capacity building of extension officers on community based eco-tourism									Tourism Office, PAFO, DAFO
Activity 3.3	Provision of up-front finance (sign-board, alternative livelihood development activities) for the eco-tourism promotion									Tourism Office, PAFO, DAFO

6. Operational and Financial Planning

6.1. Institutional and implementation arrangements

Overall responsibility for the implementation of the PRAP rests with the Provincial REDD+ Taskforce (PRTF) who has the official mandate to oversee REDD+ implementation in the province. The PRTF is composed of a broad set of government stakeholders from several government departments and is chaired by the Deputy Provincial Governor in charge of Economic Affairs. The PRTF is a supervisory body and as such delegates its day-to-day coordination and managerial responsibilities to the Provincial REDD+ Office (PRO) within the Provincial Agriculture and Forestry Office (PAFO). It is the PRO, therefore, that will have the responsibility to ensure the ongoing management, implementation and oversight of the various governmental departments implementing the PRAP on behalf of the PRTF.

The identified PAMs in Section 5 are cross-sectoral by nature and require the involvement of several different government line agencies at the national, provincial and district level. Broadly speaking, national level government institutions will be responsible for supporting PAMs related to policy analyses, policy revisions and integration into provincial planning processes, while also providing necessary capacity building to provincial level line agencies. These same provincial line agencies will be critical in terms of integrating the PRAP ambitions into the development of the provincial development plans, while also filling coordination, technical support, capacity building and implementation roles on many of the PAMs. District level line agencies are the bodies with the primary implementation responsibility, overseen and supported by their provincial counterparts.

Capacity levels, both technical and financial, are known limitations of government institutions in Lao PDR from the district to the national level. Capacity building is a core element of the PRAP to ensure effectiveness of the identified PAMs. In addition to the intra-ministerial capacity building outlined above significant external financial and technical support will be required. This role is expected to be filled by development and private sector partners.

The Provincial Agriculture and Forestry Office (PAFO) plays a crucial role in the planning, monitoring and evaluation of provincial development plans. PAFO will play a similar role in ensuring the alignment of the PRAP with existing and emerging development strategies and vice-versa. Collecting, synthesizing and reporting on PRAP implementation progress and impacts will be primarily the responsibility of PAFO with support from the PRO.

6.1.1. Institution responsible for managing the proposed PRAP

Name of organization	Provincial REDD+ Office (PRO) – on behalf of the PRTF
Type and description of organization	Division under the Provincial Agriculture and Forestry Office (PAFO) assigned by the Provincial REDD+ Taskforce as the managerial and operational body to implement REDD+ in the province.
Organizational or contractual relation between the organization and the ER Program Entity expected to sign the Emission Reduction Payment Agreement (ERPA) with the FCPF Carbon Fund	The Provincial Agriculture and Forestry Office is the provincial line agency of the Ministry of Agriculture and Forestry, responsible to develop the ERPD. The ERPA with the FCPF Carbon Fund is expected to be signed by the Ministry of Finance.
Main contact person	Xang Xanaphonh
Title	Head of Provincial REDD+ Office
Address	Provincial Agricultural and Forestry Office of Luang Prabang
Telephone	+856-71-254378
Email	xangxanaphon@yahoo.com
Website	

6.1.2. Partner agencies and organizations involved in the PRAP implementation

Name of partner	Core capacity and role in the PRAP
National Level	
Ministry of Agriculture and Forestry (MAF)	National level ministry responsible for policy, management and protection of forestry and agricultural resources.
Department of Forestry (DOF)	Department within MAF responsible for policy development, management and protection of forest resources nationally. Conducts policy analysis, revision and alignment in support of PRAP objectives. Provides capacity building and technical support to PAFO for PRAP implementation.

REDD+ Division, Department of Forestry, MAF	Division within the Department of Forestry responsible for the overall implementation and coordination of REDD+ activities throughout the country. Supports the PRO with capacity building, policy review and revision and in its provincial management duties.
Department of Forestry Inspection (DOFI)	DOFI responsible for the inspection and law enforcement of forest and wildlife laws and regulations. Provides technical support and capacity building to POFI for provincial level law enforcement in support of the PRAP.
Department of Forestry – Division of Village Forestry and NTFP Management	Division under DOF responsible for policy development, guidelines and technical support for the development of village-level forest and NTFP management. Provides technical support and capacity building for PAFO on the implementation of village forest management (VFM).
Department of Agriculture (DOA)	Department within MAF responsible for policy development, management and protection of agricultural resources nationally. Conducts policy analysis, revision and alignment in support of PRAP objectives. Provides capacity building and technical support to PAFO for PRAP implementation.
Department of Agriculture Land Management and Development	Department within MAF responsible for agricultural land management and planning. Provides capacity building and technical support to PAFO for PRAP implementation of land-use plans and land allocation.
Department of Rural Development and Cooperatives	Department within MAF responsible for the provision of agriculture and extension services and the development of local-level cooperatives. Primarily a technical service provider. Provides technical support and capacity building to PAFO in support of PRAP implementation.
Agriculture, Forestry and Rural Development Research Institute	National level institute that conducts policy, technical and market research and analyses in the agriculture and forestry sectors. Supports policy review and research into innovative agricultural models for implementation under the PRAP
Ministry of Natural Resources and Environment (MoNRE) – Department of Land Management Section	Department within the Ministry of Natural Resources and Environment (MoNRE) responsible for land-use planning and allocation. Supports PoNRE – Land Management Section with land-use planning and allocation under the PRAP.
Ministry of Natural Resources and Environment (MoNRE) – Department of Environmental Management Section	Department within the Ministry of Natural Resources and Environment (MoNRE) responsible for Environment and Social Management and Monitoring Plan (ESMMP) of the infrastructure projects. Supports PoNRE – Environmental Management Section with implementing ESMMP under the PRAP.
Ministry of Finance	National level ministry responsible for management and distribution of national and international sources of finance and funds. Supports the design, establishment and implementation of the financing scheme for PRAP agriculture and forestry investments.
Provincial Level	
Provincial REDD+ Task Force (PRTF)	Provincial cross-sectoral body with responsibility and oversight of REDD+ activities in the province. Bears ultimate responsibility for the implementation of the PRAP
Provincial REDD+ Office (PRO)	Provincial body that executes the day-to-day management and coordination activities for the PRTF, including PRAP management and coordination.
Governors' Office	Provincial administrative office responsible for establishing provincial development goals and strategies. Provides overall guidance to the PRAP process and ensures provincial line agencies conform to PRAP objectives.
Provincial Agriculture and Forestry Office (PAFO)	Provincial line agency to the Ministry of Agriculture. Same remit as MAF but at the provincial level. Main body to coordinate the implementation of PRAP activities.
PAFO – Agriculture Section	Provincial line agency to the Department of Agriculture. Provides technical implementation support, coordination and capacity building for DAFOs for the implementation of social management PAMs.
PAFO – Agriculture and Land Management Section	Provincial line agency to the Department of Agriculture Land Management. Provides technical implementation support, coordination and capacity building for land-use planning and allocation under the PRAP.
PAFO – Forestry Section	Provincial line agency to the Department of Forestry. Responsible for the management and protection of three forest categories at the provincial level. Provides a critical role in the implementation of several of the forest management PAMs.
PAFO – Agriculture and Forestry Research Section	Provincial line agency to NAFRI. Supports research into alternative agricultural production methods and approaches.
PAFO – Agriculture and Forest	Provincial line agency responsible forest and agricultural extension services. Critical

Extension Section	role in supporting DAFO and local communities with capacity building and training on the adoption of new agricultural and forestry production methods.
PAFO – Planning and Management Section	Administrative section of PAFO. Responsible for planning and monitoring of PAFO activities. Ensures PAFO activities achieve PRAP plans. Critical role in the M&E of the PRAP
PAFO – Livestock and Fishery Section	Provincial line agency responsible for the provision of capacity building and technical support in the development of improved livestock production methods in the province under the PRAP.
Provincial Natural Resources and Environment Office (PONRE) Land Management and Development Section	Provincial line agency to the Department of Land Management Section responsible for implementation of component 1: Integrated Land Management under the PRAP.
PONRE Environmental Management Section	Provincial line agency to the Department of Land Management Section responsible for implementation of ESMMP under the PRAP.
Provincial Department of Finance	Provincial lice agency to the Ministry of Finance responsible for management and distribution of national and international sources of finance and funds. Supports the design, establishment and implementation of the financing scheme for PRAP agriculture and forestry investments.
Private Sector	No specific actors identified, however, based on provincial planning and PAM financing protocols developed can play a role in the execution of PAM financing and the development of innovative agricultural and forestry investments and business models.
District Level	
District Agriculture and Forestry Office	District line agency to PAFO and MAF. Responsible for the on-the-ground implementation of forest management and social management PAMs at the district level. Closest point of contact with local communities.
District Natural Resources and Environment Office	District line agency to PONRE and MONRE. Responsible for the on-the-ground implementation of Integrated Land Management PAMs at the district level. Closest point of contact with local communities.
Village Cluster Level	
Village cluster	Responsible for the on-the-ground implementation of forest management and social management PAMs at the village level. Closest point of contact with local communities.

6.2. PRAP Budget

The total cost of implementing the PRAP over a period of eight years (2018-2025) is $20.14 million which equals LAK 161.09 billion (**Table 14**).
Of this, $3.73 million will be dedicated to the Integrated Land Management PAMs (Component 1), $11.16 million to the Forest Management PAMs (Component 2), and $5.25 million to the Social and Livelihood Management PAMs (Component 3).

Table 14 Overall PRAP budget

PRAP	Allocated Budget (USD)		
Component	**2018 - 2020**	**2021 - 2025**	**Total**
Component 1: Integrated Land Management	$1,852,500	$1,874,500	$3,727,000
Component 2: Forest Management	$5,233,499	$5,925,751	$11,159,250
Component 3: Social (Livelihood) Management	$1,777,706	$3,471,669	$5,249,375
Total	$8,863,705	$11,271,920	$20,135,625

6.3. Funding Source

While the PRAP will contribute to the overarching ER programme, funding sources is required to contribute to the implementation of the PRAP to ensure results-based payments. This will be especially important for the beginning of PRAP implementation, to bridge implementation and the release of results-based payments. Limited provincial funding is considered a bottle neck for PRAP implementation, and additional external support will be required to support the implementation of the

PRAP..

Table 15 Potential projects and funding source for PRAP implementation

Project Name	Organization	Estimate Budget (USD)	Component
Forest Resource Development Fund	DOF/MAF	TBD	1,2
Environmental Protection Fund	MONRE	TBD	1,2,3
Sustainable Forest Management and REDD+ Support Project (F-REDD)	JICA	$ 100, 000	1, 2
Build Capacity of PONRE-LPB on Application & Monitoring of IEE and Associated Legislation (LENS2)	EPF/MONRE World Bank	$ 150, 000	1
Strengthening protected area and protection forest management in Luang Prabang Province (LENS2)	EPF/MONRE World Bank	$ 600, 000	1,2,3
Northern Smallholder Livestock Commercialization Project	ADB	$ 3,500,000	3
Village Forest Management Project	Kfw	$ 4,000,000	2
Luang Prabang Teak Plantation Programme		TBD	2
Hydropower company	(private)	TBD	1,2
REDD+ demonstration activities in Luang Prabang Province through controlling slash-and-burn	NAFRI/Waseda University	TBD	1,2,3
Total		**$ TBD**	

6.4. Project economic analysis[18]

The overall Economic Rate of Return (ERR) over a project period of eight years amounts to 0% and a NPV (10%) of $ -2.5 million USD (**Table 16**). The overall project costs of the PRAP including the total PRAP budget and in-kind contributions by the beneficiaries. The revenues accounted are assumed from the production and sales from the forestry and agricultural investments[19].If ERR is recirculated only for forestry and agricultural investment activities, it shows positive cash flow amounting to 72%.

Direct investment activities can contribute to mitigation of deforestation and degradation, however, impact is limited only for beneficiaries and their land use. On the other hand, policy arrangements and its implementation, which is not provide cash flow, including, but not limited to, coordination of land use planning, re-delineation of forest categories law enforcement are much more efficient in terms of scale of impact to address deforestation and forest degradation in entire province.

6.5. Sensitivity Analysis[20]

A sensitivity analysis was conducted to determine the potential impacts on the ERR and NPV from changes in the overall project costs and revenue price fluctuations. The ERR is sensitive to changes in revenues and costs in the range of 10% – 20%. The sensitivity analysis is presented in the following Table 16.

Table 16 Project economic and sensitivity analysis

Financing scenarios	ERR (%) – Over a period of 8 years	NPV (USD) – Over a period of 8 years
Base case	0%	-2,483,427
PRAP costs: +10%	-19%	-6,542,516
PRAP costs: -10%	16%	1,575,663
PRAP costs: +20%	-48%	-10,601,605
PRAP costs: -20%	34%	5,634,752
Revenues: +10%	15%	1,327,320
Revenues: -10%	-21%	-6,294,173
IRR/NPV @ +20% revenues	28%	5,138,067
IRR/NPV @ - 20% revenues	n.a[22]	-10,104,920

[18] Same methodology is applied as project economic analysis of Houaphane PRAP
[19] Reveues from Eco-tourism (Activity 3.3 of Social Management) was excluded in the analysis due to lack of model of input/output.
[20] Same methodology is applied as sensitivity analysis of Houaphane PRAP
[22] Cannot be quantified as a positive cash flow wil never be achieved and costs are higher than the benefits

7. Monitoring and Evaluation System

The Provincial REDD+ Office (PRO) under Provincial Agriculture and Forestry Office and Provincial Department of Planning and Investment (PDPI) will play critical roles in the implementation of the monitoring and evaluation of PRAP. They will coordinate with respective line agencies which are in charge of implementing PAMs to collect the necessary data for monitoring and evaluation.

The design of the Monitoring and Evaluation system will be based on the PAMs outlined in Tables in Chapter 4 which already provide initial targets for each activity. To monitor and evaluate progress against these targets, a number of different Monitoring and Evaluation elements need to be considered and monitored, including monitoring of PAM implementation, immediate and intermediate outcome targets, stakeholder participation and consultation (including gender and ethnic minority participation), financial management, and co-benefits. Due to the distributed nature of PRAP implementation across all levels within the province, monitoring and reporting will also include a diverse range of actors from the kumban level through to district, provincial and national levels. Clear and transparent information sharing and feedback protocols will need to be established both in terms of collecting and aggregating data as well as reporting on progress against outcomes.

Close coordination between PRO and PDPI is therefore of the essence in the implementation of this system. In addition, the design and ongoing review of the Monitoring and Evaluation system should be aligned and close communication encouraged between the respective Monitoring and Evaluation systems of the other five provinces in ER program to ensure the overall consistency of the ER program.

Annex 1 Additional Table

Table A1. Overview of consultations during the PRAP process in Luang Prabang Province
Table A2. Overview of the identified proximate drivers and underlying causes of deforestation and forest degradation from district- and Kumban-level consultations
Table A3. Trainings for capacity development on REDD+ in Luang Prabang Province
Table A4. Population of Luang Prabang province from 2011 to 2013
Table A5. Hydropower projects in Luang Prabang Province

Table A1. Overview of consultations during the PRAP process in Luang Prabang Province

Level of consultation (national, provincial, district, Koumban, village)	**Date**	**Meeting Location**	**Participating Districts/ Actors**	**Participant**		**Steps/Remarks**
				Total	**Female**	
1st District consultation	10/02/2016	Luang Prabang	Luang Prabang DONRE, DAFO	4	0	Collect the primary data on priority hotspot , drivers and possible measures to address drivers
	18/02/2016	Nambak	Nambak DONRE, DAFO	3	0	
	18/02/2016	PakOu	PakOu DONRE, DAFO	6	0	
	19/02/2016	Ngoi	Ngoi DONRE, DAFO	5	0	
	19/02/2016	Chomphet	Chomphet DONRE, DAFO	6	0	
	22/02/2016	Phonthong	Phonthong DONRE, DAFO	7	0	
	22/02/2016	Nan	Nan DONRE, DAFO	3	0	
	23/02/2016	Viengkham	Viengkham DONRE, DAFO	4	0	
	23/02/2016	Xiengngun	Xiengngun DONRE, DAFO	4	0	
	24/02/2016	Pakseng	Pakseng DONRE, DAFO	4	0	
	24/02/2016	Phoukoun	Phoukoun DONRE, DAFO	5	0	
	25/02/2016	Phonxay	Phonxay DONRE, DAFO	4	0	
1st Provincial Consultation Workshop	4/8/2016	Luang Prabang	- REDD+ Taskforce, Government agencies, education and research institute and private sectors at both provincial and district level - (Sector) Forestry sector and other sectors concerned including Agriculture, Land Management, Environment, Transport, Energy and Mining tourism	52	6	Share the result of driver analysis on deforestation of Deforestation, forest expansion and rehabilitation at District level Discuss possible solution in Luang Prabang Province
2nd Provincial Consultation Workshop	12-14/10/2016	Luang Prabang	- REDD+ Taskforce, Government agencies, donor projects, education and research institute and private sectors at both provincial and district level - (Sector) Forestry sector and other sectors concerned including Agriculture, Land Management, Environment, Transport, Energy and Mining tourism	63	10	Policies, measure and activities to Reducing Deforestation, Forest Degradation and Forest Conservation and rehabilitation in Luang Prabang Province
2nd District consultation	14-15/3/2017	Luang Prabang	- Government agencies at district level - (Sector) Forestry Sector and other sectors concerned including Agriculture, Land Management, Environment, Transport, Energy and Mining tourism	15	4	Day 1: at district level with discussion on general REDD+ process, drivers and agents of DFD. - Introduction of REDD+, - REDD+ status in Lao PDR; - FCPF and PRAP;
	1-2/3/2017	Nambak		23	2	
	23-24/2/2017	PakOu		28	4	
	6-7/3/2017	Ngoi		24	3	

	14-15/2/2017	Chomphet		38	4	- Group discussion to determine drivers, agents, underlying causes of DFD. Day 2: at district level with discussion on policy and measures. - Present policy and measures; - Group discussion and presentation group results; - Prioritize policy and measures; - Plan adjustment and summary.
	9-10/3/2017	Phonthong		22	1	
	23-24/2/2017	Nan		19	3	
	13-14/2017	Viengkham		20	0	
	7-9/3/2017	Xiengngun		18	1	
	23-24/2/2017	Pakseng		23	1	
	28/2-1/3/2017	Phoukoun		17	1	
	7-8/3/2017	Phonxay		23	2	
Koumban/ village cluster consultation	2017/3/16	Luang Prabang	Meuang Khai KB	28	2	Day 3: at village cluster level. - Present about the objectives; - Group discussion on drivers and agents, and PAMs; - Benefit and Risk Analysis of PAMs.
	2017/3/3	Nambak	Nam Douan KB	38	10	
	2017/2/25	PakOu	Houay Aod KB	31	6	
	2017/3/8	Ngoi	Phonsay KB	36	7	
	2017/2/16	Chomphet	Nam Chan KB	52	8	
	2017/3/11	Phonthong	Thong Say KB	26	1	
	2017/2/25	Nan	Houay Hoi KB	34	0	
	2017/3/15	Viengkham	Mokkha KB	37	2	
	2017/3/10	Xiengngun	Namming KB	28	2	
	2017/2/25	Pakseng	Bouam Phaseng KB	39	9	
	2017/3/2	Phoukoun	Pha Keng Noi KB	33	4	
	2017/3/9	Phonxay	Chom Chiang KB	21	5	
Final Provincial Consultation Workshop	2017/9/23	Luang Prabang	Provintial REDD+ Task Force, Provintial REDD+ Office, and District governer and PRAP formulation Unit; including government agencies, education and research institute and private sectors at both provincial and district level Forestry sector and other sectors concerned including Agriculture, Land Management, Environment, Transport, Energy and Mining tourism	59	1	One day workshop to discuss the results from the district and village cluster consultations, and final consent on draft PRAP

Table A2. Overview of the identified proximate drivers and underlying causes of deforestation and forest degradation from district- and Kumban-level consultations

District	Priority Proximate Drivers	Underlying causes
Chomphet	1. Shifting cultivation	Increased population; Food consumption and demand are high; No stable job; No flat land for paddy field; No capital for doing other stable jobs; Job promotion from the public sector not enough; Restricted land use planning.
	2. Industrial tree planting (company)	Commodity price (good market price stimulates more planting); Weak law enforcement; Restricted land use planning; Development policy of the government
	3. Illegal logging	High demand in the society; Villagers do not have stable job; Increased population and migration; Law enforcement not strict enough; Degraded environment
	4. Forest fire	Burn vegetation in the shifting cultivation + grassland area; Hunting; Violation of regulations
Ngoi	1. Shifting cultivation	No stable job; Low productivity; No living options/poverty; Traditional way of living; No strict implementation of the laws; Market demand
	2. Illegal logging	Increased population and infrastructure development; Market demand; Poverty; Land tenure; Traditional way of living; Weak law enforcement and restricted land use planning
	3. Expansion of agricultural land	Because villagers want to reduce shifting cultivation; Because villagers want to change to stable job; Non use of techniques; Market demand
	4. Legal logging	Increased population and migration; Market demand; Infrastructure development
Phonthong	1. Shifting cultivation	Lack of permanent farming land; Lack of techniques; Increased population and migration; Traditional way of living; Degraded soil; Market demand
	2. Expansion of agricultural land	Shifting cultivation; Increased population; Market development; Increased production area
	3. Illegal logging	Construction/building; Distribution as commodity; Produce furniture for domestic consumption
	4. Mining	Government policy (need of budget); Weak law enforcement
Viengkham	1. Agricultural land expansion	Increased population; High market demand; Use chemical to reduce labor (herbicides); Responsible committee lacks the monitoring of land use; Rights of agricultural land tenure for household not authorized yet; Low productivity
	2. Shifting cultivation	Increased population; Market demand; Traditional way of living; Restricted land use planning; No job options
	3. Forest fire	No firebreak when burning shifting cultivation area; Weak law enforcement; Hunting; Recklessness
	4. Illegal logging	Increased market demand and needs for construction/building; Local people think of their own benefit; Some village authorities are not strong enough; Weak law enforcement
Pakxeng	1. Shifting cultivation	No stable job; Land use/management not in compliance with the rules and regulations; Local people are poor (poverty); Local people stick to their tradition and customs
	2. Illegal logging	Demand/market potential; Lack of income alternatives, poverty; Infrastructure development; Development policy of the government; Weak law enforcement
	3. Expansion of agricultural land	Increased population; Market demand; Low productivity/degraded soil; Lack of living alternatives; Enforcement of law and regulations are weak; Traditional way of living
	4. Forest fire	Burn the vegetation for farming; Burn for hunting; Recklessness; Local authorities are not strict
Nambak	1. Shifting cultivation	No stable job; Mountainous area; Traditional way of living
	2. Industrial tree planting	Socio-economic development; Foreign investment; Availability of market
	3. Illegal logging	Market demand increased; No stable job; Restricted dissemination of laws and regulations

	4. Expansion of agricultural land	Government policy; Population increased; Social need/increased price; Local people do not have stable job; Lack of land use planning and allocation
Pak Ou	1. Shifting cultivation	No stable job/Traditional way of living; Mountainous area; Restricted land allocation (completed only in 3 village clusters or 24 villages), there are total 82 villages
	2. Industrial tree planting	Socio-economic development; Foreign investment
	3. Illegal logging	Market demand; No stable job; Restricted dissemination of laws and regulations; Deliberate act
Phonxay	1. Shifting cultivation	No stable job; Population increased; Limited land use planning and allocation
	2. Expansion of agricultural land	High market demand; Government promotion policy; Population increased
	3. Forest fire	Burn cultivation area without making fire break; Burn for hunting
	4. Illegal logging	High market demand; No permanent job; Low knowledge; Restricted dissemination of laws and regulations
Luang Prabang	1. Shifting cultivation	Local people don't have stable job; Limited agricultural area; Clearing land to be their own; Population increase
	2. Illegal logging	Local people don't have stable job; Due to high price of timber make illegal timber easy to sell; Due to the market demand for cheap timber; Because of personal greed; Violation of law; Responsible authority not yet control and inspect in all area
	3. Forest fire	Food search and reckless disposal of tobacco in forest; Natural occurrence due to change in climate; Burning of cultivation land; Clearing land to be their own
	4. Agricultural land expansion	To improve household economy; Market demand; To supply enough products for the market; Official development Strategic policy; Improved infrastructure
Nan	1. Shifting cultivation	Lack of job; poverty; Population increase; Land degradation
	2. Illegal logging	Weak law enforcement; Limited means of livelihood/poverty; Development of basic infrastructure (building of houses); Market demand; restricted land use planning and allocation
	3. Industrial tree planting	Increase in product price and industrial need (international demand); International demand for rubber; Policy promoting plantation; Weak regulation enforcement particularly with concession
	4. Expansion of agricultural land	Increase in population and resettlement; Potential market; Weak regulation enforcement; Limited means of livelihood/poverty; Land use planning not covering all
Xiengngun	1. Illegal logging	Poverty; Do not see the important of the environment; The need for construction; Market demand; seeking benefits
	2. Hydropower dam construction/ grid extension	Stimulated by economy; Development policy; Limited electricity for use domestically and internationally; Infrastructure rehabilitation; Population growth and resettlement; potential
	3. Agricultural land expansion	Population growth and resettlement; Market demand; Development policy; plantation; Economic expansion; unclear land planning
	4. Road construction	Ease of travel; Ease of goods transportation; Facilitate local development; Unclear survey; decrease in forest land; Change in nature/environment
Phoukhoun	1. Shifting cultivation	Poverty; No stable job; Get used to this traditional ways of living; Weak law regulation enforcement; Land use planning not covering all; Unclear development policy; Convenient tools/facilities for cutting forests (herbicide), use of machine; Population increase but limited land area
	2. Illegal logging	Poverty, lack of stable job; buy and sell timber; rapid economic growth (marketing); weak regulation enforcement; expansion of basic infrastructure (road expansion)
	3. Legal logging	Lack of fund in development; low education level; no clear policy towards those who have achievements; development of basic infrastructure (dam, road)

	4. Expansion of agricultural land	Decrease in forest area; land degradation; population growth; poverty; use of land not according to target; market demand for products; rely on socio-economic plan

Table A3. Trainings for capacity development on REDD+ in Luang Prabang Province

No	Subject	Duration (day)	Start Date	End Date	Venue	Contents	Target Type	N of Trainees	N of Trainees (female)	Trainer
1	Empowering forest communities - a practical approach to gender equality and women's empowerment	5	21-Aug-16	27-Aug-16	REFOCTC, Bangkok	Understanding of gender equality and women's empowerment	PAFO staff	2	0	RECOFTC
2	FPIC training	5	26-Sep-16	30-Sep-16	REFOCTC, Bangkok	Understanding of Free, Prior and Informed consent in development	PAFO staff	2	0	RECOFTC
3	Introduction of safeguard on sustainable forest management and REDD+	1	13-Oct-16	13-Oct-16	PAFO Meeting Room, Luang Prabang	Safeguard and REDD+ for District Officials from 12 District of LPB	PAFO staff DAFO/DONRE staffs from 12 District	39	8	RECOFTC
4	Basic Understanding of REDD+ for Provincial REDD+ Task Force Members	2	12-Dec-16	13-Dec-16	PAFO Meeting Room, Luang Prabang	Basic Understanding of REDD+	Provincial REDD+ Taskforce members	33	4	RECOFTC
5	Social Safeguard for SFM and REDD+ at local level	2	15-Dec-16	16-Dec-16	PAFO Meeting Room, Luang Prabang	Social Safeguard for SFM and REDD+ at local level	PAFO staff DAFO/DONRE staffs from 12 District	37	5	RECOFTC
6	FAO-RECOFTC training: Promote gender equality in natural resource management	4	23-Jan-17	26-Jan-17	REFOCTC, Bangkok	Gender equality in natural resource management	PAFO staff	2	0	RECOFTC
								115	17	

Source: Sustainable Forest Management and REDD+ Support Project (F-REDD)

Table A4. Population of Luang Prabang province from1995 to 2015

	District	1995	2005	2015	Change (%)	Change (%)
01	Luang Prabang	63,765	78,516	90,300	23.1%	15.0%
02	Xienngun	34,266	33,497	33,400	-2.2%	-0.3%
03	Nan	28,321	28,028	28,100	-1.0%	0.3%
04	Pak Ou	21,242	24,045	25,800	13.2%	7.3%
05	Nambak	47,082	59,795	68,900	27.0%	15.2%
06	Ngoi	39,772	40,679	29,700	2.3%	-27.0%
07	Pakseng	25,889	23,424	22,200	-9.5%	-5.2%
08	Phongsay	24,525	29,646	32,600	20.9%	10.0%
09	Chomphet	24,859	28,887	30,100	16.2%	4.2%
10	Viengkham	38,931	40,362	28,600	3.7%	-29.1%
11	Phukhun	16,188	20,160	23,200	24.5%	15.1%
	Phonthong			19,100		
	Total	364,840	407,039	432,000	11.6%	6.1%

Source: Department of Planning and Investment, Luang Prabang Province 2016

Table A5. Hydropower projects in Luang Prabang Province

S/N	Project title	Location	Capacity MW	Power generation GWH/year	Developer	MOU signed	Status	Completion year
I	**Dams already generated electricity**		**370.73**					
1	Namgum 5	Phoukhoune	120	507	EDL		Produced	2012
2	Namdong	Luang Prabang	1	5	EDL		Produced	1970
3	Nammong	Nambak	70 kw		EDL		Produced	2000
4	Katangsaleuan	Phonxay	3 kw		EU grant		Produced	2010
5	NamOu 2	Ngoi	120	546	Sinohydro	15/10/2006	Produced	2016
6	Namkhan 2	Xiengngeun	130	558	EDL	13/10/2006	Produced	2016
II	**Under construction**		**1,345**					
1	Mekong (Sayaboury)	Sayaboury-LPB	1,285	7,406	Sor-Kancharng	4/5/2007	Under construction	2019
2	Namkhan 3	Xiengngeun	60	249.5	EDL	13/10/2006	Under construction	2017
III	**Ministry signed MOU**		**1,989.8**					
1	NamOu 1	PakOu	180	710	Sinohydro	15/10/2006		
2	NamOu 3	Ngoi	210	826	Sinohydro	15/10/2006		
3	Mekong	PakOu	1,200	6,500	Petro VN Power Co.	13/10/2007		
4	NamXeuang 1	Luang Prabang	30	113.9	Sesuan group (China)	9/9/2013	Collecting data	
5	NamXeuang 2	Pakxeng	108	385.2	Ditto	9/9/2013	Collecting data	
6	NamXeuang 4	Pakxeng	42	147.2	Ditto	9/9/2013	Collecting data	
7	NamXeuang 5	Viengkham	47.1	155.8	Ditto	9/9/2013	Collecting data	
8	NamXeuang 6	Pakxeng	72	242.1	Ditto	9/9/2013	Collecting data	
9	NamNga 1	Nambak	53.7	298	Duangpaseut	26/11/2007		
10	Namkhan 4	Phonxay	47		Ditto			
IV	**Local authorities signed MOU**		**106.2**					
1	Nambak dam	Nambak	15		DSK group	8/4/2010	Collecting data	
2	Namsanan	Xiengngeun	15		Phousi LPB road & bridge construction co.	23/2/2015		
3	Nammat	Phonthong	15		Ditto	10/1/2013		
4	Namxeng	Pakxeng	15		Ditto	11/1/2013		
5	Nammee	Viengkham	15		Ditto	12/1/2013		
6	Namming 1	Xiengngeun	15		Duangthavon construction co.	16/1/2014		

7	Namming 2	Xiengngeun	15		Melee electric construction & irrigation co.	11/15/2015		
8	Namseng	Nan	1.2	8.5	EDL	7/11/2014		
	Total:		**3,812.73**					
V	**Projects that have been surveyed**							
1	Namleung	Chomphet	7		EDL			
2	Namlao	Viengkham	15		Phousi LPB road & bridge construction co.			
3	Namphak	Nan	1		Muanxon construction co.			
4	Namxok	Nan	1		Ditto			
5	Namlao	Phoukhoun	15		Douangdao-phet co.			
6	Namthi	Phoukhoun	10		Douangdao-phet co.			
7	Namming	Xiengngeun	15		Bounsavat road & bridge survey-design co.			
	Total:		**64**					

Source: Division of Energy and Mines, Luang Prabang Province 2016

Annex 2 Additional Tables for the PRAP Budget and Implementation Planning

Table B1. Detailed overview of financial planning and budget allocation for the three PRAP components.
Table B2. Annual budget dispersal plan for the entire duration of the PRAP (2018-2025)

Notes for cost estimation of the PAMs in Luang Prabang PRAP

- The costs of the activities including labor days and material costs is estimated based on the unit cost of budget plan of Houaphane PRAP developed by CliPAD. The implementation costs of PAMs consider all costs except for in-kind contributions of government staff (i.e. salaries). Examples of included costs are: international project staff, national project staff, consulting costs, daily subsistence and travel allowances, workshops, trainings, provision of equipment, awareness campaigns and implementation costs for village-based activities.
- Benefits from produced goods (e.g. agricultural products, wood/firewood) were estimated from expected yields and prices obtained from the aforementioned sources. Benefits were then annualized to provide the estimated annual yields per product.
- Once the costs and benefits had been calculated, annual cash flows were then calculated based on the difference between the total annual material and establishment costs, as well as the total annual benefits.
- The cost and benefit analyses were conducted for the proposed project period of eight years
- Net present values (NPVs), at discount rate of 10%, and internal rate of returns (IRRs) were also estimated over an eight years period..

Table B1. Detailed overview of financial planning and budget allocation for the three PRAP components.

Component/ Activity		Description of Cost Item	Unit	Unit Cost	Quantity	Total (USD)	Total (thousand KIP)
Component 1: Integrated Land and Forest Management							
Sub-component 1: Improved Provincial Land Use Planning							
Activity 1.1	Institutional set up land coordination mechanism involving forestry sector	Consultants	Months	15,000	1	15,000	120,000
		National staff	Months	3,000	3	9,000	72,000
		Workshops	Workshops	2,500	2	5,000	40,000
Activity 1.2	Provision of technical support to integration of the 3FCs into provincial land use classification, land use planning and the provincial SEDPs	Training courses	Trainings	4,000	6	24,000	192,000
		Consultants	Months	15,000	6	90,000	720,000
Activity 1.3	Procurement of tools and equipment to support the improved land use planning in the Province and districts	goods	Districts	15,000	13	195,000	1,560,000
Activity 1.4	Implementation of improved land use planning at provincial and district level	Consultants	Months	15,000	4	60,000	480,000
		National staff	Months	3,000	12	36,000	288,000
		DSA and travel costs	Lumpsum	1,500	24	36,000	288,000
Sub-component 2: Participatory Land Use Planning at Village Level							
Activity 2.1	Capacity Development and training for government staff on Participatory Land Use Planning (PLUP)	Consultants	Months	15,000	3	45,000	360,000
		National staff	Months	3,000	3	9,000	72,000
		Training courses	Trainings	4,000	6	24,000	192,000
Activity 2.2	Implementation of PLUP and monitoring at village level	National Staff	Months	3,000	15	45,000	360,000
		Implementation costs	Village	5,000	180	900,000	7,200,000
		DSA and travel costs	Lumpsum	1,500	120	180,000	1,440,000
Sub-component 3: Land Registration and Titling							
Activity 3.1	Capacity Development and training for government staff on land registration and land titling process	Consultants	Months	15,000	2	30,000	240,000
		National Staff	Months	3,000	6	18,000	144,000
		Training courses	Trainings	4,000	6	24,000	192,000
Activity 3.2	Implementation of land registration and land titling processes with Awareness raising and dissemination of land law, inheritance law, family law, other land related laws	National Staff	Months	3,000	14	42,000	336,000
		Implementation costs	Village	5,000	100	500,000	4,000,000
		DSA and travel costs	Lumpsum	1,500	70	105,000	840,000
Sub-component 4: Law enforcement and governance of land concession and contract farming on cash crop and tree plantation							
Activity 4.1	Detailed assessment of current land concession and contract farming on cash crop and tree plantation in the province	Consultants	Months	15,000	4	60,000	480,000
		National Staff	Months	3,000	8	24,000	192,000

		DSA and travel costs	Lumpsum	1,500	8	12,000	96,000
Activity 4.2	Capacity development and training for government staff to manage the approval process and monitoring on land concession and contract farming	Consultants	Months	15,000	2	30,000	240,000
		National Staff	Months	3,000	4	12,000	96,000
		Training courses	Trainings	4,000	12	48,000	384,000
Activity 4.3	Management and monitoring on land concession and contract farming in the pilot site of Luang Prabang Province	National Staff	Months	3,000	18	54,000	60,000
		DSA and travel costs	Lumpsum	1,500	130	195,000	60,000
Sub-component 5: Law enforcement and governance of land use sectors							
Activity 5.1	Awareness raising for provincial and district government staff on forest law enforcement, governance and REDD+	Consultants	Months	15,000	6	90,000	720,000
		National staff	Months	3,000	6	18,000	144,000
		Awareness Campaigns	Districts	10,000	26	260,000	2,080,000
Activity 5.2	Capacity development and training Environment and Social Management and Monitoring Plan (ESMMP) of the infrastructure projects	Consultants	Months	15,000	6	90,000	720,000
		National staff	Months	3,000	6	18,000	144,000
		Training courses	Trainings	4,000	26	104,000	832,000
Activity 5.3	Capacity development and training of participatory consultation process and grievance mechanism of the project	Consultants	Months	15,000	4	60,000	480,000
		National staff	Months	3,000	6	18,000	144,000
		Training courses	Trainings	4,000	26	104,000	832,000
Activity 5.4	Piloting the formulation and implementation of Environment and Social Management and Monitoring Plan (ESMMP) in selected Hydropower project	Consultants	Months	15,000	4	60,000	480,000
		National staff	Months	3,000	6	18,000	144,000
		DSA and travel costs	Lumpsum	1,500	40	60,000	480,000
Component 2: Forest Management							
Sub-component 1: Re-delineation/Re-confirmation of 3 forest categories (3FCs) at National, Provincial and District level with forest landscape approach							
Activity 1.1	Institutional set up inter-sectoral management committee for 3FCs	Consultants	Months	15,000	1	15,000	120,000
		National staff	Months	3,000	2	6,000	48,000
		Workshops	Workshops	2,500	2	5,000	40,000
Activity 1.2	Detailed assessment of land cover, concession area, watershed, biodiversity corridor and other forest ecosystem services within and surrounding area of 3FCs	Consultants	Months	15,000	9	135,000	1,080,000
		National staff	Months	3,000	15	45,000	360,000
		Training courses	Trainings	4,000	9	36,000	288,000
		DSA and travel costs	Lumpsum	1,500	18	27,000	216,000
Activity 1.3	Mapping land cover/use and landscape zones in 3FCs based on the result of assessment Activity 1.2	Consultants	Months	15,000	9	135,000	1,080,000
		National staff	Months	3,000	9	27,000	216,000
Activity 1.4	Consultation meeting involving concerned sectors in the Province and Districts for agreement	Workshops	Workshops	2,500	24	60,000	480,000

Activity 1.5	Procurement of office equipment, software and GPS to develop information management on forest related information including 3FCs and official documents	goods	Districts	15,000	24	360,000	2,880,000
Activity 1.6	Provision of technical support for data storage and management	Consultants	Months	15,000	6	90,000	720,000
		National staff	Months	3,000	12	36,000	288,000
		Training courses	Trainings	4,000	6	24,000	192,000
Sub-component 2: Forest landscape management in Protection Forest Area							
Activity 2.1	Piloting forest landscape management in priority PTA	Consultants	Months	15,000	8	120,000	960,000
		National staff	Months	3,000	15	45,000	360,000
		DSA and travel costs	Lumpsum	1,500	12	18,000	144,000
		Implementation costs	Village	5,000	45	225,000	1,800,000
Activity 2.2	Implementation and scaling up of forest landscape management in each PTA	Consultants	Months	15,000	6	90,000	720,000
		DSA and travel costs	Lumpsum	1,500	90	135,000	1,080,000
		National staff	Months	3,000	20	60,000	480,000
		Implementation costs	Village	5,000	270	1,350,000	10,800,000
Sub-component 3: Village Forest Management							
Activity 3.1	Design and piloting sustainable finance mechanisms for Village Forest Management	Consultants	Months	15,000	12	180,000	1,440,000
		National staff	Months	3,000	12	36,000	288,000
		DSA and travel costs	Lumpsum	1,500	3	4,500	36,000
		Implementation costs	Village	5,000	2	10,000	80,000
		Training courses	Trainings	4,000	3	12,000	96,000
Activity 3.2	Design and piloting livelihoods options through village based forestry activities.	Consultants	Months	15,000	12	180,000	1,440,000
		National staff	Months	3,000	12	36,000	288,000
		DSA and travel costs	Lumpsum	1,500	3	4,500	36,000
		Implementation costs	Village	5,000	2	10,000	80,000
		Training courses	Trainings	4,000	3	12,000	96,000
Activity 3.3	Design and piloting value addition of village forest products.	Consultants	Months	15,000	12	180,000	1,440,000
		National staff	Months	3,000	12	36,000	288,000
		DSA and travel costs	Lumpsum	1,500	3	4,500	36,000
		Implementation costs	Village	5,000	2	10,000	80,000
		Training courses	Trainings	4,000	3	12,000	96,000
Activity 3.4	Design and piloting village forest management to maintain and improve Ecosystem services, biodiversity values, watershed	Consultants	Months	15,000	12	180,000	1,440,000
		National staff	Months	3,000	12	36,000	288,000
		DSA and travel costs	Lumpsum	1,500	3	4,500	36,000

	services and carbon stocks through village based forestry activities.	Training courses	Trainings	4,000	3	12,000	96,000
Activity 3.5	Implementation of VFI Models	goods	Districts	15,000	1	15,000	120,000
		National staff	Months	3,000	12	36,000	288,000
		Implementation costs	Village	5,000	40	200,000	1,600,000
		DSA and travel costs	Lumpsum	1,500	40	60,000	480,000
Sub-component 4: Forest regeneration and afforestation							
Activity 4.1	Detailed assessment of potential forest restoration area in degraded lands	Consultants	Months	15,000	12	180,000	1,440,000
		National staff	Months	3,000	12	36,000	288,000
		DSA and travel costs	Lumpsum	1,500	36	54,000	432,000
Activity 4.2	Implementation of forest regeneration in degraded forest area	goods	Districts	15,000	12	180,000	1,440,000
		National staff	Months	3,000	60	180,000	1,440,000
Activity 4.3	Provision of up-front financing to villagers for implementation of afforestation activities in degraded forest area	Cumulative investments	ha	101	6,250	633,750	5,070,000
Sub-component 5: Forest fire prevention							
Activity 5.1	Awareness raising for forest fire prevention at village level	Consultants	Months	15,000	1	15,000	120,000
		National staff	Months	3,000	4	12,000	96,000
		Awareness Campaigns	Districts	10,000	96	960,000	7,680,000
Activity 5.2	Develop the system for monitoring forest fires and piloting the system in selected area	Consultants	Months	15,000	12	180,000	1,440,000
		National staff	Months	3,000	12	36,000	288,000
Activity 5.3	Implementation of forest monitoring for forest fire prevension	goods	Districts	15,000	12	180,000	1,440,000
		Training courses	Trainings	4,000	60	240,000	1,920,000
		DSA and travel costs	Lumpsum	1,500	120	180,000	1,440,000
Sub-component 6: Sustainable teak plantation management and improvement of value chain							
Activity 6.1	Detailed assessment of potential teak plantation area for scaling up sustainable forest management certification	Consultants	Months	15,000	6	90,000	720,000
		National staff	Months	3,000	6	18,000	144,000
		Workshops	Workshops	2,500	2	5,000	40,000
Activity 6.2	Provision of technical support to strengthen farmers group and its network	Consultants	Months	15,000	3	45,000	360,000
		National staff	Months	3,000	4	12,000	96,000
		Training courses	Trainings	4,000	35	140,000	1,120,000
		DSA and travel costs	Lumpsum	1,500	70	105,000	840,000
Activity 6.3	Provision of technical support to implement standard operation on teak plantation	Consultants	Months	15,000	3	45,000	360,000
		National staff	Months	3,000	4	12,000	96,000
		Training courses	Trainings	4,000	35	140,000	1,120,000

		DSA and travel costs	Lumpsum	1,500	70	105,000	840,000
Activity 6.4	Provision of technical support to develop and modernize value added processing of forest products	Consultants	Months	15,000	3	45,000	360,000
		National staff	Months	3,000	4	12,000	96,000
		Training courses	Trainings	4,000	35	140,000	1,120,000
		DSA and travel costs	Lumpsum	1,500	70	105,000	840,000
Activity 6.5	Provision of technical support to promote small scale enterprises for value addition of teak products	Consultants	Months	15,000	3	45,000	360,000
		National staff	Months	3,000	4	12,000	96,000
		Training courses	Trainings	4,000	35	140,000	1,120,000
		DSA and travel costs	Lumpsum	1,500	70	105,000	840,000
Activity 6.6	Procurement of equipment and materials for promoting sustainable teak plantation management and improvement of value chain	goods	Districts	15,000	10	150,000	1,200,000
Objective 7: Law enforcement and governance for illegal logging							
Activity 7.1	Awareness raising and dissemination of forestry related policies, laws and regulations at district and village cluster level in priority area	Consultants	Months	15,000	2	30,000	240,000
		National staff	Months	3,000	6	18,000	144,000
		Awareness Campaigns	Districts	10,000	96	960,000	7,680,000
Activity 7.2	Developing monitoring system for illegal logging	Consultants	Months	15,000	8	120,000	960,000
		National staff	Months	3,000	8	24,000	192,000
Activity 7.3	Capacity development and training of log inspection at check points, logging field, wood processing factory and furniture workshop	Consultants	Months	15,000	4	60,000	480,000
		National staff	Months	3,000	4	12,000	96,000
		Training courses	Trainings	4,000	2	8,000	64,000
Activity 7.4	Inspection of wood processing factory, furniture factory, warehouse of wood and non-timber forest product	National Staff	Months	3,000	6	18,000	144,000
		DSA and travel costs	Lumpsum	1,500	144	216,000	1,728,000
Activity 7.5	Inspection of wood processing factory, furniture factory, warehouse of wood and non-timber forest product	National Staff	Months	3,000	6	18,000	144,000
		DSA and travel costs	Lumpsum	1,500	144	216,000	1,728,000
Activity 7.6	Support inspection of logging over the quota permitted in reservoir area of planned hydropower dam	National Staff	Months	3,000	6	18,000	144,000
		DSA and travel costs	Lumpsum	1,500	72	108,000	864,000
Activity 7.7	Procurement of office equipment, tablet, GPS and other necessary tools to enhance law enforcement	goods	Districts	15,000	12	180,000	1,440,000
Activity 7.8	Monitoring and patrolling illegal logging in Protection Forest Areas.	National Staff	Months	3,000	6	18,000	144,000
		DSA and travel costs	Lumpsum	1,500	72	108,000	864,000
Objective 8: Payment for Forest Ecosystem Services							
Activity 8.1	Assessment of potential PFES in Luang Prabang Province	Consultants	Months	15,000	3	45,000	360,000
		National staff	Months	3,000	3	9,000	72,000
		Workshops	Workshops	2,500	2	5,000	40,000

Activity 8.2	Promoting pilot activities on PFES in cooperated with forest service uses such as water supply company, hydropower dam company, eco-tourism, etc.	Consultants	Months	15,000	4	60,000	480,000
		National staff	Months	3,000	6	18,000	144,000
		Training courses	Trainings	4,000	6	24,000	192,000
		DSA and travel costs	Lumpsum	1,500	9	13,500	108,000
Component 3: Social (Livelihood) Management							
Sub-component 1: Sustainable cash crop production system in upland							
Activity 1.1	Conducting research to identify best practices for sustainable cash crop production including agroforestry and agricultural intensification.	Consultants	Months	15,000	6	90,000	720,000
		National staff	Months	3,000	10	30,000	240,000
		DSA and travel costs	Lumpsum	1,500	24	36,000	288,000
Activity 1.2	Capacity Development and training for extension officers on sustainable cash crop production models and practices	Consultants	Months	15,000	9	135,000	1,080,000
		National staff	Months	3,000	9	27,000	216,000
		Training courses	Trainings	4,000	6	24,000	192,000
		DSA and travel costs	Lumpsum	1,500	36	54,000	432,000
Activity 1.3	Provision of up-front finance (tools, fertilizer, alternative crop seedling material) for the implementation of cropping	3 years reoccurring investment	ha	101	14,595	1,477,787	11,822,297
Activity 1.4	Development and support of agricultural cooperatives	Consultants	Months	15,000	3	45,000	360,000
		National staff	Months	3,000	6	18,000	144,000
		Training courses	Trainings	4,000	6	24,000	192,000
		DSA and travel costs	Lumpsum	1,500	72	108,000	864,000
Sub-component 2: Livestock raising and fodder production							
Activity 2.1	Capacity Development and training for extension officers on livestock raising techniques	Consultants	Months	15,000	1	15,000	120,000
		National staff	Months	3,000	3	9,000	72,000
		Training courses	Trainings	4,000	3	12,000	96,000
Activity 2.2	Provision of up-front finance (tools, fertilizer, alternative crop seedling material) for fodder production	3 years reoccurring investment	ha	152	8,400	1,274,700	10,197,600
		DSA and travel costs	Lumpsum	1,500	96	144,000	1,152,000
Activity 2.3	Provision of livestock & up-front finance for improving livestock production systems	Estimation of financial support	households	225	4,800	1,077,888	8,623,104
		DSA and travel costs	Lumpsum	1,500	96	144,000	1,152,000
Activity 2.4	Provision of technical support for improving credit access	Consultants	Months	15,000	6	90,000	720,000
		National staff	Months	3,000	12	36,000	288,000
		Training courses	Trainings	4,000	24	96,000	768,000
Sub-component 3: Development of participatory ecotourism							
Activity 3.1	Assessment of potential area for eco-tourism promotion	Consultants	Months	15,000	6	90,000	720,000

		National staff	Months	3,000	10	30,000	240,000
Activity 3.2	Capacity Development and training for extension officers on eco-tourism	Training courses	Trainings	4,000	3	12,000	96,000
Activity 3.3	Provision of up-front finance (sign-board, alternative livelihood development activities) for the eco-tourism promotion	Implementation costs	Village	5,000	30	150,000	1,200,000
TOTAL Budget for the implementation of all PAMs			$20,135,625			**LAK 161,085,001,143 ,000**	

Table B2. Annual budget dispersal plan for the entire duration of the PRAP (2018-2025)

Component/ Sub-component/Activity		**Budget Dispersal (USD) per year**								**TOTAL**
		1	2	3	4	5	6	7	8	
Component 1: Integrated Land and Forest Management										
Sub-component 1: Improved Provincial Land Use Planning										
Activity 1.1	Institutional set up land coordination mechanism involving forestry sector	26,000	3,000	0	0	0	0	0	0	29,000
Activity 1.2	Provision of technical support to integration of the 3FCs into provincial land use classification, land use planning and the provincial SEDPs	57,000	57,000	0	0	0	0	0	0	114,000
Activity 1.3	Procurement of tools and equipment to support the improved land use planning in the Province and districts	195,000	0	0	0	0	0	0	0	195,000
Activity 1.4	Implementation of improved land use planning at provincial and district levell	54,000	54,000	24,000	0	0	0	0	0	132,000
Sub-component 2: Participatory Land Use Planning at Village Level										
Activity 2.1	Capacity Development and training for government staff on Participatory Land Use Planning (PLUP)	26,000	26,000	26,000	0	0	0	0	0	78,000
Activity 2.2	Implementation of PLUP and monitoring at village level	0	225,000	225,000	225,000	225,000	225,000	0	0	1,125,000
Sub-component 3: Land Registration and Titling										
Activity 3.1	Capacity Development and training for government staff on land registration and land titling process	29,000	29,000	14,000	0	0	0	0	0	72,000
Activity 3.2	Implementation of land registration and land titling processes with Awareness raising and dissemination of land law,	0	77,000	77,000	71,000	71,000	118,000	118,000	115,000	647,000

	inheritance law, family law, other land related laws									
Sub-component 4: Law enforcement and governance of land concession and contract farming on cash crop and tree plantation										
Activity 4.1	Detailed assessment of current land concession and contract farming on cash crop and tree plantation in the province	48,000	48,000	0	0	0	0	0	0	96,000
Activity 4.2	Capacity development and training for government staff to manage the approval process and monitoring on land concession and contract farming	0	0	45,000	0	0	45,000	0	0	90,000
Activity 4.3	Management and monitoring on land concession and contract farming in the pilot site of Luang Prabang Province	0	0	45,000	45,000	45,000	24,000	45,000	45,000	249,000
Sub-component 5: Law enforcement and governance of land use sectors										
Activity 5.1	Awareness raising for provincial and district government staff on forest law enforcement, governance and REDD+	184,000	0	0	184,000	0	0	0	0	368,000
Activity 5.2	Capacity development and training Environment and Social Management and Monitoring Plan (ESMMP) of the infrastructure projects	106,000	0	0	106,000	0	0	0	0	212,000
Activity 5.3	Capacity development and training of participatory consultation process and grievance mechanism of the project	91,000	0	0	91,000	0	0	0	0	182,000
Activity 5.4	Piloting the formulation and implementation of Environment and Social Management and Monitoring Plan (ESMMP) in selected Hydropower project	46,500	7,500	7,500	46,500	7,500	7,500	7,500	7,500	138,000
Component 2: Forest Management										
Sub-component 1: Re-delineation/Re-confirmation of 3 forest categories (3FCs) at National, Provincial and District level with forest landscape approach										
Activity 1.1	Institutional set up inter-sectoral management committee for 3FCs	26,000	0	0	0	0	0	0	0	26,000
Activity 1.2	Detailed assessment of land cover, concession area, watershed, biodiversity corridor and other forest ecosystem services within and surrounding area of 3FCs	81,000	81,000	81,000	0	0	0	0	0	243,000

Activity 1.3	Mapping land cover/use and landscape zones in 3FCs based on the result of assessment Activity 1.2	54,000	54,000	54,000	0	0	0	0	0	162,000
Activity 1.4	Consultation meeting involving concerned sectors in the Province and Districts for agreement	20,000	20,000	20,000	0	0	0	0	0	60,000
Activity 1.5	Procurement of office equipment, software and GPS to develop information management on forest related information including 3FCs and official documents	120,000	120,000	120,000	0	0	0	0	0	360,000
Activity 1.6	Provision of technical support for data storage and management	50,000	50,000	50,000	0	0	0	0	0	150,000
Sub-component 2: Forest landscape management in Protection Forest Area										
Activity 2.1	Piloting forest landscape management in priority PTA	156,000	156,000	96,000	0	0	0	0	0	408,000
Activity 2.2	Implementation and scaling up of forest landscape management in each PTA	0	0	0	339,000	339,000	339,000	309,000	309,000	1,635,000
Sub-component 3: Village Forest Management										
Activity 3.1	Design and piloting sustainable finance mechanisms for Village Forest Management	77,500	82,500	82,500	0	0	0	0	0	242,500
Activity 3.2	Design and piloting livelihoods options through village based forestry activities.	77,500	82,500	82,500	0	0	0	0	0	242,500
Activity 3.3	Design and piloting value addition of village forest products.	77,500	82,500	82,500	0	0	0	0	0	242,500
Activity 3.4	Design and piloting village forest management to maintain and improve Ecosystem services, biodiversity values, watershed services and carbon stocks through village based forestry activities.	77,500	77,500	77,500	0	0	0	0	0	232,500
Activity 3.5	Implementation of VFI Models	0	0	0	65,500	83,000	65,000	65,000	32,500	311,000
Sub-component 4: Forest regeneration and afforestation										
Activity 4.1	Detailed assessment of potential forest restoration area in degraded lands	90,000	90,000	90,000	0	0	0	0	0	270,000
Activity 4.2	Implementation of Forest regeneration in degraded forest area	0	0	0	126,000	126,000	36,000	36,000	36,000	360,000
Activity 4.3	Provision of up-front financing to villagers for implementation of	0	90,449	90,550	90,550	90,550	90,550	90,550	90,550	633,750

	afforestation activities in degraded forest area									
Sub-component 5: Forest fire prevention										
Activity 5.1	Awareness raising for forest fire prevention at village level	138,000	123,000	123,000	123,000	120,000	120,000	120,000	120,000	987,000
Activity 5.2	Develop the system for monitoring forest fires and piloting the system in selected area	72,000	72,000	72,000	0	0	0	0	0	216,000
Activity 5.3	Implementation of forest monitoring for forest fire prevention	0	0	0	264,000	84,000	84,000	84,000	84,000	600,000
Sub-component 6: Sustainable teak plantation management and improvement of value chain										
Activity 6.1	Detailed assessment of potential teak plantation area for scaling up sustainable forest management certification	56,500	56,500	0	0	0	0	0	0	113,000
Activity 6.2	Provision of technical support to strengthen farmers group and its network	0	83,000	38,000	38,000	38,000	35,000	35,000	35,000	302,000
Activity 6.3	Provision of technical support to implement standard operation on teak plantation	0	83,000	38,000	38,000	38,000	35,000	35,000	35,000	302,000
Activity 6.4	Provision of technical support to develop and modernize value added processing of forest products	0	83,000	38,000	38,000	38,000	35,000	35,000	35,000	302,000
Activity 6.5	Provision of technical support to promote small scale enterprises for value addition of teak products	0	83,000	38,000	38,000	38,000	35,000	35,000	35,000	302,000
Activity 6.6	Procurement of equipment and materials for promoting sustainable teak plantation management and improvement of value chain	0	75,000	75,000	0	0	0	0	0	150,000
Objective 7: Law enforcement and governance for illegal logging										
Activity 7.1	Awareness raising and dissemination of forestry related policies, laws and regulations at district and village cluster level in priority area	156,000	126,000	126,000	120,000	120,000	120,000	120,000	120,000	1,008,000
Activity 7.2	Developing monitoring system for illegal logging	72,000	72,000	0	0	0	0	0	0	144,000
Activity 7.3	Capacity development and training of log inspection at check points, logging	0	0	40,000	40,000	0	0	0	0	80,000

	field, wood processing factory and furniture workshop									
Activity 7.4	Inspection of wood processing factory, furniture factory, warehouse of wood and non-timber forest product	0	0	39,000	39,000	39,000	39,000	39,000	39,000	234,000
Activity 7.5	Inspection of wood processing factory, furniture factory, warehouse of wood and non-timber forest product	0	0	39,000	39,000	39,000	39,000	39,000	39,000	234,000
Activity 7.6	Support inspection of logging over the quota permitted in reservoir area of planned hydropower dam	0	0	21,000	21,000	21,000	21,000	21,000	21,000	126,000
Activity 7.7	Procurement of office equipment, tablet, GPS and other necessary tools to enhance law enforcement	0	180,000	0	0	0	0	0	0	180,000
Activity 7.8	Monitoring and patrolling illegal logging in Protection Forest Areas.	0	0	21,000	21,000	21,000	21,000	21,000	21,000	126,000
Objective 8: Payment for Forest Ecosystem Services										
Activity 8.1	Assessment of potential PFES in Luang Prabang Province	59,000	0	0	0	0	0	0	0	59,000
Activity 8.2	Promoting pilot activities on PFES in cooperated with forest service uses such as water supply company, hydropower dam company, eco-tourism, etc.	48,500	48,500	18,500	0	0	0	0	0	115,500
Component 3: Social (Livelihood) Management										
Sub-component 1: Sustainable cash crop production system in upland										
Activity 1.1	Conducting research to identify best practices for sustainable cash crop production including agroforestry and agricultural intensification.	78,000	78,000	0	0	0	0	0	0	156,000
Activity 1.2	Capacity Development and training for extension officers on sustainable cash crop production models and practices	0	80,000	80,000	80,000	0	0	0	0	240,000
Activity 1.3	Provision of up-front finance (tools, fertilizer, alternative crop seedling material) for the implementation of cropping	0	123,149	123,149	246,298	246,298	246,298	246,298	246,298	1,477,787
Activity 1.4	Development and support of agricultural cooperatives	0	0	80,000	35,000	26,000	18,000	18,000	18,000	195,000
Sub-component 2: Livestock raising and fodder production										

Activity 2.1	Capacity Development and training for extension officers on livestock raising techniques	22,000	7,000	7,000	0	0	0	0	0	36,000
Activity 2.2	Provision of up-front finance (tools, fertilizer, alternative crop seedling material) for fodder production	109,050	109,050	200,100	200,100	200,100	200,100	200,100	200,100	1,418,700
Activity 2.3	Provision of livestock & up-front finance for improving livestock production systems	152,736	152,736	152,736	152,736	152,736	152,736	152,736	152,736	1,221,888
Activity 2.4	Provision of technical support for improving credit access	37,000	37,000	0	37,000	37,000	0	37,000	37,000	222,000
Sub-component 3: Development of participatory ecotourism										
Activity 3.1	Assessment of potential area for eco-tourism promotion	60,000	60,000	0	0	0	0	0	0	120,000
Activity 3.2	Capacity Development and training for extension officers on eco-tourism	0	0	4,000	4,000	4,000	0	0	0	12,000
Activity 3.3	Provision of up-front finance (sign-board, alternative livelihood development activities) for the eco-tourism promotion	0	0	25,000	25,000	25,000	25,000	25,000	25,000	150,000
Total Cost of PRAP Implementation 2018-2025 including all components ($USD)		**2,830,286**	**3,244,884**	**2,788,535**	**2,988,684**	**2,274,184**	**2,176,184**	**1,934,184**	**1,898,684**	**20,135,625**

Separate Volume

2-17 Luang Prabang

Provincial REDD+ Action Plan (Lao)

ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ
ສັນຕິພາບ ເອກະລາດ ປະຊາທິປະໄຕ ເອກະພາບ ວັດທະນາຖາວອນ
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ແຜນປະຕິບັດງານ
"ການຫຼຸດຜ່ອນການປ່ອຍອາຍພິດເຮືອນແກ້ວ ຈາກການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ" ຂອງແຂວງຫຼວງພະບາງ ໄລຍະ 2018– 2025

(PROVINCIAL REDD+ ACTION PLAN)

ທັນວາ 2017

ກະກຽມໂດຍ: ຫ້ອງການ REDD+ ປະຈຳແຂວງຫຼວງພະບາງ, ພະແນກກະສິກຳ ແລະ ປ່າໄມ້

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ADB	ທະນາຄານພັດທະນາອາຊີ
CBA	ການວິເຄາະຜົນຕອບແທນ
CF	ກອງທຶນການກວບອນ
CliPAD	ໂຄງການປົກປັກຮັກສາດິນຟ້າອາກາດ ໂດຍຫຼີກຫຼ່ຽງການທຳລາຍປ່າໄມ້ (ເຢັຍລະມັນ)
DAFO	ຫ້ອງການກະສິກຳ ແລະ ປ່າໄມ້ເມືອງ
DONRE	ຫ້ອງການຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມເມືອງ
DPIO	ຫ້ອງການແຜນການ ແລະ ການລົງທຶນເມືອງ
DRAP	ຄະນະຮັບຜິດຊອບສ້າງແຜນປະຕິບັດງານ REDD+ ຂັ້ນເມືອງ
ER-P	ແຜນງານຫຼຸດຜ່ອນການປ່ອຍອາຍພິດເຮືອນແກ້ວ
ERR	ອັດຕາຜົນຕອບແທນການລົງທຶນທີ່ຄາດຫວັງ
ER-PD	ເອກະສານແຜນງານຫຼຸດຜ່ອນການປ່ອຍອາຍພິດເຮືອນແກ້ວ
ER-PIN	ເອກະສານແນວຄວາມຄິດສຳລັບແຜນງານຫຼຸດຜ່ອນການປ່ອຍອາຍພິດເຮືອນແກ້ວ
ESMMP	ແຜນຄຸ້ມຄອງ ແລະ ຕິດຕາມກວດກາສິ່ງແວດລ້ອມ-ສັງຄົມ
FCPF	ໂຄງການຄວາມຮ່ວມມືຫຸ້ນສ່ວນການກວບອນໃນປ່າ
FLEGT	ການບັງຄັບໃຊ້ກົດໝາຍປ່າໄມ້, ການຄຸ້ມຄອງ ແລະ ການຄ້າ
F-REDD	ໂຄງການສະໜັບສະໜູນການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນນານ ແລະ REDD+
FSC	ສະພາບໍລິຫານປ່າໄມ້ (ອົງການສາກົນອອກໃບຢັ້ງຢືນປ່າໄມ້)
GIZ	ອົງການຮ່ວມມືສາກົນຂອງລັດຖະບານເຢັຍລະມັນ
IRR	ອັດຕາຜົນຕອບແທນການລົງທຶນພາຍໃນ
JICA	ອົງການຮ່ວມມືສາກົນຍີ່ປຸ່ນ
kfw	ອົງການຮ່ວມມືປະເທດເຢັຍລະມັນ
Lao PDR	ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ (ສປປ ລາວ)
LDC	ປະເທດດ້ອຍພັດທະນາ
LFNC	ແນວລາວສ້າງຊາດ
LPTP	ໂຄງການຄຸ້ມຄອງໄມ້ສັກຫຼວງພະບາງ
LUP	ການວາງແຜນນຳໃຊ້ທີ່ດິນ
LWU	ສະຫະພັນຍິງ
M&E	ການຕິດຕາມກວດກາ ແລະ ປະເມີນຜົນ
MAF	ກະຊວງກະສິກຳ ແລະ ປ່າໄມ້ (ກປ)
MEM	ກະຊວງພະລັງງານ ແລະ ບໍ່ແຮ່
MONRE	ກະຊວງຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ (ກຊສ)
MOs	ຈຸດປະສົງການຄຸ້ມຄອງ
MPI	ກະຊວງແຜນການ ແລະ ການລົງທຶນ
MRV	ການວັດແທກ, ລາຍງານ ແລະ ພິສູດຢັ້ງຢືນ
NDC	ເອກະສານການປະກອບສ່ວນຂອງລັດຖະບານ ສປປ ລາວ
NEC	ຄະນະກຳມະການສິ່ງແວດລ້ອມແຫ່ງຊາດ
NPV	ມູນຄ່າສຸດທິປະຈຸບັນ
NSCC	ຍຸດທະສາດການປ່ຽນແປງດິນຟ້າອາກາດແຫ່ງຊາດ
NTFP	ເຄື່ອງປ່າຂອງດົງ
PAMs	ນະໂຍບາຍ ແລະ ມາດຕະການ
PPIO	ພະແນກແຜນການ ແລະ ການລົງທຶນແຂວງ

PLUP	ການວາງແຜນນຳໃຊ້ທີ່ດິນແບບມີສ່ວນຮ່ວມ ຢູ່ ຂັ້ນບ້ານ
PONRE	ພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມແຂວງ (ພຊສ)
PRAP	ແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງ
PRO	ຫ້ອງການ REDD+ ຂັ້ນແຂວງ
REDD+	ການຫຼຸດຜ່ອນການປ່ອຍອາຍພິດເຮືອນແກ້ວຈາກການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ, ການອະນຸລັກການກວນປ່າໄມ້, ຄຸ້ມຄອງປ່າໄມ້ແບບຍືນຍົງ ແລະ ເພີ່ມທະວີການເກັບກັກການກວນໃນປ່າໄມ້
RL/REL	ເສັ້ນລະດັບທຽບຖານ/ລະດັບທຽບຖານການປ່ອຍອາຍພິດເຮືອນແກ້ວ
R-Package	ເອກະສານການກຽມຄວາມພ້ອມ (RPP)
R-PIN	ເອກະສານແຜນກຽມຄວາມພ້ອມ (R-PIN)
SEDP	ແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມ
SIDA	ອົງການຮ່ວມມືສາກົນແຫ່ງປະເທດຊູແອດ
SDC	ອົງການຮ່ວມມືປະເທດສະວິດ (Swiss)
UNFCCC	ສົນທິສັນຍາວ່າດ້ວຍການປ່ຽນແປງດິນຟ້າອາກາດຂອງສະຫະປະຊາຊາດ
UN-REDD	ແຜນງານ REDD ຂອງສະຫະປະຊາຊາດ
VFM	ການຄຸ້ມຄອງປ່າໄມ້ບ້ານ
WG	ກຸ່ມເຮັດວຽກສະເພາະ

ບົດຄັດຫຍໍ້

ແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງ (PRAP)	
ໄລຍະເວລາຂອງ PRAP: 2018 – 2025 (8 ປີ)	
ເປົ້າໝາຍຂອງ PRAP: ປະກອບສ່ວນເຂົ້າໃນວຽກງານການແກ້ໄຂບັນຫາການປ່ຽນແປງດິນຟ້າອາກາດ ໂດຍຜ່ານກິດຈະກຳ REDD+ ຄຽງຄູ່ກັບການປົກປັກຮັກສາ ແລະ ເພີ່ມທະວີການບໍລິຫານຈັດການລະບົບນິເວດ ແລະ ຊີວະນາໆພັນຂອງປ່າໄມ້, ການພັດທະນາທີ່ສາມາດປັບຕົວເຂົ້າກັບການປ່ຽນແປງຂອງດິນຟ້າອາກາດ ແລະ ຮັບປະກັນການປັບປຸງຊີວິດການເປັນຢູ່ຂອງປະຊາຊົນໃຫ້ດີຂຶ້ນ.	ຈຸດປະສົງຂອງ PRAP: 1. ຫຼຸດຜ່ອນການທຳລາຍປ່າໄມ້ ຢູ່ ໃນເຂດປ່າໄມ້ທີ່ຍັງມີໃນປະຈຸບັນ. 2. ຫຼຸດຜ່ອນການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ຢູ່ ໃນເຂດປ່າໄມ້ທີ່ຍັງມີໃນປະຈຸບັນ. 3. ຊຸກຍູ້ສິ່ງເສີມການຟື້ນຟູປ່າແບບທຳມະຊາດ ແລະ ການປູກໄມ້ຟື້ນຟູປ່າໃນເຂດປ່າໄມ້ທີ່ເສື່ອມໂຊມ. 4. ຊຸກຍູ້ສິ່ງເສີມ ແລະ ຄຸ້ມຄອງການປູກໄມ້ແບບຍືນຍົງໃນເຂດປ່າໄມ້ທີ່ເສື່ອມໂຊມ. 5. ເພີ່ມທະວີການບໍລິຫານຈັດການລະບົບນິເວດ ແລະ ປັບປຸງຊີວິດການເປັນຢູ່ຂອງປະຊາຊົນໃຫ້ດີຂຶ້ນ.
ເນື້ອທີ່ປະເມີນການກວບຄຸມປ່າໄມ້ຂອງແຂວງຫຼວງພະບາງ	ລາຍຊື່ຜູ້ທີ່ມີສ່ວນຮ່ວມໃນການສ້າງ PRAP: • ທ່ານ ຫຸມຈິດສະຫວາດ ໂສດາຣັກ, ຮອງຫົວໜ້າພະແນກກະສິກຳ ແລະ ປ່າໄມ້/ຄະນະຊີ້ນຳ REDD+ ຂັ້ນແຂວງ • ທ່ານ ພອນແກ້ວ ຜົນຜາລິ, ພະແນກກະສິກຳ ແລະ ປ່າໄມ້ແຂວງ, ຫົວໜ້າຫ້ອງການ REDD+ ຂັ້ນແຂວງ/ຄະນະຮັບຜິດຊອບສ້າງ PRAP • ທ່ານ ຊ້າງ ຊະນະຜົນ, ພະແນກກະສິກຳ ແລະ ປ່າໄມ້ແຂວງ, ຮອງຫົວໜ້າຫ້ອງການ REDD+ ຂັ້ນແຂວງ/ຄະນະຮັບຜິດຊອບສ້າງ PRAP • ທ່ານ ຫົງຄຳ ແສນອານາຈັກ, ພະແນກກະສິກຳ ແລະ ປ່າໄມ້ແຂວງ, ສະມາຊິກຫ້ອງການ REDD+ ຂັ້ນແຂວງ/ຄະນະຮັບຜິດຊອບສ້າງ PRAP • ທ່ານ ສຸລິເດດ ບຸນມະນີ, ພະແນກກະສິກຳ ແລະ ປ່າໄມ້ແຂວງ, ສະມາຊິກຫ້ອງການ REDD+ ຂັ້ນແຂວງ/ຄະນະຮັບຜິດຊອບສ້າງ PRAP • ທ່ານ ສົມຈິດ ມາລາລອຍ, ປະສານງານດ້ານວິຊາການໂຄງການ F-REDD/JICA • ທ່ານ ທາກາຢູກິ ນາມູຣະ, ຊ່ຽວຊານໂຄງການ F- REDD /JICA
ເມືອງທີ່ເຂົ້າຮ່ວມ: 12 ເມືອງ (ຫຼວງພະບາງ, ຈອມເພັດ, ຊຽງເງີນ, ນານ, ປາກອູ, ປາກແຊງ, ໂພນໄຊ, ນ້ຳບາກ, ງອຍ, ວຽງຄຳ, ໂພນທອງ, ພູຄູນ)	
ກຸ່ມບ້ານທີ່ເຂົ້າຮ່ວມ:	
ກຳນົດຂອງການຈັດຕັ້ງປະຕິບັດ PRAP: 1 ມັງກອນ 2018 – 31 ທັນວາ 2025	
ພາບລວມຂອງແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງ (PRAP) ສະພາບລວມທາງດ້ານເສດຖະກິດ-ສັງຄົມຂອງແຂວງ: ແຂວງຫຼວງພະບາງ ຕັ້ງຢູ່ທາງພາກເໜືອຂອງລາວ, ມີເນື້ອທີ່ທັງໝົດ 20.009 ກິໂລຕາແມັດ, ເນື້ອທີ່ສ່ວນໃຫຍ່ເປັນພູ , ພູດອຍ ແລະ ຜາຫີນສູງຊັນ ກວມ 85%. ບ່ອນທີ່ສູງສຸດແມ່ນຢູ່ຈອມພູໝ້ຽງເມືອງຈອມເພັດ ມີຄວາມສູງ 2.257 ແມັດ ແລະ ບ່ອນຕ່ຳສຸດ ຢູ່ຈຸດປາກຄານ ເມືອງຫຼວງພະບາງ ມີປະມານ 260 ແມັດທຽບໃສ່ລະດັບໜ້ານ້ຳທະເລ ໂດຍແບ່ງອອກເປັນ 12 ເມືອງເຊັ່ນ: ເມືອງຫຼວງພະບາງ ,	

ຊຽງເງິນ, ນານ, ປາກອູ, ນ້ຳບາກ, ງອຍ, ໂພນທອງ, ວຽງຄຳ, ປາກແຊງ, ໂພນໄຊ, ຈອມເພັດ ແລະ ພູຄູນ, ມີ 96 ກຸ່ມບ້ານ, 10 ເຂດ, 752 ບ້ານ ມີ 77 .717 ຄອບຄົວ ແລະ ພົນລະເມືອງ 454 .095 ຄົນ, ຍິງ 278 .000 ຄົນ ໃນປີ 2015. ແຂວງຫຼວງພະບາງປະກອບ ດ້ວຍຫຼາຍຊົນເຜົ່າເຊັ່ນ: ລາວ, ໄຕ, ຜູ້ໄທ, ລື້, ยอน, ໄທ ເໜືອ, ກົມມຸ, ໄປຣ, ແທ່ນ, ມົ້ງ, ອິວມຽນ, ພູນ້ອຍ ແລະ ຫໍ້. ການຜະລິດກະສິກຳແມ່ນກົດຈະກຳຫຼັກໃນການດຳລົງຊີວິດຂອງປະຊາຊົນ ເປັນຕົ້ນແມ່ນເຮັດໄຮ່, ເຮັດນາ ແລະ ປູກຝັງລ້ຽງສັດ. ເນື່ອງຈາກ ວ່າເປັນແຂວງພູດອຍ ເນື້ອທີ່ນາຈຶ່ງມີຈຳກັດ. ການເຮັດໄຮ່ປູກພືດໃນໄລຍະຜ່ານມາ ຈຶ່ງໄດ້ເຂົ້າມາທົດແທນການປູກເຂົ້າຢ່າງເປັນຂະບວນ ເປັນຕົ້ນແມ່ນ: ສາລີ, ໝາກເດືອຍ, ໝາກງາ ແລະ ອື່ນໆ ສົມທົບກັບຄວາມພະຍາຍາມຂອງລັດຖະບານໃນການຢຸດຕິການຖາງປ່າເຮັດໄຮ່ ແບບເລື່ອນລອຍ ຫັນມາເຮັດໄຮ່ຄົງທີ່ດ້ວຍການປູກເຂົ້າ ແລະ ພືດທີ່ເປັນສິນຄ້າ. ການພັດທະນາພື້ນຖານໂຄງລ່າງອື່ນໆເຊັ່ນ: ການສ້າງ ເຂື່ອນໄຟຟ້າແມ່ນໜຶ່ງໃນບັນດາກົດຈະກຳທີ່ເປັນບູລິມະສິດໃນການສ້າງສາພັດທະນາເສດຖະກິດ-ສັງຄົມຂອງແຂວງ ໂດຍສະເພາະແຜນພັດ ທະນາເສດຖະກິດ-ສັງຄົມ 5 ປີ (2015-2020) ຂອງແຂວງ. ຄາດໝາຍສູ້ຊົນຮອດປີ 2020 ໃຫ້ມີເຂື່ອນໄຟຟ້າພະລັງງານນ້ຳທັງໝົດ 9 ແຫ່ງ, ສາມາດຜະລິດກະແສໄຟຟ້າໄດ້ 733,2 ເມກາວັດ ເພື່ອສະໜອງໃຫ້ສາຍສົ່ງໄຟຟ້ຳແຫ່ງຊາດ.

ສັງລວມຊັບພະຍາກອນປ່າໄມ້ຂອງແຂວງ:
ໃນປີ 2015, ແຂວງຫຼວງພະບາງ ມີເນື້ອທີ່ປ່າໄມ້ທັງໝົດປະມານ 1.824.795 ເຮັກຕາ ກວມ 91.7%, ໃນນັ້ນ 48.4% ເປັນປ່າທຳມະ ຊາດ ແລະ 43.3% ເປັນປ່າເລົ່າ. ເນື້ອທີ່ປ່າເລົ່າທີ່ມີເປີເຊັນສູງນີ້ ສາເຫດແມ່ນມາກຈາກການຖາງປ່າເຮັດໄຮ່ ຊຶ່ງແມ່ນຮູບແບບວິທີໃນ ການດຳລົງຊີວິດຂອງປະຊາຊົນໂດຍທົ່ວໄປ. ເນື້ອທີ່ປ່າທຳມະຊາດທີ່ຍັງມີສ່ວນໃຫຍ່ແມ່ນເປັນປ່າປະສົມ.

ສັງລວມການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ:
ສາເຫດຫຼັກຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ຢູ່ ແຂວງຫຼວງພະບາງ ແມ່ນການຂະຫຍາຍເນື້ອທີ່ຜະລິດກະສິກຳ ແລະ ການຖາງປ່າເຮັດໄຮ່ແບບເລື່ອນລອຍ. ນອກນັ້ນ, ຍັງມີສາເຫດອື່ນເຊັ່ນການພັດທະນາພື້ນຖານໂຄງລ່າງ , ການສ້າງເຂື່ອນໄຟຟ້າພະລັງ ງານນ້ຳ, ການຂຸດຄົ້ນບໍ່ແຮ່, ການກໍ່ສ້າງເສັ້ນທາງ ແລະ ຊົນລະປະທານ. ສ່ວນສາເຫດຂອງການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ແມ່ນມາຈາກການ ປູກໄມ້ອຸດສາຫະກຳໃນເຂດປ່າທຳມະຊາດ, ການຂຸດຄົ້ນໄມ້ທີ່ບໍ່ຖືກຕ້ອງຕາມກົດໝາຍ ແລະ ໄຟໄໝ້ລາມປ່າ ຊຶ່ງໃນນັ້ນການຂຸດຄົ້ນໄມ້ທີ່ບໍ່ ຖືກຕ້ອງຕາມກົດໝາຍ ແມ່ນສາເຫດຫຼັກຂອງການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ. ສຳລັບສາເຫດທາງອ້ອມຂອງການທຳລາຍປ່າໄມ້ ແລະ ການ ເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມນັ້ນ ແມ່ນມາຈາກປັດໄຈຫຼາຍດ້ານເຊັ່ນ: ດ້ານປະຊາກອນ, ເສດຖະກິດ, ນະ�โยบาย ແລະ ອົງການຈັດຕັ້ງ ຊຶ່ງຜົນ ກະທົບຈາກແຕ່ລະດ້ານລວມມີ: ການເພີ່ມຂຶ້ນຂອງປະຊາກອນ, ຄວາມທຸກຍາກ, ຄວາມຕ້ອງການຂອງຕະຫຼາດ, ຂາດທາງເລືອກໃນການ ດຳລົງຊີວິດ, ການຈັດຕັ້ງຄຸ້ມຄອງ ແລະ ການນຳໃຊ້ລະບຽບກົດໝາຍ ຍັງບໍ່ເຂັ້ມງວດ, ທິດທາງນະ�โยบายด้านการพัฒนาของลัดถะ บານ. ພາກສ່ວນທີ່ເປັນຕົ້ນເຫດຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ສ່ວນໃຫຍ່ແມ່ນຊາວກະສິກອນຂະໜາດ ນ້ອຍ ແລະ ພາກສ່ວນທຸລະກິດ. ບ່ອນທີ່ປ່າໄມ້ຖືກທຳລາຍ ແລະ ເສື່ອມໂຊມ ສ່ວນຫຼາຍແມ່ນເຂດປ່າປ້ອງກັນ ແລະ ພື້ນທີ່ປ່າໄມ້ທີ່ບໍ່ທັນ ໄດ້ຈັດສັນ ຊຶ່ງສອງເຂດນີ້ຕ້ອງໄດ້ພິຈາລະນາໃຫ້ເປັນເຂດບູລິມະສິດຂອງການຈັດຕັ້ງປະຕິບັດນະ�โยบาย ແລະ ມາດຕະການ (PAMs) ເພື່ອແກ້ໄຂບັນຫາການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ.

ສັງລວມການແກ້ໄຂບັນຫາການທຳລາຍປ່າໄມ້:
ນະ�โยบาย ແລະ ມາດຕະການ ໃນ 3 ຂະແໜງການ ທີ່ເປັນຈຸດສຸມມີດັ່ງນີ້:
<u>ອົງປະກອບ 1: ການຄຸ້ມຄອງທີ່ດິນແບບຄົບວົງຈອນ</u>

- ການປັບປຸງການວາງແຜນນຳໃຊ້ທີ່ດິນຂັ້ນແຂວງ
- ການວາງແຜນນຳໃຊ້ທີ່ດິນແບບມີສ່ວນຮ່ວມ ຢູ່ ຂັ້ນບ້ານ
- ການຂຶ້ນທະບຽນ ແລະ ອອກໃບຕາດິນ
- ການຄຸ້ມຄອງ ແລະ ການປະຕິບັດກົດໝາຍສຳລັບການສຳປະທານທີ່ດິນ, ການຜະລິດກະສິກຳ ແລະ ການປູກໄມ້ຕາມຂໍ້ຜູກພັນສັນຍາ
- ການຄຸ້ມຄອງ ແລະ ການປະຕິບັດກົດໝາຍສຳລັບຂະແໜງການທີ່ນຳໃຊ້ທີ່ດິນ

ອົງປະກອບ 2: ການຄຸ້ມຄອງປ່າໄມ້

- ການກຳນົດຄືນຂອບເຂດຂອງ 3 ປະເພດປ່າ ລະດັບຊາດ, ແຂວງ ແລະ ເມືອງ ແບບພູມີທັດ
- ການຄຸ້ມຄອງປ່າໄມ້ແບບພູມີທັດໃນເຂດປ່າປ້ອງກັນ
- ການຄຸ້ມຄອງປ່າໄມ້ບ້ານ
- ການຟື້ນຟູປ່າໄມ້ ແລະ ການປູກໄມ້ໃຫ້ເປັນປ່າ
- ການຄຸ້ມຄອງການປູກໄມ້ສັກແບບຍືນຍົງ ແລະ ການປັບປຸງຕ່ອງໂສ້ມູນຄ່າ
- ການນຳໃຊ້ກົດໝາຍ ແລະ ການຄວບຄຸມການຕັດໄມ້ທີ່ບໍ່ຖືກຕ້ອງຕາມກົດໝາຍ
- ການປ້ອງກັນໄຟໄໝ້ລາມປ່າ
- ການຈ່າຍຄ່າບໍລິການລະບົບນິເວດປ່າໄມ້

ອົງປະກອບ 3: ການຄຸ້ມຄອງທາງສັງຄົມ (ປັບປຸງຊີວິດການເປັນຢູ່)

- ທາງເລືອກໃນການປູກພືດເສດຖະກິດເຂດພູດອຍ
- ການລ້ຽງສັດ ແລະ ການປູກຫຍ້າອາຫານສັດ
- ການພັດທະນາທ່ອງທ່ຽວທຳມະຊາດໂດຍປະຊາຊົນມີສ່ວນຮ່ວມ

ສັງລວມກອງປະຊຸມປຶກສາຫາລື:

PRAP ໄດ້ຖືກສ້າງຂຶ້ນໂດຍຜ່ານການປຶກສາຫາລືໃນກອງປະຊຸມຫຼາຍລະດັບ ແລະ ຫຼາຍຄັ້ງ ຢູ່ ຂັ້ນແຂວງ, ເມືອງ ແລະ ກຸ່ມບ້ານ.

ການປຶກສາຫາລື	ຄັ້ງວັນທີ	ລາຍລະອຽດການປຶກສາຫາລື
ການປຶກສາຫາລືຄັ້ງທີ 1 ຢູ່ຂັ້ນເມືອງ	ກຸມພາ 2016	• ເກັບກຳຂໍ້ມູນເບື້ອງຕົ້ນຈຸດທີ່ມີການທຳລາຍປ່າໄມ້ຢ່າງຮ້າຍແຮງ, ສາເຫດ ແລະ ມາດຕະການທີ່ເປັນໄປໄດ້ເພື່ອແກ້ໄຂບັນຫາດັ່ງກ່າວ
ກອງປະຊຸມປຶກສາຫາລືຄັ້ງທີ 1 ຢູ່ຂັ້ນແຂວງ	ສິງຫາ 2016	• ສະເໜີຜົນຂອງການວິເຄາະສາເຫດຂອງການທຳລາຍປ່າໄມ້ • ປຶກສາຫາລືແນວທາງ ແລະ ວິທີແກ້ໄຂ ຢູ່ ແຂວງຫຼວງພະບາງ
ກອງປະຊຸມປຶກສາຫາລືຄັ້ງທີ 2 ຢູ່ຂັ້ນແຂວງ	ຕຸລາ 2016	• ກຳນົດນະໂຍບາຍ ແລະ ມາດຕະການທີ່ເປັນໄປໄດ້ເພື່ອຫຼຸດຜ່ອນການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ, ການປົກປັກຮັກສາອະນຸລັກປ່າໄມ້ ແລະ ການປູກໄມ້ຟື້ນຟູປ່າ ຢູ່ ແຂວງຫຼວງພະບາງ
ການປຶກສາຫາລືຄັ້ງທີ 2 ຢູ່ຂັ້ນເມືອງ	ມີນາ 2017	• ກຳນົດສາເຫດທາງກົງ ແລະ ທາງອ້ອມຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ອີງໃສ່ຄວາມຮ້າຍແຮງຂອງສາເຫດເພື່ອຈັດບູລິມະສິດ • ກຳນົດນະໂຍບາຍ ແລະ ມາດຕະການທີ່ເປັນໄປໄດ້ເພື່ອຫຼຸດຜ່ອນການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ແລະ ການປູກໄມ້ຟື້ນຟູປ່າ ຢູ່ ແຂວງຫຼວງພະບາງ
ການປຶກສາຫາລືຢູ່ຂັ້ນກຸ່ມບ້ານ	ມີນາ 2017	• ກຳນົດສາເຫດທາງກົງ ແລະ ທາງອ້ອມຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ອີງໃສ່ຄວາມຮ້າຍແຮງຂອງສາເຫດເພື່ອຈັດບູລິມະສິດ • ກຳນົດນະໂຍບາຍ ແລະ ມາດຕະການທີ່ເປັນໄປໄດ້ເພື່ອຫຼຸດຜ່ອນການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ແລະ ການປູກໄມ້ຟື້ນຟູປ່າ ຢູ່ ແຂວງຫຼວງພະບາງ
ກອງປະຊຸມປຶກສາຫາລື ຄັ້ງສຸດທ້າຍ ຢູ່ ຂັ້ນແຂວງ	ກັນຍາ 2017	• ປຶກສາຫາລືຜົນໄດ້ຮັບຈາກກອງປະຊຸມລະດັບເມືອງ ແລະ ກຸ່ມບ້ານ ແລະ ຜ່ານຮ່າງ PRAP ເພື່ອປະກອບຄຳຄິດເຫັນ ແລະ ເປັນເອກະພາບ

ການຈັດຝຶກອົບຮົມເພື່ອສ້າງຄວາມເຂັ້ມແຂງກ່ຽວກັຍ REDD+ ເພື່ອສ້າງ PRAP ໄດ້ຈັດຂຶ້ນຫຼາຍຄັ້ງລະຫວ່າງສົກປີ 2016-2017 ເພື່ອ ໃຫ້ພາກສ່ວນທີ່ກ່ຽວຂ້ອງເຂົ້າໃຈກ່ຽວກັບ REDD, ການປົກປ້ອງ ແລະ ບົດບາດຍິງຊາຍ. ການຝຶກອົບຮົມແມ່ນຈັດຂຶ້ນ ຢູ່ ຫຼວງພະບາງ ແລະ ບາງກອກ , ປະເທດໄທ ລວມທັງໝົດ 126 ທ່ານ ຊຶ່ງແມ່ນພະນັກງານມາຈາກແຂວງ ແລະ ເມືອງ ຜູ້ທີ່ມີສ່ວນຮ່ວມໃນວຽກງານ REDD+ ທັງລະດັບຊີ້ນຳ ແລະ ຜູ້ປະຕິບັດກິດຈະກຳຕົວຈິງ.	
ສັງລວມດ້ານງົບປະມານ ແລະ ແຫຼ່ງທຶນ	
ງົບປະມານໃຊ້ຈ່າຍທັງໝົດໃນການຈັດຕັ້ງປະຕິບັດ PRAP ໃນໄລຍະ 8 ປີ (2018-2025) ແມ່ນ 20.14 ລ້ານໂດລາສະຫະລັດ ຫຼື ເທົ່າ ກັບ 161.09 ຕື້ກີບ. ໃນນີ້, 3.73 ລ້ານໂດລາ ແມ່ນສຳລັບວຽກງານການຄຸ້ມຄອງທີ່ດິນແບບຄົບວົງຈອນ (PAMs/ອົງປະກອບ 1), 11.16 ລ້ານໂດລາ ແມ່ນສຳລັບວຽກງານຄຸ້ມຄອງປ່າໄມ້ (PAMs/ອົງປະກອບ 2) ແລະ 5.25 ລ້ານໂດລາ ແມ່ນສຳລັບວຽກງານການຄຸ້ມຄອງທາງ ສັງຄົມ/ປັບປຸງຊີວິດການເປັນຢູ່ (PAMs/ອົງປະກອບ 3). ໃນຂະນະທີ່ PRAP ຈະປະກອບສ່ວນເຂົ້າໃນແຜນງານຫຼຸດຜ່ອນອາຍພິດເຮືອນແກ້ວ (ER programme) ທີ່ຄວບຄຸມໃນປະຈຸບັນນັ້ນ ການຊອກຫາແຫຼ່ງທຶນອື່ນມາເພີ່ມ ເພື່ອໃຫ້ການຈັດຕັ້ງປະຕິບັດ PRAP ປະສົບຜົນສຳເລັດໂດຍໄວ ເພື່ອເປີດຊ່ອງທາງໃຫ້ການຊຳລະ ອີງໃສ່ຜົນງານຂອງການປົກປັກສາປ່າໄມ້ (results-based payments) ປະກົດຜົນເປັນຈິງ. ຂໍ້ຈຳກັດທາງດ້ານງົບປະມານຂອງແຂວງ ຈະເປັນອຸປະສັກອັນໃຫຍ່ຫຼວງ ສຳລັບການຈັດຕັ້ງປະຕິບັດ PRAP ແລະ ຈຳເປັນຕ້ອງໄດ້ຄົ້ນຄ້ວາຊອກຫາແຫຼ່ງທຶນ ເພີ່ມຈາກພາຍນອກ ເພື່ອສະໜັບສະໜູນການຈັດຕັ້ງປະຕິບັດ PRAP ໃຫ້ສຳເລັດ.	
ການຈັດຕັ້ງພາກສ່ວນຮັບຜິດຊອບ ແລະ ການດຳເນີນງານ	
ຄະນະຊີ້ນຳ REDD+ ຂັ້ນແຂວງ ແມ່ນການຈັດຕັ້ງໜຶ່ງທີ່ມີໜ້າທີ່ຊີ້ນຳໆພາໃນການຈັດຕັ້ງປະຕິບັດ REDD+ ພາຍໃນແຂວງ. ການບໍລິ ຫານຄຸ້ມຄອງ ແລະ ການປະຕິບັດໜ້າທີ່ໃນແຕ່ລະວັນ ພາຍໃຕ້ຄວາມຮັບຜິດຊອບຂອງຄະນະຊີ້ນຳ ແມ່ນ ຫ້ອງການ REDD+ ຂັ້ນແຂວງ ຊຶ່ງມີໜ້າທີ່ປະສານງານ ແລະ ຄຸ້ມຄອງທຸກໆວຽກງານທີ່ກ່ຽວຂ້ອງກັບ REDD+. ພະແນກກະສິກຳ ແລະ ປ່າໄມ້ ສົມທົບກັບ ພະແນກ ແຜນການ ແລະ ການລົງທຶນແຂວງເປັນໃຈກາງໃນການຕິດຕາມກວດກາ ແລະ ປະເມີນຜົນການຈັດຕັ້ງປະຕິບັດ REDD+. ນອກນັ້ນ, ອົງ ການຈັດຕັ້ງລັດອື່ນໆ ລວມທັງພາກເອກະຊົນ ເປັນຜູ້ຮັບຜິດຊອບປະຕິບັດຕົວຈິງບັນດານະໂຍບາຍ ແລະ ມາດຕະການ (PAMs) ທີ່ໄດ້ກຳ ນົດ.	

ແຂວງຫຼວງພະບາງ, ວັນທີ_____

ເຈົ້າແຂວງໆຫຼວງພະບາງ

1. ຄວາມເປັນມາ ແລະ ພາກສະເໜີ

ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນ ລາວ (ສປປ ລາວ) ເປັນປະເທດພາຄີຂອງ ສົນທິສັນຍາວ່າດ້ວຍການປ່ຽນແປງດິນຟ້າອາກາດ ຂອງສະຫະປະຊາຊາດ (UNFCCC). ວຽກງານ REDD+ ເປັນຍຸດທະສາດຕົ້ນຕໍຂອງປະເທດທີ່ໄດ້ສະແດງເຖິງການຈັດຕັ້ງປະຕິບັດ ພັນທະໃນການປະກອບສ່ວນເພື່ອຈັດຕັ້ງປະຕິບັດຕາມຈຸດປະສົງຂອງສົນທິສັນຍາດັ່ງກ່າວ. ລັດຖະບານ ສປປ ລາວ ໄດ້ລົງນາມໃນຂໍ້ຕົກລົງ ປາຣີ, ຝະລັ່ງ ໃນປີ 2016, ໃນຂະນະດຽວກັນການປະກອບສ່ວນຂອງ ສປປ ລາວ ຕໍ່ກັບການຫຼຸດຜ່ອນການປ່ຽນແປງດິນຟ້າອາກາດແມ່ນ ໄດ້ຍົກໃຫ້ເຫັນຢູ່ບ່ອນວ່າ ສປປ ລາວ ໄດ້ມີການກຳນົດເອົາວຽກງານ REDD+ ເປັນຜົນສຳເລັດທີ່ສຳຄັນສຳລັບການຫຼຸດຜ່ອນການປ່ຽນ ແປງດິນຟ້າອາກາດ ແລະ ເປັນເປົ້າໝາຍສຳລັບການພັດທະນາແບບຍືນຍົງ . ສປປ ລາວ ໄດ້ເຂົ້າຮ່ວມເປັນສະມາຊິກຂອງກອງທຶນການກະ ກຽມຄວາມພ້ອມ ແລະ ກອງທຶນການກອນຂອງທະນາຄານໂລກ ແລະ ແຜນງານ REDD ຂອງສະຫະປະຊາຊາດ (UN-REDD)[1].

ສປປ ລາວ ໄດ້ໃຫ້ຄວາມສົນໃຈໃນການເຂົ້າຮ່ວມ ແຜນງານຄູ່ຮ່ວມການກອນປ່າໄມ້ (FCPF) ໂດຍການຍື່ນຄຳຮ້ອງ ເພື່ອຂໍເຂົ້າຮ່ວມເປັນ ປະເທດພາຄີຂອງກອງທຶນການກະກຽມຄວາມພ້ອມ ໃນປີ 2007. ປີ 2008, ສປປ ລາວ ໄດ້ຍື່ນບົດສະເໜີແນວຄວາມຄິດກ່ຽວກັບ ແຜນການກຽມຄວາມພ້ອມ (R-PIN) ຂອງຕົນໃຫ້ແກ່ທະນາຄານໂລກ, ແລະ ໃນປີ 2009, ແຜນງານຄູ່ຮ່ວມການກອນປ່າໄມ້ (FCPF) ຂອງທະນາຄານໂລກໄດ້ອະນຸມັດໃຫ້ ສປປ ລາວ ເຂົ້າເປັນປະເທດພາຄີໃນການກະກຽມຄວາມພ້ອມກ່ຽວກັບ REDD+ (R-PP). ມາຮອດປີ 2010 ສປປ ລາວ ໄດ້ຍື່ນບົດສະເໜີການກະກຽມຄວາມພ້ອມກ່ຽວກັບ REDD+ ໃຫ້ແກ່ແຜນງານຄູ່ຮ່ວມການກອນ ປ່າໄມ້ (FCPF) ຂອງທະນາຄານໂລກ, ແລະ ບົດສະເໜີການກະກຽມຄວາມພ້ອມດັ່ງກ່າວ ແມ່ນ ໄດ້ຖືກຮັບຮອງແບບມີເງື່ອນໄຂໃນປີ 2012 ແລະ ໄດ້ເຊັນຮັບຮອງເອົາຢ່າງເປັນທາງການໃນເດືອນສິງຫາ ປີ 2014. ປັດຈຸບັນນີ້ຊຸດເອກະສານການກະກຽມຄວາມພ້ອມຂອງ ສປປ ລາວ (R-package) ກຳລັງຖືກກະກຽມ ແລະ ຄາດວ່າຈະໄດ້ຍື່ນສະເໜີຕໍ່ ແຜນງານຄູ່ຮ່ວມການກອນປ່າໄມ້ (FCPF) ຂອງ ທະນາຄານໂລກໃນປີ 2017. ນອກຈາກນັ້ນ, ສປປ ລາວ ຍັງໄດ້ຍື່ນບົດແນວຄວາມຄິດກ່ຽວກັບແຜນງານຫຼຸດຜ່ອນການປ່ອຍອາຍພິດ (ER-PIN) ຂອງຕົນໃຫ້ແກ່ແຜນງານຄູ່ຮ່ວມການກອນປ່າໄມ້ (FCPF) ຂອງທະນາຄານໂລກໃນປີ 2015, ແລະ ມາຮອດປີ 2016 ສປປ ລາວ ໄດ້ຮັບທຶນຊ່ວຍເຫຼືອຈຳນວນ US$650.000 ເພື່ອສະໜັບສະໜູນການສ້າງເອກະສານແຜນງານຫຼຸດຜ່ອນການປ່ອຍອາຍພິດ (ER-PD) ຊຶ່ງເອກະສານດັ່ງກ່າວແມ່ນຄາດວ່າຈະຖືກຍື່ນສະເໜີຕໍ່ກອງທຶນການກອນຂອງແຜນງານຄູ່ຮ່ວມການກອນປ່າໄມ້ (FCPF) ຂອງທະນາຄານໂລກກ່ອນເດືອນມັງກອນ ປີ 2018. ຖ້າວ່າເອກະສານແຜນງານຫຼຸດຜ່ອນການປ່ອຍອາຍພິດ (ER-PD) ຫາກຖືກຍອມ ຮັບ, ສປປ ລາວ ຈະມີເງື່ອນໄຂໄດ້ຮັບເງິນຊົດເຊີຍສຳລັບການຈັດຕັ້ງປະຕິບັດກິດຈະກຳ REDD+ ໃນເງື່ອນໄຂທີ່ຖືກຄັດເລືອກ[2].

ແຜນງານຫຼຸດຜ່ອນການປ່ອຍອາຍພິດຂອງ ສປປ ລາວ (2018-2023) ແມ່ນສ້າງຂຶ້ນບົນພື້ນຖານ ກິດຈະກຳຕົ້ນຕໍດັ່ງຕໍ່ໄປນີ້[3]:

- ການຄຸ້ມຄອງ ແລະ ການປະຕິບັດກົດໝາຍ.
- ການວາງແຜນຈັດສັນຄຸ້ມຄອງພູມສັນຖານປ່າໄມ້ ແລະ ການວາງແຜນພື້ນທີ່ແບບປະສົມປະສານ.
- ການວາງແຜນນຳໃຊ້ທີ່ດິນແບບມີສ່ວນຮ່ວມ ແລະ ການພັດທະນາຊີວິດການເປັນຢູ່ແບບຍືນຍົງ.
- ການຈ່າຍຄ່າບໍລິການດ້ານສິ່ງແວດລ້ອມ.
- ການຍັ້ງຢືນການຈັດສັນຄຸ້ມຄອງປ່າໄມ້.
- ການຟື້ນຟູປ່າໄມ້ ແລະ ການປູກໄມ້ໃຫ້ເປັນປ່າ

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[1]ໃນປີ 2012, ແຜນງານເຣດຂອງສະຫະປະຊາຊາດ (UN-REDD) ໄດ້ຮັບເອົາ ສປປ ລາວ ເປັນປະເທດພາຄີ, ແລະ ແຜນງານເຣດຂອງສາທະປະຊາຊາດ ໄດ້ ຊ່ວຍເຫຼືອ ສປປ ລາວ ໃນການກະກຽມຄວາມພ້ອມກ່ຽວກັບເຣດ. ໃນປີ 2015, ແຜນງານເຣດຂອງສາທະປະຊາຊາດ (UN-REDD) ໄດ້ຮັບຮອງໃຫ້ການສະໜັບສະ ໜູນກ່ຽວກັບການເສີມສ້າງຄວາມອາດສາມາດໃຫ້ແກ່ຂະແໜງການທີ່ກ່ຽວຂ້ອງຢູ່ລະດັບສູນກາງ ແລະ ລະດັບແຂວງທີ່ມີສ່ວນກ່ຽວຂ້ອງກັບການຄຸ້ມຄອງທີ່ດິນປ່າໄມ້ ແລະ ຊັບພະຍາກອນປ່າໄມ້ ແລະ ການມີສ່ວນຮ່ວມໃນການຄຸ້ມຄອງປ່າໄມ້[1].

[2]ໃນວັກທີ 70 ຂອງຂໍ້ຕົກລົງແຄນຄູນໄດ້ກ່າວວ່າກິດຈະກຳເຣດ+ ແມ່ນມີເງື່ອນໄຂຕໍ່ໄປນີ້ (FCCC/CP/2010/7/Add.1): a) ຫຼຸດຜ່ອນການປ່ອຍອາຍພິດຈາກການທຳ ລາຍປ່າໄມ້; b) ຫຼຸດຜ່ອນການປ່ອຍອາຍພິດຈາກການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ; c) ການອະນຸລັກການກອນປ່າໄມ້, d) ການຈັດສັນຄຸ້ມຄອງປ່າໄມ້ແບບຍືນຍົງ; e) ເພີ່ມການເກັບກັກການກອນປ່າໄມ້.

[3]ສປປ ລາວ ປີ 2015, ເອກະສານອະທິບາຍແນວຄວາມຄິດຂອງແຜນງານຫຼຸດຜ່ອນການປ່ອຍອາຍພິດ (ER-PIN). ກອງທຶນຄູ່ຮ່ວມການກອນປ່າໄມ້ (FCPF-CF)

ລັດຖະບານໄດ້ກຳນົດເອົາ 6 ແຂວງພາກເໜືອຂອງ ສປປ ລາວ ໃຫ້ເປັນແຂວງເປົ້າໝາຍສຳລັບການສ້າງແຜນງານການປ່ອຍອາຍພິດ (ER-PD) ໃນນັ້ນລວມມີ: ແຂວງບໍ່ແກ້ວ, ຫົວພັນ, ຫຼວງນ້ຳທາ, ຫຼວງພະບາງ, ອຸດົມໄຊ ແລະ ໄຊຍະບູລີ ເພື່ອເປັນການສະໜັບສະໜູນການສ້າງແຜນງານການຫຼຸດຜ່ອນການປ່ອຍອາຍພິດ (ER-PD), ສປປ ລາວ ໄດ້ຕັດສິນໃຈໃນການສ້າງແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງ (PRAPs) ສຳລັບ 6 ແຂວງເປົ້າໝາຍ ຊຶ່ງແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງນີ້ ແມ່ນຈະເປັນກອບການຈັດຕັ້ງປະຕິບັດນະໂຍບາຍ, ຍຸດທະສາດ ແລະ ແຜນການກ່ຽວກັບ REDD+ ຢູ່ຂັ້ນສູນກາງ ແລະ ຈະເປັນແນວທາງໃນການຈັດຕັ້ງປະຕິບັດບັນດານະໂຍບາຍ, ຍຸດທະສາດ ແລະ ແຜນການທີ່ກ່ຽວຂ້ອງ ຢູ່ ໃນລະດັບແຂວງ. ສະນັ້ນ, ແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງ ແມ່ນຈະຕ້ອງໃຫ້ສອດຄ່ອງກັບ ແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມແຫ່ງຊາດ, ແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມຂອງແຂວງ ແລະ ຂອງເມືອງ. ໃນຂະນະດຽວກັນນັ້ນ ແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງ ກໍຕ້ອງໄດ້ສະແດງໃຫ້ເຫັນເຖິງວິທີທາງໃນການແກ້ໄຂບັນດາສາເຫດຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມຢູ່ໃນລະດັບແຂວງ.

ແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງ (PRAP) ຂອງແຂວງຫຼວງພະບາງ ແມ່ນໄດ້ປະກອບມີຂໍ້ມູນທີ່ລະອຽດຈະແຈ້ງ ແລະ ກ່ຽວຂ້ອງ ກັບກອບວຽກງານການຫຼຸດຜ່ອນການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມໃນລະດັບແຂວງ ແລະ ເມືອງ, ຊຶ່ງເປັນແນວທາງ ໃຫ້ແກ່ການຈັດຕັ້ງປະຕິບັດບັນດານະໂຍບາຍ ແລະ ມາດຕະການ ສຳລັບວຽກງານ REDD+. ແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງ (PRAP) ສະບັບນີ້ໄດ້ສັງລວມເອົາຂໍ້ມູນພື້ນຖານທີ່ຈຳເປັນ, ລວມທັງຂໍ້ມູນກ່ຽວກັບເສດຖະກິດ-ສັງຄົມ ແລະ ອົງການຈັດຕັ້ງທີ່ກ່ຽວຂ້ອງ ໃນລະດັບແຂວງ. ໃນເອກະສານດັ່ງກ່າວແມ່ນໄດ້ນຳສະເໜີພື້ນຖານການວິເຄາະຂໍ້ມູນທີ່ຈຳເປັນເພື່ອສ້າງຄວາມເຂົ້າໃຈຕໍ່ກັບສາເຫດຂອງ ການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມຢູ່ໃນລະດັບແຂວງ , ພ້ອມທັງສັງລວມເອົາບັນດານະໂຍບາຍ ແລະ ມາດຕະການທີ່ ເປັນບູລິມະສິດ (PAMs) ເພື່ອແກ້ໄຂບັນດາສາເຫດຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ. ນະໂຍບາຍ ແລະ ມາດຕະການຕ່າງໆທີ່ກ່ຽວຂ້ອງແມ່ນໄດ້ນຳມາພິຈາລະນາ ແລະ ສິ່ງສຳຄັນແມ່ນອີງໃສ່ຄວາມກ່ຽວຂ້ອງກັບແຜນພັດທະນາເສດຖະກິດ-ສັງ ຄົມຕົ້ນຕໍ ແລະ ບັນດາຍຸດທະສາດຂອງລັດ, ຊຶ່ງມີຄວາມເປັນໄປໄດ້ທີ່ຈະຖືກນຳໄປຈັດຕັ້ງປະຕິບັດເພື່ອແກ້ໄຂສາເຫດຫຼັກຂອງການທຳລາຍ ປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມຢ່າງມີປະສິດທິຜົນ , ລວມທັງການແກ້ໄຂບັນດາອຸປະສັກຕ່າງໆທີ່ຈະມີຜົນຕໍ່ການຈັດຕັ້ງປະຕິ ບັດວຽກງານ REDD+.

ນອກຈາກນັ້ນ, ເອກະສານສະບັບນີ້ກໍໄດ້ພິຈາລະນາ ແລະ ວາງແຜນສຳລັບການຈັດຕັ້ງປະຕິບັດນະໂຍບາຍ ແລະ ມາດຕະການເພື່ອແກ້ໄຂ ບັນດາສາເຫດຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ, ຊຶ່ງລວມມີການວາງແຜນການດຳເນີນງານ, ການວາງແຜນດ້ານ ອົງການຈັດຕັ້ງ ແລະ ແຜນການທາງການເງິນສຳລັບການຈັດຕັ້ງປະຕິບັດແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງ (PRAP). ພ້ອມດຽວ ກັນນັ້ນກໍໄດ້ມີການສະເໜີກຳນົດລະບົບການຕິດຕາມກວດກາ ແລະ ປະເມີນຜົນ (M&E) ເພື່ອໃຫ້ມີການປະເມີນການຈັດຕັ້ງປະຕິບັດ ແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງ (PRAP) ຢ່າງຈິງຈັງ ແລະ ມີປະສິດທິຜົນສູງ ສາມາດປະກອບຄຳຄິດເຫັນຕໍ່ກັບການຈັດຕັ້ງປະ ຕິບັດແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງ (PRAP) ໃຫ້ທັນກັບເວລາທີ່ກຳນົດໄວ້ (ໃນຊ່ວງໄລຍະການຈັດຕັ້ງປະຕິບັດ).

1.1. ສະພາບທາງດ້ານເສດຖະກິດ-ສັງຄົມ ແລະ ສິ່ງແວດລ້ອມ ໃນຂົງເຂດຂອງ PRAP

ແຂວງຫຼວງພະບາງ ຕັ້ງ ຢູ່ ທາງພາກເໜືອຂອງລາວ ມີສາຍແດນຕິດກັບ ແຂວງວຽງຈັນ ທາງພາກໃຕ້, ແຂວງຊຽງຂວາງ ທາງພາກຕາເວັນ ອອກສ່ຽງໃຕ້, ແຂວງຫົວພັນ ທາງພາກຕາເວັນອອກສ່ຽງເໜືອ, ແຂວງຜົ້ງສາລີ ແລະ ຫວຽດນາມ ທາງພາກເໜືອ, ແຂວງໄຊຍະບູລີ ທາງ ພາກຕາເວັນຕົກສ່ຽງໃຕ້ ແລະ ແຂວງອຸດົມໄຊ ທາງພາກຕາເວັນຕົກສ່ຽງເໜືອ.

ແຂວງຫຼວງພະບາງມີເນື້ອທີ່ທັງໝົດ 20.009 ກິໂລຕາແມັດ, ເນື້ອທີ່ສ່ວນໃຫຍ່ເປັນພູ, ພູດອຍ ແລະ ຜາຫີນສູງຊັນ ກວມ 85% ສ່ວນ ເນື້ອທີ່ນາບ່ອນຮາບພຽງແມ່ນມີຈຳກັດທີສຸດ. ບ່ອນທີ່ສູງສຸດແມ່ນຢູ່ຈອມພູໝ້ຽງເມືອງຈອມເພັດ ມີຄວາມສູງ 2.257 ແມັດ ແລະ ບ່ອນ ຕ່ຳສຸດ ຢູ່ຈຸດປາກຄານ ເມືອງຫຼວງພະບາງ ມີປະມານ 260 ແມັດທຽບໃສ່ລະດັບໜ້ານ້ຳທະເລ ໂດຍແບ່ງອອກເປັນ 12 ເມືອງເຊັ່ນ: ເມືອງ ຫຼວງພະບາງ, ຊຽງເງີນ, ນານ, ປາກອູ, ນ້ຳບາກ, ງອຍ, ໂພນທອງ, ວຽງຄຳ, ປາກແຊງ, ໂພນໄຊ, ຈອມເພັດ ແລະ ພູຄູນ, ມີ 96 ກຸ່ມບ້ານ, 10 ເຂດ, 752 ບ້ານ ມີ 77 .717 ຄອບຄົວ ແລະ ພົນລະເມືອງ 454 .095 ຄົນ, ຍິງ 278 .000 ຄົນ ໃນປີ 2015. ແຂວງຫຼວງພະບາງ ປະກອບດ້ວຍຫຼາຍຊົນເຜົ່າເຊັ່ນ: ລາວ, ໄຕ, ຜູ້ໄທ, ລື້, ຍວນ, ໄທ ເໜືອ, ກຶມມຸ, ໄປຣ, ແທ່ນ, ມົ້ງ, ອີວມຽນ, ພູນ້ອຍ ແລະ ຫໍ້.

ການຜະລິດກະສິກຳແມ່ນກິດຈະກຳຫຼັກໃນການດຳລົງຊີວິດຂອງປະຊາຊົນ ເປັນຕົ້ນແມ່ນເຮັດໄຮ່, ເຮັດນາ ແລະ ປູກຝັງລ້ຽງສັດ. ນອກນັ້ນ,

ປະຊາຊົນຍັງອາໄສຜົນຜະລິດຈາກປ່າໃນການລ້ຽງຊີບເຊັ່ນ: ການເກັບຜັກຫັກໜໍ່ ແລະ ເຄື່ອງປ່າຂອງດົງ. ການດຳລົງຊີວິດຂອງປະຊາຊົນ ແມ່ນຢູ່ແບບກະແຈກກະຈາຍ ເຮັດໃຫ້ຊັບພະຍາກອນປ່າໄມ້ເກືອບທຸກບ່ອນພາຍໃນແຂວງແມ່ນສາມາດເຂົ້າເຖິງ ຊຶ່ງສັງເ ກດເຫັນໄດ້ຈາກ ການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມແມ່ນມີໃນທົ່ວແຂວງ.

ໃນປີ 2015, ແຂວງຫຼວງພະບາງ ມີເນື້ອທີ່ປ່າໄມ້ທັງໝົດປະມານ 1.824.795 ເຮັກຕາ ກວມ 91.7%, ໃນນັ້ນ 48.4% ເປັນປ່າທຳມະ ຊາດ ແລະ 43.3% ເປັນປ່າ ເລົ່າ. ເນື້ອທີ່ປ່າເລົ່າທີ່ມີເປີເຊັນສູງນີ້ ສາເຫດແມ່ນມາກຈາກການຖາງປ່າເຮັດໄຮ່ເລື່ອນລອຍ ຊຶ່ງແມ່ນຮູບແບບ ວິທີໃນການດຳລົງຊີວິດຂອງປະຊາຊົນໂດຍທົ່ວໄປ. ເນື້ອທີ່ປ່າທຳມະຊາດທີ່ຍັງມີສ່ວນໃຫຍ່ແມ່ນປ່າປະສົມ. ລາຍລະອຽດກ່ຽວກັບສະພາບ ປ່າໄມ້ ແລະ ການປ່ຽນແປງແມ່ນຢູ່ໃນ ໝວດ 3.1.1.

ແຂວງຫຼວງພະບາງ ມີປ່າສະຫງວນ, ປ່າປ້ອງກັນ ແລະ ປ່າຜະລິດ ລະດັບຊາດ, ແຂວງ ແລະ ເມືອງ ຊຶ່ງໃນນັ້ນປ່າປ້ອງກັນກວມເອົາເນື້ອທີ່ ຫຼາຍທີສຸດ ຄື 61.4% ຂອງເນື້ອທີ່ດິນທັງໝົດ ແລະ 60.4% ຂອງເນື້ອທີ່ປ່າທັງໝົດໃນປະຈຸບັນ. ປ່າສະຫງວນແຫ່ງຊາດ ນ້ຳແອດ-ພູເລີຍ ແມ່ນແຫ່ງດຽວທີ່ມີການປົກປັກຮັກສາອະນຸລັກຊີວະນາໆພັນທີ່ມີຄວາມຫຼາກຫຼາຍ.

ຕາຕະລາງ 1: 3 ປະເພດປ່າ ຢູ່ ແຂວງຫຼວງພະບາງ

	ຊື່	ເນື້ອທີ່ (ຮຕ)	ເມືອງ	ໝາຍເຫດ
	ປ່າສະຫງວນແຫ່ງຊາດ			
1	ນ້ຳແອດ-ພູເລີຍ	11.448	ວຽງທອງ ວຽງຄຳ	
	ປ່າສະຫງວນລະດັບແຂວງ			
1	ກົ່ວຕະລຸນໃຫຍ່ (ລາວສູງ)	1.370	ຊຽງເງີນ	
	ປ່າສະຫງວນລະດັບເມືອງ			
1	ຖ້ຳແຂ້ວ	114	ໂພນໄຊ	
2	ຜາດົງຄວາຍ	2.450	ນານ	
3	ເຂດຜາວິ	5.000	ໂພນໄຊ	ກຳນົດແລ້ວແຕ່ແຂວງ ຍັງບໍ່ທັນໄດ້ຮັບຮູ້
4	ເຂດລ້ອງລັນ	5.000	ຫຼວງພະບາງ	
5	ເຂດສາຍນ້ຳຕ່ານ (ພູຫຼວງໃຕ້)	690	ຈອມເພັດ	
6	ຜາແອ່ນ-ມົກເຫຼັກ	213	ປາກອູ	
7	ເຂດຜານາກ-ຜາທົ່ງ	1.340	ປາກອູ	
8	ເຂດຜາພູນ້ຳຕາ	1.560	ປາກອູ	
9	ເຂດຖ້ຳຕົ່ງ	60	ຈອມເພັດ	
10	ພູຜາເງີນ	394	ພູຄູນ	
11	ເຂດພູກົ່ວຢວກ	3.330	ພູຄູນ	
12	ເຂດພູຟ້າ-ໜອງຜີ	54.300	ພູຄູນ	
13	ເຂດພູຈອມແງ	3.530	ຊຽງເງີນ	
14	ພູວຽງ	315	ຊຽງເງີນ	
15	ພູຜາແຜ້ວ	1.100	ຊຽງເງີນ	
16	ເຂດແກ້ງຫຼວງ	1.260	ຊຽງເງີນ	
17	ຜາກວາງ	1.950	ງອຍ	
18	ຜາໜໍ່	1.870	ງອຍ	
19	ເຂດພູຫ້ວຍ-ຕະຫຼວງ	30	ນ້ຳບາກ	

20	ເຂດພູສີ້ນຂວາ	105	ນ້ຳບາກ	
21	ເຂດພູກູ້-ພູວຽງ	1.050	ນ້ຳບາກ	
	ປ່າຍອດນ້ຳຍາວ	3.000	ໂພນທອງ	ກຳນົດໃໝ່ຍັງບໍ່ທັນ ສະເໜີ
ປ່າປ້ອງກັນແຫ່ງຊາດ				
1	ແຫຼ່ງນ້ຳເມິກ-ນ້ຳມັດ	84.524	ໂພນທອງ	
2	ແຫຼ່ງນ້ຳບາກ-ນ້ຳພາກ	112.547	ນ້ຳບາກ, ງອຍ	
3	ແຫຼ່ງນ້ຳງາວ-ນ້ຳອູໃຕ້	127.994	ງອຍ, ນ້ຳບາກ, ປາກອູ	
4	ແຫຼ່ງນ້ຳເຊືອງ-ນ້ຳແຊງ	491.274	ງອຍ, ໂພນທອງ, ວຽງຄຳ, ປາກແຊງ, ໂພນໄຊ	
5	ພູໝ້ຽງ-ພູແກ້ວອຸດອນ	14.072		
6	ແຫຼ່ງນ້ຳຄານ	205.379	ພູຄູນ, ໂພນໄຊ, ຊຽງ ເງີນ	
7	ແຫຼ່ງນ້ຳພາດ-ນ້ຳຕົ່ງ	66.400	ພູຄູນ	
8	ແຫຼ່ງນ້ຳເຟື່ອງ-ຜາເຫຼັກ	91.405	ນານ	
ປ່າປ້ອງກັນແຂວງ				
1	ພູພົ້ງ-ຜາທູນ-ຕາດກວາງຊີ-ພູຈອງ	34.934	ຫຼວງພະບາງ	
ປ່າປ້ອງກັນເມືອງ				
1	ຫ້ວຍງື	10.388	ນ້ຳບາກ	
2	ພູດຳ	187	ຈອມເພັດ	
3	ຫ້ວຍດໍ້	1.862	ຈອມເພັດ	
4	ເຂດປ່າກຸກ-ເຂດຜາງົວ	971	ຈອມເພັດ	
5	ພູທ້າວ-ພູນາງ	528	ຈອມເພັດ	
6	ພູເຫຼັກ	1.394	ຫຼວງພະບາງ	
7	ພູຊວງ + ພູນາຫຼວງ	744	ຫຼວງພະບາງ	
8	ພູໝອງໄຄ້	410	ຫຼວງພະບາງ	
9	ພູແທ່ນເສືອ	146	ຫຼວງພະບາງ	
10	ເຂດໄຟຟ້າ	360	ຫຼວງພະບາງ	
11	ຫ້ວຍແສ້	256	ຫຼວງພະບາງ	
12	ເຂດຫ້ວຍຫຼວງ-ຫ້ວຍສາ	848	ໂພນໄຊ	ຫ້ວຍລຸ້ງ

ແຫຼ່ງຂໍ້ມູນ: ບົດບັນທຶກກອງປະຊຸມປຶກສາຫາລືກ່ຽວກັບການຢັ້ງຢືນປ່າປ້ອງກັນ, ປ່າສະຫງວນແຫ່ງຊາດ, ລະດັບແຂວງ ແລະ ເມືອງ ແຂວງຫຼວງພະບາງ ສະບັບເລກທີ 1171/ພຊສ.ຫຼບ, ລົງວັນທີ 19/3/2014 (ພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ).

	ຊື່	ເນື້ອທີ່ (ຮຕ)	ເມືອງ	ໝາຍເຫດ
ປ່າຜະລິດແຫ່ງຊາດ				
1	ສາຍນ້ຳຄານ	64.038	ໂພນໄຊ	
2	ພູຫຼວງໃຕ້	83.004	ຈອມເພັດ	

ເນື້ອທີ່ປ່າທັງໝົດຂອງແຂວງຈະຖືກພິຈາລະນາ ຕາມຈຸດປະສົງຂອງ ERPD ແລະ ຈະບໍ່ມີເນື້ອທີ່ໃດທີ່ບໍ່ໄດ້ເອົາເຂົ້າໃນການພິຈາລະນາ.

1.2. ໄລຍະເວລາຂອງການຈັດຕັ້ງປະຕິບັດPRAP ສຳລັບແຂວງຫຼວງພະບາງ

ໄລຍະເວລາຂອງການຈັດຕັ້ງປະຕິບັດ PRAP ສຳລັບແຂວງຫຼວງພະບາງແມ່ນ 8 ປີ ເລີ່ມແຕ່ ປີ 2018 - 2025. ເພື່ອໃຫ້ການຈັດຕັ້ງປະຕິບັດ PRAP ສອດຄ່ອງກັບແຜນພັດທະນາຂອງລັດຖະບານ ແລະ ແຜນຕິດຕາມກວດກາການ ຈັດຕັ້ງປະຕິບັດ PRAP ສຳລັບແຂວງຫຼວງພະບາງ ລວມທັງແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມ 5 ປີ (2016 – 2020) ຂອງແຂວງໃນປະຈຸບັນ ແລະ ແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມ ຄັ້ງທີ 9 ປີ 2021 - 2025. ເນື່ອງຈາກວ່າແຜນການ 5 ປີ ໄດ້ຜັນຂະຫຍາຍອອກເປັນແຜນການປະຈຳປີ ສະນັ້ນ PRAP ໃນເບື້ອງຕົ້ນຕ້ອງໄດ້ເຊື່ອມໂຍງໃຫ້ສອດຄ່ອງກັບແຜນການຂອງ ປີ 2018 , 2019 ແລະ 2020 ຈາກນັ້ນຈຶ່ງເຊື່ອມໂຍງໃຫ້ສອດຄ່ອງກັບແຜນການ 5 ປີ ຄັ້ງຕໍ່ໄປ.

2. ສະພາບທາງດ້ານອົງການຈັດຕັ້ງ

2.1. ສະພາບທາງດ້ານອົງການຈັດຕັ້ງ ແລະ ການປະສານງານລະຫວ່າງຂະແໜງການ

2.1.1. ສະພາບທາງດ້ານອົງການຈັດຕັ້ງສຳລັບວຽກງານ REDD+ ໃນລະດັບຊາດ

ຢູ່ ສປປ ລາວ ແມ່ນໄດ້ມີການສ້າງຕັ້ງຄະນະຮັບຜິດຊອບວຽກງານ REDD+ ແຫ່ງຊາດ ໂດຍອີງຕາມດຳລັດຂອງລັດຖະບານ ເລກທີ 1313/ ລບ (2008), ຄະນະຮັບຜິດຊອບດັ່ງກ່າວນີ້ແມ່ນໄດ້ປະກອບດ້ວຍຜູ້ຕາງໜ້າຈາກຂະແໜງການທີ່ກ່ຽວຂ້ອງເຂົ້າມາມີສ່ວນຮ່ວມໃນການພັດທະນາວຽກງານ REDD+ ຢູ່ໃນ ສປປ ລາວ. ໃນນັ້ນລວມທັງການພັດທະນາ ແລະ ຈັດຕັ້ງປະຕິບັດວຽກງານ REDD+ ຢູ່ພາຍໃນປະເທດ,ສະໜັບສະໜູນການພັດທະນາຄວາມອາດສາມາດທີ່ກ່ຽວຂ້ອງກັບວຽກງານ REDD+, ພ້ອມທັງຮັບປະກັນໃຫ້ມີການສື່ສານ ແລະ ປະສານງານລະຫວ່າງຂະແໜງການທີ່ກ່ຽວຂ້ອງ ແລະ ຮັບປະກັນການເຂົ້າຮ່ວມໃນການປຶກສາຫາລື ແລະ ການເຈລະຈາກ່ຽວກັບນະໂຍບາຍການປ່ຽນແປງດິນຟ້າອາກາດລະດັບສາກົນ. ສະມາຊິກຂອງຄະນະຮັບຜິດຊອບວຽກງານ REDD+ ແຫ່ງຊາດ ເປັນຕົວແທນຈາກຂະແໜງເສດຖະກິດຕົ້ນຕົ້ນຫຼາຍຂະແໜງການເຊັ່ນ: ຂະແໜງການກະສິກຳ, ປ່າໄມ້, ບໍ່ແຮ່, ພະລັງງານ ແລະ ການວາງແຜນນຳໃຊ້ທີ່ດິນ. ໃນປີ 2011, ໄດ້ມີການເພີ່ມຈຳນວນສະມາຊິກຄະນະຮັບຜິດຊອບວຽກງານ REDD+ ແຫ່ງຊາດ ໂດຍມີຕົວແທນຈາກກະຊວງຍຸດຕິທຳ, ກະຊວງການເງິນ, ກະຊວງແຜນການ ແລະ ການລົງທຶນ, ແນວລາວສ້າງຊາດ, ສະຫະພັນແມ່ຍິງ ແລະ ກຳມະບານລາວ.

ໜ່ວຍງານວິຊາການສະເພາະດ້ານທັງ 6 ໜ່ວຍງານ ແມ່ນໄດ້ຮັບການແຕ່ຕັ້ງຂຶ້ນໃນປີ 2015 ເພື່ອເປັນເສນາທິການໃຫ້ແກ່ຄະນະຮັບຜິດຊອບ REDD+ ຂັ້ນສູນກາງ ແລະ ຫ້ອງການ REDD+ ແຫ່ງຊາດ ໃນການເຮັດໜ້າທີ່ອັນສຳຄັນຕົ້ນຕໍໃນການສ້າງຍຸດທະສາດREDD+ ແຫ່ງຊາດ. ໃນນັ້ນລວມມີໜ່ວຍງານວິຊາສະເພາະດ້ານນິຕິກຳ, ການຖືຄອງທີ່ດິນ, ການສ້າງເສັ້ນທຽບຖານການປ່ອຍອາຍພິດ (REL) ການຕິດຕາມກວດກາ, ລາຍງານ ແລະ ພິສູດຢັ້ງຢືນ (MRV), ການປົກປ້ອງ, ກົນໄກການແບ່ງປັນຜົນປະໂຫຍດ ແລະ ການຈັດຕັ້ງປະຕິບັດກົດໝາຍ. ຢູ່ຂັ້ນແຂວງ ຄະນະຊີ້ນຳວຽກງານ REDD+ ຂັ້ນແຂວງ ແລະ ຫ້ອງການ REDD+ ຂັ້ນແຂວງ ເປັນຜູ້ຮັບຜິດຊອບໃນການປະສານງານວຽກງານ REDD+ ຢູ່ ຂັ້ນແຂວງ. ໂຄງຮ່າງການຈັດຕັ້ງຂອງ ຄະນະຊີ້ນຳວຽກງານ REDD+ ຂັ້ນແຂວງ ແມ່ນຄ້າຍຄືກັນກັບ ຄະນະຊີ້ນຳ REDD+ ແຫ່ງຊາດ ຊຶ່ງສະມາຊິກແມ່ນມາຈາກຫຼາຍຂະແໜງການກ່ຽວຂ້ອງອ້ອມຂ້າງແຂວງ. ແຂວງຫຼວງພະບາງ ຖືວ່າເປັນແຂວງທີສອງຕໍ່ຈາກແຂວງຫົວພັນ ໃນບັນດາແຂວງພາກເໜືອທີ່ໄດ້ສ້າງຕັ້ງ ຄະນະຊີ້ນຳວຽກງານ REDD+ ຂັ້ນແຂວງຂຶ້ນ ໃນວັນທີ 20 ພຶດສະພາ 2016 ເພື່ອສະໜັບສະໜູນວຽກງານ REDD+. ໃນເດືອນທັນວາ ປີ 2016 ສະມາຊິກທຸກຄົນໃນຄະນະຊີ້ນຳ REDD+ ຂັ້ນແຂວງ ພ້ອມດ້ວຍພະນັກງານຮັບຜິດຊອບຂັ້ນເມືອງ ກໍໄດ້ຮັບການຝຶກອົບຮົມຢ່າງເລິກເຊິ່ງກ່ຽວກັບ REDD+ ເພື່ອກະກຽມໃຫ້ແກ່ການສ້າງແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງ (PRAP).

2.1.2. ໂຄງຮ່າງການຈັດຕັ້ງສຳລັບການສ້າງ ແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງ ຢູ່ ແຂວງຫຼວງພະບາງ

ແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງ (PRAP) ນີ້ຈະໄດ້ໃຫ້ທິດຊີ້ນຳໃນການຈັດຕັ້ງປະຕິບັດຍຸດທະສາດ, ການກະກຽມອົງການຈັດຕັ້ງຮັບຜິດຊອບ ແລະ ການຈັດສັນງົບປະມານການເງິນເພື່ອວຽກງານການຫຼຸດຜ່ອນການປ່ອຍອາຍພິດຈາກການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ຢູ່ຂັ້ນແຂວງ. ແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງໄດ້ກຳນົດຄວາມຮັບຜິດຊອບໃນການອອກແບບ ແລະ ການຈັດຕັ້ງປະຕິບັດກິດຈະກຳຂອງຫຼາຍຂະແໜງການຮ່ວມທີ່ກ່ຽວຂ້ອງກັບການຫຼຸດຜ່ອນການປ່ອຍອາຍພິດ (ຈາກການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ) ແລະ ເພື່ອເປົ້າໝາຍໃນການເພີ່ມການເກັບກັກກາດການບອນໃນພື້ນທີ່ປ່າໄມ້. ສະນັ້ນ, ຈຶ່ງມີຄວາມ

ຈຳເປັນສຳລັບການກຳນົດຮູບແບບໃນການປະສານງານລະຫວ່າງຂະແໜງການທີ່ກ່ຽວຂ້ອງໂດຍອີງໃສ່ຂະບວນການທີ່ໂປ່ງໃສ ແລະ ມີສ່ວນຮ່ວມ. ຢູ່ ແຂວງຫຼວງພະບາງ ແມ່ນ ຫ້ອງການ REDD+ ປະຈຳແຂວງ ແລະ ພະແນກກະສິກຳ ແລະ ປ່າໄມ້ ເປັນເຈົ້າການໃນການສ້າງ ແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງ ໂດຍການສະໜັບສະໜູນຈາກໂຄງການ F-REDD/JICA ພາຍໃຕ້ການຊີ້ນຳຈາກ ພະແນກ REDD+ ຂອງກົມປ່າໄມ້, ກະຊວງກະສິກຳ ແລະ ປ່າໄມ້.

ການກະກຽມເພື່ອສ້າງ ແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງ ຢູ່ ຂັ້ນເມືອງ ແມ່ນ ຄະນະຮັບຜິດຊອບ ສ້າງ ແຜນປະຕິບັດງານຂັ້ນເມືອງ (DRAP) ເປັນເຈົ້າການ ໂດຍອີງໃສ່ຂໍ້ຕົກລົງຂອງເຈົ້າເມືອງວ່າດ້ວຍການສ້າງຕັ້ງຄະນະຮັບຜິດຊອບ REDD+ ຂັ້ນເມືອງ. ຄະນະຮັບຜິດຊອບດັ່ງກ່າວເປັນໃຈກາງໃນການປະສານງານກັບທຸກໆພາກສ່ວນທີ່ກ່ຽວຂ້ອງ ຢູ່ ຂັ້ນເມືອງ ແລະ ຂັ້ນກຸ່ມບ້ານ. ສະມາຊິກຄະນະຮັບຜິດຊອບຂັ້ນເມືອງ ສ່ວນໃຫຍ່ແມ່ນມາຈາກ ຫ້ອງການກະສິກຳ ແລະ ປ່າໄມ້, ຫ້ອງການຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ, ຫ້ອງການແຜນການ ແລະ ການລົງທຶນ. ຄະນະດັ່ງກ່າວມີໜ້າທີ່ຮັບຜິດຊອບຈັດກອງປະຊຸມຄົ້ນຄ້ວາ ແລະ ປຶກສາຫາລື ຢູ່ ແຕ່ລະເມືອງ ແລະ ກຸ່ມບ້ານ. ນອກນັ້ນ, ຄະນະດັ່ງກ່າວຍັງມີໜ້າທີ່ປະສານງານກັບພາກສ່ວນຕ່າງໆທີ່ກ່ຽວຂ້ອງຂອງເມືອງເຊັ່ນ: ຫ້ອງວ່າການເມືອງ, ຫ້ອງການກະສິກຳ ແລະ ປ່າໄມ້, ຫ້ອງການຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ, ຫ້ອງການແຜນການ ແລະ ການລົງທຶນ, ພາກສ່ວນປ້ອງກັນຊາດ ແລະ ປ້ອງກັນຄວາມສະຫງົບ, ສະຫະພັນຍິງ, ຫ້ອງການພະລັງງານ ແລະ ບໍ່ແຮ່, ແນວລາວສ້າງຊາດ ຢູ່ ຂັ້ນເມືອງ, ຫ້ອງການ ໂຍທາທິການ ແລະ ຂົນສົ່ງ ເພື່ອສະໜອງຂໍ້ມູນໃຫ້ ຄະນະຮັບຜິດຊອບສ້າງແຜນປະຕິບັດງານຂັ້ນແຂວງ.

ກອງປະຊຸມຄົ້ນຄ້ວາ ແລະ ປຶກສາຫາລື ເພື່ອສ້າງແຜນປະຕິບັດງານ REDD+ຂັ້ນແຂວງ ແມ່ນຈັດຂຶ້ນເປັນຫຼາຍຮອບ ຢູ່ ລະດັບແຂວງ. ໃນກອງປະຊຸມແຕ່ລະເທື່ອ ພາກສ່ວນທີ່ມີສ່ວນຮ່ວມຈາກຂະແໜງການຕ່າງໆ ກໍໄດ້ຄົ້ນຄ້ວາ ແລະ ປຶກສາຫາລືໃນລວງເລິກ ລວມທັງ ສະຫະພັນຍິງ ກໍມີຄຳຄິດເຫັນເພື່ອຮັບປະກັນໃຫ້ບົດບາດຂອງແມ່ຍິງຖືກຍົກສູງຂຶ້ນ ແລະ ມີສ່ວນຮ່ວມໃນການສ້າງແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງເຊັ່ນດຽວກັນກັບແນວລາວສ້າງຊາດທີ່ເນັ້ນໃສ່ບັນຫາຊົນເຜົ່າເປັນສຳຄັນ.

ໃນເດືອນກຸມພາ 2016 ໄດ້ເລີ່ມສຳຫຼວດເກັບກຳຂໍ້ມູນໂດຍເລັ່ງໃສ່ຈຸດທີ່ມີການທຳລາຍປ່າໄມ້ທີ່ຮ້າຍແຮງ (hotspot)ໃນ 12 ເມືອງທົ່ວ ແຂວງຫຼວງພະບາງ. ຫຼັງຈາກນັ້ນ, ໃນເດືອນສິງຫາ 2016 ໄດ້ເປີດກອງປະຊຸມປຶກສາຫາລືຄັ້ງທີ 1 ເພື່ອສະເໜີຜົນຂອງການສຳຫຼວດເກັບກຳ ຂໍ້ມູນ ໂດຍການເຂົ້າຮ່ວມຂອງທຸກພາກສ່ວນທີ່ກ່ຽວຂ້ອງໃນທົ່ວແຂວງ. ກອງປະຊຸມຍັງໄດ້ສ້າງຄວາມເຂັ້ມແຂງ ແລະ ທຳຄວາມເຂົ້າໃຈ ກ່ຽວກັບໂຄງສ້າງ ແລະ ຂະບວນການສ້າງແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງ. ກອງປະຊຸມຄັ້ງທີ 2 ໄດ້ເປີດຂຶ້ນ ຢູ່ ແຂວງ ໃນເດືອນ ຕຸລາ 2016 ໂດຍເລັ່ງໃສ່ການປຶກສາຫາລື ແລະ ລະດົມແນວຄວາມຄິດ ກ່ຽວກັບນະໂຍບາຍທີ່ສຳຄັນ ແລະ ມາດຕະການ (PaMs) ເພື່ອ ແກ້ໄຂບັນຫາການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ອີງໃສ່ຜົນຂອງການສຳຫຼວດເກັບກຳຂໍ້ມູນ. ຕໍ່ມາໃນເດືອນມີນາ 2017 ກໍໄດ້ຈັດກອງປະຊຸມປຶກສາຫາລື ຢູ່ ແຕ່ລະເມືອງ ແລະ ໄດ້ລົງຫາກຸ່ມບ້ານ ເພື່ອເກັບກຳຂໍ້ມູນເພີ່ມເຕີມ. ຈຸດປະສົງຫຼັກຂອງກອງ ປະຊຸມເຫຼົ່ານີ້ແມ່ນເພື່ອກຳນົດ ແລະ ຈັດບູລິມະສິດສາເຫດທາງກົງ ແລະ ທາງອ້ອມຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມ ໂຊມ ແລະ ຊອກຫາວິທີແກ້ໄຂໂດຍການກຳນົດນະໂຍບາຍ ແລະ ມາດຕະການຕ່າງໆທີ່ເປັນໄປໄດ້. ຫຼັງຈາກນັ້ນ, ກໍໄດ້ເປີດກອງປະຊຸມ ຢູ່ ຂັ້ນແຂວງ ໃນເດືອນເມສາ 2017 ເພື່ອຢັ້ງຢືນຜົນຂອງການສຳຫຼວດເກັບກຳຂໍ້ມູນ ພ້ອມນະໂຍບາຍ ແລະ ມາດຕະການທີ່ກຳນົດ ເພື່ອເປັນ ພື້ນຖານໃຫ້ແກ່ການສ້າງຮ່າງສະບັບທີ 1 ຂອງແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງ. ລາຍລະອຽດວັນເວລາ, ສະຖານທີ່ ແລະ ຜູ້ເຂົ້າ ຮ່ວມກອງປະຊຸມໃນແຕ່ລະຄັ້ງ ແມ່ນຢູ່ໃນຕາຕະລາງ A1 ຂອງເອກະສານຊ້ອນທ້າຍ 1.

2.2. ການເຊື່ອມໂຍງແຜນປະຕິບັດງານເຂົ້າກັບຍຸດທະສາດ ແລະ ແຜນການແຫ່ງຊາດ

2.2.1. ການເຊື່ອມໂຍງແຜນປະຕິບັດງານເຂົ້າກັບແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມ ແລະ ຍຸດທະສາດຂອງຂະແໜງການຕ່າງໆ ແຜນປະຕິບັດງານ REDD+ ຂອງແຂວງຫຼວງພະບາງ ໄດ້ອອກແບບໂດຍເນັ້ນໃສ່ຈຸດສຳຄັນຄືຕ້ອງຮັບປະກັນໃຫ້ແຜນດັ່ງກ່າວ ສາມາດ ເຊື່ອມໂຍງເຂົ້າກັບຍຸດທະສາດ ແລະ ແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມ ແຫ່ງຊາດ ຊຶ່ງໃນນັ້ນລວມທັງແຜນຍຸດທະສາດຂອງ ກະຊວງ ຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ ຮອດປີ 2025, ວິໄສທັດຮອດປີ 2030 ແລະ ແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມ 5 ປີ ຄັ້ງທີ 8 (2016 – 2020). ນອກນັ້ນ, ຍຸດທະສາດທີ່ສຳຄັນອີກຢ່າງໜຶ່ງ ແມ່ນຍຸດທະສາດປ່າໄມ້ຮອດປີ 2020 ຊຶ່ງໄດ້ກຳນົດຈຸດປະສົງ, ລະດັບຄາດໝາຍ ແລະ ແຜນການທີ່ແນ່ນອນສຳລັບຂະແໜງການປ່າໄມ້. ນອກນັ້ນ, ຍຸດທະສາດດັ່ງກ່າວຍັງເຊື່ອມໂຍງກັບຍຸດທະສາດຂອງ ຂະແໜງການອື່ນໆ ລວມທັງຍຸດທະສາດການພັດທະນາກະສິກຳ ຮອດປີ 2025 ແລະ ວິໄສທັດຮອດປີ 2030 ແລະ ແຜນງານກະສິກຳ-ຊີວະນາງພັນແຫ່ງຊາດ ແລະ ແຜນປະຕິບັດງານ (2016 – 2025). ຕາຕະລາງ 2 ສະແດງໃຫ້ເຫັນສະພາບລວມ ແລະ ການເຄື່ອນໄຫວ ວຽກງານຂອງລັດຖະບານທີ່ພົວພັນກັບ REDD+ ຢູ່ ສປປ ລາວ ແລະ ແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງທີ່ສ້າງຂຶ້ນ. ອີງໃສ່

ແນວທາງທີ່ລະອຽດຖີ່ຖ້ວນດັ່ງກ່າວ ແຜນປະຕິບັດ ງານ REDD+ ຂັ້ນແຂວງ ຈະຊ່ວຍລັດຖະບານໃນການຈັດຕັ້ງປະຕິບັດດ້ວຍຄວາມກ້າວໜ້າ ແລະ ນຳໄປສູ່ຜົນສຳເລັດ ສາມາດບັນລຸເປົ້າໝາຍຂອງການພັດທະນາປະເທດ ໂດຍສະເພາະການປ້ອງກັນ ແລະ ຄຸ້ມຄອງນຳໃຊ້ຊັບພະຍາກອນທຳມະຊາດໃຫ້ເກີດຜະໂຫຍດສູງສຸດ ແລະ ຍືນຍົງ.

ຕາຕະລາງ 2: ເປົ້າໝາຍຂອງຍຸດທະສາດ ແລະ ແຜນພັດທະນາແຫ່ງຊາດ ຂອງຂະແໜງການກ່ຽວຂ້ອງ

ຍຸດທະສາດ/ແຜນພັດທະນາ	**ລາຍລະອຽດກິດຈະກຳ/ຈຸດປະສົງ/ເປົ້າໝາຍ**
ວິໄສທັດ 2030[4]	ຂ້າມຜ່ານໄປສູ່ປະເທດກຳລັງພັດທະນາທີ່ມີລາຍຮັບປານກາງຫາສູງ ແລະ ມີອັດຕາການຂະຫຍາຍຕົວຂອງເສດຖະກິດທີ່ໝັ້ນຄົງ ແລະ ຍືນຍົງ. ການພັດທະນາເສດຖະກິດ-ສັງຄົມ ແລະ ການປົກປັກຮັກສາສິ່ງແວດລ້ອມ ມີຄວາມສົມດູນກັນ. ຂະແໜງກະສິກຳ ແລະ ປ່າໄມ້ ໄດ້ຮັບການພັດທະນາແບບຍືນຍົງ ສາມາດຮັບປະກັນທາງດ້ານສະບຽງອາຫານ ແລະ ປົກປັກຮັກສາສິ່ງແວດລ້ອມໄປພ້ອມໆກັນ. ການນຳໃຊ້ຊັບພະຍາກອນທຳມະຊາດມີປະສິດທິຜົນຫຼາຍຂຶ້ນ.
ຍຸດທະສາດ 2025	ຫຼຸດພົ້ນອອກຈາກປະເທດທີ່ດ້ອຍພັດທະນາໃນປີ 2025. ເສດຖະກິດຂະຫຍາຍ ຕົວຢ່າງກ້ວາງຂວາງ, ສາມາດຫຼຸດພົ້ນອອກຈາກຄວາມທຸກຍາກ, ການເພີ່ມຂຶ້ນຂອງພົນລະເມືອງສະໝ່ຳສະເໝີ. ຜະລິດຕະພາບສູງຂຶ້ນກະຕຸກຊຸກຍູ້ໃຫ້ການຜະລິດຂະຫຍາຍຕົວ. ການຄຸ້ມຄອງດ້ານສິ່ງແວດລ້ອມ ຕ້ອງສາມາດແກ້ໄຂບັນຫາການປ່ຽນແປງດິນຟ້າອາກາດ, ທົນທານຕໍ່ສະພາບການເກີດໄພທຳມະຊາດ ທັງຮັບປະກັນໃຫ້ຮັບຮູ້ ແລະ ເຂົ້າໃຈຢ່າງເລິກເຊິ່ງຕໍ່ຜົນກະທົບທາງດ້ານສັງຄົມ, ສິ່ງແວດລ້ອມ ແລະ ເສດຖະກິດ ຈາກກິດຈະກຳຂອງຂະແໜງຊັບພະຍາກອນ.
ແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມ 5 ປີ ຄັ້ງທີ 8 (2016-2020)	ການຈັດສັນການນຳໃຊ້ທີ່ດິນປະຕິບັດສຳເລັດໃນທຸກພາກຂອງປະເທດ. ການຈັດສັນທີ່ດິນເພື່ອທຳການຜະລິດໃຫ້ປະຊາຊົນມີຄວາມຖືກຕ້ອງ ແລະ ແທດເໝາະ ດ້ວຍການກຳນົດເຂດນຳໃຊ້ທີ່ດິນຢ່າງຈະແຈ້ງ. ເນື້ອທີ່ປົກຫຸ້ມປ່າໄມ້ບັນລຸຄາດໝາຍ 70% ຂອງເນື້ອທີ່ທັງໝົດໃນປີ 2020 (ໃນນັ້ນປ່າຟື້ນຟູທຳມະຊາດ 6 ລ້ານເຮັກຕາ, ປ່າປູກ 500.000 ເຮັກຕາ ໃນເນື້ອທີ່ປ່າທີ່ບໍ່ທັນໄດ້ຈັດສັນ; ໂດຍໄດ້ກຳນົດໃນຍຸດທະສາດປ່າໄມ້ 2020). ຮອດປີ 2020 ຟື້ນຟູປ່າໃຫ້ໄດ້ 1.5 ລ້ານ ເຮັກຕາ . ສ້າງກົນໄກເພື່ອຄຸ້ມຄອງ ແລະ ນຳໃຊ້ຊັບພະຍາກອນປ່າໄມ້ ຢ່າງມີປະສິດທິພາບ ແລະ ມີຄວາມຍືນຍົງ. ສ້າງກົນໄກດ້ານການເງິນ, ລະບຽບການ ແລະ ຖານຂໍ້ມູນ ເພື່ອສຶກສາຄົ້ນຄ້ວາ ແລະ ຄຸ້ມຄອງແນໃສ່ເພື່ອຫຼຸດຜ່ອນການປ່ອບອາຍພິດເຮືອນແກ້ວ ຈາກການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ຮັບປະກັນລາຍຮັບຈາກຂະແໜງການປ່າໄມ້ ຖືກນຳໃຊ້ເພື່ອຟື້ນຟູ ແລະ ຄຸ້ມຄອງປ່າໄມ້.
ຍຸດທະສາດປ່າໄມ້ ຮອດປີ 2020	**ທິດທາງການຈັດຕັ້ງປະຕິບັດນະໂຍບາຍ** - ເພື່ອກຳນົດນະໂຍບາຍທີ່ດິນແຫ່ງຊາດ ແລະ ແນະນຳການວ າງແຜນນຳໃຊ້ທີ່ດິນລະດັບມະຫາພາກ ແລະ ລະດັບທ້ອງຖິ່ນ. - ເພື່ອເພີ່ມທະວີວຽກງານຄຸ້ມຄອງຊັບພະຍາກອນທຳມະຊາດ ໂດຍອີງໃສ່ຊຸມຊົນທ້ອງຖິ່ນເປັນເຈົ້າການ ແນໃສ່ເພື່ອຫຼຸດຜ່ອນຄວາມທຸກຍາກ. - ເພື່ອຄວບຄຸມການເກັບກ່ຽວ ແລະ ການສົ່ງອອກເຄື່ອງປ່າຂອງດົງໃຫ້ມີຄວາມຍືນຍົງ ພ້ອງທັງຊຸກຍູ້ສົ່ງເສີມວຽກງານຄຸ້ມຄອງ ແລະ ປຸງແຕ່ງເຄື່ອງປ່າຂອງດົງແບບມີສ່ວນຮ່ວມ ແລະ ຍາວນານ. - ເພື່ອປັບປຸງການເຄື່ອນໄຫວຂອງອຸດສາຫະກຳໄມ້ ແນໃສ່ເພື່ອຮັບປະກັນໃຫ້ກຳລັງການຜະລິດ ແລະ ການຂຸດຄົ້ນໄມ້ ມີຄວາມດຸ່ນດ່ຽງ ແລະ ສົມດູນຊຶ່ງກັນແລະກັນ. - ເພື່ອຊຸກຍູ້ການປູກໄມ້ ແລະ ການຄຸ້ມຄອງບົວລະບັດຮັກສາ ໂດຍກຳນົດເປົ້າໝາຍໃຫ້ຈະແຈ້ງ ໂດຍສະເພາະແມ່ນເຈົ້າຂອງຜູ້ປູກໄມ້, ຕະຫຼາດຮອງຮັບ ແລະ ແຜນການລົງທຶນປູກໄມ້ ເພື່ອສະໜອງໄມ້ໃນລະດັບຊາດ ແລະ ຮັບປະກັນລາຍຮັບຂອງຊາວກະສິກອນຜູ້ປູກໄມ້. - ເພື່ອປ້ອງກັນການບຸກລຸກພື້ນທີ່ປ່າໄມ້, ການເຄື່ອນໄຫວກິດຈະກຳທີ່ບໍ່ໄດ້ຮັບອະນຸຍາດໃນເຂດປ່າໄມ້ ແລະ ປ້ອງ

[4]ລວມຢູ່ໃນແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມ 5 ປີ ຄັ້ງທີ 8

ຕາຕະລາງ 2: ເປົ້າໝາຍຂອງຍຸດທະສາດ ແລະ ແຜນພັດທະນາແຫ່ງຊາດ ຂອງຂະແໜງການກ່ຽວຂ້ອງ

ຍຸດທະສາດ/ແຜນ ພັດທະນາ	ລາຍລະອຽດກິດຈະກຳ/ຈຸດປະສົງ/ເປົ້າໝາຍ
	ກັນການເຮັດໃຫ້ຊີວະນາໆພັນເສື່ອມໂຊມ ໂດຍການບັງຄັບໃຊ້ລະບຽບກົດໝາຍຢ່າງເຄັ່ງຄັດ ຄຽງຄູ່ກັບການສ້າງ ຄວາມເຂັ້ມແຂງໃຫ້ຊາວບ້ານ ເຂົ້າມາມີສ່ວນຮ່ວມໃນການຄຸ້ມຄອງປ່າໄມ້.
ຍຸດທະສາດການ ພັດທະນາກະສິກຳ ຮອດປີ 2025 ແລະ ວິໄສທັດ ຮອດປີ 2030	- ການຢຸດຕິການຖາງປ່າເຮັດໄຮ່ແບບເລື່ອນລອຍ ແລະ ມາດຕະການການປັບຕົ ວເຂົ້າກັບການປ່ຽນແປງດິນຟ້າ ອາກາດ ຈະຖືກດັດປັບໃຫ້ສອດຄ່ອງກັບສະພາບເງື່ອນໄຂຕົວຈິງຂອງການພັດທະນາເສດຖະກິດ-ສັງຄົມ ແລະ ລະ ບົບນິເວດກະສິກຳຂອງແຕ່ລະເຂດ. - ຊຸກຍູ້ສິ່ງເສີມໃຫ້ກ້ວາງຂວາງການຜະລິດໃນເຊິງນິເວດແບບຍືນຍົງ ໂດຍອີງໃສ່ຈຸດພິເສດຂອງແຕ່ລະຂົງເຂດ. - ເພີ່ມຜະລິດຕະພາບ ແລະ ປັບປຸງການຜະລິດກະສິກຳຫັນໄປສູ່ທັນສະໄໝ ກ້າວໄປສູ່ການຜະລິດສີຂຽວໃນຕ່ອງໂສ້ ຄຸນຄ່າ ເພື່ອຊ່ວຍຊາວກະສິກອນຜູ້ທຸກຍາກ ໂດຍເນັ້ນເປົ້າໝາຍໄປທີ່ຕະຫຼາດພາຍໃນປະເທດ, ປະຈຳພາກພື້ນ ແລະ ສາກົນ ອີງໃສ່ທ່າແຮງຂອງອົງການຈັດຕັ້ງຊາວກະສິກຳລະດັບຄອບຄົວ ສົມທົບກັບພາກເອກະຊົນ ເພື່ອລົງທຶນໃນ ຂະແໜງການຜະລິດດັ່ງກ່າວ. - ການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນຍົງຈະຊ່ວຍອະນຸລັກຊີວະນາໆພັນ ແລະ ນຳໄປສູ່ການເພີ່ມຂຶ້ນຂອງເນື້ອທີ່ປົກຫຸ້ມ ປ່າໄມ້ໃນທົ່ວປະເທດ ກໍຄືເພີ່ມຄວາມອຸດົມສົມບູນໃຫ້ປ່າໄມ້ ເຮັດໃຫ້ການບໍລິການດ້ານສິ່ງແວດລ້ອມມີຄຸນຄ່າ ນຳ ຜົນປະໂຫຍດມາສູ່ປະຊາຊົນທ້ອງຖິ່ນ, ພາກລັດ ແລະ ເອກະຊົນ ຕະຫຼອດຮອດຜູ້ລົງທຶນ ແລະ ຜູ້ປະກອບການໃນ ຂະແໜງປ່າໄມ້ຢ່າງທົ່ວເຖິງ ແລະ ຍຸດຕິທຳ.
ຍຸດທະສາດຊີວະ ນາໆພັນແຫ່ງຊາດ ແລະ ແຜນ ປະຕິບັດງານ (2016-2025)	- ການປົກປັກຮັກສາລະບົບນິເວດທີ່ອຸດົມສົມບູນ, ມີຄວາມຫຼາກຫຼາຍ ແລະ ສຳຄັນຕໍ່ເສດຖະກິດ (ເຊັ່ນ: ການຕິດ ຕາມກວດກາ ແລະ ການເພີ່ມທະວີການນຳໃຊ້ລະ ບຽບກົດໝາຍປ່າໄມ້, ການເພີ່ມຈຳນວນຄອບຄົວທີ່ໄດ້ຮັບຜົນປະ ໂຫຍດຈາກການຄຸ້ມຄອງປ່າໄມ້ ໂດຍປະຊາຊົນ ມີສ່ວນຮ່ວມ ໃນເຂດທີ່ມີການທຳລາຍປ່າໄມ້ ແລະ ຊີວະນາໆພັນທີ່ ຮ້າຍແຮງ). - ການເຊື່ອມໂຍງຄຸນຄ່າຂອງຊີວະນາໆພັນເຂົ້າກັບເສດຖະກິດ-ສັງຄົມໃນການຕັດສິນບັນຫາ (ເຊັ່ນ: ການວາງແຜນ ໂດຍອີງໃສ່ພື້ນທີ່ໃນການພັດທະນາ ຫຼື ວາງແຜນກິດຈະກຳ). - ເພີ່ມທະວີພື້ນຖານຄວາມຮູ້ກ່ຽວກັບຂໍ້ມູນຂ່າວສານ ແລະ ຄຸນຄ່າທາງດ້ານຊີວະນາໆພັນ. - ປັບປຸງການຕິດຕໍ່ສື່ສານ, ການສຶກສາໃຫ້ຄວາມຮູ້ ແລະ ການສ້າງຈິດສຳນຶກໃຫ້ມະຫາຊົນ ກ່ຽວກັບຊີວະນາໆພັນ. - ກະກຽມ ແລະ ຈັດຕັ້ງປະຕິບັດແຜນການ ແລະ ແຜນງານຢ່າງມີປະສິດທິພາບ.

2.2.2. ການເຊື່ອມໂຍງແຜນປະຕິບັດງານເຂົ້າກັບ ບັນດາຍຸດທະສາດ ແລະ ແຜນການ ກ່ຽວກັບການປ່ຽນແປງດິນຟ້າອາກາດ *ຍຸດທະສາດແຫ່ງຊາດວ່າດ້ວຍການປ່ຽນແປງດິນຟ້າອາກາດ* ໄດ້ກຳນົດບັນດາກອບໜ້າວຽກເບື້ອງຕົ້ນ ທີ່ເປັນແນວທາງໃຫ້ແກ່ການຈັດຕັ້ງປະ ຕິບັດຈຸດປະສົງ ແລະ ມາດຕະການ ອັນສຳຄັນຂອງຂະແໜງການກ່ຽວຂ້ອງກັບການປ່ຽນແປງດິນຟ້າອາກາດ. ສປປ ລາວ ກຳລັງສ້າງ *ກົດ ໝາຍວ່າດ້ວຍການປ່ຽນແປງດິນຟ້າອາກາດ ແລະ ໄພພິບັດ* ຊຶ່ງຄາດວ່າຈະສຳເລັດໃນປີ 2017 . ແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງ (PRAP) ແມ່ນຊ່ວຍສະໜັບສະໜູນເປົ້າໝາຍ ແລະ ຄາດໝາຍທີ່ໄດ້ກຳນົດໄວ້ໃນຍຸດທະສາດວ່າດ້ວຍການປ່ຽນແປງດິນຟ້າອາກາດແຫ່ງ ຊາດ ແລະ ຊ່ວຍປະຕິບັດຕາມຄຳໝັ້ນສັນຍາຂອງລັດຖະບານທີ່ລະບຸໄວ້ໃນເອກະສານການປະກອບສ່ວນຂອງ ສປປ ລາວ (NDC) ທີ່ໄດ້ ສະເໜີຕໍ່ສົນທິສັນຍາຂອງສະຫະປະຊາຊາດວ່າດ້ວຍການປ່ຽນດິນຟ້າອາກາດ (UNFCCC).

ເອກະສານການປະກອບສ່ວນຂອງ ສປປ ລາວ (NDC) ແມ່ນໄດ້ເນັ້ນເຖິງການຕົກລົງເຫັນດີ ແລະ ຄວາມພະຍາຍາມ ຂອງ ສປປ ລາວ ຕໍ່ ກັບວຽກງານການປ່ຽນແປງດິນຟ້າອາກາດ ທີ່ມີສ່ວນກ່ຽວຂ້ອງຂອງຫຼາຍຂະແໜງການ. ການຈັດຕັ້ງປະຕິບັດຕາມພັນທະຂອງລັດຖະບານ ແມ່ນໄດ້ສະແດງອອກ ຢູ່ໃນແຜນຍຸດທະສາດແຫ່ງຊາດ ແລະ ຍຸດທະສາດຂອງຂະແໜງການ, ພ້ອມທັງຍຸດທະສາດແຫ່ງຊາດ ວ່າດ້ວຍການ ປ່ຽນແປງດິນຟ້າອາກາດ. ໃນດ້ານຂອງການຫຼຸດຜ່ອນການປ່ອຍອາຍພິດເຮືອນແກ້ວ, ລັດຖະບານໄດ້ອອກຍຸດທະສາດປ່າໄມ້ຮອດປີ 2020 ເພື່ອເພີ່ມຄວາມປົກຫຸ້ມຂອງປ່າໄມ້ໃຫ້ໄດ້ 70% ຂອງເນື້ອທີ່ດິນທົ່ວປະເທດ, ເພີ່ມການສິ່ງອອກພະລັງງານໄຟຟ້ານ້ຳຕົກໄປຍັງປະ ເທດເພື່ອນບ້ານ ແລະ ເພີ່ມອັດຕາສ່ວນການນຳໃຊ້ເຊື້ອເພີງຊີວະພາບເຂົ້າໃນການຂົນສົ່ງ ແລະ ເພີ່ມມາດຕະການອື່ນໆ. ໃນດ້ານການປັບ

ຕົວ, ໃນເອກະສານການປະກອບສ່ວນຂອງ ສປປ ລາວ (NDC) ສະທ້ອນໃຫ້ເຫັນເຖິງຄວາມຕັ້ງໃຈຂອງລັດຖະບານໃນການເພີ່ມຄວາມສາມາດ ຂອງຂະແໜງການເສດຖະກິດ ແລະ ຂະແໜງການຊັບພະຍາກອນທຳມະຊາດ ຕໍ່ກັບການປັບຕົວເຂົ້າກັບການປ່ຽນແປງດິນຟ້າອາກາດ ແລະ ຜົນກະທົບຂອງການປ່ຽນແປງດິນຟ້າອາກາດ. ພ້ອມກັນນັ້ນ ກໍເພີ່ມທະວີການພົວພັນຮ່ວມມື ແລະ ການເປັນຄູ່ຮ່ວມງານໃນການຫຼຸດຜ່ອນຄວາມສ່ຽງ ຂອງ ສປປ ລາວ ຈາກການປ່ຽນແປງຂອງດິນຟ້າອາກາດ . ສະຫຼຸບໄດ້ວ່າ, ຈຸດປະສົງທົ່ວໄປ ຂອງເອກະສານການປະກອບສ່ວນຂອງປະເທດແມ່ນເພື່ອ *"... ສ້າງຄວາມ ອາດສາມາດ ໃນການຕິດຕາມກວດກາ ແລະ ການປະເມີນ ໃນການຈັດຕັ້ງປະຕິບັດ ນະໂຍບາຍໃຫ້ສຳເລັດໂດຍການສ້າງນະໂຍບາຍ, ບົດແນະນຳ ແລະ ຂໍ້ມູນໃໝ່ ... ພ້ອມທັງ ພັດທະນາ ແລະ ຈັດຕັ້ງປະຕິບັດ ມາດຕະການ ຫຼຸດຜ່ອນການປ່ຽນແປງດິນຟ້າອາກາດ ແລະ ການປັບຕົວໃຫ້ເຂົ້າກັບ ການປ່ຽນແປງດິນຟ້າອາກາດ ທີ່ປະ ຫຍັດງົບປະມານ ແຕ່ຈັດຕັ້ງປະຕິບັດໃຫ້ມີປະສິດທິພາບ ແລະ ປະສິດທິຜົນ ".* ມາຮອດປັດຈຸບັນ, ລັດຖະບານ ໄດ້ຈັດສັນງົບປະມານ 12.5 ລ້ານ ໂດລາ ເພື່ອຈັດຕັ້ງປະຕິບັດ ບັນດາມາດຕະການ ທີ່ໄດ້ລະບຸໄວ້ໃນເອກະສານ ການປະກອບສ່ວນຂອງປະເທດ (NDC), ແຕ່ພ້ອມດຽວກັນກໍໄດ້ສະແດງໃຫ້ເຫັນເຖິງຄວາມຈຳເປັນໃນການສະໜັບສະໜູນດ້ານການເງິນຈາກພາຍນອກປະມານ 1.5 ຕື້ໂດລາ ເພື່ອນຳ ມາຈັດຕັ້ງປະຕິບັດ ພັນທະຂອງລັດຖະບານ ຕໍ່ກັບການຄຸ້ມຄອງການປ່ຽນແປງດິນຟ້າອາກາດ.

ຕາຕະລາງ 3. ເປົ້າໝາຍຂອງຂະແໜງການກ່ຽວຂ້ອງ ອີງໃສ່ຍຸດທະສາດການປ່ຽນແປງດິນຟ້າອາກາດຂອງ ສປປ ລາວ (2010)[5]

ຂະແໜງການ	ລາຍລະອຽດເປົ້າໝາຍ
ກະສິກຳ	- ເຊື່ອມໂຍງການປ່ຽນແປງດິນຟ້າອາກາດເຂົ້າກັບຂະແໜງການກ່ຽວຂ້ອງ ແລະ ເພີ່ມທະວີສ້າງຄວາມເຂັ້ມແຂງໃຫ້ຂະແໜງກະສິກຳ. - ຊຸກຍູ້ການກະສິກຳແບບອະນຸລັກ ແລະ ທົນທານຕໍ່ການປ່ຽນແປງດິນຟ້າອາກາດ. - ປັບປຸງ ແລະ ຕິດຕາມກວດກາຊັບພະຍາກອນນ້ຳ, ລະບົບສະໜອງນ້ຳ ແລະ ລະບົບປ້ອງກັນໄພນ້ຳຖ້ວມ. - ເພີ່ມທະວີຄວາມເຂັ້ມແຂງດ້ານການເງິນ ແລະ ສ້າງຄວາມເຂັ້ມແຂງໃຫ້ຊາວກະສິກອນ, ສະໜັບສະໜູນຊຸມຊົນທ້ອງຖິ່ນໃນການປັບຕົວເຂົ້າກັບສະພາບການປ່ຽນແປງດິນຟ້າອາກາດ. - ເພີ່ມທະວີການສຶກສາຄົ້ນຄ້ວາໃນຂະແໜງການກ່ຽວຂ້ອງ ເພື່ອປັບຕົວເຂົ້າກັບສະພາບການປ່ຽນແປງດິນຟ້າອາກາດ. - ໂຄສະນາເຜີຍແຜ່ຂໍ້ມູນຂ່າວສານ ແລະ ຊຸກຍູ້ວຽກງານສົ່ງເສີມ (ໃຫ້ພະນັກງານ ແລະ ຊາວກະສິກອນ). - ເພີ່ມທະວີການຮ່ວມມື ແລະ ການປະສານງານລະຫວ່າງຂະແໜງການ.
ປ່າໄມ້ ແລະ ການນຳໃຊ້ທີ່ດິນ	- ເຊື່ອມໂຍງການປ່ຽນແປງດິນຟ້າອາກາດເຂົ້າກັບຍຸດທະສາດປ່າໄມ້ ແລະ ກົດຈະກຳການຄຸ້ມຄອງປ່າໄມ້. - ຊຸກຍູ້ສົ່ງເສີມກົດຈະກຳທີ່ປັບຕົວເຂົ້າກັບສະພາບການປ່ຽນແປງດິນຟ້າອາກາດ. - ປັບປຸງລະບົບການຄຸ້ມຄອງປ່າໄມ້ ເພື່ອຊຸກຍູ້ຊີວິດການເປັນຢູ່ຂອງຊາວຊົນນະບົດໃຫ້ດີຂຶ້ນ. - ເພີ່ມທະວີວຽກງານສ້າງຄວາມເຂັ້ມແຂງໃຫ້ປະຊາຊົນທີ່ດຳລົງຊີວິດຕິດພັນກັບປ່າໄມ້. - ເພີ່ມທະວີການຄຸ້ມຄອງ ແລະ ປົກປັກຮັກສາອະນຸລັກຊີວະນາໆພັນ. - ຢຸດຕິການຖາງປ່າເຮັດໄຮ່ແບບເລື່ອນລອຍ ຫັນໄປສູ່ການຄຸ້ມຄອງ ແລະ ຟື້ນຟູປ່າໄມ້. - ເພີ່ມເນື້ອທີ່ປົກຫຸ້ມປ່າໄມ້ ແລະ ແຫຼ່ງເກັບກັກກາກບອນ ດ້ວຍການຊຸກຍູ້ສົ່ງເສີມທາງເລືອກໃນການນຳໃຊ້ທີ່ດິນແບບຍືນຍົງ ສອດຄ່ອງກັບສະພາບການປ່ຽນແປງດິນຟ້າອາກາດ ແລະ ຊຸກຍູ້ສ້າງອາຊີບທີ່ມີຄວາມໝັ້ນຄົງ. - ຊຸກຍູ້ສົ່ງເສີມການນຳໃຊ້ເຊື້ອເພີງທົດແທນໃຫ້ປະຊາຊົນທີ່ອາໄສປ່າ ລວມທັງການນຳໃຊ້ສິ່ງເສດເຫຼືອຈາກພືດກະສິກຳ ຫຼື ໄມ້ອຸດສາຫະກຳທີ່ປູກ. - ສະກັດກັ້ນໄຟໄໝ້ລາມປ່າ ໂດຍສ້າງກົດລະບຽບ ແລະ ວາງມາດຕະການ ເພື່ອສ້າງຈິດສຳນຶກ, ສະກັດກັ້ນ ແລະ ປ້ອງກັນໄຟປ່າ. - ເຊື່ອມໂຍງວຽກງານຄຸ້ມຄອງປ່າໄມ້ ເຂົ້າກັບການຜະລິດກະສິກຳ-ປ່າໄມ້ແບບຄົບວົງຈອນ, ເຄື່ອງປ່າຂອງດົງ ແລະ ການຄຸ້ມຄອງປ່າໄມ້ໂດຍປະຊາຊົນມີສ່ວນຮ່ວມ. - ກຳນົດເຂດນຳໃຊ້ທີ່ດິນ ແລະ ວາງແຜນນຳໃຊ້ທີ່ດິນດ້ວຍຫຼາຍຮູບແບບໃນໄລຍະກາງ ແລະ ໄລຍະຍາວ, ຈຳກັດການບຸກລຸກ

[5]ສ.ປ.ປ.ລາວ (2010)

ຕາຕະລາງ 3. ເປົ້າໝາຍຂອງຂະແໜງການກ່ຽວຂ້ອງ ອີງໃສ່ຍຸດທະສາດການປ່ຽນແປງດິນຟ້າອາກາດຂອງ ສປປ ລາວ(2010)[5]

ຂະແໜງການ	ລາຍລະອຽດເປົ້າໝາຍ
	ເຂົ້າໃນເຂດປ່າປອ້ງກັນ ແລະ ປ່າສະຫງວນແຫ່ງຊາດ. - ຕິດຕາມການເຂົ້າຫາຕະຫຼາດການາກບອນ ແລະ ເຊື່ອມໂຍງເຂົ້າກັບວຽກງານ REDD+ ໂດຍໄວ ດ້ວຍການສ້າງ ແລະ ຈັດຕັ້ງປະຕິບັດແຜນງານຟື້ນຟູ ແລະ ປູກປ່າໃຫ້ຫຼາຍຂຶ້ນ.
ນ້ຳ/ເຂື່ອນ ໄຟຟ້າ	- ປະເມີນຄວາມບໍ່ໝັ້ນຄົງຂອງອຸດສາຫະກຳດ້ານເຂື່ອນໄຟຟ້າທີ່ມີຕໍ່ການປ່ຽນແປງດິນຟ້າອາກາດ. - ສ້າງຍຸດທະສາດການປັບຕົວເຂົ້າກັບການປ່ຽນແປງດິນຟ້າອາກາດ ເພື່ອເພີ່ມຄວາມຄ່ອງແຄ້ວ ແລະ ຂີດຄວາມສາມາດໃນການປັບຕົວ. - ເຊື່ອມໂຍງມາດຕະການແກ້ໄຂການປ່ຽນແປງດິນຟ້າອາກາດ ເຂົ້າກັບຍຸດທະສາດການຄຸ້ມຄອງດ້ານຄວາມສ່ຽງ ແລະ ຂັ້ນຕອນການອອກແບບ/ວາງແຜນ.

2.2.3. ການເຊື່ອມໂຍງແຜນປະຕິບັດງານເຂົ້າກັບແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມ ຂອງແຂວງ ແລະ ເມືອງ

ແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງ ແມ່ນເອກະສານຍຸດທະສາດ ທີ່ມີຈຸດປະສົງຊຸກຍູ້ວຽກງານຄຸ້ມຄອງປ່າໄມ້ໃຫ້ດີຂຶ້ນ ເປັນການປະກອບສ່ວນເຂົ້າໃນການຫຼຸດຜ່ອນ/ແກ້ໄຂສະພາບການປ່ຽນແປງດິນຟ້າອາກາດ ໂດຍສອດຄ່ອງກັບແຜນງານດ້ານວຽກງານປ່າໄມ້ແຫ່ງຊາດ ແລະ ລະດັບແຂວງ. ເອກະສານຍຸດທະສາດດັ່ງກ່າວຍັງເປັນແຜນແມ່ບົດສຳລັບວຽກງານຄຸ້ມຄອງປ່າໄມ້ຂອງແຂວງອີກດ້ວຍ. ແຜນພັດທະນາກະສິກຳ ແລະ ປ່າໄມ້ ຂອງແຂວງ ແລະ ເມືອງ ປີ 2016 – 2020 ແມ່ນຍຸດທະສາດທີ່ສຳຄັນຂອງແຂວງ ຊຶ່ງໄດ້ກຳນົດເປົ້າໝາຍຢ່າງຄັກແນ່ຂອງຂະແໜງປ່າໄມ້ໃນລະດັບແຂວງ. ນອກນັ້ນ, ສາເຫດຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ມັກຈະຕິດພັນ ຫຼື ເກີດຈາກປັດຈັ ຍອື່ນໆທີ່ຢູ່ນອກຂະແໜງປ່າໄມ້. ແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງ ຈຶ່ງຮຽກຮ້ອງໃຫ້ຕ້ອງມີການຮ່ວມມືປະສານງານຢ່າງໃກ້ສິດລະຫວ່າງຂະແໜງການຕ່າງໆ ເພື່ອໃຫ້ແຜນງານ ແລະ ເປົ້າໝາຍໄປໃນທິດທາງດຽວກັນ. ສະນັ້ນ, ການທົບທວນແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມ 5 ປີ ຂອງແຂວງ, ຍຸດທະສາດຮອດປີ 2025 ແລະ ວິໄສທັດ ປີ 2030 ຈຶ່ງມີຄວາມຈຳເປັນ ບໍ່ພຽງແຕ່ເພື່ອຫຼີກຫຼ່ຽງຂໍ້ຂັດແຍ່ງລະຫວ່າງບັນດາຂະແໜງການຕ່າງໆ ແຕ່ຍັງເປັນຊ່ອງທາງໃຫ້ເກີດມີການຮ່ວມມືປະສານງານກັນຫຼາຍຂຶ້ນ.

ຂະແໜງກະສິກຳ ແລະ ປ່າໄມ້

ແຜນພັດທະນາກະສິກຳ ແລະ ປ່າໄມ້ (2016-2020) ຂອງແຂວງຫຼວງພະບາງ

ຂະແໜງການ	ຈຸດປະສົງລະດັບຄາດໝາຍແລະ ກິດຈະກຳ
ປ່າໄມ້	• ກຳນົດເຂດຟື້ນຟູປ່າໄມ້ ແລະ ເຂດປູກໄມ້ ເພື່ອປະກອບສ່ວນເຮັດໃຫ້ເນື້ອທີ່ປົກຫຸ້ມປ່າໄມ້ເພີ່ມຂຶ້ນ 70% ໃນປີ 2020. • ປູກໄມ້ໃຫ້ໄດ້ໃນເນື້ອທີ່ 12.500 ເຮັກຕາ ແລະ ປົກປັກຮັກສາເນື້ອທີ່ 255,271 ເຮັກຕາ ເພື່ອໃຫ້ປ່າຟື້ນຟູ. • ກຳນົດເຂດນຳໃຊ້ທີ່ດິນ ແລະ ຈັດສັນເຂດທຳການຜະລິດກະສິກຳໃຫ້ສຳເລັດໃນທົ່ວແຂວງ. • ສົ່ງເສີມປູກໄມ້ສັກ, ໄມ້ນ້ຳມັນ, ໄມ້ໃຫ້ໝາກ, ໄມ້ອຸດສາຫະກຳຊະນິດພັນຕ່າງໆ ເພື່ອສ້າງລາຍຮັບໃຫ້ປະຊາຊົນໃນປະຈຸບັນ ກໍຄືອະນາຄົດ.
ການຜະລິດກະສິກຳສຳລັບສະບຽງອາຫານ	ປີ 2020, ຜະລິດເຂົ້າໃຫ້ໄດ້ 120.659 ໂຕນໃນເນື້ອທີ່ 34.108 ເຮັກຕາທັງສອງລະດູ, ເນື້ອທີ່ສຳລັບນາປີ ມີ 15.370 ເຮັກຕາ, ນາແຊງ 2.338 ເຮັກຕາ, ເນື້ອທີ່ໄຮ່ຄົງທີ່ 16.500 ເຮັກຕາ.
ການຜະລິດກະສິກຳເປັນສິນຄ້າ	ຊຸກຍູ້ສິ່ງເສີມການຜະລິດກະສິກຳເປັນສິນຄ້າເຊັ່ນ: ປູກສາລີໃຫ້ໄດ້ 44.391 ໂຕນ ໃນເນື້ອທີ່ 10.320 ເຮັກຕາ, ໝາກເດືອຍ 28.874 ໂຕນ ເນື້ອທີ່ 11.511 ເຮັກຕາ, ໝາກງາ 4.823 ໂຕນ ເນື້ອທີ່ 3.711 ເຮັກຕາ.

ການລ້ຽງສັດ	• ຄາດໝາຍຂະຫຍາຍຝູງສັດມີດັ່ງນີ້: ງົວ 94.932 ໂຕ ຫຼື ເທົ່າກັບ 2 ເປີເຊັນ, ຄວາຍ 56.799 ໂຕ ຫຼື 1.5 ເປີເຊັນ, ໝູ 225.796 ໂຕ ຫຼື 2 ເປີເຊັນ, ແບ້ 137.260 ໂຕ ຫຼື 12 ເປີເຊັນ ແລະ ສັດປີກ 3.216.949 ໂຕ ຫຼື 6 ເປີເຊັນ. • ຊຸກຍູ້ສົ່ງເສີມການລ້ຽງສັດລະດັບຄອບຄົວອີງໃສ່ເງື່ອນໄຂຂອງຄອບຄົວ ແລະ ການລ້ຽງສັດເປັນຟາມຂະໜາດນ້ອຍ-ກາງ ແລະ ໃຫຍ່.
ຊົນລະປະທານ	• ກໍ່ສ້າງລະບົບຊົນລະປະທານ 8 ແຫ່ງ ໃນປີ 2016-2020. ສ້ອມແປງອ່າງເກັບນ້ຳ ແລະ ຄອງນ້ຳທຳມະຊາດ (ຄອງດິນ), ກໍ່ສ້າງຄອງນ້ຳຄອນກົດຍາວ 12.600 ແມ່ດ. ໃນປີ 2020, ລະບົບຊົນລະປະທານສາມາດສະໜອງນ້ຳໃຫ້ເນື້ອທີ່ກະສິກຳ 13.928 ເຮັກຕາ ລວມທັງເນື້ອທີ່ນາແຊງ 3.768 ເຮັກຕາ.
(ການຮ່ວມມືກັບຂະແໜງການອື່ນ)	• ຊຸກຍູ້ສົ່ງເສີມການຜະລິດກະສິກຳເປັນສິນຄ້າ ແລະ ການລ້ຽງສັດ (ຮູບແບບ: ປູກ 2 ລ້ຽງ 1 ຫຼື ປູກ 1 ລ້ຽງ 2) ແລະ ປູກໄມ້ອຸດສາຫະກຳໄລຍະສັ້ນ, ກາງ ແລະ ຍາວ ຄຽງຄູ່ກັບການລ້ຽງສັດ.

ຂະແໜງປ່າໄມ້

ແຜນຈັດຕັ້ງປະຕິບັດວຽກງານປ່າໄມ້ (2016-2020) ຂອງພະແນກກະສິກຳ ແລະ ປ່າໄມ້ ແຂວງຫຼວງພະບາງ (ສະບັບເລກທີ 452/ ຂປມ.ຫຼບ, ລົງວັນທີ 23 ມີຖຸນາ 2016)

	ຈຸດປະສົງ, ລະດັບຄາດໝາຍ ແລະ ກິດຈະກຳ
1	ເພີ່ມເນື້ອທີ່ປົກຫຸ້ມປ່າໄມ້ໃຫ້ໄດ້ 70%
2	ຫຼຸດຜ່ອນອາຍພິດເຮືອນແກ້ວຈາກການທຳລາຍປ່າໄມ້
3	ສ້າງ ແລະ ປັບປຸງນິຕິກຳກ່ຽວກັບປ່າໄມ້ ເພື່ອຮັບປະກັນໃຫ້ສອດຄ່ອງກັບການພັດທະນາເສດຖະກິດ-ສັງຄົມໃນແຕ່ລະໄລຍະ, ໂຄສະນາເຜີຍແຜ່ທິດທາງ ແລະ ນະ�โยบายຂອງພັກ, ລະບຽບກົດໝາຍຂອງລັດໃຫ້ສັງຄົມຮັບຮູ້
4	ກຳນົດເຂດປູກໄມ້ຟື້ນຟູປ່າໃຫ້ໄດ້ 128.000 ເຮັກຕາ ໃນເຂດປ່າຜະລິດ 2 ແຫ່ງ
5	ສົ່ງເສີມພາກລັດ ແລະ ເອກະຊົນປູກໄມ້ໃຫ້ໄດ້ 12.500 ເຮັກຕາ ໃນເຂດປ່າຜະລິດ 2 ແຫ່ງ
6	ສຳຫຼວດ ແລະ ກຳນົດ 3 ປະເພດປ່າ ແລະ ປ່າທີ່ຍັງບໍ່ທັນໄດ້ຈັດສັນໃຫ້ໄດ້ 686.475 ເຮັກຕາ ຫຼື ເທົ່າກັບ 34% (ເຂດຮັກສາແຫຼ່ງນ້ຳ – ທັງໝົດ 498.237,41 ເຮັກຕາ ຊຶ່ງເປັນສາຂາຂອງແມ່ນ້ຳຂອງໃນທົ່ວແຂວງ)
7	ປົກປັກຮັກສາສິ່ງແວດລ້ອມ, ດິນ, ແຫຼ່ງນ້ຳ ແລະ ດິນຟ້າອາກາດ
8	ປົກປັກຮັກສາຊະນິດພັນພືດ ແລະ ສັດ ພ້ອມຖິ່ນທີ່ຢູ່ອາໄສຂອງພວກມັນ ໂດຍສະເພາະຈຳພວກທີ່ກຳລັງຖືກໄພຂົ່ມຂູ່
9	ປັບປຸງການຈັດຕັ້ງ ແລະ ພັດທະນາຊັບພະຍາກອນມະນຸດ ໃນຂະແໜງປ່າໄມ້ແຕ່ລະດັບແຂວງລົງຫາຮາກຖານ (ລະດັບບ້ານ)

ແຜນການ 5 ປີ (2016-2020) ຂອງພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມແຂວງຫຼວງພະບາງ ສະບັບເລກທີ 793/ ພຊສ, ລົງວັນທີ 4 ກຸມພາ 2015

	ຈຸດປະສົງ, ລະດັບຄາດໝາຍ ແລະ ກິດຈະກຳ
1	ເພີ່ມເນື້ອທີ່ປົກຫຸ້ມປ່າໄມ້ໃຫ້ໄດ້ 70%
2	ຫຼຸດຜ່ອນການປ່ອຍອາຍພິດເຮືອນແກ້ວຈາກການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ (REDD+)
3	ເຜີຍແຜ່ກົດໝາຍປ່າໄມ້, ກົດໝາຍອື່ນໆ ແລະ ຂໍ້ກຳນົດກົດລະບຽບ ເພື່ອຄຸ້ມຄອງປ່າໄມ້ແບບຍືນຍົງ, ປົກປັກຮັກສາ, ຟື້ນຟູປ່າ ແລະ ຊັບພະຍາກອນທຳມະຊາດ ພ້ອມທັງບັງຄັບໃຊ້ກົດໝາຍ
4	ກຳນົດເຂດຟື້ນຟູປ່າເນື້ອທີ່ 434.153 ເຮັກຕາ, ໃນນັ້ນປ່າຟື້ນຟູທຳມະຊາດ433.953 ເຮັກຕາ ແລະ ປ່າປູກ 200 ເຮັກຕາ
5	ຊຸກຍູ້ສົ່ງເສີມການຄຸ້ມຄອງແບບຍືນຍົງ ແລະ ຕິດຕາມກວດກາຊັບພະຍາກອນປ່າໄມ້ ແລະ ຊີວະນາໆພັນ
6	ສຳຫຼວດ ແລະ ຂຶ້ນບັນຊີຊີວະນາໆພັນ, ສັດນ້ຳ-ສັດປ່າ ລວມທັງບັນຊີຊະນິດທີ່ຫວງຫ້າມ, ຫາຍາກ ແລະ ໃກ້ຈະສູນພັນ
7	ສຳຫຼວດແລະ ປັກຫຼັກໝາຍເຂດແດນປ່າສະຫງວນ ແລະ ປ່າປ້ອງກັນ ຢູ່ 12 ເມືອງ

ຂະແໜງທີ່ດິນ

ເປົ້າໝາຍ ແລະ ຈຸດສຸມຂອງກິດຈະກຳຂອງແຜນການ 5 ປີ (2016 – 2020) ສຳລັບການຄຸ້ມຄອງ ແລະ ພັດທະນາທີ່ດິນ ຢູ່ ແຂວງຫຼວງພະບາງ (ຂໍ້ມູນຂະແໜງທີ່ດິນ)

	ຈຸດປະສົງ, ລະດັບຄາດໝາຍ ແລະ ກິດຈະກຳ
1	ສຳຫຼວດຈັດສັນທີ່ດິນ ຢູ່ ຂັ້ນແຂວງ ແລະ ເມືອງ
2	ສຳຫຼວດຈັດສັນທີ່ດິນ ຢູ່ ຂັ້ນບ້ານ, ກຸ່ມບ້ານ ຢູ່ 8 ເມືອງ: ຫຼວງພະບາງ, ຈອມເພັດ, ຊຽງເງີນ, ນານ, ປາກອູ, ນ້ຳບາກ, ງອຍ, ວຽງຄຳ
3	ທົບທວນແຜນຈັດສັນການນຳໃຊ້ທີ່ດິນ ຢູ່ 4 ເມືອງ: ພູຄູນ, ໂພນໄຊ, ປາກແຊງ ແລະ ໂພນທອງ
4	ອອກໃບຕາດິນ 30.000 ໃບໃນທົ່ວແຂວງ
5	ເຮັດສຳມະໂນທີ່ດິນສຳລັບທີ່ດິນບ້ານ ແລະ ຄອບຄົວ ໃນ 12 ເມືອງ
6	ຕິດຕາມກວດກາການສຳປະທານທີ່ດິນ, ການເຊົ່າທີ່ດິນຂອງໂຄງການ ເພື່ອຈັດຕັ້ງປະຕິບັດຕາມເງື່ອນໄຂ ແລະ ຂໍ້ກຳນົດຂອງສັນຍາ
7	ປັບປຸງລະບົບຄຸ້ມຄອງຂໍ້ມູນກ່ຽວກັບທີ່ດິນຈາກການເກັບຮັກສາລະບົບເອກະສານມາເປັນລະບົບດິຈິຕອນ ຫຼື LLMS ເພື່ອສາມາດນຳໃຊ້ໃນທົ່ວແຂວງ
8	ປະເມີນລາຄາ ແລະ ສ້າງແຜນທີ່ໆດິນ ໃນ 12 ເມືອງ
9	ເກັບຄ່າທຳນຽມ/ພາສີທີ່ດິນໃນທົ່ວແຂວງໃຫ້ໄດ້ 24.630.939.000 ກີບ

ການປ່ຽນແປງດິນຟ້າອາກາດ ແລະ ການຄວບຄຸມໄພພິບັດ

ແຜນການ 5 ປີ (2016-2020) ຂອງພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ ແຂວງຫຼວງພະບາງ ສະບັບເລກທີ 793/ ພຊສ.ຫຼບ ລົງວັນທີ 4 ກຸມພາ 2015

	ຈຸດປະສົງ, ລະດັບຄາດໝາຍ ແລະ ກິດຈະກຳ
1	ແຜນການ ແລະ ຍຸດທະສາດຄວບຄຸມໄພພິບັດຂອງແຂວງ (2016-2020), ສ້າງແຜນປະຕິບັດງານຂອງແຂວງກ່ຽວກັບການປັບຕົວເຂົ້າກັບການປ່ຽນແປງດິນຟ້າອາກາດໃນໄລຍະຍາວ ແລະ ແຜນປະຕິບັດງານກ່ຽວກັບ REDD+
2	ຄະນະກຳມະການຄວບຄຸມ ແລະ ປ້ອງກັນໄພພິບັດແຫ່ງຊາດ, ຄະນະກຳມະການກ່ຽວກັບການປ່ຽນແປງດິນຟ້າອາກາດຂັ້ນແຂວງ ຈະໄດ້ຮັບການແຕ່ງຕັ້ງ ເພື່ອດຳເນີນການສຳຫຼວດເກັບກຳຂໍ້ມູນເຂດທີ່ຫຼໍ່ແຫຼມ ແລະ ກະທົບງ່າຍຕໍ່ການປ່ຽນແປງດິນຟ້າອາກາດ ແລະ ສ່ຽງຕໍ່ໄພພິບັດ ເປັນການປະກອບສ່ວນເຂົ້າໃນແຜນການປັບຕົວ ແລະ ການກະກຽມຄວາມພ້ອມສຳລັບການປ່ຽນແປງດິນຟ້າອາກາດ ແລະ ການຄວບຄຸມ/ປ້ອງກັນໄພພິບັດຂັ້ນແຂວງ ແລະ ເມືອງ
3	ກິດຈະກຳກ່ຽວກັບການປ່ຽນແປງດິນຟ້າອາກາດ, ການຫຼຸດຜ່ອນຄວາມສ່ຽງຕໍ່ໄພພິບັດ ແລະ REDD+ ຈະເຊື່ອມເຂົ້າໃນຍຸດທະສາດ ແລະ ແຜນປະຕິບັດງານຂອງຂະແໜງປ່າໄມ້ ແລະ ໂຍທາທິການ-ຂົນສົ່ງ ແນໃສ່ເພື່ອສ້າງຂີດຄວາມສາມາດ ກ່ຽວກັບການປັບຕົວເຂົ້າກັບການປ່ຽນແປງດິນຟ້າອາກາດ ແລະ REDD+
4	ແຜນຄວບຄຸມ ແລະ ປ້ອງກັນໄພພິບັດ (ລະບົບເຕືອນໄພ, ມາຕະການຕອບໂຕ້, ການບັນເທົາທຸກໃນຍາມສຸກເສີນ, ການຍົກຍ້າຍປະຊາຊົນ ແລະ ຊັບສິນ, ການຟື້ນຟູຫຼັງໄພພິບັດ) ຈະຈັດຕັ້ງປະຕິບັດໃຫ້ມີປະສິດທິພາບ ແລະ ປະສິດທິຜົນ ຢູ່ ຂັ້ນແຂວງ
5	ໂຄງການທົດລອງປັບຕົວເຂົ້າກັບການປ່ຽນແປງດິນຟ້າອາກາດ ແລະ ຫຼຸດຜ່ອນຄວາມສ່ຽງຕໍ່ໄພພິບັດ ຈະເຊື່ອມໂຍງເຂົ້າກັບແຜນຂອງພະແນກກະສິກຳ ແລະ ປ່າໄມ້ແຂວງ
6	ສ້າງຈິດສຳນຶກກ່ຽວກັບຜົນກະທົບຈາກການປ່ຽນແປງດິນຟ້າອາກາດ ເພື່ອຮັບປະກັນໃຫ້ການນຳໃຊ້ຊັບພະຍາກອນທຳມະຊາດມີປະສິດທິຜົນ ແລະ ຍືນຍົງ, ໂຄສະນາເຜີຍແຜ່ທິດທາງນະ�โยบายຂອງລັດ ກ່ຽວກັບການຄຸ້ມຄອງນຳໃຊ້ຊັບພະຍາກອນທຳມະຊາດ ຊຸກຍູ້ໃຫ້ປະຊາຊົນຢູ່ທ້ອງຖິ່ນເຂົ້າຮ່ວມໃນຂະບວນການປັບຕົວເຂົ້າກັບການປ່ຽນແປງດິນຟ້າອາກາດ ແລະ ການແກ້ໄຂບັນຫາຕ່າງໆ

ຂະແໜງການອື່ນໆ

ນະໂຍບາຍ	ຈຸດປະສົງ, ລະດັບຄາດໝາຍ ແລະ ກິດຈະກຳ
ຍຸດທະສາດການພັດທະນາເສດຖະກິດ-ສັງຄົມ ຮອດປີ 2025 ແລະ ວິໄສທັດປີ 2030 ຂອງແຂວງຫຼວງພະບາງ	[ວິໄສທັດ 2030] · ຮອດປີ 2030: ຮັບປະກັນໃຫ້ການເປັນສູນກາງແຫ່ງການທ່ອງທ່ຽວດ້ວຍມາດຕະຖານສາກົນ ໂດຍຕິດພັນກັບການປົກປັກຮັກສາ ແລະ ອະນຸລັກເປັນເມືອງມໍລະດົກໂລກ, ຮັກສາຄວາມຮູ້ທາງດ້ານວັດທະນະທຳ ແລະ ຮີດຄອງປະເພນີອັນດີງາມ, ຊຸກຍູ້ສົ່ງເສີມການຜະລິດກະສິກຳສະອາດປອດສານພິດ ຍົກລະດັບຊີວິດການເປັນຢູ່ຂອງປະຊາຊົນໃຫ້ດີຂຶ້ນ ການເປັນຄອບຄົວທີ່ຢູ່ດີກິນດີ. [ຍຸດທະສາດ 2025] · ສົ່ງເສີມການທ່ອງທ່ຽວ, ສ້າງເຂື່ອນໄຟຟ້າ ແລະ ການຜະລິດກະສິກຳສະອາດ ເພື່ອພັດທະນາເສດຖະກິດ-ສັງຄົມຂອງແຂວງໃຫ້ມີຄວາມຍືນຍົງ. · ຊຸກຍູ້ການປູກໄມ້ຟື້ນຟູປ່າ, ການຜະລິດກະສິກຳສະອາດ, ການນຳໃຊ້ຊັບພະຍາກອນທຳມະຊາດທີ່ມີປະສິດທິພາບ ແລະ ປະສິດທິຜົນ ເພື່ອໃຫ້ຫຼວງພະບາງກາຍເປັນເມືອງສີຂຽວ ແລະ ສິ່ງແວດລ້ອມສະອາດຍືນຍົງ. · ຫຼຸດຜ່ອນຄວາມທຸກຍາກ ແລະ ບັນລຸເປົ້າໝາຍ GDP ຕໍ່ຫົວຄົນ: 3.500 - 4.000 ໂດລາສະຫະລັດ ໃນປີ 2025 ແລະ 5.500ໃນປີ 2030.
ແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມ 5 ປີ ຄັ້ງທີ 7 ຂອງແຂວງ (2016-2020)	[ເຂື່ອນໄຟຟ້າ] · ຮອດປີ 2020, ມີທັງໝົດ 9 ໂຄງການທີ່ອອກແບບ ສາມາດຜະລິດກະແສໄຟຟ້າໄດ້ປະມານ 733.2 MW ເພື່ອສະໜອງໃຫ້ຕາຂ່າຍໄຟຟ້າແຫ່ງຊາດ. [ເສັ້ນທາງ] · 95% ຂອງຈຳນວນບ້ານທັງໝົດ ມີເສັ້ນທາງເຂົ້າເຖິງ ແລະ 85% ສາມາດໃຊ້ໄດ້ຕະຫຼອດປີ. [ການທ່ອງທ່ຽວ] · ສົ່ງເສີມການທ່ອງທ່ຽວແບບຍືນຍົງ ດ້ວຍການຍົກສູງຄຸນນະພາບມາດຕະຖານສາກົນ ຕິດພັນກັບທຳມະຊາດ, ປະຫວັດສາດ, ວັດທະນະທຳ ແລະ ຮີດຄອງປະເພນີອັນດີງາມຂອງທ້ອງຖິ່ນ. · ຊຸກຍູ້ປະຊາຊົນເຂົ້າຮ່ວມໃນການສົ່ງເສີມການທ່ອງທ່ຽວ.
ແຜນພັດທະນາຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ ຂອງແຂວງ 2016-2020	[ຊັບພະຍາກອນນ້ຳ, ອຸຕຸນິຍົມ ແລະ ອຸທົກກະສາດ] · ສ້າງແລະ ທົບທວນ ແຜນຄຸ້ມຄອງອ່າງຮັບນ້ຳ (ອ່າງໂຕ່ງ). ສຳຫຼວດ ແລະ ຕິດຕາມກວດກາສະພາບຂອງຊັບພະຍາກອນນ້ຳ ລວມທັງປະລິມານນ້ຳ, ຄຸນນະພາບ, ສະພາບທາງອຸທົກວິທະຍາ ແລະ ພູມີສາດ, ສະພາບທາງເຄມີສາດ ແລະ ຊີວະຟິສິກຂອງນ້ຳເທິງໜ້າດິນ ແລະ ໃຕ້ດິນ. · ສຳຫຼວດຈັດສັນແມ່ນ້ຳ, ອ່າງຮັບນ້ຳ ແລະ ຄຸນນະພາບນ້ຳ ເພື່ອຮັບປະກັນໃຫ້ການຄຸ້ມຄອງຊັບພະຍາກອນນ້ຳມີຄວາມຍືນຍົງ. ຮ່ວມມືກັບຂະແໜງການກ່ຽວຂ້ອງ ແລະ ບັນດາແຂວງທີ່ມີອ່າງເກັບນ້ຳ ເພື່ອປົກປັກຮັກສາລະບົບນິເວດ ໂດຍສະເພາະເລັ່ງໃສ່ອ່າງເກັບນ້ຳໃນ 2 ເຂດບູລິມະສິດຄື: ນ້ຳອູ ແລະ ນ້ຳງື່ມ ຫຼື ເຂດທີ່ມີອ່າງເກັບນ້ຳອື່ນໆ. · ສ້າງຖານຂໍ້ມູນຊັບພະຍາກອນນ້ຳ ແລະ ເຄືອຂ່າຍທີ່ເຊື່ອມຕໍ່ກັນ ຢູ່ ຂັ້ນສູນກາງ ແລະ ທ້ອງຖິ່ນ. · ກໍ່ສ້າງສູນເຕືອນໄພພິບັດຂັ້ນແຂວງ ຢູ່ ເມືອງຫຼວງພະບາງ. [ຊັບພະຍາກອນບໍ່ແຮ່] · ສືບຕໍ່ສົ່ງເສີມການຂຸດຄົ້ນບໍ່ແຮ່ຂອງບໍລິສັດທັງພາຍໃນ ແລະ ຕ່າງປະເທດ, ອຳນວຍຄວາມສະດວກ, ຕິດຕາມ, ກວດກາ ແລະ ປະເມີນຜົນ ເພື່ອຫຼຸດຜ່ອນຜົນກະທົບໃນທາງລົບຕໍ່ສິ່ງແວດລ້ອມ, ທຳມະຊາດ ແລະ ສັງຄົມ. ນອກນັ້ນ, ຮັບປະກັນລະບົບນິເວດໃຫ້ອຸດົມສົມບູນ, ປ້ອງກັນສິ່ງແວດລ້ອມ, ປ້ອງກັນການເຊາະເຈື່ອນ, ປ້ອງກັນ ແລະ ປັບປຸງດິນ ຢູ່ 8 ເມືອງເຊັ່ນ: ໂພນທອງ, ວຽງຄຳ, ງອຍ, ປາກອູ, ຈອມເພັດ, ນານ, ຊຽງເງີນ ແລະ ພູຄູນ.

3. ການວິເຄາະສາເຫດທາງກົງ ແລະ ທາງອ້ອມຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ

3.1. ການທຳລາຍປ່າໄມ້ແລະການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມຢູ່ແຂວງຫຼວງພະບາງ

3.1.1. ສະພາບປ່າໄມ້ໃນປະຈຸບັນ ແລະ ການປ່ຽນແປງຂອງທີ່ດິນ ແລະ ປ່າໄມ້ ຢູ່ ແຂວງຫຼວງພະບາງ

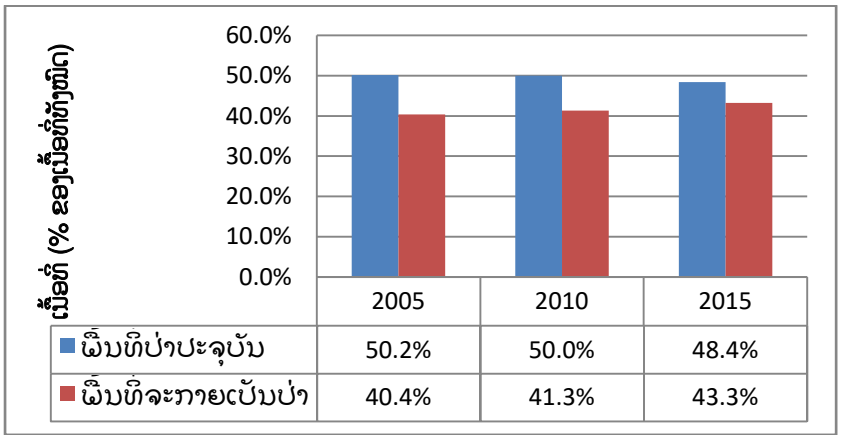
ອີງໃສ່ການປະເມີນກ່ຽວກັບການນຳໃຊ້ທີ່ດິນ ແລະ ເນື້ອທີ່ປົກຫຸ້ມປ່າໄມ້ ແຂວງຫຼວງພະບາງມີເນື້ອທີ່ປ່າໄມ້ທັງໝົດ 963,837 ເຮັກຕາ ຫຼື ເທົ່າກັບ 48,4 % ຂອງເນື້ອທີ່ທັງໝົດ 1.990.128 ເຮັກຕາ ຂອງແຂວງໃນປີ 2015 (**ຕາຕະລາງ 4**). ນັບແຕ່ປີ 2005 ເປັນຕົ້ນມາ, ເນື້ອທີ່ປ່າໄມ້ໄດ້ຫຼຸດລົງເລື້ອຍໆ ສົງລວມແລ້ວເນື້ອທີ່ປ່າໄມ້ຖືກສູນເສຍທັງໝົດແມ່ນ 34 .428 ເຮັກຕາ ຫຼື ເທົ່າກັບ 1 ,73% ຂອງເນື້ອທີ່ທັງໝົດ ຂອງແຂວງໃນຊ່ວງເວລາ 10 ປີ. ການຟື້ນຟູຂອງປ່າໄມ້ຕາມທຳມະຊາດ ແມ່ນເພີ່ມຂຶ້ນເລັກນ້ອຍແຕ່ປີ 2005 ເປັນຕົ້ນມາ ສ່ວນໃຫຍ່ແມ່ນ ປ່າເລົ່າບ່ອນທີ່ມີການຖາງປ່າເຮັດໄຮ່ແບບເລື່ອນລອຍ. ອີກດ້ານໜຶ່ງ, ປ່າປູກກໍເພີ່ມຂຶ້ນເຊັ່ນກັນຄື 2.366 ເຮັກຕາ ນັບແຕ່ປີ 2005 ເປັນຕົ້ນມາ ກວມເອົາ 0,12% ຂອງເນື້ອທີ່ປ່າໄມ້ໃນທົ່ວແຂວງຫຼວງພະບາງ.

ຕາຕະລາງ 4: ການປ່ຽນແປງຂອງທີ່ດິນ ແລະ ປ່າໄມ້ ຢູ່ ແຂວງຫຼວງພະບາງ2005 - 2015

		ຮຫ	2015		%	2010		%	2005		%
ພື້ນທີ່ປ່າໄມ້	ປ່າດົງດິບ	EF	19,518			19,554			19,647		
	ປ່າພັດໃບປະສົມ	MD	928,211			958,397			964,803		
	ປ່າໂຄກ	DD	8,098			8,153			8,170		
	ປ່າໄມ້ໃບເຂັ້ມ	CF	5			5			5		
	ປ່າໃບກວ້າງປະສົມໃບເຂັ້ມ	MCB	0			0			0		
	ປ່າປູກ	P	8,005	963,837	48.4%	8,028	994,138	50.0%	5,640	998,264	50.2%
ເຂດທີ່ຈະກາຍ ເປັນ ປ່າ	ປ່າໄມ້ປ່ອງ	B	2,725			2,792			2,229		
	ປ່າເລົ່າ	RV	858,234	860,959	43.3%	819,297	822,089	41.3%	801,007	803,236	40.4%
ພື້ນທີ່ພືດພັນອື່ນໆ	ໄຄກາແຈ້ງ	SA	229			229			229		
	ປ່າຕ້ຳ	SR	18,289	18,518	0.9%	18,299	18,528	0.9%	18,231	18,460	0.9%
	ທົ່ງຫຍ້າ	G	43,637			44,072			44,077		
	ດິນທາມ	SW	0	43,637	2.2%	0	44,072	2.2%	0	44,077	2.2%
ພື້ນທີ່ກະສິກຳ	ພື້ນທີ່ກະສິກຳເນີນສູງ	UC	17,054	17,054	0.9%	36,384	36,384	1.8%	65,249	65,249	3.3%
	ທົ່ງນາ	RP	12,020			11,932			10,447		
	ພື້ນທີ່ກະສິກຳອື່ນໆ	OA	51,807			40,844			28,821		
	ພື້ນທີ່ປູກພືດກະສິກຳ/ປູກໄມ້ໃຫ້ໝາກ	AP	328	64,155	3.2%	514	53,289	2.7%	174	39,442	2.0%
ເຂດກໍສ້າງພື້ນຖານ ໂຄງລ່າງ	ເຂດທີ່ຢູ່ອາໄສ	U	4,565			4,250			4,214		
	ດິນປອກໂລ້ນ ແລະ ດານຫີນ	BR	114	4,680	0.2%	114	4,364	0.2%	114	4,328	0.2%
ເນື້ອທີ່ດິນອື່ນໆ	ເນື້ອທີ່ດິນອື່ນໆ	O	2,339	2,339	0.1%	2,323	2,323	0.1%	2,133	2,133	0.1%
ດິນບໍ່ລິເວນນ້ຳ	ນ້ຳ	W	14,950	14,950	0.8%	14,940	14,940	0.8%	14,937	14,937	0.8%
	ລວມ		1,990,128	1,990,128	100%	1,990,128	1,990,128	100%	1,990,128	1,990,128	100%

ແຫຼ່ງຂໍ້ມູນ: ແຜນທີ່ປະເພດປ່າ/ກົມປ່າໄມ້ (2017)

ຮູບ 1: ປ່າໃນປະຈຸບັນ ແລະ ປ່າຟື້ນຟູ ແຕ່ລະໄລຍະ ຢູ່ ແຂວງຫຼວງພະບ2000 - 2015



ຕາຕະລາງການປ່ຽນແປງຂອງເນື້ອທີ່ປ່າມີດັ່ງຕໍ່ໄປນີ້.

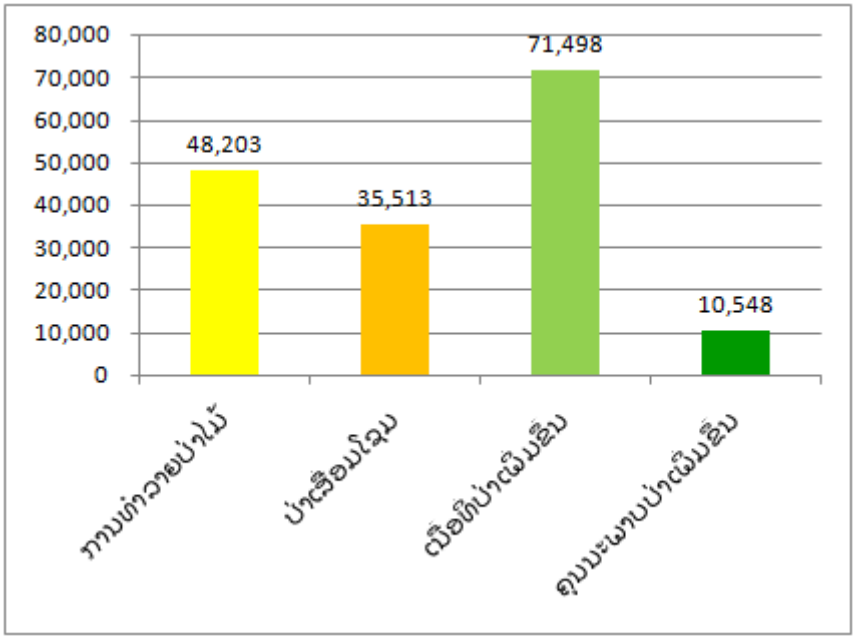
ຕາຕະລາງ 5: ການປ່ຽນແປງຂອງທີ່ດິນ ແລະ ປ່າໄມ້ 2005- 2015 ຢູ່ ແຂວງຫຼວງພະບາງ

			2015										
			ພື້ນທີ່ປ່າ		ພື້ນທີ່ຈະ ກາຍເປັນປ່າ	ພື້ນທີ່ກະສິກຳ		ດິນ ບໍລິເວນນ້ຳ	ພື້ນທີ່ ພືດອື່ນໆ	ທີ່ດິນອື່ນໆ	ລວມ	ການ ປ່ຽນແປງ 2005-2015
		ຮຕ	1) ປ່າທຳ ມະຊາດ	2) ປ່າປູກ		1) ພື້ນທີ່ ກະສິກຳ ເນີນສູງ	2) ພື້ນທີ່ ກະສິກຳ ຖາວອນ					
2005	ພື້ນທີ່ປ່າ	1) ປ່າທຳມະຊາດ	945,483	102	35,489	4,929	6,423	0	1	197	992,625	(36,793)
		2) ປ່າປູກ	0	5,404	24	4	206	0	0	2	5,640	2,366
	ພື້ນທີ່ຈະກາຍເປັນປ່າ		10,305	243	756,248	9,959	26,046	31	6	399	803,236	57,722
	ພື້ນທີ່ກະສິກຳ	1) ພື້ນທີ່ກະສິກຳເນີນສູງ	37	0	62,659	1,113	1,342	0	89	10	65,249	(48,196)
		2) ພື້ນທີ່ກະສິກຳຖາວອນ	7	2,257	6,497	953	29,693	0	0	36	39,442	24,713
	ດິນບໍລິເວນນ້ຳ		0	0	0	0	15	14,919	0	3	14,937	13
	ພື້ນທີ່ພືດອື່ນໆ		0	0	20	83	363	0	62,060	11	62,537	(381)
	ທີ່ດິນອື່ນໆ		0	0	22	11	67	0	0	6,362	6,461	557
ລວມ			955,831	8,005	860,959	17,054	64,155	14,950	62,155	7,019	1,990,128	-

ຄຸນນະພາບປ່າເພີ່ມຂຶ້ນ
ເນື້ອທີ່ປ່າເພີ່ມຂຶ້ນ
ປ່າເສື່ອມໂຊມ
ປ່າຖືກທຳລາຍ

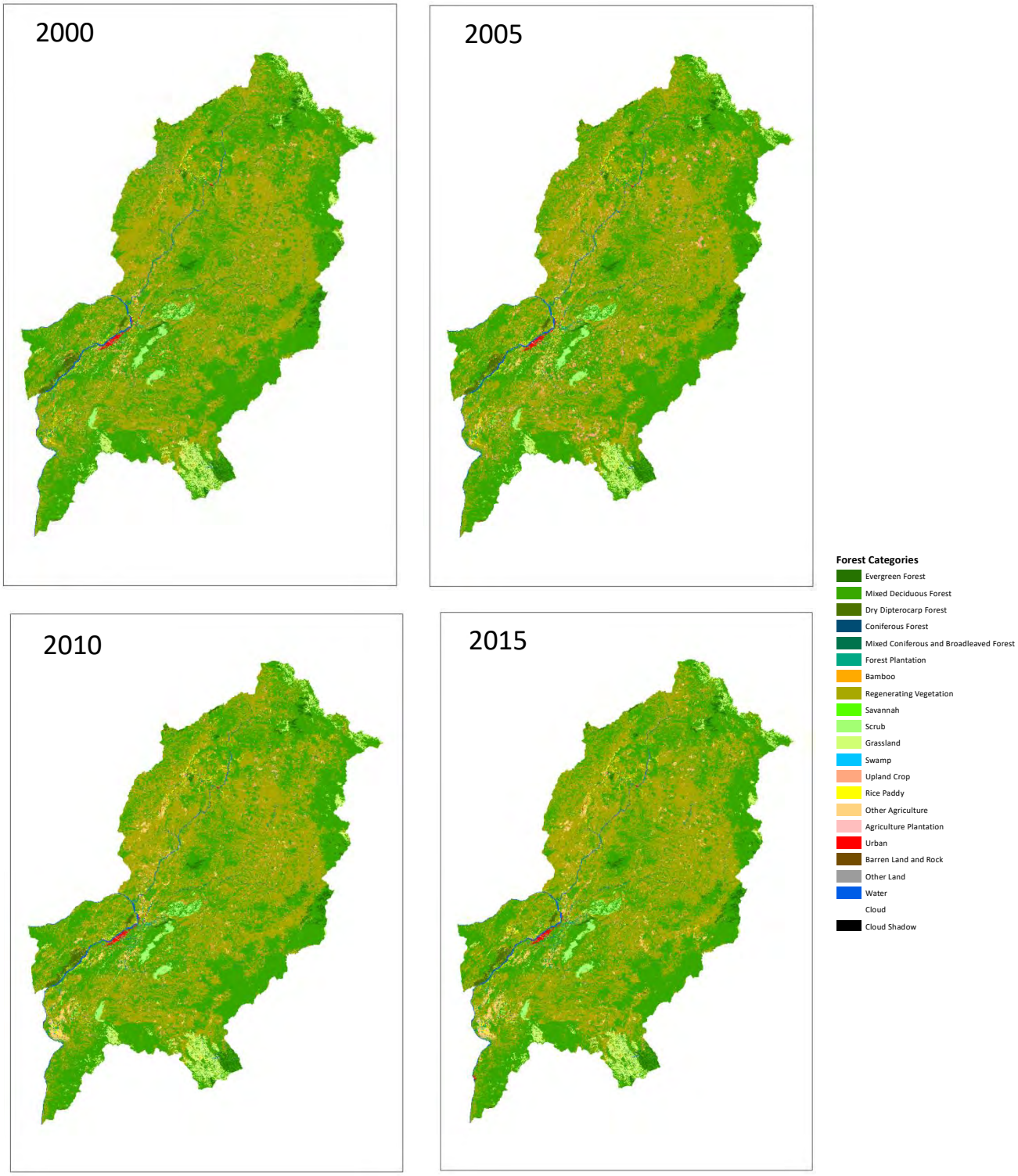
ແຫຼ່ງຂໍ້ມູນ: ແຜນທີ່ປະເພດປ່າ/ກົມປ່າໄມ້ (2017)

ຮູບ 2: ການປ່ຽນແປງຂອງທີ່ດິນປ່າໄມ້ 2005 - 2015



ເນື້ອທີ່ປ່າໄມ້ຖືກທຳລາຍມີ 48.203 ຮຕ ສ່ວນເນື້ອທີ່ປ່າໄມ້ເພີ່ມຂຶ້ນແມ່ນ 71.498 ຮຕ (ຕົວຈິງເພີ່ມຂຶ້ນ 23.294 ຮຕ). ຕາຕະລາງ 5 ສະແດງໃຫ້ເຫັນວ່າເນື້ອທີ່ໄຮ່ປູກພືດຫຼຸດລົງລະຫວ່າງປີ 2005-2015 ສ່ວນເນື້ອທີ່ປ່າເລົ່າໄດ້ຮັບການຟື້ນຟູເຮັດໃຫ້ເນື້ອທີ່ປ່າຟື້ນຟູເພີ່ມຂຶ້ນ. ນອກນັ້ນ, ເນື້ອທີ່ປ່າເສື່ອມໂຊມມີ 35.513 ຮຕ ສ່ວນຄຸນນະພາບຂອງປ່າເພີ່ມຂຶ້ນມີ 10.548 ຮຕ.

ຮູບ 3: ການປ່ຽນແປງການນຳໃຊ້ທີ່ດິນ ແລະ ເນື້ອທີ່ປົກຫຸ້ມປ່າໄມ້ ໄລຍະແຕ່ປີ2000 - 2015 ຢູ່ ແຂວງຫຼວງພະບາງ

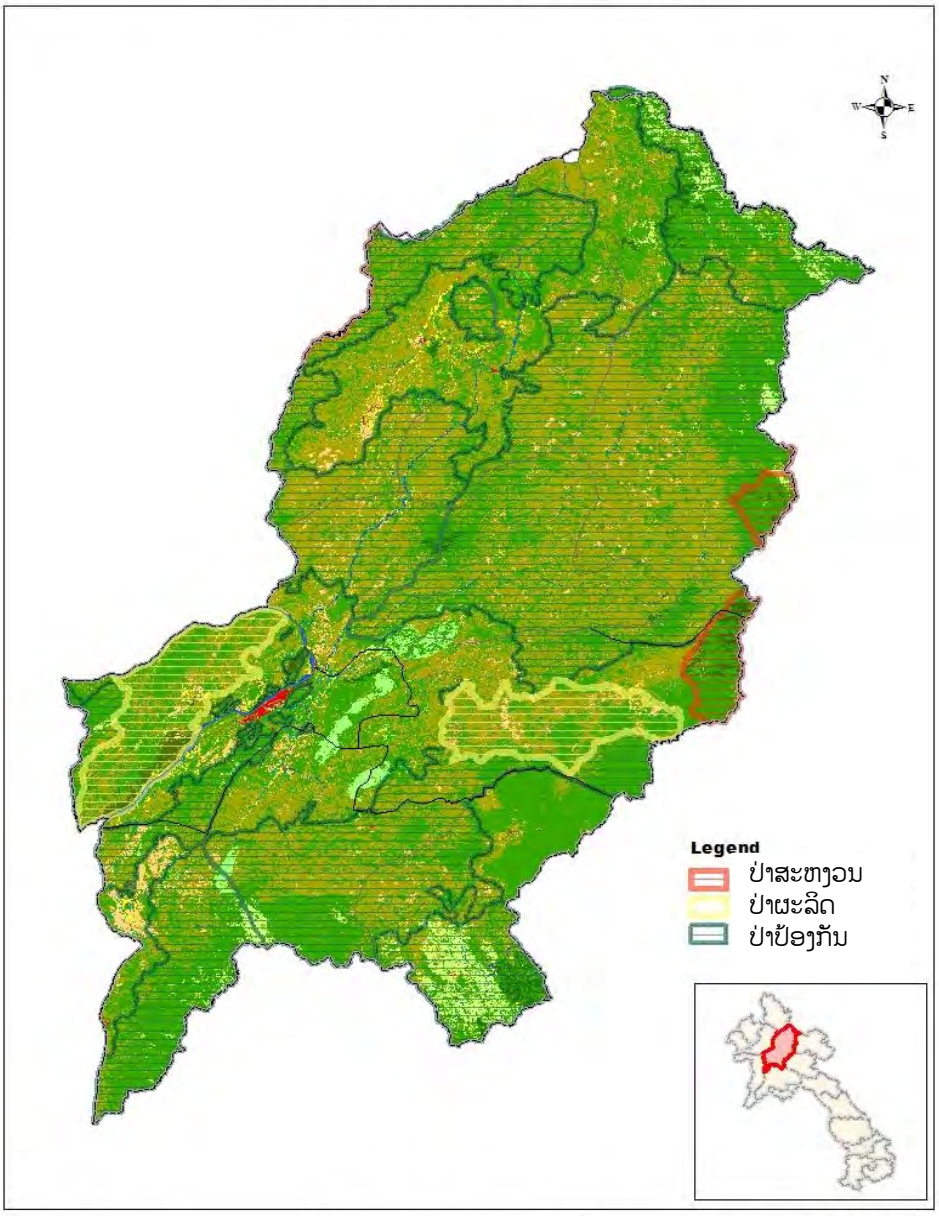


3.1.2. ສະພາບການຄຸ້ມຄອງປ່າໄມ້ ແລະ ການປ່ຽນແປງໄລຍະຜ່ານມາ ຢູ່ ແຂວງຫຼວງພະບາງ

ແຂວງຫຼວງພະບາງໄດ້ມີການສົ່ງເສີມການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນຍົງໂດຍເນັ້ນໃສ່ 3 ປະເພດປ່າຄື: ປ່າສະຫງວນ, ປ່າປ້ອງກັນແລະປ່າຜະລິດ. ເນື້ອທີ່ປ່າປະຈຸບັນໄດ້ແບ່ງອອກຄື: ປ່າສະຫງວນ 34.943,0 ເຮັກຕາ (3,6%), ປ່າປ້ອງກັນ 582.550,1 ເຮັກຕາ (60,4%), ປ່າຜະລິດ 75.931,7 ເຮັກຕາ (7,9%) ແລະ ເນື້ອທີ່ປ່າທີ່ຍັງບໍ່ທັນໄດ້ຈັດສັນ 270.347,3 ເຮັກຕາ (28,1%). ແຂວງຫຼວງພະບາງມີ ເນື້ອທີ່ປ່າປ້ອງກັນກວມ 61,4% ຂອງເນື້ອທີ່ທັງໝົດຂອງແຂວງ ຫຼື 60,4% ຂອງເນື້ອທີ່ປ່າໄມ້ທີ່ມີໃນປະຈຸບັນ.

ຮູບ 4: ປ່າສະຫງວນ, ປ່າປ້ອງກັນ ແລະ ປ່າຜະລິດ ຢູ່ ແຂວງຫຼວງພະບາງ

3 ປະເພດປ່າ ຢູ່ ແຂວງຫຼວງພະບາງ



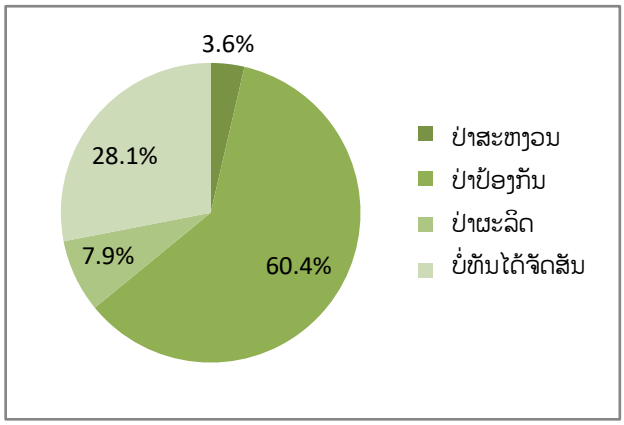
1:1,000,000 0 5 10 20 30 40 50 Kilometers ແຫຼ່ງຂໍ້ມູນ: ກອງສຳຫຼວດ/ກົມປ່າໄມ້

ຕາຕະລາງ 6: ເນື້ອທີ່ດິນ ແລະ ປ່າໄມ້ອີງໃສ່ 3 ປະເພດປ່າ

		ຣຫ	ປ່າສະຫງວນ	ປ່າປ້ອງກັນ	ປ່າຜະລິດ	ຍັງບໍ່ທັນໄດ້ຈັດສັນ
ພື້ນທີ່ປ່າໃນປະຈຸບັນ	ປ່າດົງດິບ	EF	5,212.2	11,654.9	86.8	2,563.7
	ປ່າພັດໃບປະສົມ	MD	29,725.8	567,901.0	69,386.9	261,132.6
	ປ່າໂຄກ	DD		957.7	6,345.0	795.1
	ປ່າໄມ້ໃບເຂັ້ມ	CF	4.9			
	ປ່າປຸກ	P		2,036.6	113.0	5,855.9
ເຂດທີ່ຈະກາຍເປັນປ່າ	ປ່າໄມ້ປ່ອງ	B	16.9	1,844.1	345.2	518.7
	ປ່າເລີ່ມ	RV	1,377.0	549,815.5	62,721.4	244,245.7
ພື້ນທີ່ພືດພັນອື່ນໆ	ໂຄກແຈ້ງ	SA		225.7		3.3
	ປ່າຕ່ຳ	SR		3,850.2	15.9	14,423.6
	ທົ່ງຫຍ້າ	G	941.1	41,247.4	52.5	1,396.2
ພື້ນທີ່ກະສິກຳ	ພື້ນທີ່ກະສິກຳເນີນສູງ	UC	48.0	10,454.4	1,841.1	4,706.5
	ທົ່ງນາ	RP		2,370.1	1,094.0	8,555.4
	ພື້ນທີ່ກະສິກຳອື່ນໆ	OA	3.6	21,246.3	4,480.0	26,074.4
	ພື້ທີ່ປູກພືດກະສິກຳ/ປໄມ້ໃຫ້ໝາກ	AP		246.4	31.3	50.6
ເຂດກໍ່ສ້າງພື້ນຖານໂຄງລ່າງ	ເຂດທີ່ຢູ່ອາໄສ	U		981.9	109.4	3,474.3
	ດິນປອກໃຫ້ງົ້ນ ແລະ ດານຫີນ	BR		114.3		
ເນື້ອທີ່ດິນອື່ນໆ	ເນື້ອທີ່ດິນອື່ນໆ	O		1,378.8	132.4	827.9
ດິນບໍ່ລິເວນນ້ຳ	ນ້ຳ	W	4.6	5,795.3	274.1	8,875.1
	ລວມ:		37,334	1,222,121	147,029	583,499
	ເນື້ອທີ່ %		1.9%	61.4%	7.4%	29.3%

ແຫຼ່ງຂໍ້ມູນ: ແຜນທີ່ປະເພດປ່າ/ກົມປ່າໄມ້ (2017)

ຮູບ 5: ສັດສ່ວນຂອງປະເພດປ່າໃນປະຈຸບັນ



ຕາຕະລາງ 7: ການປ່ຽນແປງຂອງເນື້ອທີ່ປ່າໄມ້ ລະຫວ່າງ 2005 - 2015 ໃນເຂດປ່າສະຫງວນ

				2015									
				ພື້ນທີ່ປ່າ		ພື້ນທີ່ຈະ	ພື້ນທີ່ກະສິກຳ		ດິນ	ພື້ນທີ	ທີດິນອື່ນໆ	ລວມ	ການ
			ຮຕ	1) ປ່າທຳ	2) ປ່າປູກ	ກາຍເປັນປ່າ	1) ພື້ນທີ	2) ພື້ນທີ	ບໍລິເວນນ້ຳ	ພິດອື່ນໆ			ປ່ຽນແປງ
				ມະຊາດ			ກະສິກຳ	ກະສິກຳ					2005-
							ເນີນສູງ	ຖາວອນ					2015
2005	ພື້ນທີ່ປ່າ	1) ປ່າທຳມະຊາດ		945,483	102	35,489	4,929	6,423	0	1	197	992,625	(36,793)
		2) ປ່າປູກ		0	5,404	24	4	206	0	0	2	5,640	2,366
	ພື້ນທີ່ຈະກາຍເປັນປ່າ			10,305	243	756,248	9,959	26,046	31	6	399	803,236	57,722
	ພື້ນທີ່ກະສິກຳ	1) ພື້ນທີ່ກະສິກຳເນີນສູງ		37	0	62,659	1,113	1,342	0	89	10	65,249	(48,196)
		2) ພື້ນທີ່ກະສິກຳຖາວອນ		7	2,257	6,497	953	29,693	0	0	36	39,442	24,713
	ດິນບໍລິເວນນ້ຳ			0	0	0	0	15	14,919	0	3	14,937	13
	ພື້ນທີ່ພິດອື່ນໆ			0	0	20	83	363	0	62,060	11	62,537	(381)
	ທີດິນອື່ນໆ			0	0	22	11	67	0	0	6,362	6,461	557
ລວມ				955,831	8,005	860,959	17,054	64,155	[illegible]	[illegible]	[illegible]	[illegible]	

ແຫຼ່ງຂໍ້ມູນ: ແຜນທີ່ປະເພດປ່າ/ກົມປ່າໄມ້ (2017)

ຄຸນນະພາບປ່າເພີ່ມຂຶ້ນ
ເນື້ອທີ່ປ່າເພີ່ມຂຶ້ນ
ປ່າເສື່ອມໂຊມ
ປ່າຖືກທຳລາຍ

ຕາຕະລາງ 8: ການປ່ຽນແປງຂອງເນື້ອທີ່ປ່າໄມ້ ລະຫວ່າງ 2005 - 2015 ໃນເຂດປ່າປ້ອງກັນ

				2015									
				ພື້ນທີ່ປ່າ		ພື້ນທີ່ຈະ	ພື້ນທີ່ກະສິກຳ		ດິນ	ພື້ນທີ	ທີດິນອື່ນໆ	ລວມ	ການ
			ຮຕ	1) ປ່າທຳ	2) ປ່າປູກ	ກາຍເປັນປ່າ	1) ພື້ນທີ	2) ພື້ນທີ	ບໍລິເວນນ້ຳ	ພິດອື່ນໆ			ປ່ຽນແປງ
				ມະຊາດ			ກະສິກຳ	ກະສິກຳ					2005-
							ເນີນສູງ	ຖາວອນ					2015
2005	ພື້ນທີ່ປ່າ	1) ປ່າທຳມະຊາດ		945,483	102	35,489	4,929	6,423	0	1	197	992,625	(36,793)
		2) ປ່າປູກ		0	5,404	24	4	206	0	0	2	5,640	2,366
	ພື້ນທີ່ຈະກາຍເປັນປ່າ			10,305	243	756,248	9,959	26,046	31	6	399	803,236	57,722
	ພື້ນທີ່ກະສິກຳ	1) ພື້ນທີ່ກະສິກຳເນີນສູງ		37	0	62,659	1,113	1,342	0	89	10	65,249	(48,196)
		2) ພື້ນທີ່ກະສິກຳຖາວອນ		7	2,257	6,497	953	29,693	0	0	36	39,442	24,713
	ດິນບໍລິເວນນ້ຳ			0	0	0	0	15	14,919	0	3	14,937	13
	ພື້ນທີ່ພິດອື່ນໆ			0	0	20	83	363	0	62,060	11	62,537	(381)
	ທີດິນອື່ນໆ			0	0	22	11	67	0	0	6,362	6,461	557
ລວມ				955,831	8,005	860,959	17,054	64,155	14,950	62,155	7,019	1,990,128	-

ຄຸນນະພາບປ່າເພີ່ມຂຶ້ນ
ເນື້ອທີ່ປ່າເພີ່ມຂຶ້ນ
ປ່າເສື່ອມໂຊມ
ປ່າຖືກທຳລາຍ

ແຫຼ່ງຂໍ້ມູນ: ແຜນທີ່ປະເພດປ່າ/ກົມປ່າໄມ້ (2017)

ຕາຕະລາງ 9: ການປ່ຽນແປງຂອງເນື້ອທີ່ປ່າໄມ້ ລະຫວ່າງ 2005 - 2015 ໃນເຂດປ່າຜະລິດ

				2015									
				ພື້ນທີ່ປ່າ		ພື້ນທີ່ຈະ	ພື້ນທີ່ກະສິກຳ		ດິນ	ພື້ນທີ			ການ
			ຮຕ	1) ປ່າທຳ	2) ປ່າປູກ	ກາຍເປັນປ່າ	1) ພື້ນທີ	2) ພື້ນທີ					ປ່ຽນແປງ
				ມະຊາດ			ກະສິກຳ	ກະສິກຳ					2005-
							ເນີນສູງ	ຖາວອນ					2015
2005	ພື້ນທີ່ປ່າ	1) ປ່າທຳມະຊາດ		945,483	102	35,489	4,929	6,423	0	1	197	992,625	(36,793)
		2) ປ່າປູກ		0	5,404	24	4	206	0	0	2	5,640	2,366
	ພື້ນທີ່ຈະກາຍເປັນປ່າ			10,305	243	756,248	9,959	26,046	31	6	399	803,236	57,722
	ພື້ນທີ່ກະສິກຳ	1) ພື້ນທີ່ກະສິກຳເນີນສູງ		37	0	62,659	1,113	1,342	0	89	10	65,249	(48,196)
		2) ພື້ນທີ່ກະສິກຳຖາວອນ		7	2,257	6,497	953	29,693	0	0	36	39,442	24,713
	ດິນບໍລິເວນນ້ຳ			0	0	0	0	15	14,919	0	3	14,937	13
	ພື້ນທີ່ພິດອື່ນໆ			0	0	20	83	363	0	62,060	11	62,537	(381)
	ທີດິນອື່ນໆ			0	0	22	11	67	0	0	6,362	6,461	557
ລວມ				955,831	8,005	860,959	17,054	64,155	14,950	62,155	7,019	1,990,128	-

ແຫຼ່ງຂໍ້ມູນ: ແຜນທີ່ປະເພດປ່າ/ກົມປ່າໄມ້

ແຫຼ່ງຂໍ້ມູນ: ແຜນທີ່ປະເພດປ່າ/ກົມປ່າໄມ້ (2017

ຄຸນນະພາບປ່າເພີ່ມຂຶ້ນ
ເນື້ອທີ່ປ່າເພີ່ມຂຶ້ນ
ປ່າເສື່ອມໂຊມ
ປ່າຖືກທຳລາຍ

ຕາຕະລາງ 10: ການປ່ຽນແປງຂອງເນື້ອທີ່ປ່າໄມ້ ລະຫວ່າງ 2005 - 2015 ນອກ 3 ປະເພດປ່າ (ບໍ່ທັນໄດ້ຈັດສັນ)

			2015										
			ພື້ນທີ່ປ່າ		ພື້ນທີ່ຈະ ກາຍເປັນປ່າ	ພື້ນທີ່ກະສິກຳ		ດິນ ບໍລິເວນນ້ຳ	ພື້ນທີ່ ພິດອື່ນໆ	ທີ່ດິນອື່ນໆ	ລວມ	ການ ປ່ຽນແປງ 2005-2015
		ຮຕ	1) ປ່າທຳ ມະຊາດ	2) ປ່າປູກ		1) ພື້ນທີ່ ກະສິກຳ ເນີນສູງ	2) ພື້ນທີ່ ກະສິກຳ ຖາວອນ					
2005	ພື້ນທີ່ປ່າ	1) ປ່າທຳມະຊາດ	945,483	102	35,489	4,929	6,423	0	1	197	992,625	(36,793)
		2) ປ່າປູກ	0	5,404	24	4	206	0	0	2	5,640	2,366
	ພື້ນທີ່ຈະກາຍເປັນປ່າ		10,305	243	756,248	9,959	26,046	31	6	399	803,236	57,722
	ພື້ນທີ່ກະສິກຳ	1) ພື້ນທີ່ກະສິກຳເນີນສູງ	37	0	62,659	1,113	1,342	0	89	10	65,249	(48,196)
		2) ພື້ນທີ່ກະສິກຳຖາວອນ	7	2,257	6,497	953	29,693	0	0	36	39,442	24,713
	ດິນບໍລິເວນນ້ຳ		0	0	0	0	15	14,919	0	3	14,937	13
	ພື້ນທີ່ພິດອື່ນໆ		0	0	20	83	363	0	62,060	11	62,537	(381)
	ທີ່ດິນອື່ນໆ		0	0	22	11	67	0	0	6,362	6,461	557
ລວມ			955,831	8,005	860,959	17,054	64,155	14,950	62,155	7,019	1,990,128	-

ຄຸນນະພາບປ່າເພີ່ມຂຶ້ນ
ເນື້ອທີ່ປ່າເພີ່ມຂຶ້ນ
ປ່າເສື່ອມໂຊມ
ປ່າຖືກທຳລາຍ

ແຫຼ່ງຂໍ້ມູນ: ແຜນທີ່ປະເພດປ່າ/ກົມປ່າໄມ້ (2017)

ຕາຕະລາງ 11: ການປ່ຽນແປງຂອງປ່າໄມ້ໃນໄລຍະຜ່ານມາ ອີງໃສ່ 3 ປະເພດປ່າ 2005 - 2015

ປະເພດປ່າ (ເຮັກຕາ)	ການທຳລາຍປ່າໄມ້	%	ປ່າເສື່ອມໂຊມ	%	ເນື້ອທີ່ປ່າ ເພີ່ມຂຶ້ນ	%	ຄຸນນະພາບປ່າເພີ່ມ ຂຶ້ນ	%
ປ່າສະຫງວນ	52	0%	57	0%	0	0%	28	0%
ປ່າປ້ອງກັນ	22.950	48%	21.419	60%	42.123	59%	7.565	72%
ປ່າຜະລິດ	5.349,3	11%	3.293,4	9%	5.168,4	7%	445,0	4%
ລວມ	28.351,4	59%	24.769,7	70%	47.291,4	66%	8.038,8	76%
ນອກ 3 ປະເພດປ່າ	19.845,4	41%	10.670,8	30%	24.205,2	34%	2.489,5	24%

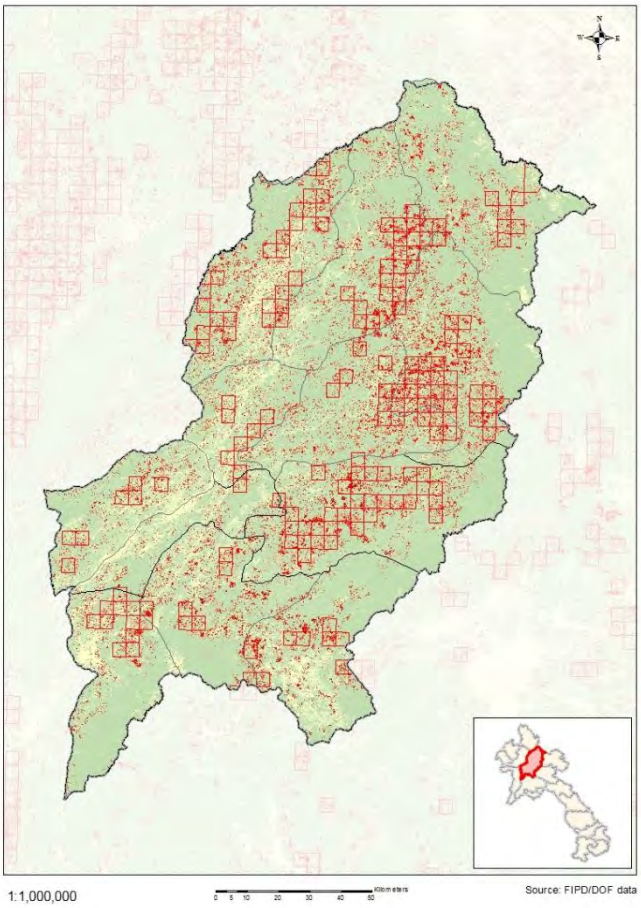
ແຫຼ່ງຂໍ້ມູນ: ແຜນທີ່ປະເພດປ່າ/ກົມປ່າໄມ້ (2017)

ການປ່ຽນແປງຂອງແຕ່ລະປະເພດປ່າ ແມ່ນຖືກສັງລວມໃນຕາຕະລາງ ແລະ ຮູບ 6 ດັ່ງລຸ່ມນີ້. ການທຳລາຍປ່າໄມ້ສ່ວນຫຼາຍແມ່ນເກີດຂຶ້ນ ຢູ່ ໃນເຂດປ່າປ້ອງກັນ, ປ່າຜະລິດ ແລະ ຢູ່ນອກ 3 ປະເພດປ່າ (**ຕາຕະລາງ 11**). ຕາມການສຳຫຼວດເຫັນວ່າການທຳລາຍປ່າໄມ້ແມ່ນຢູ່ໃນ **ເຂດປ່າປ້ອງກັນ**ປັນສ່ວນໃຫຍ່ ໂດຍກວມເອົາ 48% ຂອງອັດຕາການທຳລາຍປ່າໄມ້ໃນທົ່ວແຂວງ ຫຼື 22.950 ຮຕ ຖືກສູນເສັຍ ລະຫວ່າງ 2005-2015. ຕໍ່ ມາແມ່ນການທຳລາຍປ່າໄມ້ໃນ **ເຂດປ່າໄມ້ທີ່ຍັງບໍ່ທັນໄດ້ຈັດສັນ**ຫຼື ຢູ່ນອກ 3 ປະເພດປ່າ ຊຶ່ງກວມ 41% ຫຼື ເທົ່າກັບ 19.845 ຮຕ ຖືກສູນເສັຍລະຫວ່າງ 2005-2015. ໃນໄລຍະດັ່ງກ່າວນີ້ ເນື້ອທີ່ກະສິກຳ ລວມທັງເຂດເນີນສູງ ແລະ ເນື້ອທີ່ກະສິກຳຖາວອນ ໄດ້ເຮັດໃຫ້ເນື້ອທີ່ປ່າມີການປ່ຽນແປງຢ່າງໃຫຍ່ຫຼວງ ໂດຍສະເພາະທາງດ້ານເນື້ອທີ່ ແລະ ຄຸນນະພາບຂອງປ່າ. ສະນັ້ນ, ການນຳໃຊ້ທີ່ດິນ ກະສິກຳເຂດເນີນສູງ ແລະ ທີ່ດິນກະສິກຳຖາວອນ ຈຶ່ງເປັນສາເຫດຫຼັກຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ. ໃນສະພາບດັ່ງກ່າວນີ້ ຈຶ່ງພິຈາລະນາເອົາເຂດປ່າປ້ອງກັນ ແລະ ເຂດປ່າໄມ້ທີ່ຍັງບໍ່ທັນໄດ້ຈັດສັນ ຫຼື ນອກ 3 ປະເພດປ່າ ເປັນເຂດບູລິມະສິດ ໃນການຈັດຕັ້ງປະຕິບັດແຜນປະຕິບັດງານ REDD+ ຂອງແຂວງຫຼວງພະບາງ ແນໃສ່ເພື່ອສາມາດປະກອບສ່ວນຢ່າງແທ້ຈິງໃນການຫຼຸດຜ່ອນ ການປ່ອຍອາຍພິດເຮືອນແກ້ວ ຈາກການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ເຮັດໃຫ້ການຄຸ້ມຄອງປ່າໄມ້ມີຄວາມຍືນຍົງ ແລະ ການພັດ ທະນາເສດຖະກິດ-ສັງຄົມຂອງແຂວງບັນລຸເປົ້າໝາຍທີ່ໄດ້ວາງໄວ້.

3.2. ສັງລວມສາເຫດຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ

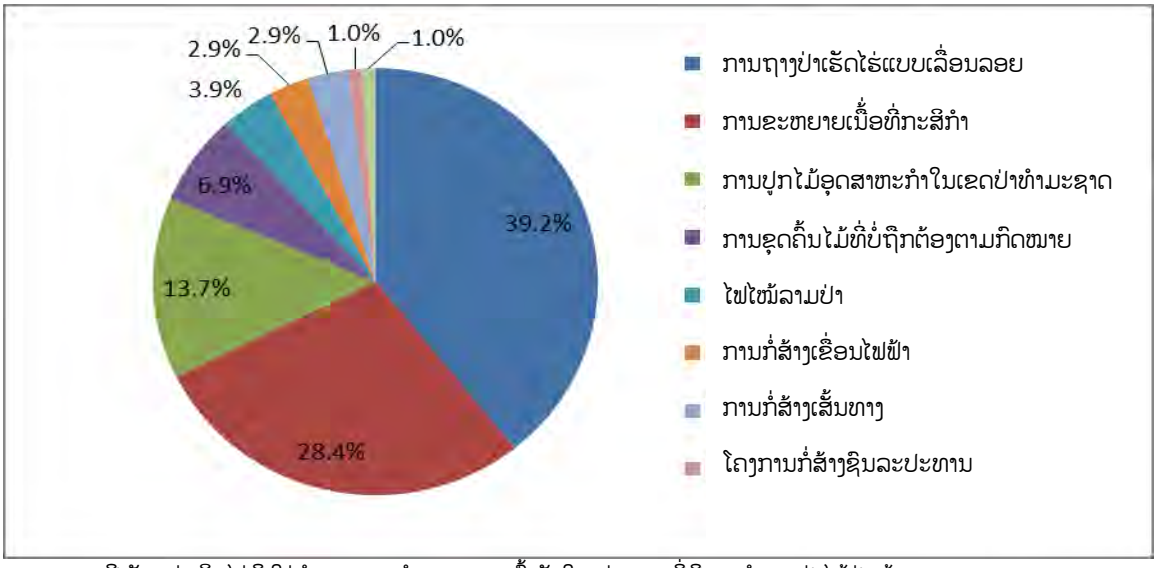
ເພື່ອກຳນົດສາເຫດທາງກົງ ແລະ ທາງອ້ອມຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ກອງປະຊຸມປຶກສາຫາລືໄດ້ຈັດຂຶ້ນ ຫຼາຍຄັ້ງໃນປີ 2016 ແລະ 2017. ກ່ອນເປີດກອງປະຊຸມປຶກສາຫາລື, ໄດ້ນຳໃຊ້ຂໍ້ມູນພາບຖ່າຍດາວທຽມຂອງຮັນເຊັນ (Hansen) ກ່ຽວ ກັບການສູນເສັຍປ່າໄມ້ໃນທົ່ວໂລກ ລະຫວ່າງປີ 2010 - 2014 ມາກຽມເຮັດການວິເຄາະໃນແຕ່ລະເມືອງຂອງແຂວງຫຼວງພະບາງ. ອີງໃສ່ຂໍ້ ມູນດັ່ງກ່າວ ຜູ້ເຂົ້າຮ່ວມກອງປະຊຸມສາມາດປຶກສາຫາລື ແລະ ກຳນົດຈຸດທີ່ມີການທຳລາຍປ່າໄມ້ຢ່າງຮ້າຍແຮງ (hotspot) ແລະ ພ້ອມກັນ ຄົ້ນຄ້ວາເຖິງສາເຫດທາງກົງ ແລະ ທາງອ້ອມຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ.

ຮູບ 6: ແຜນທີ່ການສູນເສັຍປ່າໄມ້ ຢູ່ ແຂວງຫຼວງພະບາງ ລະຫວ່າງປີ2010 - 2014



ສາເຫດຫຼັກຂອງການທຳລາຍປ່າໄມ້ ແມ່ນມາຈາກການຜະລິດກະສິກຳເປັນຕົ້ນແມ່ນການເຮັດໄຮ່ເລື່ອນລອຍ ແລະ ການຂະຫຍາຍເນື້ອທີ່ກະສິກຳ. ການພັດທະນາໂຄງລ່າງພື້ນຖານເຊັ່ນ: ກໍ່ສ້າງເສັ້ນທາງ, ເຂື່ອນໄຟຟ້າ ແລະ ຂຸດຄົ້ນບໍ່ແຮ່ ກໍແມ່ນສາເຫດທີ່ສຳຄັນເຮັດໃຫ້ປ່າໄມ້ຖືກທຳລາຍເຊັ່ນກັນ. ການປູກໄມ້ອຸດສາຫະກຳໃນເຂດປ່າທຳມະຊາດ, ການຕັດໄມ້ທີ່ບໍ່ຖືກຕ້ອງຕາມກົດໝາຍ, ໄຟໄໝ້ລາມປ່າ ແມ່ນ ສາເຫດພາໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ. ຮູບ 7 ສະແດງໃຫ້ເຫັນການຈັດບູລິມະສິດສາເຫດຫຼັກຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ ເສື່ອມໂຊມ ຢູ່ ຂັ້ນເມືອງ ພາຍຫຼັງດຳເນີນກອງປະຊຸມປຶກສາຫາລື ຢູ່ ຂັ້ນເມືອງ.

ຮູບ 7: ການຈັດບູລິມະສິດສາເຫດຫຼັກຂອງການທຳລາຍປ່າໄມ້



ໝາຍເຫດ: ເປີເຊັນແມ່ນຄິດໄລ່ອີງໃສ່ຈຳນວນຂອງຄຳຕອບລວມເຂົ້າກັນໃນແຕ່ລະຈຸດທີ່ມີການທຳລາຍປ່າໄມ້ຢ່າງຮ້າຍແຮງ.

3.2.1. ສາເຫດຂອງການທຳລາຍປ່າໄມ້: ການເຮັດໄຮ່ເລື່ອນລອຍ ແລະ ການຂະຍາຍເນື້ອທີ່ກະສິກຳ

ຜ່ານກອງປະຊຸມປຶກສາຫາລື ຢູ່ ຂັ້ນເມືອງ ແລະ ກຸ່ມບ້ານ ຕາມຂະບວນການສ້າງ PRAP ນັ້ນ ເຫັນວ່າການຜະລິດກະສິກຳຕົ້ນຕໍແມ່ນການເຮັດໄຮ່ປູກເຂົ້າ ແລະ ການຂະຫຍາຍເນື້ອທີ່ກະສິກຳ ເປັນສາເຫດຫຼັກຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ. ຕາມການສຳຫຼວດຫວ່າງບໍ່ດົນມານີ້ ຂໍ້ມູນການປ່ຽນແປງການປົກຫຸ້ມຂອງດິນ ແລະ ປ່າໄມ້ ລະຫວ່າງ ປີ 2005-2015 ໄດ້ຊີ້ໃຫ້ເຫັນວ່າພື້ນທີ່ກະສິກຳຖາວອນ ລວມທັງເນື້ອທີ່ນາ ແລະ ເນື້ອທີ່ປູກພືດກະສິກຳ ໄດ້ຂະຫຍາຍຢ່າງໄວວາຈາກ 39 .442 ຮຕ ໃນປີ 2005 ເປັນ 64 .155 ຮຕ ໃນປີ 2015. ເນື້ອທີ່ປ່າຖືກບຸກເບີກ ເພື່ອປູກພືດເຂດເນີນສູງ ລະຫວ່າງ 2005-2015 ມີ 4 .893 ຮຕ ແລະ ເຮັດການກະສິກຳຖາວອນ 32.675 ຮຕ ລວມທັງເນື້ອທີ່ຟື້ນຟູຂອງປ່າເລົ່າ. ຂໍ້ມູນທາງການດ້ານສະຖິຕິ ຊີ້ໃຫ້ເຫັນວ່າລວມຍອດຜະລິດຕະພັນກະສິກຳ-ປ່າໄມ້ເພີ່ມຂຶ້ນສະເລັ່ຍ 3,47% ຕໍ່ປີ (ຂໍ້ມູນເສດຖະກິດ-ສັງຄົມ 2011 -2015) ຄຽງຄູ່ກັບການເພີ່ມຂຶ້ນຂອງດິນກະສິກຳ. ຕົວເລກນີ້ຊີ້ໃຫ້ເຫັນວ່າການຜະລິດກະສິກຳ ໂດຍສະເພາະການປູກພືດເສດຖະກິດ ໄດ້ເພີ່ມຂຶ້ນຢ່າງໄວວາທຽບໃສ່ການປູກເຂົ້າ ນຳໄປສູ່ການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມພາຍໃນແຂວງ. ພືດ ອື່ນໆເຊັ່ນ: ສາລີ, ໝາກເດືອຍ, ໝາກກ່ຽ, ໝາກຖົ່ວ ແລະ ພືດຜັກ ແມ່ນພືດເສດຖະກິດທີ່ສ້າງລາຍຮັບສູງສົມຄວນໃຫ້ແຂວງຫຼວງພະບາງ. ສາລີແມ່ນພືດທີ່ ຢູ່ ແຖວໜ້າ ແລະ ປູກກັນຫຼາຍນັບແຕ່ເລີ່ມນຳເຂົ້າມາຕາມລະບົບຂໍ້ຜູກພັນສັນຍາຜະລິດກະສິກຳ (contract farming). ປະຈຸບັນ, ເນື້ອທີ່ປູກສາລີທັງໝົດພາຍໃນແຂວງມີ 20 .160 ເຮັກຕາ, ທຽບໃສ່ໝາກເດືອຍ 9 .430 ເຮັກຕາ, ໝາກກ່ຽ 9 .090 ເຮັກຕາ, ໝາກຖົ່ວ 2 .901 ເຮັກຕາ ແລະ ພືດຜັກ 12 .198 ເຮັກຕາ. ແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມຂອງແຂວງ ຊຸກຍູ້ສົ່ງເສີມໃຫ້ຂະແໜງກະສິກຳເພີ່ມເນື້ອທີ່ການຜະລິດ ແລະ ຍົກສະມັດຕະພາບການຜະລິດໃຫ້ສູງຂຶ້ນ ໂດຍເນັ້ນໃສ່ພືດເສດຖະກິດໃນທົ່ວແຂວງ. ເພາະສະນັ້ນ, ຄວາມກົດດັນຂອງການຂະຫຍາຍເນື້ອທີ່ການຜະລິດກະສິກຳເຂົ້າໃນເຂດປ່າໄມ້ ມີທ່າອ່ຽງເພີ່ມຂຶ້ນໃນອະນາຄົດ.

3.2.2. ສາເຫດຂອງການທຳລາຍປ່າໄມ້: ການກໍ່ສ້າງເຂື່ອນໄຟຟ້າ

ອີງຕາມແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມ 5 ປີ ຄັ້ງທີ 7 ຂອງແຂວງ, ຮອດປີ 2020 ຈະມີທັງໝົດ 9 ໂຄງການເຂື່ອນໄຟຟ້າ ທີ່ອອກແບບ ແລະ ສາມາດຜະລິດກະແສໄຟຟ້າໄດ້ທັງໝົດປະມານ 733.2 MW ເພື່ອສະໜອງໃຫ້ສາຍສົ່ງ ໄຟຟ້າຂອງລັດ. ຄຽງຄູ່ກັບການ ກໍ່ສ້າງເຂື່ອນໄຟຟ້າ, ເຂດກໍ່ສ້າງເຂື່ອນ, ເຂດນ້ຳຖ້ວມ, ເສັ້ນທາງ, ລະບົບສາຍສົ່ງ ແລະ ເຂດຍົກຍ້າຍປະຊາຊົນ ກໍພາໃຫ້ເກີດການສູນເສັຍປ່າໄມ້ ແລະ ປ່າໄມ້ເສື່ອມໂຊມ. ການຂຸດຄົ້ນໄມ້ໃນເຂດນ້ຳຖ້ວມຂອງໂຄງການກໍ່ສ້າງເຂື່ອນໄຟຟ້າແມ່ນອະນຸມັດ ແຕ່ບາງກໍລະນີມີການຂຸດຄົ້ນເກີນຂອບເຂດທີ່ກຳນົດ. ເຖິງແມ່ນວ່າມີການປະເມີນຜົນຢ່າງຊັດເຈນຕໍ່ຜົນກະທົບກັບປ່າໄມ້ ຈາກໂຄງການກໍ່ສ້າງເຂື່ອນໄຟຟ້າກໍຕາມ, ສ່ວນຫຼາຍບັນດາໂຄງການກໍ່ສ້າງເຂື່ອນໄຟຟ້າ ຍັງມີຊ່ອງວ່າງໃຫ້ຫົດການຂຸດຄົ້ນໄມ້ທີ່ບໍ່ຖືກຕ້ອງຕາມກົດໝາຍ ຢູ່ ແຂວງຫຼວງພະບາງ.

3.2.3. ສາເຫດຂອງການທຳລາຍປ່າໄມ້: ການຂຸດຄົ້ນບໍ່ແຮ່

ໃນໄລຍະ 5 ປີຜ່ານມາ, ການຂຸດຄົ້ນ ແລະ ຜະລິດຫີນແຂງມີ 657.000 ແມ່ດກ້ອນ ເພື່ອສະໜອງໃຫ້ແກ່ການກໍ່ສ້າງພາຍໃນ. ມີທັງໝົດ 22 ຫົວໜ່ວຍທຸລະກິດຂຸດຄົ້ນຫີນແຂງໃນທົ່ວແຂວງ. ຮອດຕົ້ນປີ 2015 , ລັດຖະບານກໍໄດ້ອະນຸມັດໃຫ້ບໍລິສັດເອກະຊົນສຳປະທານຂຸດຄົ້ນຄຳ ຢູ່ ເຂດບ້ານຜາປົ່ນ, ເມືອງປາກອູ, ແຂວງຫຼວງພະບາງ ໃນເນື້ອທີ່ປະມານ 6 ກມ ມົນທົນ.

3.2.4. ສາເຫດຂອງການທຳລາຍປ່າໄມ້: ການພັດທະນາພື້ນຖານໂຄງລ່າງ

ສຳລັບການພັດທະນາພື້ນຖານໂຄງລ່າງ ຮອດປີ 2015 ທາງແຂວງໄດ້ກໍ່ສ້າງເສັ້ນທາງສຳເລັດ 4 .061 ກມ ແລະ ຍັງຈະສືບຕໍ່ກໍ່ສ້າງໃນອະນາຄົດ. ການທຳລາຍປ່າໄມ້ຈາກການກໍ່ສ້າງພື້ນຖານໂຄງລ່າງ ໂດຍສະເພາະແມ່ນເສັ້ນທາງ, ສາຍສົ່ງໄຟຟ້າ, ລະບົບຊົນລະປະທານ, ການຂະຫຍາຍຕົວເມືອງ ແລະ ການກໍ່ສ້າງເສັ້ນທາງລົດໄຟ ແມ່ນມີຈຳກັດ ແຕ່ຜົນກະທົບທີ່ຮ້າຍແຮງນັ້ນແມ່ນການປັບປຸງພື້ນຖານໂຄງລ່າງເຂົ້າຫາເຂດທີ່ຢູ່ຫ່າງໄກສອກຫຼີກ. ຢ່າງໃດກໍດີ ການເຊື່ອມຕໍ່ເສັ້ນທາງໄປຫາຕະຫຼາດ, ເຂດເທດສະບານ ແລະ ຕົວເມືອງອື່ນໆ ແມ່ນຍຸດທະສາດທີ່ສຳຄັນອັນໜຶ່ງຂອງລັດຖະບານ. ລັດຖະບານໄດ້ລົງທຶນຢ່າງມະຫາສານໃນການປັບປຸງຕາໜ່າງເສັ້ນທາງຄົມມະນາຄົມ ແລະ ການຂົນສົ່ງໃນຂອບເຂດທົ່ວປະເທດ ແນໃສ່ເພື່ອກະຕຸກຊຸກຍູ້ ແລະ ສະໜັບສະໜູນການພັດທະນາເສດຖະກິດ-ສັງຄົມໃນເຂດຊົນນະບົດໃຫ້ປະສົບຜົນສຳເລັດຕາມຄາດໝາຍ. ບໍລິສັດຂຸດຄົ້ນໄມ້ຈະໄດ້ຮັບອະນຸຍາດໃຫ້ຂຸດຄົ້ນຕາມໂກຕ້າ ເພື່ອແລກປ່ຽນກັບການຕົກລົງສ້າງເສັ້ນທາງ ຊຶ່ງໃນບາງກໍລະນີການຂຸດຄົ້ນແມ່ນເກີນໂກຕ້າທີ່ອະນຸຍາດ. ຍ້ອນການຄຸ້ມຄອງບໍ່ທັນຮັດກຸມ, ການຈັດຕັ້ງປະຕິບັດກົດໝາຍບໍ່ເຂັ້ມງວດ ແລະ ການຕິດ

ຕາມກວດກາບໍ່ປົກກະຕິ ຈຶ່ງນຳໄປສູ່ການຕັດໄມ້ໂດຍບໍ່ໄດ້ຮັບອະນຸຍາດ ຫຼື ການຂຸດຄົ້ນໄມ້ບໍ່ໄປຕາມແຜນມີທ່າ ອ່ຽງເພີ່ມຂຶ້ນ. ການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ໂດຍທາງກົງ ຫຼື ທາງອ້ອມນັ້ນ ຈະໄດ້ຮັບການແກ້ໄຂ ຂຶ້ນຢູ່ກັບການວາງແຜນທີ່ດີ ບັນດາໂຄງການພັດທະນາພື້ນຖານໂຄງລ່າງໃນອະນາຄົດ.

3.2.5. ສາເຫດຂອງການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ: ການປູກໄມ້ໃນເຂດປ່າທຳມະຊາດ

ລັດຖະບານແຫ່ງ ສປປ ລາວ ໄດ້ເອົາໃຈໃສ່ຊຸກຍູ້ສົ່ງເສີມຢ່າງຕັ້ງໜ້າ ການປູກໄມ້ອຸດສາຫະກຳ ແນໃສ່ເພື່ອຫຼຸດຜ່ອນຄວາມກົດດັນທີ່ມີຕໍ່ປ່າທຳມະຊາດ ແລະ ສະໜອງວັດຖຸດິບໃຫ້ແກ່ໂຮງງານປຸງແຕ່ງໄມ້ ສ້າງວຽກເຮັດງານທຳໃຫ້ປະຊາຊົນ ເພື່ອທົດແທນການຖາງປ່າເຮັດໄຮ່ແບບເລື່ອນລອຍ. ຕາມຕົວເລກສະຖິຕິຂອງແຂວງ, ການປູກໄມ້ສັກແມ່ນມີເນື້ອທີ່ 27.481 ເຮັກຕາ, ຢາງພາລາ 18.191 ເຮັກຕາ ແລະ ໄມ້ນ້ຳມັນ 7.241 ເຮັກຕາ ໃນທົ່ວແຂວງໃນປີ 2015. ການປູກໄມ້ອຸດສາຫະກຳ ສາມາດເປັນແຫຼ່ງສະໜອງໄມ້ໃນໄລຍະຍາວ ແລະ ບໍ່ສົ່ງຜົນກະທົບໃຫ້ປ່າທຳມະຊາດ ເຮັດໃຫ້ປ່າໄມ້ສາມາດດູດຊັບ ແລະ ເກັບກັກກາກບອນໃນແງ່ມຸນຂອງ REDD+. ອີກຢ່າງໜຶ່ງ, ໃນບາງກໍລະນີການປູກໄມ້ອຸດສາຫະກຳກໍບໍ່ສົມຄວນ ໂດຍສະເພາະການຖາງປ່າແກ່ທັງເປັນປ່າທຳມະຊາດເພື່ອມາປູກ ທັ້ງໆທີ່ກົດໝາຍປ່າໄມ້ໄດ້ລະບຸຢ່າງລະອຽດ ແລະ ຈະແຈ້ງແລ້ວວ່າ: ການປູກໄມ້ແມ່ນສາມາດປູກໄດ້ໃນທີ່ດິນປ່າໄມ້ທີ່ເສື່ອມໂຊມ ຫຼື ດິນປອກໂຫຼ້ນເທົ່ານັ້ນ.

3.2.6. ສາເຫດຂອງການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ: ການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍ

ການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍ ຢູ່ ແຂວງຫຼວງພະບາງ ມີຫຼາຍປານໃດກໍບໍ່ຈະແຈ້ງ ແຕ່ຕ້ອງຍອມຮັບວ່າມີຜົນກະທົບບໍ່ໜ້ອຍຕໍ່ກັບປ່າໄມ້. ໃນກອງປະຊຸມປຶກສາຫາລື ຢູ່ ຂັ້ນເມືອງ, ແຕ່ລະເມືອງກໍໄດ້ຍົກໃຫ້ເຫັນບັນຫາການລັກລອບຕັດໄມ້ ເປັນບັນຫາໜຶ່ງທີ່ເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ຢູ່ ໃນເມືອງຂອງເຂົາເຈົ້າ ແລະ ຕ້ອງໄດ້ຊອກຫາວິທີແກ້ໄຂຢ່າງເໝາະສົມໃນການສ້າງ ແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງ. ການລັກລອບຕັດໄມ້ສ່ວນໃຫຍ່ແມ່ນເກີດຂຶ້ນ ຢູ່ ເມືອງ ບ່ອນທີ່ມີໂຄງການພັດທະນາພື້ນຖານໂຄງລ່າງ ຊຶ່ງລັດຖະບານເປັນຜູ້ອະນຸມັດ ຫຼື ຢູ່ ບັນດາເມືອງທີ່ມີສາຍແດນຕິດຈອດກັບປະເທດເພື່ອນບ້ານ ອັນເນື່ອງມາຈາກຄວາມຕ້ອງການໄມ້ຂອງຕະຫຼາດ ແລະ ການສູນເສັຍເນື້ອທີ່ປ່າທຳມະຊາດ ຫຼື ນັບມື້ນັບຫຼຸດລົງ ເຮັດໃຫ້ລາຄາໄມ້ສູງຂຶ້ນ ໂດຍສະເພາະແມ່ນໄມ້ຊະນິດພັນພື້ນເມືອງ.

3.2.7. ສາເຫດຂອງການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ: ໄຟໄໝ້ລາມປ່າ

ການຫັນປ່ຽນທີ່ດິນປ່າໄມ້ເປັນທີ່ດິນກະສິກຳເພື່ອທຳການຜະລິດ ດ້ວຍການຖາງ ແລະ ຈູດ ແມ່ນວິທີທາງໃນການດຳລົງຊີວິດແບບດັ້ງເດີມຂອງປະຊາຊົນ ຢູ່ ເຂດຊົນນະບົດພູດອຍທາງພາກເໜືອຂອງລາວ. ບັນຫາໄຟໄໝ້ລາມປ່າ ຢູ່ ແຂວງຫຼວງພະບາງ ສາເຫດຫຼັກແມ່ນເກີດມາຈາກການຈູດໄຮ່ ເພື່ອທຳການຜະລິດ, ການຈູດເພື່ອລ້ຽງສັດ (ສວນໄມ້ສັກ) ແລະ ຈູດເພື່ອລ່າສັດ. ການປຶກສາຫາລື ຢູ່ ບັນດາເມືອງ ໄດ້ໃຫ້ຮູ້ວ່າການເກີດໄຟໄໝ້ລາມປ່າ ແມ່ນສົ່ງຜົນກະທົບຢ່າງຮ້າຍແຮງໃຫ້ຊັບພະຍາກອນປ່າໄມ້ຂອງເມືອງເຂົາເຈົ້າ. ປະຈຸບັນ , ການປ້ອງກັນໄຟໄໝ້ລາມປ່າ ແມ່ນມີແຈ້ງການກ່ອນຈະເຂົ້າສູ່ລະດູການຜະລິດ ໂດຍສະເພາະບ້ານທີ່ມີຄວາມສ່ຽງສູງຕໍ່ໄຟໄໝ້ລາມປ່າ ແຕ່ກໍບໍ່ທັນພຽງພໍ ເນື່ອງຈາກວ່າຍັງມີຂໍ້ຈຳກັດທາງດ້ານພະນັກງານ ຫຼື ວິທີການບໍລິຫານຈັດການຍັງບໍ່ທັນເຮັດໄດ້ດີເທົ່າທີ່ຄວນ. ສະນັ້ນ , ເພື່ອປ້ອງກັນ ແລະ ສະກັດກັ້ນບັນຫາໄຟໄໝ້ລາມປ່າ ຈຳເປັນຕ້ອງໄດ້ຝຶກອົບຮົມໃຫ້ເມືອງ ແລະ ບ້ານຕື່ມອີກ.

3.3. ພາກສ່ວນກ່ຽວຂ້ອງກັບການທຳລາຍປ່າໄມ້ແລະການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ

ການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ຢູ່ ແຂວງຫຼວງພະບາງ ແມ່ນຕິດພັນກັບພາກສ່ວນທີ່ເປັນຕົ້ນເຫດສະເພາະ ແລະ ພາກສ່ວນທີ່ກ່ຽວຂ້ອງອື່ນໆດັ່ງລຸ່ມນີ້:

ຊາວກະສິກອນຂະໜາດນ້ອຍ ແລະ ປະຊາຊົນທ້ອງຖິ່ນ (ຊາວບ້ານ)

ພາກສ່ວນທີ່ເປັນຕົ້ນເຫດແມ່ນຊາວກະສິກອນຂະໜາດນ້ອຍ ແລະ ປະຊາຊົນທ້ອງຖິ່ນ (ຊາວບ້ານ) ຜູ້ທີ່ຖາງປ່າເຮັດໄຮ່ປູກເຂົ້າ ແລະ ຂະຫຍາຍເນື້ອທີ່ກະສິກຳ ເຮັດການຜະລິດເພື່ອກຸ້ມກິນ ແລະ ຂາຍເປັນສິນຄ້າ. ນອກຈາກການຜະລິດກະສິກຳແລ້ວ ເຂົາເຈົ້າຍັງນຳໃຊ້ຊັບພະຍາກອນປ່າໄມ້ ເພື່ອການປຸກສ້າງ, ເປັນໄມ້ຟືນ ແລະ ຂາຍ ຢູ່ ຕາມບ່ອນທີ່ຢູ່ອາໄສ.

ການພັດທະນາດ້ານພື້ນຖານໂຄງລ່າງ

ການພັດທະນາພື້ນຖານໂຄງລ່າງບໍ່ສະເພາະແຕ່ການກໍ່ສ້າງເຂື່ອນໄຟຟ້າ, ເສັ້ນທາງ , ຂຸດຄົ້ນບໍ່ແຮ່ , ລະບົບຊົນລະປະທານ ແມ່ນໄປຕາມແຜນພັດທະນາຂອງລັດຖະບານ ໂດຍໄດ້ຮັບອະນຸຍາດຈາກທຸກຂັ້ນ ນັບແຕ່ຂັ້ນສູນກາງລົງມາຫາທ້ອງຖິ່ນເຊັ່ນ: ແຂວງ ແລະ ເມືອງ. ການພັດທະນາພື້ນຖານໂຄງລ່າງທີ່ມີແຜນ ສາມາດ ເບິ່ງເຫັນພື້ນທີ່ປ່າໄມ້ທີ່ຈະຖືກສູນເສັຍ ຈຶ່ງຈຳເປັນຕ້ອງມີແຜນຄຸ້ມຄອງຈັດສັນຊັບພະຍາກອນປ່າໄມ້ຢ່າງຄັກແນ່ ເພື່ອໃຫ້ການຈັດຕັ້ງປະຕິບັດໄປຕາມແຜນ ແລະ ຖືກຕ້ອງຕາມລະບຽບກົດໝາຍທີ່ວາງໄວ້.

ການຜະລິດເປັນສິນຄ້າ

ການຜະລິດເປັນສິນຄ້າໄດ້ປະກອບສ່ວນເຮັດໃຫ້ພືດເສດຖະກິດ ແລະ ພືດອຸດສາຫະກຳເປັນຕົ້ນແມ່ນຢາງພາລາ ແລະ ໄມ້ນ້ຳມັນເພີ່ມຂຶ້ນຢ່າງໄວວາ. ຜູ້ລົງທຶນສາມາດສຳປະທານທີ່ດິນຈາກລັດໃນໄລຍະຍາວ, ເຊົ່າທີ່ດິນຕາມສັນຍາ ຫຼື ຜະລິດຕາມສັນຍາ (Contract farming). ການສຳປະທານທີ່ດິນໝາຍເຖິງການລົງທຶນປະເພດໜຶ່ງ ຊຶ່ງໃນນັ້ນທີ່ດິນຂອງລັດຖືກໂອນໃຫ້ພາກເອກະຊົນ (ບໍລິສັດ) ທີ່ລົງທຶນເພື່ອນຳໃຊ້ໃນການປູກຝັງ ຫຼື ກໍ່ສ້າງ. ການສຳປະທານທີ່ດິນຂະໜານໃຫຍ່ແມ່ນເປັນທີ່ຕ້ອງການຂອງຜູ້ລົງທຶນ ເພາະມັນເຮັດໃຫ້ຜູ້ລົງທຶນສາມາດຄຸ້ມຄອງນຳໃຊ້ໄດ້ຕາມຄວາມຕ້ອງການທຸກຢ່າງຂອງເຂົາເຈົ້າ. ການຜະລິດກະສິກຳຕາມສັນຍາ (Contract farming) ແມ່ນຮູບແບບໜຶ່ງຂອງການລົງທຶນ ໃນນັ້ນຊາວກະສິກອນຈະມີຄວາມສ່ຽງໃນການຮັບປະກັນຜົນປະໂຫຍດ ແລະ ຜົນຜະລິດຂອງເຂົາເຈົ້າ ຊຶ່ງຕ່າງຈາກການສຳປະທານທີ່ດິນ ເພື່ອທຳການຜະລິດ ຊຶ່ງຊາວກະສິກອນມີສິດໃນທີ່ດິນຂອງເຂົາເຈົ້າ. ການຜະລິດກະສິກຳຕາມສັນຍາ ໂດຍສະເພາະການປູກພືດເສດຖະກິດ ຢູ່ ແຂວງຫຼວງພະບາງ ໄດ້ເລີ່ມຂະຫຍາຍຕົວນັບແຕ່ຕົ້ນປີ 2000 ເປັນຕົ້ນມາ ພາຍຫຼັງທີ່ລັດຖະບານສົ່ງເສີມການຜະລິດຮູບແບບ 2+3. ພາກສ່ວນທຸລະກິດໄມ້ຈາກບັນດາປະເທດໃກ້ຄຽງກໍໄດ້ມີການເຄື່ອນໄຫວຢ່າງແຂງແຮງພາຍໃນແຂວງເຊັ່ນກັນ ອັນເຮັດໃຫ້ໄມ້ທີ່ຜິດກົດໝາຍຈຳນວນບໍ່ໜ້ອຍຖືກຂຸດຄົ້ນ ແລະ ຂົນສົ່ງຂ້າມແດນໄປຍັງປະເທດເຫຼົ່ານັ້ນ.

3.4. ສາຍເຫດທາງອ້ອມຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ

3.4.1. ປັດຈັຍດ້ານປະຊາກອນ

ຈຳນວນປະຊາກອນຂອງແຂວງຫຼວງພະບາງນັບມື້ນັບເພີ່ມຂຶ້ນໃນອັດຕາສະເລັ່ຍ 2,4% ຕໍ່ປີ (2005). ປີ 2015 ຈຳນວນປະຊາກອນຂອງແຂວງຫຼວງພະບາງແມ່ນ 454.095 ຄົນ, ໃນນັ້ນປະຊາກອນຂອງເມືອງປາກແຊງ ແລະ ຊຽງເງີນ ແມ່ນຫຼຸດລົງ , ສ່ວນເມືອງອື່ນແມ່ນເພີ່ມຂຶ້ນ ດ້ວຍອັດຕາທີ່ແຕກຕ່າງກັນ. ການເພີ່ມຂຶ້ນຂອງປະຊາກອນ ແມ່ນພາໃຫ້ເກີດຄວາມກົດດັນຕໍ່ຊັບພະຍາກອນປ່າໄມ້ ພາຍໃນແຂວງ. ໃນເຂດຊົນນະບົດ, ການດຳລົງຊີວິດຂອງປະຊາຊົນສ່ວນໃຫຍ່ແມ່ນອາໄສທຳມະຊາດ ລວມທັງຊັບພະຍາກອນປ່າໄມ້ ໂດຍສະເພາະການນຳໃຊ້ໄມ້ເພື່ອເປັນສິ່ງປຸກສ້າງທີ່ຢູ່ອາໄສ ແລະ ສິ່ງອຳນວຍຄວາມສະດວກອື່ນໆຂອງບ້ານ, ການນຳໃຊ້ໄມ້ຟືນເພື່ອແຕ່ງຢູ່ຄົວກົນ, ໃຫ້ຄວາມອົບອຸ່ນ ແລະ ອື່ນໆ. ເນື່ອງຈາກວ່າພື້ນທີ່ບ່ອນຮາບພຽງເໝາະສົມແກ່ການເຮັດນາມີຈຳກັດໃນທົ່ວແຂວງ ການເຮັດໄຮ່ຈຶ່ງຄອງອັນດັບໜຶ່ງໃນການຮັບປະກັນທາງດ້ານສະບຽງອາຫານ ແລະ ສ້າງລາຍຮັບໃຫ້ປະຊາຊົນ. ນອກນັ້ນ, ການເພີ່ມຂຶ້ນຂອງປະຊາກອນຍັງເຮັດໃຫ້ການນຳໃຊ້ທີ່ດິນບໍ່ມີຄວາມຍືນຍົງ ໂດຍສະເພາະການຖາງປ່າເຮັດໄຮ່ແບບເລື່ອນລອຍ ແລະ ການຂຸດຄົ້ນຜະລິດຕະພັນຈາກປ່າທີ່ເກີນຂອບເຂດ ອັນນຳໄປສູ່ການທຳລາຍປ່າໄມ້ ແລະ ເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມໃນທີສຸດ.ເຊັ່ນດຽວກັນ , ການເພີ່ມຂຶ້ນຂອງປະຊາກອນ ບວກກັບການແຂ່ງຂັນດ້ານການຜະລິດກະສິກຳ ເຮັດໃຫ້ຮອບວຽນຂອງການເຮັດໄຮ່ສັ້ນເຂົ້າ ພາໃຫ້ຜົນຜະລິດຕົກຕ່ຳ ແລະ ດິນເສື່ອມຄຸນນະພາບ ຊາວກະສິກອນຈຶ່ງຈຳເປັນຕ້ອງໄດ້ຖາງປ່າບ່ອນໃໝ່ເພື່ອເຮັດການຜະລິດ.

3.4.2. ປັດຈັຍດ້ານເສດຖະກິດ

ຄວາມທຸກຍາກ ແມ່ນສາເຫດທາງອ້ອມໜຶ່ງຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ. ສປປ ລາວ ເປັນປະເທດທີ່ຍັງດ້ອຍພັດທະນາຢູ່ ໂດຍທີ່ 80% ຂອງພົນລະເມືອງແມ່ນອາໄສການກະສິກຳ ແລະ ຊັບພະຍາກອນທຳມະຊາດໃນການສ້າງເສດຖະກິດ. ໃນໄລຍະຜ່ານມາ, ແຂວງຫຼວງພະບາງກໍໄດ້ພະຍາຍາມທຸກວິທີທາງ ເພື່ອແກ້ໄຂຄວາມທຸກຍາກ ໂດຍເອົາໃຈໃສ່ເປັນພິເສດຕໍ່ຄອບຄົວທີ່ທຸກຍາກ ແລະ ວາງຄາດໝາຍຮອດປີ 2015 ໃຫ້ຈຳນວນຄອບຄົວທຸກຍາກບໍ່ໃຫ້ເກີນ 4% ຂອງຈຳນວນຄອບຄົວທັງໝົດໃນທົ່ວແຂວງ. ຕົວຊີ້ວັດຄວາມທຸກຍາກໄດ້ຫຼຸດລົງໃນຊຸມປີຜ່ານມາ ຍ້ອນການສ້າງລາຍຮັບຂອງປະຊາຊົນ ໂດຍສະເພາະການຊຸກຍູ້ສົ່ງເສີມລາຍຮັບຈາກການຜະລິດກະສິກຳ ແລະ ການທ່ອງທ່ຽວ.

ການຂາດທາງເລືອກໃນການດຳລົງຊີວິດເປັນສາເຫດທາງອ້ອມໜຶ່ງທີ່ສຳຄັນຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ. ປະຊາຊົນຈຳເປັນຕ້ອງໄດ້ຖາງປ່າເພື່ອທຳການຜະລິດ ແນໃສ່ເພື່ອຮັບປະກັນທາງດ້ານສະບຽງອາຫານ ແລະ ການດຳລົງຊີວິດຂອງເຂົາເຈົ້າ.

ຄວາມຕ້ອງການຂອງຕະຫຼາດດ້ານຜະລິດຕະພັນກະສິກຳເພີ່ມຂຶ້ນໄດ້ເຮັດໃຫ້ມີການຂະຫຍາຍເນື້ອທີ່ການຜະລິດກະສິກຳອອກໄປຕື່ມໃນທົ່ວແຂວງ. ຄວາມຕ້ອງການຈາກພາຍນອກເຊັ່ນ: ຈີນ ແລະ ຫວຽດນາມ ສົ່ງຜົນສະທ້ອນອັນໃຫຍ່ຫຼວງຕໍ່ການນຳໃຊ້ທີ່ດິນ ຢູ່ ແຂວງຫຼວງພະບາງ ໂດຍສະເພາະການຜະລິດເປັນສິນຄ້າເພື່ອສົ່ງອອກ ແລະ ຊົມໃຊ້ພາຍໃນ. ລະບົບການຜະລິດກະສິກຳຕາມສັນຍາ ແມ່ນເລີ່ມມີໃນຕົ້ນປີ 2000 ເປັນຕົ້ນມາ, ຊາວກະສິກອນເລີ່ມຜະລິດເຂົ້າໜູດລົງ ແລະ ການລົງທຶນໃສ່ການປູກພືດເສດຖະກິດ ແລະ ໄມ້ອຸດສາຫະກຳຫຼາຍຂຶ້ນ ເພື່ອສົ່ງອອກໄປຈີນ, ຫວຽດນາມ ແລະ ສ່ວນໜຶ່ງຮັບໃຊ້ພາຍໃນ. ການຂະຫຍາຍເນື້ອທີ່ປູກພືດເສດຖະກິດ ແລະ ໄມ້ອຸດສາຫະກຳຢ່າງໄວວາ ເປັນສາເຫດໜຶ່ງເຮັດໃຫ້ປ່າໄມ້ຖືກທຳລາຍ ແລະ ປ່າໄມ້ເສື່ອມໂຊມ ຊຶ່ງທ່າອ່ຽງນີ້ໄດ້ພາໃຫ້ເກີດມີຄວາມສ່ຽງຕໍ່ການຮັບປະກັນທາງດ້ານສະບຽງອາຫານໃນອະນາຄົດ ຖ້າລາຄາຕະຫຼາດຫາກຕົກຕ່ຳ. ແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມຂອງແຂວງ ແລະ ແຜນຂອງຂະແໜງການຕ່າງໆທີ່ກ່ຽວຂ້ອງ ກໍໄດ້ເວົ້າເຖິງບັນຫານີ້ ໂດຍຖືເອົາການປູກພືດເສດຖະກິດ ແລະ ໄມ້ອຸດສາຫະກຳເປັນບັນຫາສຳຄັນ ສຳລັບການເຕີບໂຕທາງດ້ານເສດຖະກິດ ແລະ ການຫຼຸດຜ່ອນຄວາມທຸກຍາກຂອງແຂວງ. ໃນຂະນະທີ່ຕະຫຼາດໃນພາກພື້ນຍັງມີຄວາມເຂັ້ມແຂງຢູ່ ຈະເປັນແຮງຊຸກຍູ້ໃຫ້ການຜະລິດເພື່ອສົ່ງອອກຂອງແຂວງຫຼວງພະບາງສືບຕໍ່ໃນອະນາຄົດ.

ຄວາມຕ້ອງການໄມ້ໃນພາກພື້ນເພີ່ມຂຶ້ນກໍເປັນສາເຫດທາງອ້ອມໜຶ່ງກະຕຸກຊຸກຍູ້ໃຫ້ມີການລັກລອບຕັດໄມ້ ໂດຍສະເພາະຄວາມຕ້ອງການໄມ້ຂອງຕະຫຼາດຈີນ ແລະ ຫວຽດນາມ. ອີກດ້ານໜຶ່ງ, ການນຳໃຊ້ລະບຽບກົດໝາຍບໍ່ທັນເຂັ້ມງວດ ແລະ ການຄຸ້ມຄອງບໍ່ທັນຮັດກຸມ ເຮັດໃຫ້ການລັກລອບຕັດໄມ້ ແລະ ການເຄື່ອນໄຫວທີ່ບໍ່ຖືກຕ້ອງຕາມກົດໝາຍຍັງສືບຕໍ່ ຢູ່ ໃນຂະແໜງການປ່າໄມ້ ຢູ່ ສປປ ລາວ.

3.4.3. ປັດຈັຍດ້ານນະໂຍບາຍ ແລະ ການຈັດຕັ້ງ

ການວາງແຜນນຳໃຊ້ທີ່ດິນທີ່ບໍ່ທົ່ວເຖິງພາຍໃນແຂວງພາໃຫ້ມີການທຳລາຍປ່າໄມ້ຢ່າງກ້ວາງຂວາງໂດຍບໍ່ມີແຜນລ່ວງໜ້າ ຊຶ່ງອາດມາຈາກບໍ່ມີແຜນ ຫຼື ມີແຜນແຕ່ບໍ່ປະຕິບັດຕາມແຜນ. ການກຳນົດເຂດແດນບໍ່ຈະແจ້ງ ໂດຍສະເພາະໃນເຂດປ່າໄມ້ ພາໃຫ້ການກວດສອບຄວາມຖືກຕ້ອງທາງດ້ານກົດໝາຍຂອງແຜນທີ່ສະເໜີບໍ່ຖືກຕ້ອງ ເປີດຊ່ອງว่างໃຫ້ນັກທຸລະກິດ/ໂຄງການ ສວຍໂອກາດຂຸດຄົ້ນຊັບພະຍາກອນທຳມະຊາດເກີນຂອບເຂດທີ່ອະນຸຍາດ. ການຕິດຕາມກວດກາ ແລະ ປະເມີນຜົນ ການນຳໃຊ້ທີ່ດິນຕາມແຜນ ບໍ່ສາມາດປະຕິບັດໄດ້ຢ່າງເຕັມເມັດເຕັມໜ່ວຍ ໂດຍສະເພາະຢູ່ຂັ້ນເມືອງ ແລະ ຂັ້ນບ້ານ.

ການຈັດຕັ້ງປະຕິບັດລະບຽບກົດໝາຍບໍ່ເຂັ້ມງວດຮັດໃຫ້ມີການຖາງປ່າແບບຊະຊາຍ ແລະ ການລັກລອບຕັດໄມ້. ການຊຸກຍູ້ສົ່ງເສີມການປູກພືດເສດຖະກິດເປັນສິນຄ້າ, ການປູກໄມ້ອຸດສາຫະກຳ, ການກໍ່ສ້າງເຂື່ອນໄຟຟ້າ ຊຶ່ງເປັນສາເຫດຫຼັກຂອງການທຳລາຍປ່າໄມ້ແມ່ນນອນ ຢູ່ ໃນແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມຂອງແຂວງ ແລະ ເມືອງ ແນໃສ່ເພື່ອພັດທະນາເສດຖະກິດ-ສັງຄົມຂອງແຂວງໃຫ້ຈະເລີນເຕີບໂຕດ້ວຍບາດກ້າວທີ່ໄວ ແລະ ໜັກແໜ້ນ ຊຶ່ງແມ່ນທິດທາງນະ�โยบายການພັດທະນາຂອງລັດຖະບານ ແຕ່ຜ່ານມາກໍມີຫຼາຍກໍລະນີການປູກພືດເປັນສິນຄ້າ ແລະ ການປູກໄມ້ອຸດສາຫະກຳ ໄດ້ບຸກລຸກເຂົ້າໃນເຂດປ່າໄມ້ ຫຼື ບໍລິສັດຂຸດຄົ້ນໄມ້ເກີນໂກຕ້າທີ່ອະນຸມັດ ໂດຍສະເພາະແມ່ນເຂດທີ່ມີການກໍ່ສ້າງເຂື່ອນໄຟຟ້າ, ການກໍ່ສ້າງເສັ້ນທາງ ແລະ ສາຍສົ່ງໄຟຟ້າ. ຜ່ານມາພາກສ່ວນກ່ຽວຂ້ອງກໍພະຍາຍາມ ຊຸກຍູ້ໃຫ້ປະຕິບັດຖືກຕ້ອງຕາມສັນຍາ ແຕ່ບາງຄັ້ງຂັ້ນຕອນການອະນຸຍາດສຳປະທານທີ່ດິນ ແລະ ການຜະລິດຕາມສັນຍາ ບໍ່ປະຕິບັດຕາມລະບຽບຫຼັກການຢ່າງຖືກຕ້ອງ ໂດຍສະເພາະຢູ່ ຂັ້ນແຂວງ ແລະ ຂັ້ນເມືອງ ຍັງຂາດພະນັກງານທີ່ມີຄວາມຮູ້ຄວາມສາມາດດ້ານວິຊາການ ເພື່ອປະຕິບັດໜ້າທີ່ເຫຼົ່ານີ້.

ສິດນຳໃຊ້ທີ່ດິນ ແລະ ການມອບດິນ-ມອບປ່າບໍ່ຈະແจ້ງນັ້ງເປັນສິ່ງທ້າທາຍໃນການແກ້ໄຂບັນຫາການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ພາຍໃນແຂວງ. ນັບແຕ່ປີ 1990 ເປັນຕົ້ນມາ ລັດຖະບານກໍຄືແຂວງໄດ້ດຳເນີນການມອບດິນ-ມອບປ່າ ແລະ ອອກໃບຕາດິນໃຫ້ບຸກຄົນ, ຄອບຄົວ ແລະ ສ່ວນລວມ ໃນເຂດຊົນນະບົດ. ໃນ 5 ປີ ຜ່ານມາ ການອອກໃບຢັ້ງຢືນສິດນຳໃຊ້ທີ່ດິນ ສາມາດອອກໃຫ້ໄດ້ 68.730 ຕອນ ໃນ 762 ບ້ານ ຂອງ 12 ເມືອງ. ຢ່າງໃດກໍດີ, ການອອກໃບຕາດິນສ່ວນຫຼາຍແມ່ນດິນປຸກສ້າງ, ດິນກະສິກຳເຂດທົ່ງພຽງ

ລວມທັງດິນນາ ແລະ ດິນປູກໄມ້ລຽບຕາມແຄມທາງ. ເນື່ອງຈາກວ່າການມອບດິນ-ມອບປ່າ ຢູ່ ເຂດພູດອຍ ຍັງບໍ່ທົ່ວເຖິງ ແລະ ເໝາະສົມ ເຮັດໃຫ້ບຸກຄົນ, ຄອບຄົວ ແລະ ຊຸມຊົນ ບໍ່ມີແຮງຈູງໃຈ ຫຼື ໝັ້ນໃຈໃນການລົງທຶນໄລຍະຍາວ ເພື່ອນຳໃຊ້ທີ່ດິນແບບຍືນຍົງ.

ວຽກງານສົ່ງເສີມການພັດທະນາຊົນນະບົດຢູ່ ຂັ້ນແຂວງ, ເມືອງ ແລະ ກຸ່ມບ້ານ
ການພິຈາລະນາໃນເບື້ອງຕົ້ນຂອງແຕ່ລະຂັ້ນຮັບຜິດຊອບ ມີຄວາມສຳຄັນໃນການອະນຸຍາດສຳປະທານທີ່ດິນ ກໍຄືການຜະລິດຕາມສັນຍາ. ວຽກງານສົ່ງເສີມກໍໄດ້ຊ່ວຍຊຸກຍູ້ດ້ານວິຊາການໃຫ້ການຜະລິດກະສິກຳ ແລະ ການຄຸ້ມຄອງປ່າໄມ້ ໂດຍສະເພາະການນຳໃຊ້ທີ່ດິນແບບຍືນ ຍົງ. ນອກນັ້ນ, ຍັງຊ່ວຍຊາວກະສິກອນເຂົ້າໃຈ, ສາມາດເຂົ້າຫາຕະຫຼາດ ແລະ ກຳນົດຕົວເອງຢ່າງຖືກຕ້ອງໃນຕ່ອງໂສ້ດ້ານມູນຄ່າຂອງການ ຜະລິດ ແລະ ຈຳໜ່າຍ ເພີ່ມຂີດຄວາມສາມາດ ແລະ ອຳນາດຂອງເຂົາເຈົ້າໃນການເຈລະຈາຕໍ່ລອງດ້ານການຕະຫຼາດ. ແຕ່ວຽກງານສົ່ງເສີມ ເຫຼົ່ານັ້ນ ຍັງມີຂໍ້ຈຳກັດ ເນື່ອງຈາກຂາດແຄນດ້ານງົບປະມານ ແລະ ບຸກຄະລະກອນ. ການໂຄສະນາເຜີຍແຜ່, ການນຳໃຊ້ທີ່ດິນແບບຍືນຍົງ, ການວາງແຜນນຳໃຊ້ທີ່ດິນທີ່ລະອຽດຈະແจ້ງ ແລະ ການນຳໃຊ້ລະບຽບກົດໝາຍປ່າໄມ້ຢ່າງເຂັ້ມງວດ ກໍແມ່ນວິທີໜຶ່ງເພື່ອຍົກຜະລິດຕະພາບ ໃຫ້ສູງຂຶ້ນ ເນື່ອງຈາກວ່າຂັ້ນຕອນເຫຼົ່ານີ້ສາມາດເຮັດໃຫ້ການຈັດຕັ້ງປະຕິບັດກິດຈະກຳຕ່າງໆຖືກຕ້ອງເໝາະສົມກັບພື້ນທີ່, ປະຕິບັດຖືກຕ້ອງ ຕາມຫຼັກວິຊາການ ແລະ ລະບຽບກົດໝາຍ.

3.5. ການປະເມີນສາເຫດຫຼັກ ແລະ ວິທີແກ້ໄຂສຳລັບວຽກງານREDD+

ອີງໃສ່ຜົນຂອງການວິເຄາະສາເຫດຫຼັກຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມໃນພາກ 3.2 ແລະ 3.4 ສາເຫດທາງກົງ, ສາເຫດທາງອ້ອມ ແລະ ວິທີແກ້ໄຂ ຖືກຈັດບູລິມະສິດດັ່ງ **ຕາຕະລາງ 12**ລຸ່ມນີ້.

ຕາຕະລາງ 12: ການປະເມີນສາເຫດທາງກົງ, ສາເຫດທາງອ້ອມ ແລະ ວິທີແກ້ໄຂ

	ສາເຫດທາງກົງ	ສາເຫດທາງອ້ອມ	ວິທີແກ້ໄຂ
ການທຳລາຍປ່າໄມ້			
1	ການຖາງປ່າເຮັດໄຮ່ແບບເລື່ອນລອຍ ແລະ ການຂະຫຍາຍເນື້ອທີ່ກະສິກຳ	· ການປະສານງານລະຫວ່າງການວາງແຜນນຳໃຊ້ທີ່ດິນ ແລະ ເປົ້າໝາຍຂອງການພັດທະນາເສດຖະກິດ-ສັງຄົມບໍ່ເຂັ້ມງວດ ຂາດຄວາມກົມກຽວ ເຮັດໃຫ້ການນຳໃຊ້ທີ່ດິນບໍ່ມີປະສິດທິພາບ.	· ປັບປຸງຂອດການປະສານງານຂັ້ນແຂວງ ແລະ ເມືອງ ໃຫ້ມີຄວາມກົມກຽວກັນ ໂດຍສະເພາະການເຊື່ອມໂຍງລະຫວ່າງຂະແໜງຄຸ້ມຄອງນຳໃຊ້ທີ່ດິນ ແລະ ຂະແໜງປ່າໄມ້. · ການຄຸ້ມຄອງປ່າໄມ້ໃນເຂດປ່າປ້ອງກັນ. · ການຄຸ້ມຄອງປ່າໄມ້ບ້ານ ແນໃສ່ເພື່ອຮັບປະກັນການປົກປັກຮັກສາ, ການປູກໄມ້ ແລະ ການຟື້ນຟູປ່າໄມ້ທີ່ບ້ານເປັນຜູ້ຄຸ້ມຄອງນຳໃຊ້ ຢູ່ ແຕ່ລະທ້ອງຖິ່ນ.
		· ການກຳນົດເຂດນຳໃຊ້ທີ່ດິນກະສິກຳບໍ່ລະອຽດຈະແจ້ງໃນເຂດປ່າເສື່ອມໂຊມ ເຮັດໃຫ້ການທຳລາຍປ່າໄມ້ຍັງສືບຕໍ່ເພີ່ມຂຶ້ນ. · ຄວາມຕ້ອງການຂອງຕະຫຼາດກ່ຽວກັບຜະລິດຕະພັນກະສິກຳເພີ່ມຂຶ້ນ ເຮັດໃຫ້ມີການຂະຫຍາຍເນື້ອທີ່ກະສິກຳ.	· ກຳນົດຄືນ 3 ປະເພດປ່າ ລະດັບຊາດ, ແຂວງ ແລະ ເມືອງ. · ການຄຸ້ມຄອງປ່າໄມ້ໃນເຂດປ່າປ້ອງກັນ.
		· ການຕິດຕາມກວດກາ ແລະ ການຈັດຕັ້ງປະຕິບັດກົດໝາຍ ຕໍ່ກັບການສຳປະທານທີ່ດິນກະສິກຳ ແລະ ການຜະລິດຕາມສັນຍາບໍ່ເຂັ້ມງວດ.	· ທົບທວນຄືນສັນຍາສຳປະທານທີ່ດິນກະສິກຳ, ປັບປຸງສັນຍາເພື່ອຮັບປະກັນບໍ່ໃຫ້ບຸກລຸກເຂົ້າໃນເຂດປ່າໄມ້ ອີງໃສ່ກົດໝາຍປ່າໄມ້.
		· ການມອບດິນ-ມອບປ່າຊັກຊ້າ ແລະ ສິດນຳໃຊ້ທີ່ດິນບໍ່ຈະແจ້ງ ພາໃຫ້ຂາດແຮງຈູງใจໃນການນຳໃຊ້ທີ່ດິນກະສິກຳແບບຍາວນານ.	· ຄຸ້ມຄອງປ່າໄມ້ບ້ານເພື່ອຮັບປະກັນການປົກປັກຮັກສາ, ການປູກໄມ້ ແລະ ການຟື້ນຟູປ່າໄມ້ທີ່ບ້ານຄຸ້ມຄອງນຳໃຊ້ໃນແຕ່ລະທ້ອງຖິ່ນ. · ຂຶ້ນທະບຽນ ແລະ ອອກໃບຕາດິນ.
		· ການປູກພືດເສດຖະກິດພາໃຫ້ດິນເສື່ອມຄຸນນະພາບ ເຮັດໃຫ້ຜົນຜະລິດຕົກຕ່ຳ ຈຳເປັນຕ້ອງໄດ້ບຸກເບີກເນື້ອທີ່ບ່ອນໃໝ່ເພື່ອທຳການຜະລິດ.	· ສົ່ງເສີມລະບົບການຜະລິດກະສິກຳເຂດພູດອຍແບບຍືນຍົງ.
		· ຄວາມທຸກຍາກ, ການເພີ່ມຂຶ້ນຂອງປະຊາກອນ ແລະ ຂາດທາງເລືອກໃນການດຳລົງຊີວິດ ພາໃຫ້ມີການບຸກລຸກເນື້ອທີ່ປ່າໄມ້ເພື່ອທຳການຜະລິດ.	· ສະເໜີແນະນຳທາງເລືອກໃນການດຳລົງຊີວິດ ຢູ່ ເຂດພູດອຍ.
2	ການກໍ່ສ້າງເຂື່ອນໄຟຟ້າ	· ການວາງແຜນບໍ່ຮອບຄອບເຮັດໃຫ້ມີການຂຸດຄົ້ນໄມ້ນອກເຂດນ້ຳຖ້ວມ, ການຄຸ້ມຄອງ ແລະ ການຈັດຕັ້ງປະຕິບັດລະບຽບກົດໝາຍບໍ່ເຂັ້ມງວດ ເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ. · ການປູກໄມ້ທົດແທນ, ການຟື້ນຟູປ່າ ແລະ ການຊົດເຊີຍບໍ່ມີແຜນຈະແจ້ງ ເຮັດໃຫ້ການປົກປັກຮັກສາອະນຸລັກຊີວະນາງາພັນ ແລະ ເຂດແຫຼ່ງນ້ຳ ໃນເຂດ	· ຮັບປະກັນການວາງແຜນ ແລະ ຈັດຕັ້ງປະຕິບັດແຜນຄຸ້ມຄອງ ແລະ ຕິດຕາມກວດກາສິ່ງແວດລ້ອມ-ສັງຄົມ ຊຶ່ງເປັນສ່ວນໜຶ່ງຂອງການປະເມີນຜົນກະທົບດ້ານສິ່ງແວດລ້ອມ-ສັງຄົມຂອງຂໍ້ຕົກລົງສຳປະທານ. · ເພີ່ມທະວີການຕິດຕາມກວດກາການຂຸດຄົ້ນໄມ້ໃນເຂດນ້ຳຖ້ວມ. · ຊຸກຍູ້ລະບົບການຈ່າຍຄ່າບໍລິການສິ່ງແວດລ້ອມ(PFES) ເພື່ອປົກປັກຮັກສາປ່າໄມ້

		ກໍ່ສ້າງເຂື່ອນໄຟຟ້າ ບໍ່ຮູ້ວ່າການຈັດຕັ້ງປະຕິບັດ ແລະ ຕິດຕາມກວດກາ ຖືກຕ້ອງຕາມຂໍ້ຕົກລົງສໍາປະທານ ຫຼື ບໍ່?	ແລະ ຄຸ້ມຄອງກົດຈະກໍາໃນເຂດອ່າງໂຕ່ງ.
3	ການຂຸດຄົ້ນບໍ່ແຮ່	• ການປົກປັກຮັກສາອະນຸລັກຊີວະນາໆພັນ ແລະ ການຄຸ້ມຄອງປ່າໄມ້ ລວມທັງການຊົດເຊີຍ, ການປູກໄມ້ທົດແທນ, ການຟື້ນຟູປ່າ ໃນເຂດຂຸດຄົ້ນບໍ່ແຮ່ ບໍ່ຮູ້ວ່າການຈັດຕັ້ງປະຕິບັດ ແລະ ຕິດຕາມກວດກາຖືກຕ້ອງຕາມຂໍ້ຕົກລົງສໍາປະທານ ຫຼື ບໍ່?	• ຮັບປະກັນການວາງແຜນ ແລະ ຈັດຕັ້ງປະຕິບັດແຜນຄຸ້ມຄອງ ແລະ ຕິດຕາມກວດກາ ສິ່ງແວດລ້ອມ-ສັງຄົມ ຊຶ່ງເປັນສ່ວນໜຶ່ງຂອງການປະເມີນຜົນກະທົບດ້ານສິ່ງແວດລ້ອມ-ສັງຄົມຂອງຂໍ້ຕົກລົງສໍາປະທານ.
4	ການກໍ່ສ້າງຊົນລະປະທານ ແລະ ເສັ້ນທາງ	• ການປະສານງານລະຫວ່າງການວາງແຜນນໍາໃຊ້ທີ່ດິນ ແລະ ເປົ້າໝາຍຂອງການພັດທະນາເສດຖະກິດ-ສັງຄົມ ຂາດຄວາມກົມກຽວ ເຮັດໃຫ້ການນໍາໃຊ້ທີ່ດິນບໍ່ມີປະສິດທິພາບ, ການຕິດຕາມກວດກາ ແລະ ປະເມີນຜົນບໍ່ເຂັ້ມງວດ. • ການກໍານົດເຂດຫວງຫ້າມເດັດຂາດໃນເຂດປ່າປ້ອງກັນບໍ່ຈະແຈ້ງ ພາໃຫ້ມີການບຸກລຸກເຂົ້າໃນເຂດປ່າໄມ້. • ການຂຸດຄົ້ນໄມ້ເພື່ອແລກກັບໂຄງການກໍ່ສ້າງເສັ້ນທາງ ມັກຈະຂຸດຄົ້ນເກີນກໍານົດ.	• ປັບປຸງຂອດການປະສານງານຂັ້ນແຂວງ ແລະ ເມືອງ ໃຫ້ມີຄວາມກົມກຽວກັນ ໂດຍສະເພາະການເຊື່ອມໂຍງລະຫວ່າງຂະແໜງຄຸ້ມຄອງນໍາໃຊ້ທີ່ດິນ (ຊົນລະປະທານ ແລະ ເສັ້ນທາງ) ແລະ ຂະແໜງປ່າໄມ້. • ການຄຸ້ມຄອງປ່າໄມ້ໃນເຂດປ່າປ້ອງກັນ.
ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ			
5	ການປູກໄມ້ອຸດສາຫະກໍາໃນເຂດປ່າໄມ້ທໍາມະຊາດ	• ການກໍານົດເຂດປ່າເສື່ອມໂຊມເພື່ອປູກໄມ້ອຸດສາຫະກໍາບໍ່ຈະແຈ້ງ ພາໃຫ້ຍັງມີການບຸກລຸກເຂົ້າເຂດປ່າໄມ້.	• ກໍານົດຄືນ 3 ປະເພດປ່າ ລະດັບຊາດ, ແຂວງ ແລະ ເມືອງ. • ການຄຸ້ມຄອງປ່າໄມ້ໃນເຂດປ່າປ້ອງກັນ.
		• ການຈັດຕັ້ງປະຕິບັດກົດໝາຍ ແລະ ການຕິດຕາມກວດກາການປູກໄມ້ອຸດສາຫະກໍາບໍ່ເຂັ້ມງວດ. ການອະນຸຍາດສໍາປະທານປູກໄມ້ບໍ່ໄປຕາມຂັ້ນຕອນ/ເອກະສານບໍ່ຄົບຖ້ວນ.	• ສືບຕໍ່ປະຕິບັດຄໍາສັ່ງຂອງນາຍົກລັດຖະມົນຕີ ເລກທີ 13/ນຍ ວ່າດ້ວຍການຢຸດຊົ່ວຄາວສໍາປະທານປູກຢາງພາລາ ແລະ ໄມ້ວິກ ຈົນກ່ວາການກໍານົດເຂດສໍາປະທານລະອຽດຈະແຈ້ງ ແລະ ອົງການຈັດຕັ້ງຮັບຜິດຊອບຕ້ອງໄດ້ສ້າງຂຶ້ນ.
6	ການຂຸດຄົ້ນໄມ້ທີ່ບໍ່ຖືກຕ້ອງຕາມກົດໝາຍ	• ການຄຸ້ມຄອງ ແລະ ການນໍາໃຊ້ລະບຽບກົດໝາຍ ສໍາລັບການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍບໍ່ເຂັ້ມງວດ.	• ປູກຈິດສໍານຶກ ແລະ ເຜີຍແຜ່ກົດໝາຍປ່າໄມ້ ແລະ ຂໍ້ກໍານົດກົດລະບຽບທີ່ກ່ຽວຂ້ອງ. • ນໍາໃຊ້ລະບຽບກົດໝາຍກ່ຽວກັບໂທດ້າຂຸດຄົ້ນໄມ້. • ປະຕິບັດຄໍາສັ່ງເລກທີ 15/ນຍ ລວມທັງປິດໂຮງເລື່ອຍ/ໂຮງຊອຍ ທີ່ບໍ່ມີໃບອະນຸຍາດຢ່າງຖືກຕ້ອງ. • ສ້າງລະບົບຕິດຕາມກວດກາການລັກລອບຕັດໄມ້.
		• ຄວາມຕ້ອງການໄມ້ (ໄມ້ທ່ອນ ແລະ ໄມ້ທີ່ຍັງບໍ່ໄດ້ປຸງແຕ່ງ) ຂອງຕະຫຼາດໃນ	• ພັດທະນາ ແລະ ປັບປຸງໃຫ້ທັນສະໄໝ ພ້ອມທັງເພີ່ມມູນຄ່າການປຸງແຕ່ງຜະລິດຕະ

		ພາກພື້ນເພີ່ມຂຶ້ນ.	ພັນໄມ້.
7	ໄຟໄໝ້ລາມປ່າ	· ການຖາງປ່າເຮັດໄຮ່ ໂດຍສະເພາະການຈູດໄຮ່ ເປັນສາເຫດພາໃຫ້ໄຟໄໝ້ລາມປ່າ. · ການຈູດປ່າເພື່ອລ່າສັດ. · ໄຟປ່າເກີດໂດຍບັງເອີນ. · ໄພທຳມະຊາດ.	· ປູກຈິດສຳນຶກ ກ່ຽວກັບການປ້ອງກັນໄຟປ່າ. · ສ້າງລະບົບຕິດຕາມກວດກາ ແລະ ສະກັດກັ້ນໄຟປ່າ.

4. ລາຍລະອຽດນະໂຍບາຍ ແລະ ມາດຕະການຕ່າງໆ(PAMs)

ເພື່ອແກ້ໄຂບັນຫາການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມຈາກສາເຫດຕ່າງໆ ແນໃສ່ເພື່ອຊຸກຍູ້ສິ່ງເສີມການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນຍົງ, ນະໂຍບາຍ ແລະ ມາດຕະການຕ່າງໆ (PAMs) ໄດ້ຖືກກຳນົດຂຶ້ນກວມຫຼາຍຂະແໜງການ ໂດຍຜ່ານຂັ້ນຕອນການປຶກສາຫາລື ຢູ່ ຂັ້ນແຂວງ, ເມືອງ ແລະ ກຸ່ມບ້ານ. ການກຳນົດນະໂຍບາຍ ແລະ ມາດຕະການ ໄດ້ເນັ້ນໃສ່ 1) ການຄຸ້ມຄອງທີ່ດິນແບບຄົບວົງຈອນ, 2) ການຄຸ້ມຄອງປ່າໄມ້ ແລະ 3) ການຄຸ້ມຄອງທາງສັງຄົມ (ຊີວິດການເປັນຢູ່) ເພື່ອບັນລຸຈຸດປະສົງລະດັບຄາດໝາຍຂອງ PRAP.

4.1. ເປົ້າໝາຍຂອງPRAP

ເພື່ອປະກອບສ່ວນເຂົ້າໃນການແກ້ໄຂບັນຫາການປ່ຽນແປງດິນຟ້າອາກາດໃນລະດັບຊາດ ໂດຍການຈັດຕັ້ງປະຕິບັດກິດຈະກຳ REDD+ ຄຽງຄູ່ກັບການປົກປັກຮັກສາປ່າໄມ້, ການບໍລິການລະບົບນິເວດປ່າໄມ້ ແລະ ຊີວະນາໆພັນ , ເພີ່ມທະວີການປັບຕົວເຂົ້າກັບການພັດທະນາທີ່ຕິດພັນກັບການປ່ຽນແປງດິນຟ້າອາກາດ ແນໃສ່ເພື່ອຮັບປະກັນການປັບປຸງຊີວິດການເປັນຢູ່ຂອງປະຊາຊົນໃຫ້ດີຂຶ້ນ.

4.2. ຈຸດປະສົງດ້ານການຄຸ້ມຄອງຂອງPRAP (MOs)

1. ເພື່ອຫຼຸດຜ່ອນການທຳລາຍປ່າໄມ້ໃນພື້ນທີ່ປ່າໄມ້ໃນປະຈຸບັນ.
2. ເພື່ອຫຼຸດຜ່ອນການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມໃນພື້ນທີ່ປ່າໄມ້ໃນປະຈຸບັນ.
3. ເພື່ອຊຸກຍູ້ສິ່ງເສີມປູກໄມ້ຟື້ນຟູປ່າ ໂດຍສະເພາະໃນເຂດທີ່ດິນປ່າໄມ້ທີ່ເສື່ອມໂຊມ.
4. ເພື່ອຊຸກຍູ້ສິ່ງເສີມ ແລະ ຄຸ້ມຄອງການປູກໄມ້ແບບຍືນຍົງ ໃນເຂດທີ່ດິນປ່າໄມ້ທີ່ເສື່ອມໂຊມ.
5. ເພີ່ມທະວີການປັບຕົວຂອງລະບົບນິເວດ ແລະ ປັບປຸງຊີວິດການເປັນຢູ່.

4.3. ລາຍລະອຽດນະໂຍບາຍ ແລະ ມາດຕະການຕ່າງໆ(PAMs)

ອົງປະກອບ 1: ການຄຸ້ມຄອງທີ່ດິນແບບຄົບວົງຈອນ

ດັ່ງທີ່ໄດ້ອະທິບາຍໃນພາກ 3.2 ການທຳລາຍປ່າໄມ້ແມ່ນມາຈາກການນຳໃຊ້ທີ່ດິນເຊັ່ນ: ການຜະລິດກະສິກຳ, ການຂຸດຄົ້ນບໍ່ແຮ່, ການກໍ່ສ້າງພື້ນຖານໂຄງລ່າງລວມທັງການກໍ່ສ້າງເຂື່ອນໄຟຟ້າ ແລະ ເສັ້ນທາງ ຈຶ່ງຈຳເປັນຕ້ອງເພີ່ມທະວີກົນໄກການປະສານງານລະຫວ່າງຂະແໜງການຕ່າງໆທີ່ນຳໃຊ້ທີ່ດິນ ແນໃສ່ເພື່ອຫຼຸດຜ່ອນການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ໃນເຂດປ່າໄມ້ປະຈຸບັນໃນທົ່ວແຂວງ. ນະໂຍບາຍ ແລະ ມາດຕະການ ເພື່ອຄຸ້ມຄອງປ່າໄມ້ແບບປະສົມປະສານ ທີ່ພົວພັນກັບທຸກຂະແໜງການທີ່ນຳໃຊ້ທີ່ດິນແມ່ນສຸມໃສ່ 5 ກິດຈະກຳຫຼັກ ຄື: 1) ການປັບປຸງການວາງແຜນນຳໃຊ້ທີ່ດິນຂັ້ນແຂວງ, 2) ການວາງແຜນນຳໃຊ້ທີ່ດິນແບບມີສ່ວນຮ່ວມ ຢູ່ ຂັ້ນບ້ານ, 3) ການຂຶ້ນທະບຽນທີ່ດິນ ແລະ ອອກໃບຕາດິນ, 4) ການນຳໃຊ້ກົດໝາຍ ແລະ ການຄຸ້ມຄອງການສຳປະທານທີ່ດິນ ແລະ ການຜະລິດຕາມສັນຍາ ສຳລັບການປູກພືດເສດຖະກິດ ແລະ ການປູກໄມ້ອຸດສາຫະກຳ ແລະ 5) ການນຳໃຊ້ກົດໝາຍ ແລະ ການຄຸ້ມຄອງໂຄງການກໍ່ສ້າງພື້ນຖານໂຄງລ່າງ.

ອົງປະກອບຍ່ອຍ 1: ການປັບປຸງການວາງແຜນນຳໃຊ້ທີ່ດິນຂັ້ນແຂວງ

ການປັບປຸງການວາງແຜນນຳໃຊ້ທີ່ດິນຂັ້ນແຂວງ ແລະ ຂັ້ນເມືອງ ແມ່ນຄາດໝາຍທີ່ເປັນບູລິມະສິດຂອງແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມ 5 ປີ ຂອງແຂວງ. ຂັ້ນຕອນການວາງແຜນນຳໃຊ້ທີ່ດິນຮຽກຮ້ອງໃຫ້ຂະແໜງປ່າໄມ້ ແລະ ທຸກຂະແໜງການທີ່ນຳໃຊ້ທີ່ດິນ ຕ້ອງໄດ້ຮ່ວມມື ແລະ ປະສານງານກັນຢ່າງໃກ້ສິດ ແນໃສ່ເພື່ອຮັບປະກັນໃຫ້ການເຄື່ອນໄຫວວຽກງານ ກໍຄືການຈັດຕັ້ງປະຕິບັດກິດຈະກຳຂອງແຕ່ລະຂະແໜງການ ຕ້ອງໄດ້ຫຼີກຫຼ່ຽງການທຳລາຍປ່າໄມ້. ພາຍຫຼັງສຳເລັດການກຳນົດ 3 ປະເພດປ່າຄືນໃໝ່ ແລະ ເຫັນດີເຫັນພ້ອມກັບທຸກຂະແໜງການກ່ຽວຂ້ອງ ຈະເອົາເຂົ້າແຜນຈັດສັນ ແລະ ຄຸ້ມຄອງນຳໃຊ້ທີ່ດິນຂັ້ນແຂວງ.

ອົງປະກອບຍ່ອຍ 2: ການວາງແຜນນຳໃຊ້ທີ່ດິນແບບມີສ່ວນຮ່ວມ ຢູ່ ຂັ້ນບ້ານ

ໃຫ້ການຮ່ວມມືດ້ານວິຊາການ ແລະ ສະໜອງງົບປະມານ ເພື່ອດຳເນີນການວາງແຜນນຳໃຊ້ທີ່ດິນແບບມີສ່ວນຮ່ວມ ຢູ່ ຂັ້ນບ້ານ (PLUP) ແນໃສ່ເພື່ອຄວບຄຸມການນຳໃຊ້ທີ່ດິນຂອງບ້ານບໍ່ໃຫ້ບຸກລຸກເຂົ້າເຂດປ່າໄມ້.

ອົງປະກອບຍ່ອຍ 3:ການຂຶ້ນທະບຽນທີ່ດິນ ແລະ ອອກໃບຕາດິນ

ຊຸກຍູ້ສິ່ງເສີມການຂຶ້ນທະບຽນທີ່ດິນ ແລະ ການອອກໃບຕາດິນ ກໍແມ່ນເປົ້າໝາຍໜຶ່ງທີ່ເປັນບູລິມະສິດໃນແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມ 5 ປີ ຂອງແຂວງ ແລະ ຂະແໜງການຄຸ້ມຄອງທີ່ດິນ. ພະນັກງານລັດຈະໄດ້ຮັບການພັດທະນາຂີດຄວາມສາມາດ ແລະ ສ້າງຈິດສຳນຶກ ເພື່ອເຜີຍແຜ່ສິດນຳໃຊ້ທີ່ດິນ, ຈັດຕັ້ງປະຕິບັດການຂຶ້ນທະບຽນທີ່ດິນ ແລະ ອອກໃບຕາດິນ. ການຮັບຮູ້ສິດນຳໃຊ້ທີ່ດິນ ແລະ ການຈັດສັນທີ່ດິນ ຈະເຮັດໃຫ້ເຈົ້າຂອງທີ່ດິນມີແຮງຈູງໃຈໃນການລົງທຶນໃສ່ກິດຈະກຳໄລຍະຍາວ ແລະ ການນຳໃຊ້ທີ່ດິນມີຄວາມຍືນຍົງ ສາມາດຫຼີກຫຼ່ຽງການບຸກລຸກເຂົ້າໃນເຂດປ່າໄມ້.

ອົງປະກອບຍ່ອຍ 4: ການນຳໃຊ້ກົດໝາຍ ແລະ ການຄຸ້ມຄອງການສຳປະທານທີ່ດິນ ແລະ ການຜະລິດຕາມສັນຍາ ສຳລັບການປູກພືດເສດຖະກິດ ແລະ ການປູກໄມ້ອຸດສາຫະກຳ

ການສຳປະທານທີ່ດິນເພື່ອປູກພືດເສດຖະກິດ ແລະ ປູກໄມ້ອຸດສາຫະກຳທີ່ບໍ່ແທດເໝາະ ໂດຍສະເພາະຂາດການຄົ້ນຄ້ວາພິຈາລະນາຢ່າງຖີ່ຖ້ວນ ກ່ຽວກັບການປົກປ້ອງທາງດ້ານສິ່ງແວດລ້ອມ ແລະ ສັງຄົມ ເຮັດໃຫ້ມີຊ່ອງว่างນຳໄປສູ່ການຖາງປ່າແບບບໍ່ຖືກຕ້ອງ. ຂີດຄວາມສາມາດຂອງພະນັກງານ ແລະ ງົບປະມານບໍ່ພຽງພໍ ເຮັດໃຫ້ຂາດມາດຕະການທີ່ເໝາະສົມໃນການສຳຫຼວດເບື້ອງຕົ້ນກ່ອນການອອກໃບອະນຸຍາດ. ເພື່ອແກ້ໄຂບັນຫາດັ່ງກ່າວ ກ່ອນອື່ນໝົດຕ້ອງໄດ້ເຮັດການປະເມີນລະອຽດ ແລະ ປັບປຸງຄືນກ່ຽວກັບສັນຍາສຳປະທານທີ່ດິນກະສິກຳ ແນໃສ່ເພື່ອຮັບປະກັນບໍ່ໃຫ້ມີການບຸກລຸກເຂົ້າໃນເຂດປ່າໄມ້ ໂດຍອີງໃສ່ກົດໝາຍປ່າໄມ້. ການປູກຈິດສຳນຶກ ແລະ ຝຶກອົບຮົມໃຫ້ພະນັກງານ ຕ້ອງໄດ້ຈັດຕັ້ງປະຕິບັດເພື່ອຄຸ້ມຄອງ ແລະ ຕິດຕາມກວດກາການສຳປະທານທີ່ດິນ ແລະ ການຜະລິດຕາມສັນຍາ ໂດຍອີງໃສ່ເອກະສານທາງດ້ານນິຕິກຳທີ່ປັບປຸງຄືນໃໝ່ ແລະ ຈັດຕັ້ງປະຕິບັດຕົວຈິງກ່ຽວກັບການສຳປະທານ ແລະ ການຜະລິດຕາມສັນຍາ ຢູ່ ແຂວງຫຼວງພະບາງ.

ອົງປະກອບຍ່ອຍ 5:ການນຳໃຊ້ກົດໝາຍ ແລະ ການຄຸ້ມຄອງໂຄງການກໍ່ສ້າງພື້ນຖານໂຄງລ່າງ

ຜ່ານການປຶກສາຫາລືກ່ຽວກັບ PRAP ເຫັນວ່າການສຳປະທານທີ່ດິນຍັງບໍ່ແທດເໝາະ ໂດຍສະເພາະຂາດການຄົ້ນຄ້ວາພິຈາລະນາຢ່າງຖີ່ຖ້ວນ ກ່ຽວກັບການປົກປ້ອງທາງດ້ານສິ່ງແວດລ້ອມ ແລະ ສັງຄົມ ຊຶ່ງນຳໄປສູ່ການຖາງປ່າແບບບໍ່ຖືກຕ້ອງ. ເຖິງແມ່ນວ່າມີນິຕິກຳຮອງຮັບແລ້ວ ແລະ ນິຕິກຳດັ່ງກ່າວແມ່ນເພື່ອຫຼີກຫຼ່ຽງຜົນກະທົບໃນທາງລົບຕໍ່ສິ່ງແວດລ້ອມ-ສັງຄົມ ແຕ່ດ້ານບຸກຄະລະກອນ ແລະ ຂີດຄວາມສາມາດຍັງບໍ່ພຽງພໍ ໃນການນຳໃຊ້ລະບຽບກົດໝາຍ ເພື່ອຕິດຕາມກວດກາປ່າໄມ້ ແລະ ຊັບພະຍາກອນປ່າໄມ້ຢ່າງເໝາະສົມ. ການວາງແຜນ ແລະ ຈັດຕັ້ງປະຕິບັດວຽກງານ ຕິດຕາມກວດກາ ຜ່ານມາສ່ວນໃຫຍ່ແມ່ນຂະແໜງສິ່ງແວດລ້ອມທີ່ຂຶ້ນກັບ ພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ ເປັນຜູ້ຮັບຜິດຊອບ. ເຖິງຢ່າງໃດກໍດີ, ພະແນກກະສິກຳ ແລະ ປ່າໄມ້ ກໍຕ້ອງມີສ່ວນຮ່ວມ ໃນການເພີ່ມທະວີວຽກງານການວາງແຜນ, ຈັດຕັ້ງປະຕິບັດ ແລະ ຕິດຕາມກວດກາການຄຸ້ມຄອງປ່າໄມ້ ພາຍໃຕ້ແຜນຄຸ້ມຄອງ ແລະ ຕິດຕາມກວດກາສິ່ງແວດລ້ອມ-ສັງຄົມ (ESMMP). ສ້າງຈິດສຳນຶກ ແລະ ຝຶກອົບຮົມໃຫ້ພະນັກງານ ໃນການນຳໃຊ້ລະບຽບກົດໝາຍ ແນໃສ່ເພື່ອປັບປຸງຂັ້ນຕອນການປະເມີນຜົນກະທົບດ້ານສິ່ງແວດລ້ອມ-ສັງຄົມ, ການວາງແຜນ ESMM, ຂັ້ນຕອນການປຶກສາຫາລື ແລະ ກົນໄກການຮ້ອງທຸກ ເພື່ອໃຫ້ການພັດທະນາພື້ນຖານໂຄງລ່າງ ຈັດຕັ້ງປະຕິບັດຖືກຕ້ອງຕາມລະບຽບກົດໝາຍ ແລະ ຫຼີກຫຼ່ຽງການທຳລາຍປ່າໄມ້. ພາຍຫຼັງສຳເລັດການພັດທະນາຂີດຄວາມສາມາດແລ້ວ ຕ້ອງໄດ້ທົດລອງຈັດຕັ້ງປະຕິບັດຕົວຈິງ ໃນການສ້າງແຜນ ESMMP, ຈັດຕັ້ງປະຕິບັດ ແລະ ຕິດຕາມກວດກາ ຢູ່ ໂຄງການເຂື່ອນໄຟຟ້າໃດໜຶ່ງທີ່ຈະມີແຜນກໍ່ສ້າງ.

ອົງປະກອບ 1: ການຄຸ້ມຄອງທີ່ດິນແບບຄົບວົງຈອນ

	ນະໂຍບາຍ ແລະ ມາດຕະການ(PAMs)	ລະດັບ	ຄາດໝາຍ
ອົງປະກອບຍ່ອຍ 1: ການປັບປຸງການວາງແຜນນຳໃຊ້ທີ່ດິນຂັ້ນແຂວງ ແລະ ເມືອງ *[MOs:1.2]*			
ກິດຈະກຳ 1.1	ສ້າງກົນໄກການປະສານງານກ່ຽວກັບທີ່ດິນ ໂດຍປະກອບມີກຳມະການຈາກຂະແໜງການ ປ່າໄມ້	ທົ່ວແຂວງ	ຈັດຕັ້ງຄະນະກຳມະການປະສານງານການວາງແຜນນຳໃຊ້ທີ່ດິນຂັ້ນ ແຂວງ
ກິດຈະກຳ 1.2	ສະໜັບສະໜູນດ້ານວິຊາການເພື່ອເຊື່ອມໂຍງ 3 ປະເພດປ່າ ເຂົ້າໃນແຜນຈັດສັນທີ່ດິນຂັ້ນ ແຂວງ, ແຜນນຳໃຊ້ທີ່ດິນ ແລະ ແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມຂອງແຂວງ		ຈັດຝຶກອົບຮົມ 6 ຊຸດ ໃຫ້ພະນັກງານລັດ ເພື່ອໃຫ້ເຂົາເຈົ້າສາມາດວາງ ແຜນນຳໃຊ້ທີ່ດິນໄດ້ດ້ວຍຕົນເອງ
ກິດຈະກຳ 1.3	ຈັດຊື້ຈັດຫາເຄື່ອງມືອຸປະກອນ ເພື່ອສະໜັບສະໜູນການປັບປຸງວຽກງານວາງແຜນນຳໃຊ້ທີ່ດິນ		ສຳເລັດການຈັດຊື້ຈັດຫາ ແລະ ນຳໃຊ້ອຸປະກອນທີ່ຈຳເປັນເພື່ອປັບປຸງ ວຽກງານການວາງແຜນນຳໃຊ້ທີ່ດິນ
ກິດຈະກຳ 1.4	ຈັດຕັ້ງປະຕິບັດການປັບປຸງວຽກງານວາງແຜນນຳໃຊ້ທີ່ດິນຂັ້ນແຂວງ ແລະ ເມືອງ		ສຳເລັດແຜນຈັດສັນ ແລະ ວາງແຜນນຳໃຊ້ທີ່ດິນ ຢູ່ 12 ເມືອງ
ອົງປະກອບຍ່ອຍ 2: ການວາງແຜນນຳໃຊ້ທີ່ດິນແບບມີສ່ວນຮ່ວມຢູ່ຂັ້ນບ້ານ *[MOs:1.2]*			
ກິດຈະກຳ 2.1	ສ້າງຄວາມເຂັ້ມແຂງ ແລະ ຝຶກອົບຮົມໃຫ້ພະນັກງານ ກ່ຽວກັບການວາງແຜນນຳໃຊ້ທີ່ດິນແບບ ມີສ່ວນຮ່ວມ (PLUP)	ທົ່ວແຂວງ	ຈັດຝຶກອົບຮົມ 6 ຊຸດ ກ່ຽວກັບ PLUP ເຮັດໃຫ້ພະນັກງານ ສາມາດ ຈັດຕັ້ງປະຕິບັດການວາງແຜນນຳໃຊ້ທີ່ດິນດ້ວຍຕົນເອງ
ກິດຈະກຳ 2.2	ຈັດຕັ້ງປະຕິບັດການວາງແຜນນຳໃຊ້ທີ່ດິນແບບມີສ່ວນຮ່ວມ ຢູ່ ຂັ້ນບ້ານ		ຈັດຕັ້ງປະຕິບັດການວາງແຜນນຳໃຊ້ທີ່ດິນແບບມີສ່ວນຮ່ວມ ຢູ່ 180 ບ້ານ
ອົງປະກອບຍ່ອຍ 3: ການຂຶ້ນທະບຽນທີ່ດິນ ແລະ ອອກໃບຕາດິນ *[MOs:1.2]*			
ກິດຈະກຳ 3.1	ສ້າງຄວາມເຂັ້ມແຂງ ແລະ ຝຶກອົບຮົມໃຫ້ພະນັກງານ ກ່ຽວກັບຂັ້ນຕອນການຂຶ້ນທະບຽນທີ່ດິນ ແລະ ອອກໃບຕາດິນ	ທົ່ວແຂວງ	ຈັດຝຶກອົບຮົມ 6 ຊຸດໃຫ້ພະນັກງານ ເຮັດໃຫ້ເຂົາເຈົ້າສາມາດຈັດຕັ້ງ ປະຕິບັດການຂຶ້ນທະບຽນທີ່ດິນ ແລະ ອອກໃບຕາດິນດ້ວຍຕົນເອງ
ກິດຈະກຳ 3.2	ຈັດຕັ້ງປະຕິບັດການຂຶ້ນທະບຽນທີ່ດິນ ແລະ ອອກໃບຕາດິນ ຄຽງຄູ່ກັບການສ້າງຈິດສຳນຶກ ແລະ ເຜີຍແຜ່ກົດໝາຍວ່າດ້ວຍທີ່ດິນ, ກົດໝາຍວ່າດ້ວຍການສືບທອດ, ກົດໝາຍວ່າດ້ວຍ ຄອບຄົວ ແລະ ກົດໝາຍອື່ນໆທີ່ກ່ຽວຂ້ອງ		ສຳເລັດການຂຶ້ນທະບຽນທີ່ດິນ ຢູ່ 100 ບ້ານ ແລະ ອອກໃບຕາດິນໃຫ້ ຄອບຄົວທີ່ໄດ້ຂຶ້ນທະບຽນ
ອົງປະກອບຍ່ອຍ 4: ການນຳໃຊ້ກົດໝາຍ ແລະ ການຄຸ້ມຄອງສຳປະທານທີ່ດິນ ແລະ ການຜະລິດຕາມສັນຍາສຳລັບການປູກພືດເສດຖະກິດ ແລະ ການປູກໄມ້ *[MOs:1]*			
ກິດຈະກຳ 4.1	ກວດກາລະອຽດການສຳປະທານທີ່ດິນ ແລະ ການຜະລິດຕາມສັນຍາໃນປະຈຸບັນ ສຳລັບການ ປູກພືດເສດຖະກິດ ແລະ ປູກໄມ້ໃນທົ່ວແຂວງ	ທົ່ວແຂວງ	ສຳເລັດການທົບທວນລະອຽດ ກ່ຽວກັບການສຳປະທານທີ່ດິນ ແລະ ການຜະລິດຕາມສັນຍາໃນປະຈຸບັນ ລວມທັງນະ�โยบาย, ກົດໝາຍ ແລະ ຂີດຄວາມສາມາດຂອງພະນັກງານ. ສາມາດກຳນົດຊ່ອງว่าง ແລະ ວາງແນວທາງໃນການແກ້ໄຂ.

ກິດຈະກຳ 4.2	ສ້າງຄວາມເຂັ້ມແຂງ ແລະ ຝຶກອົບຮົມໃຫ້ພະນັກງານ ກ່ຽວກັບຂັ້ນຕອນການອະນຸມັດ ແລະ ຕິດຕາມກວດກາການສຳປະທານທີ່ດິນ ແລະ ການຜະລິດຕາມສັນຍາ		ຈັດຝຶກອົບຮົມ 6 ຊຸດ ໃຫ້ພະນັກງານ ເຮັດໃຫ້ເຂົາເຈົ້າສາມາດຈັດຕັ້ງປະຕິບັດໄດ້ດ້ວຍຕົນເອງ
ກິດຈະກຳ 4.3	ຄຸ້ມຄອງ ແລະ ຕິດຕາມກວດກາການສຳປະທານທີ່ດິນ ແລະ ການຜະລິດຕາມສັນຍາ ຢູ່ ຈຸດທົດລອງຂອງແຂວງຫຼວງພະບາງ		ສຳເລັດສ້າງແຜນຕິດຕາມກວດກາ ແລະ ຈັດຕັ້ງປະຕິບັດ ຢູ່ ຈຸດທົດລອງ
ອົງປະກອບຍ່ອຍ 5: ການນຳໃຊ້ກົດໝາຍ ແລະ ການຄຸ້ມຄອງໂຄງການກໍ່ສ້າງພື້ນຖານໂຄງລ່າງ *[MOs:1]*			
ກິດຈະກຳ 5.1	ສ້າງຈິດສຳນຶກໃຫ້ພະນັກງານແຂວງ ແລະ ເມືອງ ກ່ຽວກັບການນຳໃຊ້ກົດໝາຍປ່າໄມ້, ການຄຸ້ມຄອງ ແລະ REDD+	ທົ່ວແຂວງ	ສ້າງຈິດສຳນຶກໃຫ້ພະນັກງານແຂວງ ແລະ ເມືອງ 26 ຊຸດ
ກິດຈະກຳ 5.2	ສ້າງຄວາມເຂັ້ມແຂງ ແລະ ຝຶກອົບຮົມກ່ຽວກັບການປະເມີນຜົນກະທົບດ້ານສິ່ງແວດລ້ອມ ແລະ ສັງຄົມ (ESMMP) ໃນຂັ້ນຕອນການວາງແຜນໂຄງການກໍ່ສ້າງພື້ນຖານໂຄງລ່າງ		ຝຶກອົບຮົມ 26 ຊຸດ ເຮັດໃຫ້ພະນັກງານລັດສາມາດອອກແບບແຜນຄຸ້ມຄອງ ແລະ ຕິດຕາມກວດກາຜົນກະທົບດ້ານສິ່ງແວດລ້ອມ ແລະ ສັງຄົມ (ESMMP) ສຳລັບໂຄງການກໍ່ສ້າງພື້ນຖານໂຄງລ່າງ
ກິດຈະກຳ 5.3	ສ້າງຄວາມເຂັ້ມແຂງ ແລະ ຝຶກອົບຮົມໃຫ້ພະນັກງານ ກ່ຽວກັບຂັ້ນຕອນການປຶກສາຫາລືແບບມີສ່ວນຮ່ວມ ແລະ ກົນໄກການຮ້ອງທຸກສຳລັບໂຄງການ		ຝຶກອົບຮົມ 26 ຊຸດ ເຮັດໃຫ້ພະນັກງານ ສາມາດດຳເນີນການປຶກສາຫາລື ແລະ ສ້າງກົນໄກການຮ້ອງທຸກໄດ້ດ້ວຍຕົນເອງ
ກິດຈະກຳ 5.4	ທົດລອງວາງແຜນ ແລະ ຈັດຕັ້ງປະຕິບັດແຜນຄຸ້ມຄອງ ແລະ ຕິດຕາມກວດກາຜົນກະທົບດ້ານສິ່ງແວດລ້ອມ ແລະ ສັງຄົມ ໃນໂຄງການກໍ່ສ້າງເຂື່ອນໄຟຟ້າທີ່ຄັດເລືອກເພື່ອທົດລອງ		ແຜນ ESMMP ຖືກສ້າງຂຶ້ນ ແລະ ທົດລອງຈັດຕັ້ງປະຕິບັດ ຢູ່ ໂຄງການກໍ່ສ້າງເຂື່ອນໄຟຟ້າ

ອົງປະກອບ 2 ການຄຸ້ມຄອງປ່າໄມ້

ການຮັບປະກັນການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນຍົງ ໄດ້ຖືກສະເໜີໃຫ້ເປັນນະ�โยบาย ແລະ ມາດຕະການທີ່ມີລັກສະນະຕັດສິນຊີ້ຂາດ ເພື່ອບັນລຸຈຸດປະສົງລະດັບຄາດໝາຍຂອງ PRAP. ນະ�โยบาย ແລະ ມາດຕະການ ຂອງຂະແໜງປ່າໄມ້ແມ່ນອົງປະກອບຫຼັກຂອງ PRAP ຊຶ່ງໃນນັ້ນລວມມີ: 1) ການກຳນົດຄືນ 3 ປະເພດປ່າ ໃນລະດັບຊາດ, ແຂວງ ແລະ ເມືອງ, 2) ການຄຸ້ມຄອງແບບພູມິທັດໃນເຂດປ່າປ້ອງກັນ, 3) ການຄຸ້ມຄອງປ່າໄມ້ບ້ານ, 4) ການປູກໄມ້ ແລະ ຟື້ນຟູປ່າໄມ້, 5) ການປ້ອງກັນໄຟໄໝ້ລາມປ່າ, 6) ການຄຸ້ມຄອງການປູກໄມ້ສັກແບບຍືນຍົງ ແລະ ປັບປຸງຕ່ອງໂສ້ມູນຄ່າ, 7) ການນຳໃຊ້ກົດໝາຍ ແລະ ການຄຸ້ມຄອງການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍ ແລະ 8) ການຈ່າຍຄ່າບໍລິການສິ່ງແວດລ້ອມ/ລະບົບນິເວດປ່າໄມ້. ເນື່ອງຈາກວ່າເນື້ອທີ່ ແລະ ອັດຕາຂອງການທຳລາຍປ່າໄມ້ຂ້ອນຂ້າງສູງ ເຂດປ່າປ້ອງກັນ ແລະ ເນື້ອທີ່ປ່າໄມ້ທີ່ຍັງບໍ່ທັນຈັດສັນ (ນອກ 3 ປະເພດປ່າ) ຈຶ່ງຖືເປັນເຂດບູລິມະສິດສຳລັບການຈັດຕັ້ງປະຕິບັດນະ�โยบาย ແລະ ມາດຕະການ (PAMs) ເພື່ອຄຸ້ມຄອງປ່າໄມ້.

ອົງປະກອບຍ່ອຍ1: ການກຳນົດ/ກວດກາຄືນ 3 ປະເພດປ່າໃນລະດັບຊາດ,ແຂວງ ແລະ ເມືອງ,ແບບພູມິທັດ

ການຄຸ້ມຄອງ 3 ປະເພດປ່າແບບຍືນຍົງ ຢູ່ ແຂວງຫຼວງພະບາງ ຜ່ານມາກໍໄດ້ຮັບການຊຸກຍູ້ສົ່ງເສີມຢ່າງເປັນປົກກະຕິ. ເຖິງຢ່າງໃດກໍດີ, ຂະແໜງການຕ່າງໆທີ່ນຳໃຊ້ທີ່ດິນລວມທັງຂະແໜງກະສິກຳ, ເຂື່ອນໄຟຟ້າ, ບໍ່ແຮ່ ຜ່ານມາກໍໄດ້ວາງແຜນ ແລະ ດຳເນີນກິດຈະການໃນ 3 ປະເພດປ່າມາແລ້ວ ແລະ ກິດຈະກຳເຫຼົ່ານັ້ນກໍເປັນສາເຫດຂອງການທຳລາຍປ່າໄມ້ພາຍໃນແຂວງ. ການກຳນົດຂອບເຂດຂອງ 3 ປະເພດປ່າບໍ່ຈະແจ້ງ ໂດຍສະເພາະຂອບເຂດປ່າປ້ອງກັນ ຈຶ່ງເປັນອຸປະສັກອັນໃຫຍ່ຫຼວງໃນການວາງແຜນຄຸ້ມຄອງແບບປະສົມປະສານໃນລະດັບແຂວງ ແລະ ເມືອງ. ໃນປີ 2015, ສະພາແຫ່ງຊາດໄດ້ສະເໜີໃຫ້ບັນດາກະຊວງກ່ຽວຂ້ອງທົບທວນ ແລະ ກຳນົດຄືນ 3 ປະເພດປ່າໃນຂອບເຂດທົ່ວປະເທດ ເນື່ອງຈາກວ່າການຈັດສັນໃນປະຈຸບັນຍັງບໍ່ຖືກຕ້ອງຕາມສະພາບຄວາມເປັນຈິງຂອງແຕ່ລະທ້ອງຖິ່ນ. ສະນັ້ນ, ຈຶ່ງມີແຜນສະໜັບສະໜູນ: 1) ຈັດຕັ້ງຄະນະຮັບຜິດຊອບແຕ່ລະປະເພດປ່າ ແນໃສ່ເພື່ອຮັບປະກັນໃຫ້ມີໜ່ວຍງານຮັບຜິດຊອບຄຸ້ມຄອງຢ່າງຄັກແນ່ ແລະ 2) ທົບທວນ/ກຳນົດຄືນ 3 ປະເພດປ່າ ໂດຍສົມທົບປຶກສາຫາລືກັບຂະແໜງການອື່ນທີ່ນຳໃຊ້ທີ່ດິນ.
ຂໍ້ມູນດ້ານພູມສັນຖານຂອງ 3 ປະເພດປ່າ ໂດຍສະເພາະປ່າປ້ອງກັນ ບໍ່ສອດຄ່ອງກັນ ຢູ່ ຂັ້ນສູນກາງ, ແຂວງ ແລະ ເມືອງ ຊຶ່ງເປັນອຸປະສັກໜຶ່ງໃນການສ້າງແຜນນຳໃຊ້ທີ່ດິນ ແລະ ແຜນຄຸ້ມຄອງປ່າໄມ້ແບບປະສົມປະສານ ຕະຫຼອດຮອດຂອດການປະສານງານກັບຂະແໜງການກ່ຽວຂ້ອງທີ່ນຳໃຊ້ທີ່ດິນແມ່ນຫຍຸ້ງຍາກພໍສົມຄວນ. ໜ່ວຍງານຄຸ້ມຄອງ ແລະ ຖານຂໍ້ມູນຂ່າວສານປ່າໄມ້ ຢູ່ ພະແນກກະສິກຳ ແລະ ປ່າໄມ້ແຂວງໄດ້ຖືກສ້າງຂຶ້ນ ເພື່ອຄຸ້ມຄອງຮັກສາຂໍ້ມູນກ່ຽວກັບພູມສັນຖານ ແລະ ເນື້ອທີ່ປ່າໄມ້ໃນທົ່ວແຂວງ ແລະ ມີແຜນສ້າງພະນັກງານ ພ້ອມຈັດຊື້ອຸປະກອນ ເພື່ອຄຸ້ມຄອງຂໍ້ມູນຂ່າວສານດັ່ງກ່າວ.

ອົງປະກອບຍ່ອຍ 2 ການຄຸ້ມຄອງປ່າໄມ້ແບບພູມິທັດໃນເຂດປ່າປ້ອງກັນ

ນະ�โยบาย ແລະ ມາດຕະການໜຶ່ງທີ່ສຳຄັນ ແມ່ນການເພີ່ມທະວີການຄຸ້ມຄອງປ່າປ້ອງກັນ. ເນື້ອທີ່ປ່າປ້ອງກັນຂອງແຂວງຫຼວງພະບາງ ກວມ 61.4% ຂອງເນື້ອທີ່ທັງໝົດຂອງແຂວງ ຫຼື 60.4% ຂອງເນື້ອທີ່ປ່າໄມ້ທັງໝົດໃນປະຈຸບັນ. ຍ້ອນເນື້ອທີ່ປ່າປ້ອງກັນມີຢ່າງຫຼວງຫຼາຍ ຈຶ່ງມີການເຄື່ອນໄຫວຂອງຫຼາຍໆກິດຈະກຳໃນຫຼາຍຂະແໜງການທີ່ແຕກຕ່າງກັນເຊັ່ນ: ກະສິກຳ, ບໍ່ແຮ່, ເຂື່ອນໄຟຟ້າ ເປັນຕົ້ນ ໃນນັ້ນບາງກິດຈະກຳແມ່ນໄດ້ຂຶ້ນແຜນ ແລະ ບາງກິດຈະກຳແມ່ນດຳເນີນແລ້ວ. ສະນັ້ນ, ການເຊື່ອມໂຍງເຂົ້າກັບຂະແໜງການຕ່າງໆທີ່ກ່ຽວຂ້ອງຕ້ອງໄດ້ລະມັດລະວັງ ເພື່ອຮັບປະກັນວິທີການ ແລະ ຈຸດໃດທີ່ຈະຈັດຕັ້ງປະຕິບັດກິດຈະກຳເພື່ອຫຼຸດຜ່ອນການທຳລາຍປ່າໄມ້ໄດ້. ການວາງແຜນຄຸ້ມຄອງປ່າປ້ອງກັນແບບພູມິທັດ ແມ່ນມີຄວາມຈຳເປັນເພື່ອຮັບປະກັນໃຫ້ການປະສານງານ ແລະ ການເຊື່ອມໂຍງເຂົ້າກັນຂອງຂະແໜງການກ່ຽວຂ້ອງ ສາມາດດຳເນີນໄປໄດ້ຢ່າງກົມກຽວກັນ ໂດຍສະເພາະໃນຂັ້ນຕອນຂອງການວາງແຜນ. ຄະນະກຳມະການປະສານງານຈາກຂະແໜງການກ່ຽວຂ້ອງ ສຳລັບປ່າປ້ອງກັນ ຕ້ອງໄດ້ຮັບການຈັດຕັ້ງຂຶ້ນ ເພື່ອຄຸ້ມຄອງ ແລະ ຈັດຕັ້ງປະຕິບັດຕົວຈິງໃນເຂດປ່າປ້ອງກັນທີ່ເປັນບູລິມະສິດ.

ອົງປະກອບຍ່ອຍ 3 ການຄຸ້ມຄອງປ່າໄມ້ບ້ານ

ຂະບວນການພັດທະນາປ່າໄມ້ບ້ານຢູ່ ສປປ ລາວ ແມ່ນໄດ້ລະບຸໄວ້ໃນນິຕິກຳກ່ຽວກັບການຄຸ້ມຄອງທີ່ດິນ ແລະ ຊັບພະຍາກອນທຳມະຊາດ. ລັດຖະບານມີນະ�โยบายຊຸກຍູ້ສົ່ງເສີມການວາງແຜນຄຸ້ມຄອງນຳໃຊ້ທີ່ດິນ ແລະ ປ່າໄມ້ ຢູ່ ຂັ້ນບ້ານ , ການຈັດສັນ ແລະ ມອບດິນ-ມອບປ່າໂດຍມີເປົ້າໝາຍຊຸກຍູ້ການຄຸ້ມຄອງຊັບພະຍາກອນທຳມະຊາດ ລວມທັງທີ່ດິນປ່າໄມ້ໂດຍແມ່ນປະຊາຊົນເປັນເຈົ້າການ. ສາເຫດຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມ�โຊມນັ້ນ ສ່ວນໃຫຍ່ແມ່ນຕິດພັນກັບການນຳໃຊ້ທີ່ດິນ ແລະ ປ່າໄມ້ຂອງທ້ອງຖິ່ນ. ສະນັ້ນ, ການຄຸ້ມຄອງປ່າໄມ້ໂດຍປະຊາຊົນເປັນເຈົ້ານັ້ນຈຶ່ງແມ່ນບູລິມະສິດໜຶ່ງຂອງ PAM ພາຍໃຕ້ກອບຂອງ PRAP. ແຂວງຫຼວງພະບາງ ແມ່ນແຂວງທົດລອງໜຶ່ງສຳລັບວຽກງານມອບດິນ-ມອບປ່ານັບແຕ່ຊຸມປີ 1990 ເປັນຕົ້ນມາຊຶ່ງອົງການ SIDA, JICA ແລະ SDC ເຄີຍໃຫ້ການສະໜັບສະໜູນຊ່ວຍເຫຼືອໃນການວາງແຜນນຳໃຊ້ທີ່ດິນ ແລະ ຄຸ້ມຄອງປ່າໄມ້ບ້ານ ລວມທັງການປັບປຸງຊີວິດການເປັນຢູ່ໃນຫຼາຍທົດສະຫວັດຜ່ານມາ.

�โຄງການຄຸ້ມຄອງປ່າໄມ້ບ້ານ ຄາດວ່າຈະເລີ່ມລົງມື ຢູ່ ເມືອງໂພນໄຊ, ແຂວງຫຼວງພະບາງ ໃນປີ 2018 �โດຍການສະໜັບສະໜູນຈາກອົງການ kfw ຂອງເຢັຍລະມັນ. ແນວຄວາມຄິດຂອງ�โຄງການດັ່ງກ່າວ ແມ່ນຈະສ້າງຕົວແບບ ແລະ ແນວທາງ ເພື່ອເພີ່ມທະວີການຄຸ້ມຄອງປ່າໄມ້ບ້ານ ແນໃສ່ເພື່ອປະກອບສ່ວນແກ້ໄຂບັນຫາການປ່ຽນແປງດິນຟ້າອາກາດ �โດຍອີງໃສ່ບົດຮຽນ ແລະ ປະສົບການຜ່ານມາ ໃນການຄຸ້ມຄອງປ່າໄມ້ບ້ານ ຢູ່ ພາຍໃນແຂວງ.

ອົງປະກອບຍ່ອຍ 4 ການປູກໄມ້ ແລະ ການຟື້ນຟູປ່າ

ການຊຸກຍູ້ສົ່ງເສີມປູກໄມ້ ແລະ ຟື້ນຟູປ່າໃນເຂດປ່າໄມ້ທີ່ເສື່ອມ�โຊມ ແມ່ນກິດຈະກຳໜຶ່ງທີ່ເປັນບູລິມະສິດໃນແຜນພັດທະນາເສດຖະກິດ ແລະ ສັງຄົມຂອງແຂວງ. ເຖິງຢ່າງໃດກໍດີ, ການກຳນົດຂອບເຂດປ່າເສື່ອມ�โຊມເພື່ອປູກໄມ້ບໍ່ຈະແຈ້ງ ອາດເຮັດໃຫ້ມີການບຸກລຸກເຂົ້າໃນເຂດປ່າໄມ້ອີກ. ເພື່ອຊຸກຍູ້ວຽກງານປູກໄມ້ຟື້ນຟູປ່າໃຫ້ໄດ້ຮັບຜົນ ຕ້ອງສ້າງສະພາບແວດລ້ອມທີ່ເອື້ອອຳນວຍຊຶ່ງ PRAP ຈະຊ່ວຍສະໜັບສະໜູນການປະເມີນຄວາມເປັນໄປໄດ້ໃນການຟື້ນຟູບູລະນະປ່າໄມ້ ແລະ ຊຸກຍູ້�โດຍທາງກົງໃນການປູກໄມ້ຟື້ນຟູປ່າໃນເຂດປ່າໄມ້ທີ່ເສື່ອມ�โຊມ.

ອົງປະກອບຍ່ອຍ 5 ການປ້ອງກັນໄຟໄໝ້ລາມປ່າ

ອົງໃສ່ຜົນຂອງການປຶກສາຫາລື ຢູ່ ລະດັບແຂວງ ແລະ ເມືອງ ບັນຫາໄຟໄໝ້ລາມປ່າໃນແຕ່ລະປີ ແມ່ນບັນຫາໜຶ່ງທີ່ຈະຕ້ອງໄດ້ປ້ອງກັນ ເພື່ອຊ່ວຍຫຼຸດຜ່ອນການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມ�โຊມ. ຮອດທ້າຍລະດູແລ້ງຂອງທຸກໆປີ ແລະ ເຂົ້າສູ່ລະດູການປູກຝັງ ຕ້ອງໄດ້ສ້າງຈິດສຳນຶກໃຫ້ປະຊາຊົນໃນການປ້ອງກັນບໍ່ໃຫ້ເກີດໄຟໄໝ້ລາມປ່າ ແລະ ສອນວິທີເຮັດແລວກັນໄຟ �โດຍສະເພາະຈຸດທີ່ຫຼໍ່ແຫຼມ. ການກວດກາລາດຕະເວນຂອບເຂດປ່າໄມ້ຂອງບ້ານແມ່ນມີຄວາມຈຳເປັນ ເພື່ອປ້ອງກັນໄຟປ່າ. ການສ້າງຈິດສຳນຶກກ່ຽວກັບການປ້ອງກັນໄຟໄໝ້ລາມປ່າ ແລະ ການສ້າງລະບົບຕິດຕາມກວດກາ ແມ່ນຈຳເປັນຕ້ອງໄດ້ມີແຜນສະໜັບສະໜູນ.

ອົງປະກອບຍ່ອຍ 6 ການຄຸ້ມຄອງສວນປູກໄມ້ສັກ ແລະ ການປັບປຸງຕ່ອງ�โສ້ມູນຄ່າ

ສວນປູກໄມ້ສັກເພີ່ມຂຶ້ນຢ່າງໄວວາເລີ່ມແຕ່ປີ 1990 ເປັນຕົ້ນມາ ພາຍຫຼັງທີ່ລັດຖະບານມີນະ�โยบายທົບທວນສິດຖືຄອງ ແລະ ນຳໃຊ້ທີ່ດິນ ແລະ ຊຸກຍູ້ສົ່ງເສີມການປູກໄມ້ສັກເພື່ອທົດແທນການຖາງປ່າເຮັດໄຮ່ແບບເລື່ອນລອຍ. ການຊຸກຍູ້ສົ່ງເສີມປູກໄມ້ສັກ ກໍມີທ່າແຮງໃນການປັບປຸງຊີວິດການເປັນຢູ່ຂອງປະຊາຊົນໃນເຂດຊົນນະບົດໃຫ້ດີຂຶ້ນ. ແຕ່ປີ 2008 ເປັນຕົ້ນມາ, �โຄງການຄຸ້ມຄອງໄມ້ສັກຫຼວງພະບາງ (LPTP) ກໍມີການຊຸກຍູ້ສົ່ງເສີມປູກ ແລະ ຈັດສັນຄຸ້ມຄອງໄມ້ສັກ ຢູ່ ແຂວງຫຼວງພະບາງ ຕະຫຼອດມາ. ເພື່ອເພີ່ມລາຍຮັບໃຫ້ຊາວກະສິກອນປູກໄມ້ສັກ �โຄງການໄດ້ຊ່ວຍແນະນຳໃນການຈັດຕັ້ງເປັນກຸ່ມ ເພື່ອເຂົ້າຫາຕະຫຼາດທີ່ມີການຮັບຮອງໄດ້ງ່າຍຂຶ້ນ. ອົງການສາກົນ ອອກໃບຢັ້ງຢືນປ່າໄມ້ ຫຼື FSC ກໍໄດ້ທົດລອງຈັດສັນສວນປູກໄມ້ສັກ ເພື່ອອອກໃບຢັ້ງຢືນ ແລະ ໄດ້ປະສົບຜົນສຳເລັດໃນລະດັບໜຶ່ງທີ່ໜ້າເພິ່ງພໍໃຈ ເຮັດໃຫ້ສວນປູກໄມ້ສັກໄດ້ຮັບການຈັດສັນຄຸ້ມຄອງຢ່າງຖືກຕ້ອງຕາມຫຼັກວິຊາການ ແລະ ສິ່ງແວດລ້ອມໄດ້ຮັບການປົກປັກຮັກສາ ແລະ ປັບປຸງດີຂຶ້ນ. ນອກນັ້ນ, �โຄງການຍັງສ້າງຈິດສຳນຶກໃຫ້ພະນັກງານ ແລະ ຊາວກະສິກອນປູກໄມ້ສັກ ກ່ຽວກັບການຄຸ້ມຄອງ

ປ່າໄມ້ ແລະ ສິ່ງແວດລ້ອມ, ການອອກໃບຢັ້ງຢືນ FSC, ຕະຫຼາດໄມ້ສັກ ແລະ ການຈຳໜ່າຍ. PRAP ສະໜັບສະໜູນຍົກລະດັບຕົວແບບທີ່ໂຄງການ LPTP ໄດ້ສ້າງຂຶ້ນ ໂດຍແຜ່ຂະຫຍາຍອອກໄປສູ່ເມືອງອື່ນໆດ້ວຍການສະໜັບສະໜູນດ້ານເຕັກນິກວິຊາການ ແລະ ງົບປະມານ ເພື່ອຊຸກຍູ້ສິ່ງເສີມຫົວໜ່ວຍທຸລະກິດຂະໜາດນ້ອຍໃນການເພີ່ມມູນຄ່າໃຫ້ຜະລິດຕະພັນໄມ້ສັກປູກ.

ອົງປະກອບຍ່ອຍ 7: ການນຳໃຊ້ກົດໝາຍ ແລະ ການຄຸ້ມຄອງການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍ

ການຕັດໄມ້ທີ່ບໍ່ຖືກຕ້ອງຕາມກົດໝາຍແມ່ນສາເຫດສຳຄັນໜຶ່ງຂອງການທຳລາຍປ່າໄມ້. ໃນກອງປະຊຸມປຶກສາຫາລືໄດ້ຍົກບັນຫາການຕັດໄມ້ທີ່ບໍ່ຖືກຕ້ອງຕາມກົດໝາຍ ແລະ ສະແດງຄວາມເປັນຫ່ວງຕໍ່ບັນຫາດັ່ງກ່າວ ໂດຍສະເພາະໃນບາງໂຄງການສ້າງເຂື່ອນໄຟຟ້າ ມີການຕັດເກີນຈຳນວນທີ່ທາງການອະນຸມັດເປັນຕົ້ນແມ່ນຕັດນອກເຂດນ້ຳຖ້ວມ. ຄຳສັ່ງເລກທີ 15/ນຍ ລົງວັນທີ 13 ພຶດສະພາ 2016 ແລະ ຄະນະກຳມະການຮັບຜິດຊອບຈັດຕັ້ງປະຕິບັດຄຳສັ່ງດັ່ງກ່າວ ຢູ່ ຂັ້ນແຂວງ ຊຶ່ງມາຈາກຫຼາຍຂະແໜງການ ໄດ້ຮັບການສ້າງຕັ້ງຂຶ້ນເພື່ອເພີ່ມທະວີການບັງຄັບໃຊ້ກົດໝາຍສຳລັບການຂຸດຄົ້ນໄມ້. ກົດຈະກຳທີ່ມີລັກສະນະສະເພາະໃນບັນດານະໂຍບາຍ ແລະ ມາດຕະການ (PAM) ຊຶ່ງສອດຄ່ອງກັບແຜນການ 5 ປີ ຂອງກົມກວດກາປ່າໄມ້ ມີການສະໜັບສະໜູນວຽກງານສ້າງຄວາມເຂັ້ມແຂງໃຫ້ອຳນາດການປົກຄອງທ້ອງຖິ່ນ ແລະ ທີມງານລາດຕະເວນຊຶ່ງມາຈາກປ່າໄມ້ບ້ານ ເພື່ອກວດສອບ ແລະ ຕິດຕາມກວດກາການຂຸດຄົ້ນໄມ້ໃຫ້ຖືກລະບຽບ ລວມທັງການປຸງແຕ່ງ ແລະ ຈຳໜ່າຍໄມ້.

ອົງປະກອບຍ່ອຍ 8: ການຈ່າຍຄ່າບໍລິການລະບົບນິເວດປ່າໄມ້

ການສະໜອງທຶນໃຫ້ຂະແໜງປ່າໄມ້ແບບຍາວນານ ເປັນປັດໄຈສຳຄັນໜຶ່ງເພື່ອຜ່ານຜ່າອຸປະສັກທາງດ້ານການເງິນ ໂດຍສະເພາະແມ່ນການຂາດແຄນງົບປະມານ ຢູ່ ສປປ ລາວ ເວົ້າລວມ ໃນນັ້ນ ຫຼວງພະບາງ ກໍແມ່ນແຂວງໜຶ່ງທີ່ພົບພໍ້ກັບບັນຫາຂໍ້ຫຍຸ້ງຍາກດັ່ງກ່າວ. ທິດທາງໃນການກຳນົດນະ�โยบายເພື່ອຜ່ານຜ່າຂໍ້ຫຍຸ້ງຍາກດັ່ງກ່າວ ທາງລັດຖະບານກໍມີທິດທາງທີ່ຊັດເຈນແລ້ວ. ດຳລັດເລກທີ 333/ນຍ ກ່ຽວກັບປ່າປ້ອງກັນໄດ້ລະບຸໄວ້ວ່າ ທຸກພາກສ່ວນທີ່ນຳໃຊ້ປ່າໄມ້ເຊັ່ນ: ໂຄງການເຂື່ອນໄຟຟ້າ ແລະ ບໍລິສັດທ່ອງທ່ຽວທຳມະຊາດ ຕ້ອງໄດ້ປະກອບສ່ວນດ້ານທຶນຮອນເຂົ້າໃນກອງທຶນພັດທະນາປ່າໄມ້ ແລະ ຊັບພະຍາກອນປ່າໄມ້. ແຕ່ກໍມີບາງກໍລະນີທີ່ກ້າວກະໂດດເຊັ່ນ: ບາງໂຄງການສ້າງເຂື່ອນໄຟຟ້າ ແລະ ບໍລິສັດນ້ຳປາປາ ໄດ້ຕື່ນຕົວຈ່າຍຄ່າບໍລິການລະບົບນິເວດປ່າໄມ້ ເພື່ອປະກອບສ່ວນດ້ານທຶນຮອນໃນການຄຸ້ມຄອງເຂດຮັກສາແຫຼ່ງນ້ຳ. ເຖິງຢ່າງໃດກໍດີ, ກໍລະນີທີ່ໂດດເດັ່ນດັ່ງນີ້ກໍບໍ່ຄ່ອຍມີ ສ່ວນຫຼາຍໂຄງການສ້າງເຂື່ອນໄຟຟ້າ, ບໍລິສັດນ້ຳປາປາ ແລະ ບໍລິສັດທ່ອງທ່ຽວທຳມະຊາດ ບໍ່ປະກົດມີແຜນຈ່າຍຄ່າບໍລິການລະບົບນິເວດປ່າໄມ້ (PFES) ໂດຍນຳໃຊ້ກົນໄກນີ້ເລີຍ. ການສຶກສາຄວາມເປັນໄປໄດ້ ກ່ຽວກັບກົນໄກ PFES ຢູ່ ຫຼວງພະບາງ ໄດ້ຖືກດຳເນີນ ແລະ ມີແຜນຊຸກຍູ້ທົດລອງຈັດຕັ້ງປະຕິບັດກົດຈະກຳກ່ຽວກັບກົນໄກ PFES ກັບວິສາຫະກິດຕ່າງໆເປັນຕົ້ນແມ່ນບໍລິສັດນ້ຳປາປາ, ໂຄງການສ້າງເຂື່ອນໄຟຟ້າ ແລະ ບໍລິສັດທ່ອງທ່ຽວທຳມະຊາດ.

ອົງປະກອບ 2: ການຄຸ້ມຄອງປ່າໄມ້

	ນະໂຍບາຍ ແລະ ມາດຕະການ (PAMs)	ລະດັບ	ຄາດໝາຍ
ອົງປະກອບຍ່ອຍ 1: ການກຳນົດ/ກວດກາຄືນ 3 ປະເພດປ່າ ໃນລະດັບຊາດ, ແຂວງ ແລະ ເມືອງແບບພູມີທັດ *[MOs:1.2]*			
ກິດຈະກຳ 1.1	ຈັດຕັ້ງຄະນະກຳມະການຄຸ້ມຄອງ 3 ປະເພດປ່າ ໂດຍມາຈາກຂະແໜງການຕ່າງໆທີ່ກ່ຽວຂ້ອງ	ທົ່ວແຂວງ	ຄະນະກຳມະການຄຸ້ມຄອງປ່າສະຫງວນ, ປ່າປ້ອງກັນ ແລະ ປ່າຜະລິດ ລະດັບຊາດ ແຂວງ ແລະ ເມືອງ ຈຳນວນ 24 ແຫ່ງ ໄດ້ຮັບການສ້າງຕັ້ງຂຶ້ນ
ກິດຈະກຳ 1.2	ປະເມີນລະອຽດເນື້ອທີ່ດິນ, ເນື້ອທີ່ສຳປະທານ, ແຫຼ່ງນ້ຳ, ເຂດເຊື່ອມຕໍ່ຊີວະນາງພັນ ແລະ ການບໍລິການລະບົບນິເວດປ່າໄມ້ອື່ນໆທີ່ຢູ່ພາຍໃນ ແລະ ອ້ອມຂ້າງ 3 ປະເພດປ່າ		ສຳເລັດການປະເມີນປ່າສະຫງວນ, ປ່າປ້ອງກັນ ແລະ ປ່າຜະລິດ ລະດັບຊາດ, ແຂວງ ແລະ ເມືອງ ຈຳນວນ 24 ແຫ່ງ
ກິດຈະກຳ 1.3	ສ້າງແຜນທີ່ເນື້ອທີ່/ການນຳໃຊ້ທີ່ດິນໃນ 3 ປະເພດປ່າ ອີງໃສ່ຜົນຂອງການປະເມີນໃນ ກິດຈະກຳ 1.2		ສຳເລັດສ້າງແຜນທີ່ການນຳໃຊ້ທີ່ດິນຂອງປ່າສະຫງວນ, ປ່າປ້ອງກັນ ແລະ ປ່າຜະລິດ ລະດັບຊາດ, ແຂວງ ແລະ ເມືອງ ຈຳນວນ 24 ແຫ່ງ
ກິດຈະກຳ 1.4	ກອງປະຊຸມປຶກສາຫາລື ໂດຍການເຂົ້າຮ່ວມຂອງຂະແໜງການກ່ຽວຂ້ອງຂັ້ນແຂວງ ແລະ ເມືອງ ເພື່ອຕົກລົງເປັນເອກະພາບ		ຕົກລົງເປັນເອກະພາບກ່ຽວກັບຂອບເຂດຂອງປ່າສະຫງວນ, ປ່າປ້ອງກັນ ແລະ ປ່າຜະລິດ ລະດັບຊາດ, ແຂວງ ແລະ ເມືອງ ຈຳນວນ 24 ແຫ່ງ
ກິດຈະກຳ 1.5	ຈັດຊື້ອຸປະກອນຮັບໃຊ້ຫ້ອງການ, ຊອບແວ ແລະ ເຄື່ອງ GPS ເພື່ອສ້າງລະບົບຄຸ້ມຄອງຂໍ້ມູນຂ່າວສານກ່ຽວກັບປ່າໄມ້ລວມທັງ 3 ປະເພດປ່າ ແລະ ເອກະສານທາງການອື່ນໆ		ສະໜອງອຸປະກອນທີ່ຈຳເປັນໃຫ້ພາກສ່ວນຄຸ້ມຄອງຂໍ້ມູນຂ່າວສານ ຢູ່ ພະແນກກະສິກຳ ແລະ ປ່າໄມ້ ແລະ ຫ້ອງການກະສິກຳ ແລະ ປ່າໄມ້ເມືອງ
ກິດຈະກຳ 1.6	ສະໜັບສະໜູນດ້ານວິຊາການ ເພື່ອເກັບຮັກສາ ແລະ ຄຸ້ມຄອງຂໍ້ມູນ		ພະນັກງານແຂວງ ແລະ ເມືອງສາມາດຄຸ້ມຄອງຂໍ້ມູນຂ່າວສານປ່າໄມ້ ຢູ່ ແຂວງຫຼວງພະບາງ
ອົງປະກອບຍ່ອຍ 2: ການຄຸ້ມຄອງປ່າໄມ້ແບບພູມີທັດໃນເຂດປ່າປ້ອງກັນ *[MOs:1,2,3,4]*			
ກິດຈະກຳ 2.1	ທົດລອງຈັດຕັ້ງປະຕິບັດການຄຸ້ມຄອງແບບພູມີທັດໃນເຂດປ່າປ້ອງກັນທີ່ເປັນບູລິມະສິດ	ພື້ນທີ່ປ່າປ້ອງກັນ	ແຜນຄຸ້ມຄອງປ່າປ້ອງກັນແບບພູມີທັດຖືກສ້າງຂຶ້ນ ສຳລັບພື້ນທີ່ປ່າປ້ອງກັນ 3 ແຫ່ງ ຢູ່ ແຂວງຫຼວງພະບາງແຫ່ງ
ກິດຈະກຳ 2.2	ຈັດຕັ້ງປະຕິບັດ ແລະ ຍົກລະດັບການຄຸ້ມຄອງປ່າໄມ້ແບບພູມີທັດ ໃນແຕ່ລະເຂດປ່າປ້ອງກັນ ແລະ 3 ປະເພດປ່າທີ່ຢູ່ອ້ອມຂ້າງ	ພື້ນທີ່ປ່າປ້ອງກັນ	ແຜນຄຸ້ມຄອງປ່າປ້ອງກັນແບບພູມີທັດຖືກສ້າງຂຶ້ນ, ຈັດຕັ້ງປະຕິບັດ ແລະ ຕິດຕາມກວດກາ ສຳລັບພື້ນທີ່ປ່າປ້ອງກັນ 18 ແຫ່ງ ຢູ່ ແຂວງຫຼວງພະບາງ
ອົງປະກອບຍ່ອຍ 3: ການຄຸ້ມຄອງປ່າໄມ້ບ້ານ *[MOs:1,2,3,4,5]*			
ກິດຈະກຳ 3.1	ສະໜັບສະໜູນດ້ານເຕັກນິກວິຊາການ ສຳລັບກົນໄກສະໜອງທຶນແບບຍາວນານ ເພື່ອຄຸ້ມຄອງປ່າໄມ້ບ້ານ	ທົ່ວແຂວງ	ກົນໄກສະໜອງທຶນແບບຍາວນານ ເພື່ອຄຸ້ມຄອງປ່າໄມ້ບ້ານ ໄດ້ຮັບການສ້າງຂຶ້ນ
ກິດຈະກຳ 3.2	ສະໜັບສະໜູນດ້ານເຕັກນິກວິຊາການ ເພື່ອເພີ່ມທາງເລືອກໃນການດຳລົງຊີວິດ		ທາງເລືອກໃນການດຳລົງຊີວິດ ດ້ວຍກິດຈະກຳທີ່ຕິດພັນກັບປ່າໄມ້ໂດຍປະຊາຊົນ

	ດ້ວຍກິດຈະກຳທີ່ຕິດພັນກັບປ່າໄມ້ໂດຍປະຊາຊົນເປັນເຈົ້າການ		ເປັນເຈົ້າການຖືກກຳນົດຂຶ້ນ
ກິດຈະກຳ 3.3	ສະໜັບສະໜູນດ້ານເຕັກນິກວິຊາການ ເພື່ອເພີ່ມມູນຄ່າໃຫ້ຜະລິດຕະພັນປ່າໄມ້ບ້ານ	ທົ່ວແຂວງ	ຕົວແບບການເພີ່ມມູນຄ່າໃຫ້ຜະລິດຕະພັນປ່າໄມ້ບ້ານໄດ້ຮັບການສ້າງຂຶ້ນ
ກິດຈະກຳ 3.4	ສະໜັບສະໜູນດ້ານເຕັກນິກວິຊາການ ເພື່ອຮັກສາ ແລະ ປັບປຸງກົນໄກການຈ່າຍຄ່າບໍລິການລະບົບນິເວດ, ຄຸນຄ່າທາງຊີວະນາໆພັນ, ການບໍລິການເຂດຮັກສາແຫຼ່ງນ້ຳ ແລະ ປະລິມານສະສົມຂອງການກອນປ່າໄມ້ ໂດຍຜ່ານກິດຈະກຳທີ່ຕິດພັນກັບປ່າໄມ້ໂດຍປະຊາຊົນເປັນເຈົ້າການ		ຕົວແບບຂອງກິດຈະກຳທີ່ຕິດພັນກັບປ່າໄມ້ ໂດຍປະຊາຊົນເປັນເຈົ້າການ ເພື່ອ ຮັກສາ ແລະ ປັບປຸງກົນໄກການຈ່າຍຄ່າບໍລິການລະບົບນິເວດ, ຄຸນຄ່າທາງຊີວະ ນາໆພັນ, ການບໍລິການເຂດຮັກສາແຫຼ່ງນ້ຳ ແລະ ປະລິມານສະສົມຂອງການກອນ ປ່າໄມ້ ໄດ້ຮັບການສະເໜີ
ກິດຈະກຳ 3.5	ຈັດຕັ້ງປະຕິບັດ ແລະ ຍົກລະດັບຕົວແບບການຄຸ້ມຄອງປ່າໄມ້ບ້ານ		ແຜນຄຸ້ມຄອງປ່າໄມ້ບ້ານໄດ້ຮັບການພັດທະນາ ແລະ ຈັດຕັ້ງປະຕິບັດ ຢູ່ 50 ບ້ານ
ອົງປະກອບຍ່ອຍ 4: ການປູກໄມ້ ແລະ ການຟື້ນຟູປ່າ *[MOs:3]*			
ກິດຈະກຳ 4.1	ການປະເມີນພື້ນທີ່ໆມີເງື່ອນໄຂບູລະນະຟື້ນຟູໃຫ້ເປັນປ່າໃນເຂດທີ່ດິນປ່າໄມ້ທີ່ເສື່ອມໂຊມ	3 ປະເພດປ່າ	ກຳນົດພື້ນທີ່ໆມີເງື່ອນໄຂປູກໄມ້ຟື້ນຟູປ່າ ແລະ ປ່າຟື້ນຟູທຳມະຊາດ ເພື່ອຫຼີກຫຼ່ຽງການທຳລາຍປ່າໄມ້ຈາກການປູກໄມ້ອຸດສາຫະກຳຂອງລັດ ແລະ ເອກະຊົນທີ່ບໍ່ແທດເໝາະ
ກິດຈະກຳ 4.2	ການຈັດຕັ້ງປະຕິບັດຟື້ນຟູປ່າທຳມະຊາດໃນເຂດປ່າເສື່ອມໂຊມ	3 ປະເພດປ່າ	ດຳເນີນກິດຈະກຳຟື້ນຟູປ່າທຳມະຊາດໃນເນື້ອທີ່ 2 .000 ເຮັກຕາ ໃນເຂດປ່າປ້ອງກັນ
ກິດຈະກຳ 4.3	ສະໜັບສະໜູນທຶນເພື່ອໃຫ້ປະຊາຊົນຈັດຕັ້ງປະຕິບັດປູກໄມ້ຟື້ນຟູປ່າໃນເຂດປ່າເສື່ອມໂຊມ	6.250 ເຮັກຕາ ໃນເຂດປ່າປ້ອງກັນ	ສະໜອງທຶນໃຫ້ທ້ອງຖິ່ນໂດຍກົງເພື່ອສະໜັບສະໜູນການຈັດຕັ້ງປະຕິບັດກິດຈະກຳບູລະນະຟື້ນຟູປ່າທຳມະຊາດ ແລະ ປູກປ່າໃນເນື້ອທີ່ 6.250 ເຮັກຕາ ຂອງປ່າເສື່ອມໂຊມ
ອົງປະກອບຍ່ອຍ 5: ການປ້ອງກັນໄຟໄໝ້ລາມປ່າ *[MOs:2]*			
ກິດຈະກຳ 5.1	ສ້າງຈິດສຳນຶກກ່ຽວກັບການປ້ອງກັນໄຟໄໝ້ລາມປ່າ ຢູ່ ຂັ້ນບ້ານ	ທົ່ວແຂວງ	ດຳເນີນການສ້າງຈິດສຳນຶກ 8 ຄັ້ງ ໃນແຕ່ລະເມືອງ (1 ຄັ້ງ/ປີ)
ກິດຈະກຳ 5.2	ສ້າງລະບົບເພື່ອຕິດຕາມກວດກາໄຟໄໝ້ລາມປ່າ ແລະ ທົດລອງລະບົບໃນພື້ນທີ່ຄັດເລືອກເພື່ອທົດລອງ		ລະບົບຕິດຕາມກວດກາເພື່ອປ້ອງກັນໄຟປ່າຖືກອອກແບບ
ກິດຈະກຳ 5.3	ການຈັດຕັ້ງປະຕິບັດການຕິດຕາມກວດກາປ່າໄມ້ ເພື່ອປ້ອງກັນໄຟໄໝ້ລາມປ່າ		ລະບົບຕິດຕາມກວດກາເພື່ອປ້ອງກັນໄຟປ່າຖືກຈັດຕັ້ງປະຕິບັດ
ອົງປະກອບຍ່ອຍ 6: ການຄຸ້ມຄອງສວນປູກໄມ້ສັກ ແລະ ການປັບປຸງຕ່ອງໂສ້ມູນຄ່າ *[MOs:4,5]*			
ກິດຈະກຳ 6.1	ການປະເມີນພື້ນທີ່ປູກໄມ້ສັກ ເພື່ອຍົກລະດັບການຄຸ້ມຄອງສວນປູກແບບຍືນຍົງ ເພື່ອໃຫ້ໄດ້ຮັບການຢັ້ງຢືນ	10 ເມືອງ	ກຳນົດພື້ນທີ່ໆມີເງື່ອນໄຂໃນການຊຸກຍູ້ສົ່ງເສີມເພື່ອອອກໃບຢັ້ງຢືນ
ກິດຈະກຳ 6.2	ສະໜັບສະໜູນເຕັກນິກວິຊາການ ເພື່ອເພີ່ມທະວີຄວາມເຂັ້ມແຂງໃຫ້ກຸ່ມຊາວກະສິກອນປູກໄມ້ສັກ ແລະ ເຄືອຂ່າຍຂອງເຂົາເຈົ້າ		ຈັດຕັ້ງກຸ່ມຊາວກະສິກອນປູກໄມ້ສັກໃນ 40 ບ້ານ

ກິດຈະກຳ 6.3	ສະໜັບສະໜູນເຕັກນິກວິຊາການ ເພື່ອຈັດຕັ້ງປະຕິບັດການຄຸ້ມຄອງສວນປູກໄມ້ສັກ ໃຫ້ຖືກຕ້ອງຕາມຫຼັກວິຊາການ		ດຳເນີນການຄຸ້ມຄອງສວນປູກໄມ້ສັກຕາມຫຼັກວິຊາການ ຢູ່ 40 ບ້ານ
ກິດຈະກຳ 6.4	ສະໜັບສະໜູນເຕັກນິກວິຊາການ ເພື່ອຊຸກຍູ້ສິ່ງເສີມການປັບປຸງໃຫ້ທັນສະໄໝ ໃນການເພີ່ມມູນຄ່າໃຫ້ການປຸງແຕ່ງຜະລິດຕະພັນຈາກໄມ້ສັກ		ການປຸງແຕ່ງຜະລິດຕະພັນໄມ້ສັກໄດ້ຮັບການປັບປຸງ
ກິດຈະກຳ 6.5	ສະໜັບສະໜູນເຕັກນິກວິຊາການ ເພື່ອຊຸກຍູ້ສິ່ງເສີມວິສາຫະກິດຂະໜາດນ້ອຍ ໃນການເພີ່ມມູນຄ່າໃຫ້ຜະລິດຕະພັນຈາກໄມ້ສັກ		ວິສາຫະກິດຂະໜາດນ້ອຍທີ່ນຳໃຊ້ໄມ້ສັກໄດ້ຮັບການພັດທະນາ ຢູ່ 40 ບ້ານ
ກິດຈະກຳ 6.6	ຈັດຊື້ວັດຖຸອຸປະກອນ ເພື່ອຊຸກຍູ້ສິ່ງເສີມການຄຸ້ມຄອງສວນປູກໄມ້ສັກໃຫ້ມີຄວາມຍືນຍົງ ແລະ ປັບປຸງຕ່ອງໂສ້ມູນຄ່າ		ພະນັກງານແຂວງ ແລະ ເມືອງ ມີອຸປະກອນພຽງພໍ ເພື່ອຄຸ້ມຄອງສວນປູກໄມ້ສັກແບບຍືນຍົງ
ອົງປະກອບຍ່ອຍ 7: ການນຳໃຊ້ກົດໝາຍ ແລະ ການຄຸ້ມຄອງການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍ *[MOs: 2]*			
ກິດຈະກຳ 7.1	ສ້າງຈິດສຳນຶກ ແລະ ເຜີຍແຜ່ນະໂຍບາຍຕ່າງໆກ່ຽວກັບປ່າໄມ້, ກົດໝາຍ ແລະ ຂໍ້ກຳນົດອື່ນໆ ຢູ່ ຂັ້ນເມືອງ ແລະ ກຸ່ມບ້ານ ໃນເຂດທີ່ເປັນບູລິມະສິດ	ທົ່ວແຂວງ	ສ້າງຈິດສຳນຶກໃຫ້ທຸກໆເມືອງໃນແຕ່ລະປີ
ກິດຈະກຳ 7.2	ສ້າງລະບົບຕິດຕາມກວດກາການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍ		ລະບົບຕິດຕາມກວດກາການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍໄດ້ຖືກສ້າງຂຶ້ນ
ກິດຈະກຳ 7.3	ສ້າງຄວາມເຂັ້ມແຂງ ແລະ ຝຶກອົບຮົມກ່ຽວກັບການກວດກາໄມ້ຢູ່ ຈຸດດ່ານກວດກາ, ສະໜາມໄມ້, ໂຮງງານປຸງແຕ່ງ ແລະ ໂຮງງານ/ຮ້ານເຟີນິເຈີ		ຈັດຝຶກອົບຮົມ 3 ຊຸດ ເຮັດໃຫ້ພະນັກງານສາມາດດຳເນີນການກວດກາໄມ້/ຂຸດຄົ້ນໄມ້ ດ້ວຍຕົນເອງ
ກິດຈະກຳ 7.4	ຕິດຕາມ ແລະ ກວດກາລາດຕະເວນບ່ອນຂຸດຄົ້ນໄມ້, ການຂົນສົ່ງໄມ້ ຢູ່ ສະໜາມ 2 ແລະ ເສັ້ນທາງລຳລຽງໄມ້, ທາງບົກ ແລະ ທາງນ້ຳ ແລະ ຈຸດທີ່ຫຼໍ່ແຫຼມ		ພະນັກງານດຳເນີນການຕິດຕາມກວດກາການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍ ຢູ່ ບ່ອນຂຸດຄົ້ນໄມ້ ແລະ ຢູ່ ຕາມດ່ານກວດກາ
ກິດຈະກຳ 7.5	ສະໜັບສະໜູນການກວດກາໂຮງງານປຸງແຕ່ງໄມ້, ໂຮງງານເຟີນິເຈີ, ສາງເກັບມ້ຽນໄມ້ ແລະ ເຄື່ອງປ່າຂອງດົງ		ພະນັກງານແຂວງ ແລະ ເມືອງ ດຳເນີນການກວດກາໄມ້ທີ່ຜິດກົດໝາຍ ຢູ່ ໂຮງງານ ແລະ ສາງເກັບມ້ຽນຕ່າງໆ
ກິດຈະກຳ 7.6	ສະໜັບສະໜູນການຕິດຕາມກວດກາເກີນຈຳນວນ (ໂກຕາ) ທີ່ອະນຸມັດໃນເຂດອ່າງເກັບນ້ຳຂອງໂຄງການເຂື່ອນໄຟຟ້າ		ພະນັກງານແຂວງ ແລະ ເມືອງ ດຳເນີນການກວດກາການຂຸດຄົ້ນໄມ້ໃນເຂດບ່ອນນ້ຳຈະຖ້ວມຂອງໂຄງການເຂື່ອນໄຟຟ້າ ເພື່ອໃຫ້ຖືກຕ້ອງຕາມສັນຍາ
ກິດຈະກຳ 7.7	ຈັດຊື້ອຸປະກອນຮັບໃຊ້ຫ້ອງການ, ເຄື່ອງແທບເລັດ (tablet), GPS ແລະ ເຄື່ອງມືທີ່ຈຳເປັນ ເພື່ອຮັບໃຊ້ວຽກງານການນຳໃຊ້ກົດໝາຍ		ພະນັກງານແຂວງ ແລະ ເມືອງ ມີອຸປະກອນພຽງພໍ ເພື່ອດຳເນີນການກວດກາຄວບຄຸມການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍ
ກິດຈະກຳ 7.8	ຕິດຕາມກວດກາລາດຕະເວນບ່ອນລັກລອບຕັດໄມ້ໃນເຂດປ່າປ້ອງກັນ		ພະນັກງານແຂວງ ແລະ ເມືອງ ດຳເນີນການຕິດຕາມກວດກາ ການລັກລອບຕັດໄມ້ໃນເຂດປ່າປ້ອງກັນ
ອົງປະກອບຍ່ອຍ 8: ການຈ່າຍຄ່າບໍລິການລະບົບນິເວດປ່າໄມ້ *[MOs:1,2,3,4]*			
ກິດຈະກຳ 8.1	ການປະເມີນເງື່ອນໄຂການຈ່າຍຄ່າບໍລິການລະບົບນິເວດປ່າໄມ້ (PFES) ຢູ່ ແຂວງ	ທົ່ວແຂວງ	ດຳເນີນການສຶກສາຄວາມເປັນໄປໄດ້ຂອງ PFES ໃນຂະແໜງນ້ຳປາປາ, ເຂື່ອນ

	ຫຼວງພະບາງ		ໄຟຟ້າ ແລະ ທ່ອງທ່ຽວທຳມະຊາດ ຢູ່ ແຂວງຫຼວງພະບາງ
ກິດຈະກຳ 8.2	ທົດລອງສົ່ງເສີມກິດຈະກຳ ກ່ຽວກັບ PFES ທີ່ຕິດພັນກັບການນຳໃຊ້ທີ່ດິນປ່າໄມ້ ເຊັ່ນ: ບໍລິສັດນ້ຳປາປາ, ເຂື່ອນໄຟຟ້າ, ທ່ອງທ່ຽວທຳມະຊາດ ແລະ ອື່ນໆ		ທົດລອງຈັດຕັ້ງປະຕິບັດກິດຈະກຳໜຶ່ງ ກ່ຽວກັບ PFES ຢູ່ ພື້ນທີ່ເປົ້າ ໝາຍພາຍໃນແຂວງ

ອົງປະກອບ 3: ການຄຸ້ມຄອງທາງສັງຄົມ(ຊີວິດການເປັນຢູ່)

ໃນກອງປະຊຸມປຶກສາຫາລືເພື່ອສ້າງ PRAP ທຸກໆເມືອງ ແລະ ກຸ່ມບ້ານທີ່ຈັດກອງປະຊຸມສະເໜີໃຫ້ສະໜັບສະໜູນກິດຈະກຳຫຼາຍຢ່າງ ເພື່ອປັບປຸງຊີວິດການເປັນຢູ່ຂອງປະຊາຊົນໃຫ້ດີຂຶ້ນ ສາມາດທົດແທນການຖາງປ່າເຮັດໄຮ່ເປັນອາຊີບຕົ້ນຕໍ ຊຶ່ງເປັນສາເຫດຫຼັກຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ຢູ່ ພາຍໃນແຂວງ. ແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມ ຂອງແຂວງຊຸກຍູ້ສິ່ງເສີມການປູກຝັງ-ລ້ຽງສັດ (ດ້ວຍຮູບແບບ ປູກ 2 ລ້ຽງ 1 ຫຼື ປູກ 1 ລ້ຽງ 2), ປູກພືດເສດຖະກິດໄລຍະສັ້ນ, ກາງ ແລະ ຍາວ ອີງໃສ່ທ່າແຮງ ແລະ ສະພາບເງື່ອນໄຂຂອງທ້ອງຖິ່ນ. ການຊຸກຍູ້ສິ່ງເສີມກິດຈະກຳເຫຼົ່ານັ້ນ ຕ້ອງອີງໃສ່ການວາງແຜນນຳໃຊ້ທີ່ດິນ ແລະ ການຕົກລົງເຫັນດີຂອງທ້ອງຖິ່ນ ເພື່ອຫຼຸດຜ່ອນຄວາມກົດດັນຕໍ່ປ່າໄມ້.

ອົງປະກອບຍ່ອຍ 1: ການປູກພືດເສດຖະກິດແບບຍືນຍົງຢູ່ເຂດພູດອຍ

ລະບົບການປູກພືດເສດຖະກິດ ແມ່ນໄດ້ຖືກບັນຈຸໄວ້ໃນ PRAP ແລະ ກິດຈະກຳຕ່າງໆ ແມ່ນແນໃສ່ປັບປຸງຍົກລະດັບ ຜະລິດຕະພາບໃຫ້ສູງຂຶ້ນ, ປັບປຸງຮອບວຽນຂອງການປູກພືດໃຫ້ປົກກະຕິ, ຫຼຸດຜ່ອນການເສື່ອມໂຊມຂອງດິນ ແລະ ກະຈາຍລາຍໄດ້ໃຫ້ທົ່ວເຖິງ. ນອກນັ້ນ, ແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມ ຂອງແຂວງ ຍັງຊຸກຍູ້ສິ່ງເສີມກະສິກຳສະອາດ ແລະ ປອດສານພິດ ໂດຍນຳໃຊ້ເຕັກນິກວິຊາການທີ່ເປັນມິດກັບສິ່ງແວດລ້ອມ ລວມທັງການນຳໃຊ້ຝຸ່ນຄອກ/ຝຸ່ນປົ່ມ ແລະ ປູກພືດແບບປະສົມປະສານ ເພື່ອປັບປຸງດິນ ແລະ ປ້ອງກັນການເຊາະເຈື່ອນ.

ອົງປະກອບຍ່ອຍ 2: ການລ້ຽງສັດ ແລະ ປູກຫຍ້າອາຫານສັດ

ການລົງທຶນເພື່ອລ້ຽງສັດ ແລະ ປູກຫຍ້າ ຖືກກຳນົດເປັນກິດຈະກຳໜຶ່ງທີ່ສຳຄັນ ເພື່ອປັບປຸງຊີວິດການເປັນຢູ່ຂອງຊາວຊົນນະບົດໃຫ້ດີຂຶ້ນ ແລະ ຫຼຸດຜ່ອນຄວາມທຸກຍາກ ຢູ່ ແຂວງຫຼວງພະບາງເວົ້າລວມ. PRAP ຊຸກຍູ້ການຝຶກອົບຮົມວິຊາການ ແລະ ສະໜັບສະໜູນທຶນຮອນ ໂດຍກົງໃຫ້ປະຊາຊົນສາມາດລົງທຶນໃສ່ການລ້ຽງສັດ ແລະ ປູກຫຍ້າເພື່ອເປັນອາຫານສັດ. ສ່ວນການປັບປຸງຕ່ອງໂສ້ມູນຄ່າຂອງການລ້ຽງສັດນັ້ນ ລວມມີກິດຈະກຳຕ່າງໆເຊັ່ນ: ການຝຶກອົບຮົມຄວາມຮູ້ພື້ນຖານກ່ຽວກັບການດຳເນີນທຸລະກິດໃຫ້ກຸ່ມຜູ້ຜະລິດຂະໜາດນ້ອຍ ແລະ ຄວາມຮູ້ດ້ານການຕະຫຼາດ ແນໃສ່ເພື່ອໃຫ້ເຂົາເຈົ້າສາມາດຜະລິດເປັນສິນຄ້າ ລວມທັງບໍລິການ ແລະ ພື້ນຖານການບັນຊີ, ການຕະຫຼາດ, ການຜະລິດຕາມສັນຍາ ແລະ ການສ້າງແຜນດຳເນີນທຸລະກິດເປັນກຸ່ມ ແລະ ສ່ວນບຸກຄົນ ເພື່ອໃຫ້ສາມາດເຂົ້າເຖິງສິນເຊື່ອຈາກຫຼາຍແຫຼ່ງ.

ອົງປະກອບຍ່ອຍ 3: ການພັດທະນາທ່ອງທ່ຽວທຳມະຊາດໂດຍທ້ອງຖິ່ນມີສ່ວນຮ່ວມ

ການທ່ອງທ່ຽວ ຢູ່ ແຂວງຫຼວງພະບາງ ໄດ້ປະກອບສ່ວນຢ່າງໃຫຍ່ຫຼວງເຂົ້າໃນການພັດທະນາເສດຖະກິດຂອງແຂວງ ແລະ ສ້າງວຽກເຮັດງານທຳໃຫ້ປະຊາຊົນທັງໃນຕົວເມືອງກໍຄືຊົນນະບົດ. ການຊຸກຍູ້ສິ່ງເສີມການທ່ອງທ່ຽວ ແມ່ນບູລິມະສິດໜຶ່ງໃນແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມຂອງແຂວງ ໂດຍສະເພາະການທ່ອງທ່ຽວທຳມະຊາດແມ່ນມີທ່າແຮງ ສາມາດບັນລຸຈຸດປະສົງໃນການຊຸກຍູ້ຊີວິດການເປັນຢູ່ຂອງປະຊາຊົນໃຫ້ດີຂຶ້ນ ເຮັດໃຫ້ຊຸມຊົນທ້ອງຖິ່ນໄດ້ຮັບການພັດທະນາ ແລະ ອະນຸລັກຮັກສາປ່າໄມ້ໄປພ້ອມໆກັນ. ການທ່ອງທ່ຽວທຳມະຊາດ ສາມາດສ້າງໂອກາດໃຫ້ຊຸມຊົນທ້ອງຖິ່ນມີລາຍຮັບ ແລະ ເປັນແຮງຈູງໃຈໃນການອະນຸລັກຮັກສາປ່າໄມ້, ຜູ້ທີ່ມາທ່ຽວຊົມສາມາດເກັບກ່ຽວປະສົບການກ່ຽວກັບລະບົບນິເວດ ນຳໄປສູ່ການອະນຸລັກຮັກສາສິ່ງແວດລ້ອມ ແລະ ມີຜົນປະໂຫຍດທາງດ້ານເສດຖະກິດຮ່ວມກັນ. PRAP ສະໜັບສະໜູນການສຶກສາຄວາມເປັນໄປໄດ້ໃນການພັດທະນາແຫຼ່ງທ່ອງທ່ຽວທຳມະຊາດ ແລະ ສະໜັບສະໜູນດ້ານເຕັກນິກວິຊາການໃນການທົດລອງຈັດຕັ້ງປະຕິບັດກິດຈະກຳໂດຍໃຫ້ທ້ອງຖິ່ນເປັນເຈົ້າການ ສົມທົບກັບຂະແໜງການອື່ນໆລວມທັງພາກເອກະຊົນ.

ອີງປະກອບ 3: ການຄຸ້ມຄອງທາງສັງຄົມ (ຊີວິດການເປັນຢູ່)

	ນະໂຍບາຍ ແລະ ມາດຕະການ (PAMs)	ລະດັບ	ຄາດໝາຍ
ອີງປະກອບຍ່ອຍ 1: ການປູກພືດເສດຖະກິດແບບຍືນຍົງຢູ່ເຂດພູດອຍ *[MOs:1,2,5]*			
ກິດຈະກຳ 1.1	ດຳເນີນການຄົ້ນຄ້ວາ ເພື່ອກຳນົດຮູບແບບການປູກພືດເສດຖະກິດແບບຍືນຍົງ ລວມທັງການກະສິກຳ-ປ່າໄມ້ແບບປະສົມປະສານ ແລະ ການຂະຫຍາຍການຜະລິດກະສິກຳ	ທົ່ວແຂວງ	ສາມາດກຳນົດຮູບແບບການປູກພືດເສດຖະກິດແບບຍືນຍົງ
ກິດຈະກຳ 1.2	ການຝຶກອົບຮົມ ແລະ ສ້າງຄວາມເຂັ້ມແຂງໃຫ້ພະນັກງານສົ່ງເສີມກ່ຽວກັບຕົວແບບການຜະລິດກະສິກຳແບບຍືນຍົງ ແລະ ປັບປຸງຮູບແບບຕ່າງໆຂອງການຜະລິດກະສິກຳໃຫ້ດີຂຶ້ນ	ທົ່ວແຂວງ	ຝຶກອົບຮົມ 10 ຊຸດ ເຮັດໃຫ້ພະນັກງານສາມາດຊຸກຍູ້ສົ່ງເສີມຕົວແບບການຜະລິດກະສິກຳແບບຍືນຍົງໄດ້ດ້ວຍຕົນເອງ
ກິດຈະກຳ 1.3	ສະໜອງທຶນຮອນໃຫ້ປະຊາຊົນໂດຍກົງ (ເຄື່ອງມື, ຝຸ່ນ, ແນວພັນ) ເພື່ອທຳການຜະລິດ	8.514 ເຮັກຕາ	ຊຸກຍູ້ສົ່ງເສີມຕົວແບບການຜະລິດກະສິກຳແບບຍືນຍົງ ສາມາດບັນລຸ 1/ 3 ຂອງເນື້ອທີ່ຜະລິດກະສິກຳເປົ້າໝາຍ (25.542 ເຮັກຕາ) ໃນແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມ 2015 - 2020
ກິດຈະກຳ 1.4	ພັດທະນາ ແລະ ສະໜັບສະໜູນສະຫະກອນກະເສດ	ທົ່ວແຂວງ	ສ້າງສະຫະກອນກະເສດເພື່ອໃຫ້ຊາວກະສິກອນເປັນເອກະລາດໃນການເຂົ້າຫາຕະຫຼາດ ເພື່ອຂາຍຜະລິດຕະພັນຂອງເຂົາເຈົ້າ
ອີງປະກອບຍ່ອຍ 2: ການລ້ຽງສັດ ແລະ ປູກຫຍ້າອາຫານສັດ *[MOs:1,2,5]*			
ກິດຈະກຳ 2.1	ການຝຶກອົບຮົມ ແລະ ສ້າງຄວາມເຂັ້ມແຂງໃຫ້ພະນັກງານສົ່ງເສີມກ່ຽວກັບເຕັກນິກການລ້ຽງສັດ	ເມືອງໂພນໄຊ ແລະ ພູຄູນ	ຈັດຝຶກອົບຮົມ 3 ຊຸດ ເຮັດໃຫ້ພະນັກງານສາມາດຊຸກຍູ້ສົ່ງເສີມເຕັກນິກການລ້ຽງສັດທີ່ຖືກຕ້ອງຕາມຫຼັກວິຊາການ
ກິດຈະກຳ 2.2	ສະໜອງທຶນຮອນໃຫ້ປະຊາຊົນໂດຍກົງ (ເຄື່ອງມື, ຝຸ່ນ, ແນວພັນ) ເພື່ອປູກຫຍ້າ	4.800 ເຮັກຕາ	ປັບປຸງການປູກຫຍ້າໃນເນື້ອທີ່ 4.800 ເຮັກຕາ
ກິດຈະກຳ 2.3	ສະໜອງທຶນຮອນ ແລະ ແນວພັນສັດໃຫ້ປະຊາຊົນໂດຍກົງ ເພື່ອປັບປຸງການລ້ຽງສັດ	4.800 ຄອບຄົວ	4.800 ຄອບຄົວ ໄດ້ນຳໃຊ້ເຕັກນິກວິຊາການໃນການລ້ຽງສັດ
ກິດຈະກຳ 2.4	ສະໜັບສະໜູນດ້ານເຕັກນິກວິຊາການເພື່ອເຂົ້າຫາແຫຼ່ງສິນເຊື່ອ	ເມືອງໂພນໄຊ ແລະ ພູຄູນ	ຈັດຝຶກອົບຮົມ 24 ຊຸດ ໃຫ້ຫົວໜ່ວຍລ້ຽງສັດເປັນສິນຄ້າ
ອີງປະກອບຍ່ອຍ 3: ການພັດທະນາທ່ອງທ່ຽວທຳມະຊາດໂດຍທ້ອງຖິ່ນມີສ່ວນຮ່ວມ *[MOs:1,2,5]*			
ກິດຈະກຳ 3.1	ປະເມີນແຫຼ່ງທ່ອງທ່ຽວທີ່ມີເງື່ອນໄຂ ເພື່ອຊຸກຍູ້ທ່ອງທ່ຽວທຳມະຊາດ	ເມືອງຫຼວງພະບາງ, ງອຍ ແລະ ນ້ຳບາກ	ດຳເນີນການສຶກສາຄວາມເປັນໄປໄດ້ຂອງກິດຈະກຳທີ່ມີເງື່ອນໄຂ ກ່ຽວກັບການທ່ອງທ່ຽວທຳມະຊາດໂດຍທ້ອງຖິ່ນມີສ່ວນຮ່ວມ ຢູ່ 2 ເມືອງ (ຫຼວງພະບາງ ແລະ ງອຍ)

ກິດຈະກຳ 3.2	ການຝຶກອົບຮົມ ແລະ ສ້າງຄວາມເຂັ້ມແຂງໃຫ້ພະນັກງານສົ່ງເສີມ ກ່ຽວກັບວຽກງານທ່ອງທ່ຽວທຳມະຊາດໂດຍທ້ອງຖິ່ນມີສ່ວນຮ່ວມ	ເມືອງຫຼວງພະບາງ, ງອຍ ແລະ ນ້ຳບາກ	ຈັດຝຶກອົບຮົມ 3 ຊຸດ ກ່ຽວກັບວຽກງານທ່ອງທ່ຽວທຳມະຊາດໂດຍທ້ອງຖິ່ນມີ ສ່ວນ ຮ່ວມ
ກິດຈະກຳ 3.3	ສະໜອງທຶນຮອນໂດຍກົງ (ປ້າຍ, ກິດຈະກຳປັບປຸງຊີວິດການເປັນຢູ່) ເພື່ອຊຸກຍູ້ສົ່ງເສີມການທ່ອງທ່ຽວທຳມະຊາດ	ເມືອງຫຼວງພະບາງ, ງອຍ ແລະ ນ້ຳບາກ	ຊຸກຍູ້ສົ່ງເສີມການທ່ອງທ່ຽວທຳມະຊາດໂດຍທ້ອງຖິ່ນມີສ່ວນຮ່ວມ ຢູ່ 30 ບ້ານ

4.4. ການວິເຄາະຜົນປະໂຫຍດ ແລະ ຄວາມສ່ຽງຂອງນະໂຍບາຍ ແລະ ມາດຕະການ (PAMs)

ການຈັດຕັ້ງປະຕິບັດນະໂຍບາຍ ແລະ ມາດຕະການ ແມ່ນເພື່ອແກ້ໄຂບັນຫາຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ທີ່ໄດ້ຄົ້ນຄ້ວາ ແລະ ປຶກສາຫາລືໃນກອງປະຊຸມ ຢູ່ ຂັ້ນແຂວງ , ເມືອງ ແລະ ກຸ່ມບ້ານໃນໄລຍະຜ່ານມາ. ກອງປະຊຸມຂັ້ນເມືອງ ແລະ ກຸ່ມບ້ານ ໄດ້ຄົ້ນຄ້ວາ ແລະ ປຶກສາຫາລື ກ່ຽວກັບຜົນປະໂຫຍດທີ່ຈະໄດ້ຮັບ ແລະ ຄວາມສ່ຽງທີ່ອາດເກີດຂຶ້ນ ພາຍຫຼັງຈັດຕັ້ງປະຕິບັດນະໂຍບາຍ ແລະ ມາດຕະການ ລວມທັງວິທີແກ້ໄຂ ຄວາມສ່ຽງຕາມແນວຄວາມຄິດຂອງທ້ອງຖິ່ນ. ຕາຕະລາງລຸ່ມນີ້ ໄດ້ສັງລວມຜົນປະໂຫຍດ ແລະ ຄວາມສ່ຽງທີ່ບໍ່ແມ່ນການກາກບອນປ່າໄມ້ ແລະ ມາດຕະການເພື່ອແກ້ໄຂ.

4.4.1. ຜົນປະໂຫຍດທີ່ບໍ່ໄດ້ຈາກການກາກບອນປ່າໄມ້ທີ່ຕິດພັນກັບ PAMs

	PAMs ທີ່ສະເໜີ	ຜົນປະໂຫຍດທີ່ບໍ່ແມ່ນການກາກບອນ (ດ້ານສັງຄົມ)	ຜົນປະໂຫຍດທີ່ບໍ່ແມ່ນການກາກບອນ (ດ້ານສິ່ງແວດລ້ອມ)
1.	ການຄຸ້ມຄອງທີ່ດິນແບບຄົບວົງຈອນ	· ສິດນຳໃຊ້ທີ່ດິນ ແລະ ຊັບພະຍາກອນທຳມະຊາດໄດ້ຮັບການຊີ້ແຈງຢາກຖືກຕ້ອງ ແລະ ຊັດເຈນ. · ຮັບປະກັນການເຂົ້າເຖິງແຫຼ່ງຊັບພະຍາກອນທຳມະຊາດ. · ການມີສ່ວນຮ່ວມຂອງທ້ອງຖິ່ນເພີ່ມຂຶ້ນ, ປະຊາຊົນສາມາດສະ ແດງຄວາມຄິດຄວາມເຫັນຂອງເຂົາເຈົ້າອອກມາໃນການຕັດສິນບັນຫາ. · ຮັບປະກັນການເປັນເຈົ້າຂອງໃນການຄຸ້ມຄອງປ່າໄມ້. · ສ້າງສະພາບແວດລ້ອມທີ່ເອື້ອອຳນວຍໃຫ້ແກ່ການລົງທຶນ ໂດຍປາດສະຈາກຂໍ້ຂັດແຍ່ງທາງດ້ານສັງຄົມ ແລະ ສິ່ງແວດ ລ້ອມ. · ສັງຄົມມີຄວາມສະຫງົບ.	· ປົກປັກຮັກສາປ່າໄມ້/ຊັບພະຍາ ກອນປ່າໄມ້ເພີ່ມຂຶ້ນ ລວມທັງເຄື່ອງ ປ່າຂອງດົງ. · ຊີວະນາໆພັນໄດ້ຮັບການປົກປັກ ຮັກສາ/ບູລະນະ. · ແຫຼ່ງນ້ຳໄດ້ຮັບການປົກປັກຮັກສາ. · ຫຼຸດຜ່ອນຄວາມສ່ຽງຕໍ່ໄພທຳມະ ຊາດເຊັ່ນ: ນ້ຳຖ້ວມ, ໄພແຫ້ງແລ້ງ, ການເຊາະເຈື່ອນ, ດິນຖະລົ່ມ.
2.	ການຄຸ້ມຄອງປ່າໄມ້	· ເພີ່ມຈິດສຳນຶກໃນການປະຕິບັດລະບຽບກົດໝາຍໃນການນຳ ໃຊ້ທີ່ດິນ ແລະ ປ່າໄມ້. · ຮັບປະກັນການນຳໃຊ້ໄມ້ໄດ້ຍາວນານຈາກປ່າປູກ. · ການນຳໃຊ້ໄມ້ປູກເພີ່ມຂຶ້ນ. · ຮັບປະກັນທາງດ້ານສະບຽງອາຫານ ແລະ ລາຍຮັບຈາກ ຊັບພະຍາກອນປ່າໄມ້.	ຄືຂ້າງເທິງ
3.	ການຄຸ້ມຄອງທາງສັງ ຄົມ (ຊີວິດການເປັນຢູ່)	· ລາຍຮັບເພີ່ມຂຶ້ນ, ຊີວິດການເປັນຢູ່ດີຂຶ້ນ. · ຫຼຸດຜ່ອນຄວາມທຸກຍາກ. · ຄຸນນະພາບດິນໄດ້ຮັບການປັບປຸງດີຂຶ້ນ.	· ສິ່ງເສດເຫຼືອທີ່ກໍ່ມົນລະພິດໜ້ອຍ ລົງໃນທຳມະຊາດ, ລະບົບນິເວດ ແລະ ດິນ.

4.4.2. ຄວາມສ່ຽງທີ່ຕິດພັນກັບ PAMs ແລະ ມາດຕະການແກ້ໄຂ

	PAMs ທີ່ສະເໜີ	ຄວາມສ່ຽງທາງດ້ານສັງຄົມ	ຄວາມສ່ຽງທາງດ້ານ ສິ່ງແວດລ້ອມ	ມາດຕະການແກ້ໄຂ
1.	ການຄຸ້ມຄອງທີ່ດິນແບບ ຄົບວົງຈອນ	· ກໍ່ໃຫ້ເກີດຂໍ້ຂັດແຍ່ງທາງສັງຄົມ ກ່ຽວກັບທີ່ດິນ ແລະ ປ່າໄມ້. · ທີ່ດິນບໍ່ພຽງພໍສຳລັບຄວາມຕ້ອງ ການຕົວຈິງ ແລະ ຄວາມຕ້ອງ	· ຍ້ອນບ່ອນທຳລາຍປ່າໄມ້ ແລະ ເຮັດໃຫ້ປ່າເສື່ອມ ໂຊມ.	· ຊຸກຍູ້ໃຫ້ທຸກພາກສ່ວນໃນ ສັງຄົມມີສ່ວນຮ່ວມໃນການ ຕັດສິນບັນຫາ. · ໃຫ້ນັກລົງທຶນປະຕິບັດກົດ

		ການດິນເພີ່ມຂຶ້ນ. · ນາຍທຶນສືບຕໍ່ສວຍໂອກາດຍາດເອົາດິນ. · ກຸ່ມຄົນທີ່ດ້ອຍໂອກາດອາດເສັຍຜົນປະໂຫຍດ ຫຼື ບໍ່ໃຫ້ເຂົ້າມາມີສ່ວນຮ່ວມ.		ລະບຽບໃຫ້ເຄັ່ງຄັດ. · ຄວນມີກົນໄກການຮ້ອງທຸກ.
2.	ການຄຸ້ມຄອງປ່າໄມ້	· ການຈຳກັດເຂົ້າຫາຊັບພະຍາກອນປ່າໄມ້ຍິ່ງເຮັດໃຫ້ຄອບຄົວທຸກຍາກທຸກໄປຕື້ມໂດຍສະເພາະຄອບຄົວທີ່ອາໄສປ່າໃນການດຳລົງຊີວິດ. · ກໍ່ໃຫ້ເກີດຂໍ້ຂັດແຍ່ງໃນສັງຄົມກ່ຽວກັບພື້ນທີ່ປ່າໄມ້.	· ຍ້ານບ່ອນທຳລາຍປ່າໄມ້ ແລະ ເຮັດໃຫ້ປ່າເສື່ອມໂຊມ. · ປ່າທຳມະຊາດຈະຖືກທົດແທນດ້ວຍປ່າປູກ.	· ທົບທວນ, ດັດປັບນະໂຍບາຍ, ມາດຕະການ ແລະ ກົດລະບຽບໃຫ້ສອດຄ່ອງກັບສະພາບຄວາມເປັນຈິງຂອງທ້ອງຖິ່ນ. · ຄວນມີກົນໄກການຮ້ອງທຸກ ຊຸກຍູ້ໃຫ້ທຸກພາກສ່ວນໃນສັງຄົມມີສ່ວນຮ່ວມໃນການຕັດສິນບັນຫາ.
3.	ການຄຸ້ມຄອງທາງສັງຄົມ (ຊີວິດການເປັນຢູ່)	· ກຸ່ມທີ່ດ້ອຍໂອກາດບໍ່ໄດ້ຮັບການສະໜັບສະໜູນ (ເປັນຕົ້ນແມ່ນກຸ່ມຊົນເຜົ່າສ່ວນນ້ອຍ ແລະ ຜູ້ທີ່ທຸກຍາກ). · ຄວາມຕ້ອງການຜະລິດຕະພັນກະສິກຳ ແລະ ລາຄາບໍ່ໝັ້ນຄົງ.	· ທາງເລືອກໃນການດຳລົງຊີວິດແບບໃໝ່ອາດກໍ່ໃຫ້ເກີດຜົນກະທົບໃນທາງລົບຕໍ່ສິ່ງແວດລ້ອມທຳມະຊາດ.	· ສຶກສາດ້ວຍຄວາມລະມັດລະວັງ ເພື່ອຫຼີກຫຼ່ຽງຜົນກະທົບໃນທາງລົບຕໍ່ສິ່ງແວດລ້ອມທຳມະຊາດ. · ເລືອກຮູບແບບການດຳລົງຊີວິດໃຫ້ແທດເໝາະກັບທ້ອງຖິ່ນ.

4.5. ການວິເຄາະກົດໝາຍ, ກົດລະບຽບ ແລະ ນິຕິກຳອື່ນໆ

ໃນບັນດາສົນທິສັນຍາສາກົນຕ່າງໆ, ສປປ ລາວ ໄດ້ເຊັນສົນທິສັນຍາຂອງສະຫະປະຊາຊາດ ວ່າດ້ວຍການປ່ຽນແປງດິນຟ້າອາກາດ (UNFCCC, 1995), ຂໍ້ຕົກລົງວ່າດ້ວຍການຮ່ວມມືເພື່ອການພັດທະນາ ເຂດອ່າງໂຕ່ງແມ່ນ້ຳຂອງຕອນລຸ່ມແບບຍືນຍົງໃນ ປີ 1995, ສົນທິສັນຍາວ່າດ້ວຍຄວາມຫຼາກຫຼາຍທາງຊີວະນາງພັນ (CBD, 1996), ສົນທິສັນຍາສະຫະປະຊາຊາດວ່າດ້ວຍການຕ້ານການກາຍເປັນທະເລຊາຍ (UNCCD, 1996), ຂໍ້ຕົກລົງອາຊຽນກ່ຽວກັບໝອກຄວັນອາຍພິດລະຫວ່າງປະເທດ (2002), ສົນທິສັນຍາສາກົນວ່າດ້ວຍການຄ້າຂາຍສັດປ່າ ແລະ ພືດທີ່ໃກ້ຈະສູນພັນ (CITES, 2004) ແລະ ສົນທິສັນຍາ ຣາມຊາ ວ່າດ້ວຍດິນທາມ (2010). ການລາຍງານ ແລະ ສື່ສານກ່ຽວກັບບັນດາຂໍ້ຕົກລົງ ຕ່າງໆທີ່ກ່າວມາຂ້າງເທິງນັ້ນແມ່ນເປັນຄວາມຮັບຜິດຊອບຂອງກະຊວງຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ.

ໃນວຽກງານການຫຼຸດຜ່ອນແລະການປັບຕົວຕໍ່ການການປ່ຽນແປງດິນຟ້າອາກາດ, ສປປ ລາວ ໄດ້ສົ່ງແຜນການຫຼຸດຜ່ອນ ແລະ ການປັບຕົວຕໍ່ການປ່ຽນແປງດິນຟ້າອາກາດແຫ່ງຊາດ (INDC) ໃຫ້ UNFCCC ໃນເດືອນກັນຍາ 2015 ຊຶ່ງລວມເອົາຫຼາຍຫົວຂໍ້ທີ່ກ່ຽວຂ້ອງກັບການຫຼຸດຜ່ອນການປ່ອຍອາຍພິດເຮືອນແກ້ວ, ການຟື້ນຟູປ່າໄມ້ ແລະ ການເພີ່ມການປັບຕົວ. ອີກດ້ານໜຶ່ງ, ໂດຍຜ່ານຈຸດປະສານງານຂອງ UNFCCC ຢູ່ກົມຄຸ້ມຄອງໄພພິບັດ ແລະ ການປ່ຽນແປງດິນຟ້າອາກາດ ສປປ ລາວ ມີແຜນການທີ່ຈະສະເໜີເອກະສານການສື່ສານແຫ່ງຊາດຄັ້ງທີ 3 ໃຫ້ແກ່ UNFCCC ໃນປີ 2018 ແລະ ການລາຍງານຄວາມຄືບໜ້າສອງປີ ຄັ້ງທີ 1.

ກ່ຽວກັບສົນທິສັນຍາສາກົນວ່າດ້ວຍການຄ້າຂາຍສັດປ່າ ແລະ ພືດທີ່ໃກ້ຈະສູນພັນ (CITES), ສປປ ລາວ ມີຄວາມຕັ້ງໃຈສ້າງສາຍ

ພົວພັນຮ່ວມມືກັບເຄືອຂ່າຍການປະຕິບັດກົດໝາຍວ່າດ້ວຍສັດນ້ຳ-ສັດປ່າຂອງອາຊຽນ ແລະ ສ້າງຄວາມເຂັ້ມແຂງໃຫ້ແກ່ຂະບວນການກວດກາສິນຄ້າຢູ່ດ່ານພາສີ ແລະ ຫຼຸດຜ່ອນປະລິມານການຄ້າຂາຍສັດປ່າຂ້າມຊາຍແດນ. ໃນເຄືອຂ່າຍການປະຕິບັດກົດໝາຍວ່າດ້ວຍສັດນ້ຳ-ສັດປ່າຂອງ ສປປ ລາວ ມີພາກໜຶ່ງໄດ້ລະບຸເຖິງການຈັດຕັ້ງປະຕິບັດເຄືອຂ່າຍການປະຕິບັດກົດໝາຍສັດນ້ຳ-ສັດປ່າຂອງອາຊຽນຊຶ່ງເປັນຄວາມຮັບຜິດຊອບຂອງກົມກວດກາປ່າໄມ້ ແລະ ໃນນັ້ນແມ່ນມີຫຼາຍພາກສ່ວນທີ່ມີຄວາມກ່ຽວຂ້ອງກັບການປະສານງານ ແລະ ການຈັດຕັ້ງປະຕິບັດກົດໝາຍປ່າໄມ້ ແລະ ກົດໝາຍວ່າດ້ວຍສັດນ້ຳ-ສັດປ່າ ແລະ ແຜນຍຸດທະສາດ ແລະ ກິດຈະກຳຕ່າງໆທີ່ກ່ຽວຂ້ອງ. ກົມກວດກາປ່າໄມ້ທີ່ໄດ້ຮັບການສ້າງຕັ້ງຂຶ້ນໃນປີ 2008 ຊຶ່ງເປັນສະຖາບັນຮັບຜິດຊອບເຮັດໜ້າທີ່ໃນການສຶບສວນ ແລະ ປະຕິບັດກິດຈະກຳຕ່າງໆພາຍໃຕ້*ກົດໝາຍປ່າໄມ້ ເລກທີ 06/NA ປີ2007* ແລະ*ກົດໝາຍສັດນ້ຳ-ສັດປ່າ ເລກທີ 07/NA ປີ2007*. ກົມກວດກາປ່າໄມ້ປະຕິບັດໜ້າທີ່ຕາມພາລະບົດບາດ *ເລກທີ 1894/ກປ 2012* ແລະ ເປັນເສນາທິການໃຫ້ແກ່ລັດຖະມົນຕີກະຊວງກະສິກຳ ແລະ ປ່າໄມ້ກ່ຽວກັບການປະຕິບັດກົດໝາຍປ່າໄມ້, ກົດໝາຍວ່າດ້ວຍສັດນ້ຳ-ສັດປ່າ ແລະ ປະຕິບັດນິຕິກຳອື່ນໆທີ່ກ່ຽວຂ້ອງ. ກົມກວດກາປ່າໄມ້ ແລະ ບັນດາຫ້ອງການສາຍຕັ້ງຂຶ້ນແຂວງ (ກອງກວດກາປ່າໄມ້ແຂວງຢູ່ໃນພະແນກກະສິກຳ ແລະ ປ່າໄມ້ແຂວງ). ຢູ່ລະດັບເມືອງກໍມີໜ່ວຍງານກວດກາປ່າໄມ້ເມືອງທີ່ຢູ່ຫ້ອງການກະສິກຳ ແລະ ປ່າໄມ້ເມືອງ ເຮັດໜ້າທີ່ຮັບຜິດຊອບຈັດຕັ້ງປະຕິບັດນະໂຍບາຍ ແລະ ມາດຕະການຕ່າງໆດັ່ງທີ່ໄດ້ລະບຸໄວ້ໃນພາກທີ 4 ທີ່ໄດ້ລະບຸກ່ຽວກັບການປະຕິບັດກົດໝາຍ.

ການເຄົາລົບສິດໃນການຖືຄອງດິນ ແລະ ຊັບພະຍາກອນ ແລະ ບັນດາມາດຕະການທີ່ກ່ຽວຂ້ອງກັບວຽກງານປ່າໄມ້ ແລະ ວຽກງານກະສິກຳ ແມ່ນໄດ້ລະບຸໄວ້ໃນພາກທີ 4, ຕາມລັດຖະທຳມະນູນ, *ກົດໝາຍຊັບສິນສະບັບປີ 1990, ກົດໝາຍທີ່ດິນເລກທີ 04/NA 2003* (ປັດຈຸບັນແມ່ນຢູ່ໃນການປັບປຸງຢູ່)ແມ່ນເປັນນິຕິກຳທີ່ສຳຄັນທີ່ສຸດ .ລັດຖະທຳມະນູນແຫ່ງສປປລາວສະບັບປີ 1991 ໄດ້ມີການປັບປຸງໃນປີ 2003 ແລະ ຫຼ້າສຸດແມ່ນໄດ້ມີການປັບປຸງຄືນໃໝ່ໃນປີ 2015 ຊຶ່ງເປັນ ນິຕິກຳທີ່ເປັນພື້ນຖານໃຫ້ແກ່ການກຳນົດທຸກໆກົດໝາຍ ແລະ ກົດລະບຽບພາຍໃນ ສປປ ລາວ. ຕາມລັດຖະທຳມະນູນ ດິນ, ຊັບພະຍາກອນເທິງໜ້າດິນ ແລະ ໃຕ້ດິນເຊັ່ນ: ປ່າໄມ້ ແລະ ແຮ່ທາດຕ່າງໆ ໃນ ສປປ ລາວ ແມ່ນເປັນຊັບສົມບັດຂອງວົງຄະນະຍາດແຫ່ງຊາດ; "ລັດປົກປ້ອງສິດຖືຄອງຊັບສິນ (ສິດຄອບຄອງ, ສິດນຳໃຊ້, ສິດໄດ້ຮັບຜົນປະໂຫຍດ ແລະ ສິດໂອນກຳມະສິດ) ແລະ ສິດໃນການສືບທອດຂອງບຸກຄົນ ແລະ ນິຕິບຸກຄົນ. ດິນແມ່ນມູນມໍລະດົກແຫ່ງຊາດ ແລະ ລັດຮັບປະກັນສິດໃນການນຳໃຊ້, ໂອນກຳມະສິດ ແລະ ສືບທອດຕາມກົດໝາຍ" (ລັດຖະທຳມະນູນ, ມາດຕາ 17). ລັດຖະທຳມະນູນສະບັບປັບປຸງປີ 2015 ໄດ້ຮຽກຮ້ອງໃຫ້ມີການສ້າງຕັ້ງສະພາປະຊາຊົນແຂວງທີ່ມີໜ້າທີ່ຮັບຜິດຊອບໃນການຕິດຕາມການປະຕິບັດໜ້າທີ່ວຽກງານຂອງອຳນາດການປົກຄອງທ້ອງຖິ່ນພ້ອມທັງການອະນຸມັດແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມຂອງແຂວງ.

ກົດໝາຍຊັບສິນປີ 1990 ໄດ້ກຳນົດ ແລະ ນິຍາມ 5 ຮູບແບບຂອງຊັບສິນ: ຊັບສິນຂອງລັດ; ຊັບສິນລວມໝູ່; ຊັບສິນສ່ວນບຸກຄົນ; ຊັບສິນເອກະຊົນ (ຊັບສິນເປັນຂອງຫົວໜ່ວຍທຸລະກິດເອກະຊົນຊຶ່ງບໍ່ແມ່ນຊັບສິນຂອງສ່ວນບຸກຄົນ ຫຼື ລວມໝູ່); ແລະຊັບສິນສ່ວນຕົວ (ຊັບສິນໃຊ້ສ່ວນຕົວ). ກົດໝາຍຊັບສິນຍັງໄດ້ກຳນົດການເປັນເຈົ້າຂອງທີ່ດິນ, ຊັບພະຍາກອນໃນດິນ, ນ້ຳ, ປ່າໄມ້ ແລະ ສັດປ່າທັງໝົດ ແມ່ນເປັນກຳມະສິດຂອງລັດ, ຊຶ່ງລັດອາດຈະມອບສິດໃນການຄອບຄອງ, ນຳໃຊ້, ໂອນກຳມະສິດ ແລະ ສືບທອດໃຫ້ພາກສ່ວນອື່ນໆ. ໃນປີ 2012 ຄະນະກຳມະທິການການວາງແຜນເສດຖະກິດ ແລະ ການເງິນຂອງສະພາແຫ່ງຊາດ, ໄດ້ປະກາດກ່ຽວກັບເປົ້າໝາຍຂອງລັດຖະບານໃນການປະຕິຮູບທີ່ດິນໃນທົ່ວປະເທດ ແລະ ບູລິມະສິດຄວາມຕ້ອງການເພີ່ມການຄຸ້ມຄອງທີ່ດິນໃນຂັ້ນທ້ອງຖິ່ນ ຊຶ່ງການເຂົ້າເຖິງທີ່ດິນຂອງປະຊາຊົນໃນເຂດຊົນນະບົດແມ່ນເປັນພື້ນຖານອັນຈຳເປັນສຳລັບການຫຼຸດຜ່ອນຄວາມທຸກຍາກ. ໃນເວລານັ້ນ, ກະຊວງຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມແມ່ນຖືກສ້າງຕັ້ງຂຶ້ນ ສ່ວນໜຶ່ງແມ່ນເພື່ອຮັບຜິດຊອບຕໍ່ວຽກງານກ່ຽວກັບທີ່ດິນທັງໝົດທີ່ອີງການຄຸ້ມຄອງທີ່ດິນແຫ່ງຊາດເປັນຜູ້ຮັບຜິດຊອບໃນເມື່ອກ່ອນ.

ຕັ້ງແຕ່ປີ 2012, ສປປ ລາວ ໄດ້ມີການກະກຽມນະ�โยบายທີ່ດິນແຫ່ງຊາດ ແລະ ໃນເດືອນສິງຫາ 2016 ຮ່າງນະໂຍບາຍທີ່ດິນແຫ່ງຊາດດັ່ງກ່າວໄດ້ຖືກນຳສະເໜີ ແລະ ປຶກສາຫາລືໃນກອງປະຊຸມແຫ່ງຊາດທີ່ເປັນປະທານໂດຍທ່ານຮອງນາຍົກລັດຖະມົນຕີປະລິນຍາເອກ ສອນໄຊ ສີພັນດອນ ແລະ ມີຜູ້ຕາງໜ້າຈາກ 18 ກະຊວງ, ສະພາ ແຫ່ງຊາດ, ອົງການຈັດຕັ້ງທຽບເທົ່າກະຊວງ, ສະຖາບັນການສຶກສາ, ພ້ອມດຽວກັນນັ້ນກໍມີຜູ້ຕາງໜ້າຈາກອົງການຜູ້ໃຫ້ທຶນ ແລະ ອົງການຈັດຕັ້ງທາງສັງຄົມເຂົ້າຮ່ວມ. ພາຍຫຼັງສຳເລັດກອງປະຊຸມດັ່ງກ່າວ, ຄາດວ່າຮ່າງນະໂຍບາຍທີ່ດິນແຫ່ງຊາດສະບັບສຸດທ້າຍຈະໄດ້ຮັບການຈັດເຂົ້າໃນວາລະກອງປະຊຸມຂອງສະພາແຫ່ງຊາດຄັ້ງຕໍ່ໄປ. ແນວໃດກໍຕາມ, ຫຼັງຈາກນັ້ນກໍໄດ້ມີການຕັດສິນໃຈວ່າລັດຖະບານ ສປປ ລາວ ຈະບໍ່ມີການປັບປຸງນະໂຍບາຍທີ່ດິນແຫ່ງຊາດອີກ, ແຕ່ຈະສະເໜີ

ໃຫ້ກົມການເມືອງສູນກາງພັກເປັນຜູ້ອອກມະຕິຕົກລົງຕໍ່ກັບນະໂຍບາຍທີ່ດິນແຫ່ງຊາດດັ່ງກ່າວ.

ເມື່ອໃດທີ່ນະໂຍບາຍທີ່ດິນແຫ່ງຊາດໄດ້ຮັບການອະນຸມັດ, ລັດຖະບານ ສປປ ລາວ ຈະສືບຕໍ່ປັບປຸງກົດໝາຍທີ່ດິນປີ 2003 ເພື່ອສະທ້ອນໃຫ້ເຫັນເຖິງການປ່ຽນແປງໃນນະໂຍບາຍທີ່ດິນແຫ່ງຊາດ ເພື່ອສ້າງເປັນລະບຽບການໃນການຈັດຕັ້ງປະຕິບັດນະໂຍບາຍດັ່ງກ່າວ. ກະຊວງຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ ຈະເປັນຜູ້ປັບປຸງກົດໝາຍທີ່ດິນແລ້ວສົ່ງໃຫ້ສະພາແຫ່ງຊາດພິຈາລະນາ. ໃນເມື່ອກົດໝາຍທີ່ດິນໄດ້ຮັບການປັບປຸງແລ້ວ, ກົດໝາຍປ່າໄມ້ ແລະ ກົດໝາຍອື່ນໆທີ່ກ່ຽວຂ້ອງກັບຊັບພະຍາກອນທຳມະຊາດອື່ນໆກໍຈະຕ້ອງໄດ້ຮັບການປັບປຸງ ແລະ ເຮັດໃຫ້ສອດຄ່ອງກັບກົດໝາຍທີ່ດິນ. ກະຊວງກະສິກຳ ແລະ ປ່າໄມ້ ມີແຜນທີ່ຈະສະເໜີກົດໝາຍປ່າໄມ້ສະບັບປັບປຸງໃຫ້ແກ່ລັດຖະບານພິຈາລະນາໃນເດືອນກັນຍາ 2017, ແຕ່ຍັງບໍ່ມີຂໍ້ມູນລະອຽດວ່າກົດໝາຍດັ່ງກ່າວຈະຖືກສົ່ງໃຫ້ແກ່ສະພາແຫ່ງຊາດເມື່ອໃດ[6]. ກະຊວງກະສິກຳ ແລະ ປ່າໄມ້ ໄດ້ສ້າງຕັ້ງຄະນະກຳມະການຮັບຜິດຊອບການປັບປຸງກົດໝາຍຢ່າງເປັນທາງການແລ້ວຊຶ່ງແມ່ນຮອງລັດຖະມົນຕີ ທ່ານ ທອງພັດ ວົງມະນີ ເປັນປະທານຄະນະກຳມະການດັ່ງກ່າວ.

ກົດໝາຍທີ່ດິນເລກທີ *04/NA 2003* (ກຳລັງປັບປຸງ) ເປັນເຄື່ອງມືຫຼັກທາງດ້ານນິຕິກຳໃນການຄຸ້ມຄອງບໍລິຫານ, ການປົກປັກຮັກສາ ແລະ ນຳໃຊ້ທີ່ດິນຢູ່ໃນ ສປປ ລາວ. ມາດຕາ 3 ຂອງກົດໝາຍທີ່ດິນໄດ້ເນັ້ນເຖິງ ມາດຕາ 17 ຂອງລັດຖະທຳມະນູນທີ່ວ່າດິນແມ່ນເປັນຊັບສິນຂອງວົງຄະນະຍາດແຫ່ງຊາດ ແລະ ລັດເປັນສູນກາງໃນການຄຸ້ມຄອງບໍລິຫານ, ລວມທັງການຈັດສັນຕ່າງໆ. ດິນສາມາດເປັນດິນລັດ, ຊັບສິນຂອງລັດ, ຊັບສິນສ່ວນລວມ ຫຼື "ເປັນກຳມະສິດ" ຫຼື ສິດນຳໃຊ້ໂດຍບຸກຄົນ, ຊຸມຊົນ ຫຼື ອົງການຈັດຕັ້ງຕ່າງໆ. ອີງຕາມ*ກົດໝາຍທີ່ດິນເລກທີ 04/NA 2003*, ທີ່ດິນທັງໝົດແມ່ນຈະຕ້ອງໄດ້ຮັບການຈັດແບ່ງປະເພດ. ໃນນັ້ນແມ່ນໄດ້ແບ່ງເປັນ 8 ປະເພດທີ່ດິນມີດັ່ງລຸ່ມນີ້:

- ທີ່ດິນກະສິກຳ;
- ທີ່ດິນປ່າໄມ້;
- ທີ່ດິນບໍລິເວນນ້ຳ;
- ທີ່ດິນອຸດສາຫະກຳ;
- ທີ່ດິນຄົມມະນາຄົມ;
- ທີ່ດິນວັດທະນະທຳ;
- ທີ່ດິນປ້ອງກັນຊາດ ແລະ ປ້ອງກັນຄວາມສະຫງົບ;
- ທີ່ດິນປຸກສ້າງ.

ປະເພດທີ່ດິນແມ່ນໄດ້ກຳນົດຂອບເຂດຂອງການນຳໃຊ້, ລວມທັງການຈັດສັນໃຫ້ລັດ, ບຸກຄົນ ຫຼື ເພື່ອເຊົ່າ, ສຳປະທານ ຫຼື ພັດທະນາພື້ນຖານໂຄງລ່າງ. ການຫັນປ່ຽນຈາກທີ່ດິນປະເພດໜຶ່ງໄປເປັນທີ່ດິນປະເພດອື່ນ ແມ່ນສາມາດເຮັດໄດ້ຖ້າວ່າຫາກຈຳເປັນຕ້ອງໃຊ້ດິນດັ່ງກ່າວເພື່ອຈຸດປະສົງອື່ນ ແລະ ເຫັນວ່າບໍ່ສົ່ງຜົນກະທົບທາງລົບຕໍ່ສິ່ງແວດລ້ອມທຳມະຊາດ ຫຼື ສັງຄົມ ແລະ ຈະຕ້ອງໄດ້ຮັບອະນຸຍາດຈາກອຳນາດການປົກຄອງກ່ຽວຂ້ອງກ່ອນ[7] (ມາດຕາ 14).

ດິນທີ່ຖືກກຳນົດໃຫ້ເປັນທີ່ດິນກະສິກຳ ແລະ ດິນປ່າໄມ້, ຊຶ່ງອາດເປັນທີ່ດິນປ່າໄມ້ ຫຼື ເປັນພື້ນທີ່ທີ່ຖືກຖາກຖາງ ແມ່ນມອບໃຫ້ກະຊວງກະສິກຳ ແລະ ປ່າໄມ້ ເປັນຜູ້ຄຸ້ມຄອງຕາມກົດໝາຍກະສິກຳ ເລກທີ 01 - 98 /NA ແລະ ກົດໝາຍປ່າໄມ້ ເລກທີ 06/NA 2007[8]. ກະຊວງກະສິກຳ ແລະ ປ່າໄມ້ ມີໜ້າທີ່ຮັບຜິດຊອບໃນການຄຸ້ມຄອງທີ່ດິນປ່າໄມ້, *ກົດໝາຍທີ່ດິນເລກທີ 04/NA 2003*[9], ແລະ ກຳນົດທີ່ດິນແຕ່ລະປະເພດເພື່ອເປົ້າໝາຍໃນການຄຸ້ມຄອງເຊັ່ນ: ເພື່ອປ້ອງກັນ ປ່າປ້ອງກັນ ແລະ ປ່າສະຫງວນ (ຫຼື ເພື່ອການພັດທະນາ ປ່າ

[6]ໃນປີ 2014 ຮ່າງປັບປຸງກົດໝາຍປ່າໄມ້ສະບັບສຸດທ້າຍທີ່ໄດ້ຮັບການສະໜັບສະໜູນຢ່າງຈິ່ງຈັງຈາກຄູ່ຮ່ວມພັດທະນາ ແລະ ໄດ້ສະເໜີຕໍ່ສະພາ ແຫ່ງຊາດ, ແຕ່ວ່າ ບໍ່ໄດ້ຮັບປຶກສາຫາລືໃນກອງປະຊຸມສະພາ ເພາະຍັງຄານະໂຍບາຍທີ່ດິນແຫ່ງຊາດ

[7]ພາກສ່ວນທີ່ຮັບຜິດຊອບໃນການອະນຸມັດການຫັນປ່ຽນການນຳໃຊ້ດິນແມ່ນຂຶ້ນກັບຂະໜາດຂອງດິນ

[8] DOFI & DOF - Forest Legality Compendium 2015

[9]ປ່າໄມ້ໃນ ສປປ ລາວ ແບ່ງອອກເປັນສາມປະເພດ: (i) ປ່າຜະລິດ; (ii) ປ່າສະຫງວນ ແລະ (iii) ປ່າປ້ອງກັນ. ປ່າຜະລິດກວມເອົາ 34% (3.2 ລ້ານ ຮຕ) ຂອງພື້ນທີ່ປ່າໄມ້ທັງໝົດ. ປ່າປ້ອງກັນກວມເອົາ 29% (2.8 ລ້ານ ຮຕ)ແລະ ປ່າສະຫງວນແຫ່ງຊາດກວມເອົາ (ປ່າສະຫງວນ, ບາງບ່ອນກໍກວມເອົາພື້ນທີ່ທີ່ບໍ່ມີປ່າໄມ້) ມີປະມານ 5.3 ລ້ານ ຮຕ (37%) ຂອງເນື້ອທີ່ລວມທັງໝົດ. ເນວໃດກໍຕາມ, ມີຫຼາຍພື້ນທີ່ທີ່ໝາຍເປັນປ່າປ້ອງກັນ, ແຕ່ຫັດຖືກໃຊ້ເປັນພື້ນທີ່ກະສິກຳ ແລະ ຍັງລວມທັງພື້ນທີ່ໃນເມືອງ ແລະ ພື້ນທີ່ທີ່ໄດ້ຖືກຫັນເປັນດິນປະເພດອື່ນແລ້ວ.

ຜະລິດ) ໂດຍອີງຕາມ*ກົດໝາຍປ່າໄມ້ເລກທີ 06/NA2007* [10]. ນອກຈາກນີ້, ຍັງມີພື້ນທີ່ປ່າໄມ້ທີ່ຍັງບໍ່ທັນໄດ້ມີການຈັດປະເພດ. ເຖິງຢ່າງໃດກໍຕາມ, ປະຈຸບັນນີ້ແມ່ນຍັງບໍ່ທັນມີກົດລະບຽບໃນການຄຸ້ມຄອງພື້ນທີ່ດັ່ງກ່າວນັ້ນເທື່ອ. ທີ່ດິນປ່າໄມ້ທີ່ນອນຢູ່ໃນສາມປະເພດປ່າ (ກົດໝາຍປ່າໄມ້ມາດຕາ 13) ແມ່ນລວມມີທັງປ່າຕົກໜາ, ປ່າເສື່ອມโซม, ດິນເປົ່າຫວ່າງ ແລະ ປ່າຊົມໃຊ້ຂອງບ້ານ ແລະ ຕ້ອງໄດ້ມີການພັດທະນາແຜນຈັດສັນປ່າໄມ້ເພື່ອກຳນົດປະເພດການນຳໃຊ້ທີ່ໄດ້ຮັບອະນຸມັດຢ່າງເປັນທາງການ. ຫຼັງຈາກທີ່ມີການຈັດປະເພດປ່າໄມ້, ຈັດສັນ ແລະ ແບ່ງເຂດທີ່ດິນປ່າໄມ້ສຳເລັດແລ້ວແມ່ນລັດຖະບານຈະໄດ້ມອບໃຫ້ອຳນາດການປົກຄອງແຂວງ, ຫຼັງຈາກນັ້ນກໍຈະສືບຕໍ່ມອບໃຫ້ອຳນາດການປົກຄອງເມືອງ ຊຶ່ງອຳນາດການປົກຄອງຂັ້ນເມືອງຈະສືບຕໍ່ມອບໃຫ້ອຳນາດການປົກຄອງຂັ້ນບ້ານເປັນຜູ້ຄຸ້ມຄອງ. ອີງໃສ່ການພັດທະນາແຜນການມອບດິນ-ມອບປ່າ (ມາດຕາ 82, *ກົດໝາຍປ່າໄມ້ເລກທີ 06/NA 2007),* ດິນປ່າໄມ້ແມ່ນສາມາດຈັດສັນໃຫ້ບຸກຄົນ, ຄົວເຮືອນ ແລະ ອົງການຈັດຕັ້ງຕ່າງໆນຳໃຊ້. ສິດໃນການນຳໃຊ້ທີ່ດິນປ່າໄມ້ແມ່ນໄດ້ລະບຸໄວ້ໃນ*ກົດໝາຍທີ່ດິນເລກທີ 04/NA 2003* ແລະ ລະບຽບການຕ່າງໆທີ່ກ່ຽວຂ້ອງ[11].

ກົດໝາຍປ່າໄມ້ເລກທີ 06/NA 2007 ໄດ້ກຳນົດພື້ນທີ່ປ່າໄມ້ທຳມະຊາດເປັນຊັບສິນຂອງວົງຄະນະຍາດແຫ່ງຊາດ, ຊຶ່ງລັດເປັນຕົວແທນ, ໃນນີ້ແມ່ນລວມທັງທີ່ດິນປ່າໄມ້ບ້ານ. ເຖິງຢ່າງໃດກໍຕາມ, ປ່າປູກແມ່ນຊັບສິນຂອງສ່ວນບຸກຄົນ ຫຼື ອົງການຈັດຕັ້ງ. *ຍຸດທະສາດປ່າໄມ້ 2020* ໄດ້ລະບຸຢ່າງຊັດເຈນວ່າລັດມີນະ�โยบายຕໍ່ການມີສ່ວນຮ່ວມໃນການຈັດສັນຄຸ້ມຄອງພື້ນທີ່ປ່າຜະລິດ, ປ່າປ້ອງກັນ ແລະ ປ່າສະຫງວນ ແລະ ເພີ່ມການມີສ່ວນຮ່ວມຂອງປະຊາຊົນໃນການຄຸ້ມຄອງ ແລະ ນຳໃຊ້ປ່າໄມ້ບ້ານແບບຍືນຍົງໂດຍຜ່ານການວາງແຜນນຳໃຊ້ທີ່ດິນແບບມີສ່ວນຮ່ວມ ແລະ ການມອບດິນມອບປ່າ. *ກົດໝາຍປ່າໄມ້ເລກທີ 06/NA 2007* ໄດ້ກຳນົດພັນທະຂອງປະຊາຊົນທ້ອງຖິ່ນຕໍ່ການຄຸ້ມຄອງປ່າ ແລະ ຊັບພະຍາກອນປ່າໄມ້ ແລະ ຮ່າງກົດໝາຍປ່າໄມ້ສະບັບທີ່ກຳລັງມີການປັບປຸງໄດ້ລະບຸເຖິງການມີສ່ວນຮ່ວມຂອງປະຊາຊົນໃນການຄຸ້ມຄອງທຸກປະເພດປ່າໄມ້ ຊຶ່ງທຸກມາດຕາຂອງກົດໝາຍດັ່ງກ່າວທີ່ເວົ້າເຖິງການຈັດສັນຄຸ້ມຄອງປ່າໄມ້ແມ່ນລ້ວນແລ້ວແຕ່ໄດ້ລະບຸເຖິງການມີສ່ວນຮ່ວມຂອງປະຊາຊົນໃນນັ້ນແມ່ນລວມທັງການມີສ່ວນຮ່ວມໃນການຄຸ້ມຄອງ, ການວາງແຜນຄຸ້ມຄອງປ່າໄມ້ ແລະ ການຄຸ້ມຄອງທີ່ດິນປ່າໄມ້.

ດັ່ງນັ້ນ, ອີງໃສ່ບັນດານະ�โยบาย ແລະ ມາດຕະການທີ່ກ່ຽວຂ້ອງກັບຂະແໜງການປ່າໄມ້ ແລະ ນະ�โยบาย ແລະ ມາດຕະການລວມທີ່ໄດ້ລະບຸໃນພາກທີ 4 ຂອງແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງ ຂອງແຂວງຫຼວງພະບາງແມ່ນໄດ້ກຳນົດເອົາການວາງແຜນນຳໃຊ້ທີ່ດິນ ແລະ ການມອບດິນມອບປ່າແບບມີສ່ວນຮ່ວມ[12], ພ້ອມ ທັງການຄຸ້ມຄອງປ່າໄມ້ບ້ານເປັນກົດຈະກຳຫຼັກເພື່ອຄຸ້ມຄອງທີ່ດິນ ແລະ ປ່າໄມ້ແບບຍືນຍົງ. ການຄຸ້ມຄອງປ່າໄມ້ບ້ານແມ່ນເປັນໜຶ່ງໃນບັນດາບູລິມະສິດຫຼັກຂອງລັດຖະບານ[13] ໂດຍແມ່ນກະຊວງກະສິກຳ ແລະ ປ່າໄມ້, ໂດຍສະເພາະແມ່ນກົມປ່າໄມ້ເປັນເສນາທິການໃຫ້ແກ່ລັດຖະບານ. ຮ່າງກົດໝາຍປ່າໄມ້ທີ່ກຳລັງໄດ້ຮັບການປັບປຸງແມ່ນໄດ້ລະບຸເຖິງພາລະບົດບາດ ແລະ ການມີສ່ວນຮ່ວມໃນການຄຸ້ມຄອງປ່າໄມ້ຂອງປະຊາຊົນ. ການຄຸ້ມຄອງປ່າໄມ້ບ້ານແມ່ນໝາຍເຖິງການຄຸ້ມຄອງ, ການອະນຸລັກ, ການພັດທະນາ ແລະ ການນຳໃຊ້ພື້ນທີ່ປ່າໄມ້ແບບຍືນຍົງພາຍໃນຂອບເຂດຂອງບ້ານທີ່ທາງລັດຖະບານໄດ້ຈັດສັນໃຫ້. ດິນປ່າໄມ້ບ້ານແມ່ນໄດ້ຖືກຈັດແບ່ງເປັນປ່າສະຫງວນຂອງບ້ານ, ປ່າປ້ອງກັນຂອງບ້ານ, ປ່າຊົມໃຊ້ຂອງບ້ານ ແລະ ປ່າອື່ນໆຕາມແຜນການຈັດສັນຄຸ້ມຄອງປ່າໄມ້ (ກົດໝາຍປ່າໄມ້ມາດຕາ 3 ສະບັບປັບປຸງໃໝ່ປີ 2014). ອົງການຈັດຕັ້ງ, ຄົວເຮືອນ ແລະ ບຸກຄົນເປັນເຈົ້າຂອງປ່າໄມ້ ແລະ ດິນປ່າໄມ້ຕາມການແບ່ງປັນຂອງລັດເພື່ອຄຸ້ມຄອງ, ອະນຸລັກ, ພັດທະນາ ແລະ ນຳໃຊ້ຕາມກົດໝາຍ ແລະ ກົດລະບຽບການຕ່າງໆທີ່ກ່ຽວຂ້ອງ (ມາດຕາ 17, *ກົດໝາຍປ່າໄມ້ເລກທີ 06/NA 2007*). ລັດສົ່ງເສີມໃຫ້ບຸກຄົນ, ຄອບຄົວ, ນິຕິບຸກຄົນ ແລະ ອົງການຈັດຕັ້ງຕ່າງໆຊ່ວຍກັນປົກປັກຮັກສາ ແລະ ພັດທະນາທຸກປະເພດປ່າໄມ້, ເພື່ອຟື້ນຟູປ່າໄມ້ທຳມະຊາດ, ປູກໄມ້ ແລະ ເຄື່ອງປ່າຂອງດົງໃນເຂດປ່າເສື່ອມโซม, ເຂດປ່າຖືກທຳລາຍຢ່າງຮ້າຍແຮງ ແລະ ດິນເປົ່າຫວ່າງໃຫ້ກາຍເປັນປ່າໄມ້ຄືນໃໝ່ເພື່ອປ້ອງກັນສິ່ງແວດລ້ອມ ແລະ ຊີວະນາໆພັນເພື່ອເພີ່ມການເກັບກັກກາກບອນປ່າໄມ້ ແລະ ການບໍລິການລະບົບນິເວດວິທະຍາ.

ນອກຈາກລັດຖະທຳມະນູນ, *ກົດໝາຍທີ່ດິນເລກທີ 04/NA ປີ 2003* ແລະ *ກົດໝາຍປ່າໄມ້ເລກທີ 06/NA ປີ 2007* ແລ້ວ, ຍັງມີນິຕິກຳອື່ນໆທີ່ກ່ຽວຂ້ອງກັບການຄຸ້ມຄອງບໍລິຫານທີ່ດິນເຊັ່ນ*ກົດໝາຍສົ່ງເສີມການລົງທຶນເລກທີ 02/NA 2009, ດຳລັດຂອງນາຍົກລັດຖະ*

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[10]ປ່າໄມ້ໃນ ສປປ ລາວ ໄດ້ຮັບການຈັດເປັນສາມປະເພດປ່າຄື: (i) ປ່າຜະລິດ; (ii) ປ່າສະຫງວນ, ແລະ (iii) ປ່າປ້ອງກັນ.

[11] DOFI & DOF - Forest Legality Compendium 2015

[12]ການວາງແຜນນຳໃຊ້ທີ່ດິນກະສິກຳ ແລະ ປ່າໄມ້ແບບມີສ່ວນຮ່ວມ ໃນລະດັບບ້ານ ແລະ ກຸ່ມບ້ານ 2010. JICA, SIDA, GTZ

[13]ແຜນພັດທະນາເສດຖະກິດສັງຄົມແຫ່ງຊາດ ຄັ້ງທີ່ 8

ມົນຕີເລກທີ 192/PM ປີ 2005 ວ່າດ້ວຍການຊົດເຊີຍ ແລະ ການຕັ້ງຖິ່ນຖານໃໝ່, ດຳລັດຂອງນາຍົກລັດຖະມົນຕີເລກທີ່ 88/PM ປີ 2008 ວ່າດ້ວຍການຈັດຕັ້ງປະຕິບັດກົດໝາຍທີ່ດິນ, ດຳລັດຂອງນາຍົກລັດຖະມົນຕີເລກທີ 135/PM ປີ 2009 ວ່າດ້ວຍການເຊົ່າ ແລະ ສຳປະທານທີ່ດິນ. ກະຊວງແຜນການ ແລະ ການລົງທຶນ ມີພາລະບົດບາດໜ້າທີ່ໃນການດຳເນີນຂະບວນການສະເໜີການລົງທຶນເພື່ອສຳປະທານທີ່ດິນເພື່ອປູກໄມ້ອຸດສາຫະກຳຕາມນະ�โยบายການລົງທຶນ ແລະ ການສຳປະທານທີ່ດິນ.

ໃນຂະນະທີ່ແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງ ໄດ້ຖືກພັດທະນາເພື່ອໃຫ້ສອດຄ່ອງກັບແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມແຫ່ງຊາດ ແລະ ຂອງແຂວງ ແລະ ແຜນຍຸດທະສາດຂອງຂະແໜງການຕ່າງໆ, ແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງຈະຕ້ອງໄດ້ເຊື່ອມ�โยงກັບແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມແຕ່ປີ 2016-2020 ແລະ 2021-2025 ຂອງ ແຂວງ ແລະ ເມືອງ. ອົງປະກອບຂອງແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງ ແມ່ນຕ້ອງໄດ້ລວມເຂົ້າໃນຂະບວນການວາງແຜນ (ຕົວຢ່າງ: ການວາງແຜນນຳໃຊ້ທີ່ດິນ ແລະ ແຜນຄຸ້ມຄອງປ່າໄມ້ບ້ານ) ແລະ ຕ້ອງໄດ້ເຊື່ອມ�โยง ແຜນປະຕິບັດງານ REDD+ ຂັ້ນແຂວງ ເຂົ້າກັບແຜນການປະຈຳປີ ແລະ ແຜນການ 5 ປີ ຂອງແຂວງ ແລະ ເມືອງ.

5. ແຜນຈັດຕັ້ງປະຕິບັດ

ຕາຕະລາງ 13 ລຸ່ມນີ້ ແມ່ນແຜນຈັດຕັ້ງປະຕິບັດຂອງແຕ່ລະປີ ຊົ່ວໄລຍະຂອງ PRAP (2018-2025), ໃນນັ້ນລວມທັງລາຍລະອຽດຂອງກິດຈະກຳ ແລະ ພາກສ່ວນຮັບຜິດຊອບຈັດຕັ້ງປະຕິບັດ.

ຕາຕະລາງ 13: ແຜນຈັດຕັ້ງປະຕິບັດPRAP

ອົງປະກອບ ແລະ ກິດຈະກຳ		ແຜນຈັດຕັ້ງປະຕິບັດປະຈຳປີ								ພາກສ່ວນຮັບຜິດຊອບ
		ປີ 1	ປີ 2	ປີ 3	ປີ 4	ປີ 5	ປີ 6	ປີ 7	ປີ 8	
ອົງປະກອບ 1: ການຄຸ້ມຄອງທີ່ດິນແບບກົງວົງຈອນ										
ອົງປະກອບຍ່ອຍ 1: ການປັບປຸງການວາງແຜນນຳໃຊ້ທີ່ດິນຂັ້ນແຂວງ ແລະ ເມືອງ *[MOs:1.2]*										
ກິດຈະກຳ 1.1	ສ້າງກົນໄກການປະສານງານກ່ຽວກັບທີ່ດິນ ໂດຍປະກອບມີກຳມະການຈາກຂະແໜງການປ່າໄມ້									ຄຸ້ມຄອງທີ່ດິນ/ພຊສ ຄຸ້ມຄອງທີ່ດິນ/ພກປ
ກິດຈະກຳ 1.2	ສະໜັບສະໜູນດ້ານວິຊາການເພື່ອເຊື່ອມໂຍງ 3 ປະເພດປ່າ ເຂົ້າໃນແຜນຈັດສັນທີ່ດິນຂັ້ນແຂວງ, ແຜນນຳໃຊ້ທີ່ດິນ ແລະ ແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມຂອງແຂວງ									ຄະນະກຳມະການວາງແຜນນຳໃຊ້ທີ່ດິນ ຄຸ້ມຄອງທີ່ດິນ/ພຊສ
ກິດຈະກຳ 1.3	ຈັດຊື້ຈັດຫາເຄື່ອງມືອຸປະກອນ ເພື່ອສະໜັບສະໜູນການປັບປຸງວຽກງານວາງແຜນນຳໃຊ້ທີ່ດິນ									ຄະນະກຳມະການວາງແຜນນຳໃຊ້ທີ່ດິນ ຄຸ້ມຄອງທີ່ດິນ/ພຊສ
ກິດຈະກຳ 1.4	ຈັດຕັ້ງປະຕິບັດການປັບປຸງວຽກງານວາງແຜນນຳໃຊ້ທີ່ດິນຂັ້ນແຂວງ ແລະ ເມືອງ									ຄະນະກຳມະການວາງແຜນນຳໃຊ້ທີ່ດິນ ຄຸ້ມຄອງທີ່ດິນ/ພຊສ
ອົງປະກອບຍ່ອຍ 2: ການວາງແຜນນຳໃຊ້ທີ່ດິນແບບມີສ່ວນຮ່ວມຢູ່ຂັ້ນບ້ານ *[MOs:1.2]*										
ກິດຈະກຳ 2.1	ສ້າງຄວາມເຂັ້ມແຂງ ແລະ ຝຶກອົບຮົມໃຫ້ພະນັກງານ ກ່ຽວກັບການວາງແຜນນຳໃຊ້ທີ່ດິນແບບມີສ່ວນຮ່ວມ (PLUP)									ຄຸ້ມຄອງທີ່ດິນ/ພຊສ ພກປ
ກິດຈະກຳ 2.2	ຈັດຕັ້ງປະຕິບັດການວາງແຜນນຳໃຊ້ທີ່ດິນແບບມີສ່ວນຮ່ວມ ຢູ່ ຂັ້ນບ້ານ									ຄຸ້ມຄອງທີ່ດິນ/ພຊສ ພກປ
ອົງປະກອບຍ່ອຍ 3: ການຂຶ້ນທະບຽນທີ່ດິນກະສິກຳ ແລະ ທີ່ດິນປ່າໄມ້ແລະອອກໃບຕາດິນ *[MOs:1.2]*										
ກິດຈະກຳ 3.1	ສ້າງຄວາມເຂັ້ມແຂງ ແລະ ຝຶກອົບຮົມໃຫ້ພະນັກງານ ກ່ຽວກັບຂັ້ນຕອນການຂຶ້ນທະບຽນທີ່ດິນ ແລະ ອອກໃບຕາດິນ									ຄຸ້ມຄອງທີ່ດິນ/ພຊສ
ກິດຈະກຳ 3.2	ຈັດຕັ້ງປະຕິບັດການຂຶ້ນທະບຽນທີ່ດິນ ແລະ ອອກໃບຕາດິນ ຄຽງຄູ່ກັບການສ້າງຈິດສຳນຶກ ແລະ ເຜີຍແຜ່ກົດໝາຍວ່າດ້ວຍທີ່ດິນ, ກົດໝາຍວ່າດ້ວຍການສືບທອດ, ກົດໝາຍວ່າດ້ວຍຄອບຄົວ ແລະ ກົດ									ຄຸ້ມຄອງທີ່ດິນ/ພຊສ

	ໝາຍອື່ນໆທີ່ກ່ຽວຂ້ອງ									
ອົງປະກອບຍ່ອຍ 4: ການນຳໃຊ້ກົດໝາຍ ແລະ ການຄຸ້ມຄອງສຳປະທານທີ່ດິນ ແລະ ການຜະລິດຕາມສັນຍາສຳລັບການປູກພືດເສດຖະກິດແລະການປູກໄມ້ *[MOs:1]*										
ກິດຈະກຳ 4.1	ກວດກາລະອຽດການສຳປະທານທີ່ດິນ ແລະ ການຜະລິດຕາມສັນຍາໃນປະຈຸບັນ ສຳລັບການປູກພືດເສດຖະກິດ ແລະ ປູກໄມ້ໃນທົ່ວແຂວງ									ພາກ ສິ່ງແວດລ້ອມ, ຄຸ້ມຄອງທີ່ດິນ/ພຊສ
ກິດຈະກຳ 4.2	ສ້າງຄວາມເຂັ້ມແຂງ ແລະ ຝຶກອົບຮົມໃຫ້ພະນັກງານ ກ່ຽວກັບຂັ້ນຕອນການອະນຸມັດ ແລະ ຕິດຕາມກວດກາການສຳປະທານທີ່ດິນ ແລະ ການຜະລິດຕາມສັນຍາ									ພາກ ສິ່ງແວດລ້ອມ, ຄຸ້ມຄອງທີ່ດິນ/ພຊສ
ກິດຈະກຳ 4.3	ຄຸ້ມຄອງ ແລະ ຕິດຕາມກວດກາການສຳປະທານທີ່ດິນ ແລະ ການຜະລິດຕາມສັນຍາ ຢູ່ ຈຸດທົດລອງຂອງແຂວງຫຼວງພະບາງ									ພາກ ສິ່ງແວດລ້ອມ, ຄຸ້ມຄອງທີ່ດິນ/ພຊສ
ອົງປະກອບຍ່ອຍ 5: ການນຳໃຊ້ກົດໝາຍແລະການຄຸ້ມຄອງໂຄງການກໍ່ສ້າງພື້ນຖານໂຄງລ່າງ *[MOs:1]*										
ກິດຈະກຳ 5.1	ສ້າງຈິດສຳນຶກໃຫ້ພະນັກງານແຂວງ ແລະ ເມືອງ ກ່ຽວກັບການນຳໃຊ້ກົດໝາຍປ່າໄມ້, ການຄຸ້ມຄອງ ແລະ REDD+									ສິ່ງແວດລ້ອມ, ຄຸ້ມຄອງທີ່ດິນ/ພຊສ
ກິດຈະກຳ 5.2	ສ້າງຄວາມເຂັ້ມແຂງ ແລະ ຝຶກອົບຮົມກ່ຽວກັບການປະເມີນຜົນກະທົບດ້ານສິ່ງແວດລ້ອມ ແລະ ສັງຄົມ (ESMMP) ໃນຂັ້ນຕອນການວາງແຜນໂຄງການກໍ່ສ້າງພື້ນຖານໂຄງລ່າງ									ສິ່ງແວດລ້ອມ, ຄຸ້ມຄອງທີ່ດິນ/ພຊສ ພາກ
ກິດຈະກຳ 5.3	ສ້າງຄວາມເຂັ້ມແຂງ ແລະ ຝຶກອົບຮົມໃຫ້ພະນັກງານ ກ່ຽວກັບຂັ້ນຕອນການປຶກສາຫາລືແບບມີສ່ວນຮ່ວມ ແລະ ກົນໄກການຮ້ອງທຸກສຳລັບໂຄງການ									ສິ່ງແວດລ້ອມ, ຄຸ້ມຄອງທີ່ດິນ/ພຊສ ພາກ
ກິດຈະກຳ 5.4	ທົດລອງວາງແຜນ ແລະ ຈັດຕັ້ງປະຕິບັດແຜນຄຸ້ມຄອງ ແລະ ຕິດຕາມກວດກາຜົນກະທົບດ້ານສິ່ງແວດລ້ອມ ແລະ ສັງຄົມ ໃນໂຄງການກໍ່ສ້າງເຂື່ອນໄຟຟ້າທີ່ຄັດເລືອກເພື່ອທົດລອງ									ສິ່ງແວດລ້ອມ, ຄຸ້ມຄອງທີ່ດິນ/ພຊສ ພາກ

ອົງປະກອບ ແລະ ກິດຈະກຳ		ແຜນຈັດຕັ້ງປະຕິບັດປະຈຳປີ						ພາກສ່ວນຮັບຜິດຊອບ		
		ປີ 1	ປີ 2	ປີ 3	ປີ 4	ປີ 5	ປີ 6	ປີ 7	ປີ 8	
ອົງປະກອບ 2: ການຄຸ້ມຄອງປ່າໄມ້										
ອົງປະກອບຍ່ອຍ 1: ການກຳນົດ/ກວດກາຄືນ 3 ປະເພດປ່າໃນລະດັບຊາດ, ແຂວງ ແລະ ເມືອງແບບພູມີທັດ *[MOs:1.2]*										
ກິດຈະກຳ 1.1	ຈັດຕັ້ງຄະນະກຳມະການຄຸ້ມຄອງ 3 ປະເພດປ່າ ໂດຍມາຈາກຂະແໜງການຕ່າງໆທີ່ກ່ຽວຂ້ອງ									ສິ່ງແວດລ້ອມ, ຄຸ້ມຄອງທີ່ດິນ/ພຊສ ພກປ ຫ້ອງວ່າການແຂວງ,ຫ້ອງວ່າການເມືອງ, ພກປ, ຫກປ ເມືອງ
ກິດຈະກຳ 1.2	ປະເມີນລະອຽດເນື້ອທີ່ດິນ, ເນື້ອທີ່ສຳປະທານ, ແຫຼ່ງນ້ຳ, ເຂດເຊື່ອມຕໍ່ຊີວະນາງພັນ ແລະ ການບໍລິການລະບົບນິເວດປ່າໄມ້ ອື່ນໆທີ່ຢູ່ພາຍໃນ ແລະ ອ້ອມຂ້າງ 3 ປະເພດປ່າ									ຄະນະກຳມະການຄຸ້ມຄອງ 3 ປະເພດປ່າ, ພກປ, ຫກປ ເມືອງ
ກິດຈະກຳ 1.3	ສ້າງແຜນທີ່ເນື້ອທີ່/ການນຳໃຊ້ທີ່ດິນໃນ 3 ປະເພດປ່າ ອີງໃສ່ຜົນຂອງການປະເມີນໃນກິດຈະກຳ 1.2									ຄະນະກຳມະການຄຸ້ມຄອງ 3 ປະເພດປ່າ, ພກປ, ຫກປ ເມືອງ
ກິດຈະກຳ 1.4	ກອງປະຊຸມປຶກສາຫາລື ໂດຍການເຂົ້າຮ່ວມຂອງຂະແໜງການກ່ຽວຂ້ອງຂັ້ນແຂວງ ແລະ ເມືອງ ເພື່ອຕົກລົງເປັນເອກະພາບ									ຄະນະກຳມະການຄຸ້ມຄອງ 3 ປະເພດປ່າ, ພກປ, ຫກປ ເມືອງ
ກິດຈະກຳ 1.5	ຈັດຊື້ອຸປະກອນຮັບໃຊ້ຫ້ອງການ, ຊອບແວ ແລະ ເຄື່ອງ GPS ເພື່ອສ້າງລະບົບຄຸ້ມຄອງຂໍ້ມູນຂ່າວສານກ່ຽວກັບປ່າໄມ້ລວມທັງ 3 ປະເພດປ່າ ແລະ ເອກະສານທາງການອື່ນໆ									ຄະນະກຳມະການຄຸ້ມຄອງ 3 ປະເພດປ່າ, ພກປ, ຫກປ ເມືອງ
ກິດຈະກຳ 1.6	ສະໜັບສະໜູນດ້ານວິຊາການ ເພື່ອເກັບຮັກສາ ແລະ ຄຸ້ມຄອງຂໍ້ມູນ									ຄະນະກຳມະການຄຸ້ມຄອງ 3 ປະເພດປ່າ, ພກປ, ຫກປ ເມືອງ
ອົງປະກອບຍ່ອຍ 2: ການຄຸ້ມຄອງປ່າໄມ້ແບບພູມີທັດໃນເຂດປ່າປ້ອງກັນ *[MOs:1,2,3,4]*										
ກິດຈະກຳ 2.1	ທົດລອງຈັດຕັ້ງປະຕິບັດການຄຸ້ມຄອງລະດັບມະຫາພາກໃນເຂດປ່າປ້ອງກັນທີ່ເປັນບູລິມະສິດ									ຄະນະກຳມະການຄຸ້ມຄອງປ່າປ້ອງກັນ, ພກປ, ຫກປ ເມືອງ
ກິດຈະກຳ 2.2	ຈັດຕັ້ງປະຕິບັດ ແລະ ຍົກລະດັບການຄຸ້ມຄອງປ່າໄມ້ລະດັບມະຫາພາກໃນແຕ່ລະເຂດປ່າປ້ອງກັນ ແລະ 3 ປະເພດປ່າທີ່ຢູ່ອ້ອມຂ້າງ									ຄະນະກຳມະການຄຸ້ມຄອງປ່າປ້ອງກັນ, ພກປ, ຫກປ ເມືອງ

ອົງປະກອບຍ່ອຍ 3: ການຄຸ້ມຄອງປ່າໄມ້ບ້ານ *[MOs:1,2,3,4,5]*										
ກິດຈະກຳ 3.1	ສະໜັບສະໜູນດ້ານເຕັກນິກວິຊາການ ສຳລັບກົນໄກສະໜອງທຶນແບບຍາວນານ ເພື່ອຄຸ້ມຄອງປ່າໄມ້ບ້ານ									ພກປ ຫກປ ເມືອງ
ກິດຈະກຳ 3.2	ສະໜັບສະໜູນດ້ານເຕັກນິກວິຊາການ ເພື່ອເພີ່ມທາງເລືອກໃນການດຳລົງຊີວິດ ດ້ວຍກິດຈະກຳທີ່ຕິດພັນກັບປ່າໄມ້ໂດຍປະຊາຊົນເປັນເຈົ້າການ									ພກປ ຫກປ ເມືອງ
ກິດຈະກຳ 3.3	ສະໜັບສະໜູນດ້ານເຕັກນິກວິຊາການ ເພື່ອເພີ່ມມູນຄ່າໃຫ້ຜະລິດຕະພັນປ່າໄມ້ບ້ານ									ພກປ ຫກປ ເມືອງ
ກິດຈະກຳ 3.4	ສະໜັບສະໜູນດ້ານເຕັກນິກວິຊາການ ເພື່ອຮັກສາ ແລະ ປັບປຸງກົນໄກການຈ່າຍຄ່າບໍລິການລະບົບນິເວດ, ຄຸນຄ່າທາງຊີວະນາໆພັນ, ການບໍລິການເຂດຮັກສາແຫຼ່ງນ້ຳ ແລະ ປະລິມານສະສົມຂອງການກອບປ່າໄມ້ ໂດຍຜ່ານກິດຈະກຳທີ່ຕິດພັນກັບປ່າໄມ້ ໂດຍປະຊາຊົນເປັນເຈົ້າການ									ພກປ ຫກປ ເມືອງ
ກິດຈະກຳ 3.5	ຈັດຕັ້ງປະຕິບັດ ແລະ ຍົກລະດັບຕົວແບບການຄຸ້ມຄອງປ່າໄມ້ບ້ານ									ພກປ ຫກປ ເມືອງ
ອົງປະກອບຍ່ອຍ 4: ການປູກໄມ້ແລະການຟື້ນຟູປ່າ *[MOs:3]*										
ກິດຈະກຳ 4.1	ການປະເມີນພື້ນທີ່ໆມີເງື່ອນໄຂບູລະນະຟື້ນຟູໃຫ້ເປັນປ່າໃນເຂດທີ່ດິນປ່າໄມ້ທີ່ເສື່ອມ�โຊມ									ພກປ ຫກປ ເມືອງ
ກິດຈະກຳ 4.2	ການຈັດຕັ້ງປະຕິບັດຟື້ນຟູປ່າທຳມະຊາດໃນເຂດປ່າເສື່ອມโຊມ									ພກປ ຫກປ ເມືອງ
ກິດຈະກຳ 4.3	ສະໜັບສະໜູນທຶນຮອນ ເພື່ອໃຫ້ປະຊາຊົນຈັດຕັ້ງປະຕິບັດປູກໄມ້ຟື້ນຟູປ່າໃນເຂດປ່າເສື່ອມโຊມ									ພກປ ຫກປ ເມືອງ
ອົງປະກອບຍ່ອຍ 5: ການປ້ອງກັນໄຟໄໝ້ລາມປ່າ *[MOs:2]*										
ກິດຈະກຳ 5.1	ສ້າງຈິດສຳນຶກກ່ຽວກັບການປ້ອງກັນໄຟໄໝ້ລາມປ່າ ຢູ່ ຂົ້ນບ້ານ									ກວດກາປ່າໄມ້ແຂວງ ພກປ ແລະ ຫກປ ເມືອງ

ກິດຈະກຳ 5.2	ສ້າງລະບົບເພື່ອຕິດຕາມກວດກາໄຟໄໝ້ລາມປ່າ ແລະ ທົດລອງລະບົບໃນພື້ນທີ່ຄັດເລືອກເພື່ອທົດລອງ									ກວດກາປ່າໄມ້ແຂວງ ພກປ ແລະ ຫກປ ເມືອງ
ກິດຈະກຳ 5.3	ການຈັດຕັ້ງປະຕິບັດການຕິດຕາມກວດກາປ່າໄມ້ ເພື່ອປ້ອງກັນໄຟໄໝ້ລາມປ່າ									ກວດກາປ່າໄມ້ແຂວງ ພກປ ແລະ ຫກປ ເມືອງ
ອົງປະກອບຍ່ອຍ 6: ການຄຸ້ມຄອງສວນປູກໄມ້ສັກ ແລະ ການປັບປຸງຕ່ອງໂສ້ມູນຄ່າ *[MOs:4,5]*										
ກິດຈະກຳ 6.1	ການປະເມີນພື້ນທີ່ປູກໄມ້ສັກ ເພື່ອຍົກລະດັບການຄຸ້ມຄອງສວນປູກແບບຍືນຍົງ ເພື່ອໃຫ້ໄດ້ຮັບການຢັ້ງຢືນ									ພກປ ຫກປ ເມືອງ
ກິດຈະກຳ 6.2	ສະໜັບສະໜູນເຕັກນິກວິຊາການ ເພື່ອເພີ່ມທະວີຄວາມເຂັ້ມ ແຂງໃຫ້ກຸ່ມຊາວກະສິກອນປູກໄມ້ສັກ ແລະ ເຄືອຂ່າຍຂອງເຂົາເຈົ້າ									ພກປ ຫກປ ເມືອງ
ກິດຈະກຳ 6.3	ສະໜັບສະໜູນເຕັກນິກວິຊາການ ເພື່ອຈັດຕັ້ງປະຕິບັດການຄຸ້ມຄອງສວນປູກໄມ້ສັກໃຫ້ຖືກຕ້ອງຕາມຫຼັກວິຊາການ									ພກປ ຫກປ ເມືອງ
ກິດຈະກຳ 6.4	ສະໜັບສະໜູນເຕັກນິກວິຊາການ ເພື່ອຊຸກຍູ້ສິ່ງເສີມການ ແລະ ປັບປຸງໃຫ້ທັນສະໄໝ ໃນການເພີ່ມມູນຄ່າໃຫ້ການປຸງແຕ່ງຜະລິດຕະພັນຈາກໄມ້ສັກ									ພກປ ຫກປ ເມືອງ
ກິດຈະກຳ 6.5	ສະໜັບສະໜູນເຕັກນິກວິຊາການ ເພື່ອຊຸກຍູ້ສິ່ງເສີມວິສາຫະກິດຂະໜາດນ້ອຍ ໃນການເພີ່ມມູນຄ່າໃຫ້ຜະລິດຕະພັນຈາກໄມ້ສັກ									ພກປ ຫກປ ເມືອງ
ກິດຈະກຳ 6.6	ຈັດຊື້ວັດຖຸອຸປະກອນ ເພື່ອຊຸກຍູ້ສິ່ງເສີມການຄຸ້ມຄອງສວນປູກໄມ້ສັກໃຫ້ມີຄວາມຍືນຍົງ ແລະ ປັບປຸງຕ່ອງໂສ້ມູນຄ່າ									ພກປ ຫກປ ເມືອງ
ອົງປະກອບຍ່ອຍ 7: ການນຳໃຊ້ກົດໝາຍ ແລະ ການຄຸ້ມຄອງການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍ *[MOs: 2]*										
ກິດຈະກຳ 7.1	ສ້າງຈິດສຳນຶກ ແລະ ເຜີຍແຜ່ນະໂຍບາຍຕ່າງໆກ່ຽວກັບປ່າໄມ້, ກົດໝາຍ ແລະ ຂໍ້ກຳນົດອື່ນໆ ຢູ່ ຂັ້ນເມືອງ ແລະ ກຸ່ມບ້ານ ໃນເຂດທີ່ເປັນບູລິມະສິດ									ກວດກາປ່າໄມ້ແຂວງ ພກປ ແລະ ຫກປ ເມືອງ
ກິດຈະກຳ 7.2	ສ້າງລະບົບຕິດຕາມກວດກາການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍ									ກວດກາປ່າໄມ້ແຂວງ
ກິດຈະກຳ 7.3	ສ້າງຄວາມເຂັ້ມແຂງ ແລະ ຝຶກອົບຮົມກ່ຽວກັບການກວດກາໄມ້ ຢູ່ ຈຸດ									ກວດກາປ່າໄມ້ແຂວງ

	ດ່ານກວດກາ, ສະໜາມໄມ້, ໂຮງງານປຸງແຕ່ງ ແລະ ໂຮງງານ/ຮ້ານເຟີນິເຈີ									ພກປ ແລະ ຫກປ ເມືອງ
ກິດຈະກຳ 7.4	ຕິດຕາມ ແລະ ກວດກາລາດຕະເວນບ່ອນຂຸດຄົ້ນໄມ້, ການຂົນສົ່ງໄມ້ ຢູ່ ສະໜາມ 2 ແລະ ເສັ້ນທາງລຳລຽງໄມ້, ທາງບົກ ແລະ ທາງນ້ຳ ແລະ ຈຸດ ທີ່ຫຼໍ່ແຫຼມ									ກວດກາປ່າໄມ້ແຂວງ ພກປ ແລະ ຫກປ ເມືອງ
ກິດຈະກຳ 7.5	ສະໜັບສະໜູນການກວດກາໂຮງງານປຸງແຕ່ງໄມ້, ໂຮງງານເຟີນິເຈີ, ສາງ ເກັບມ້ຽນໄມ້ ແລະ ເຄື່ອງປ່າຂອງດົງ									ກວດກາປ່າໄມ້ແຂວງ ພກປ ແລະ ຫກປ ເມືອງ
ກິດຈະກຳ 7.6	ສະໜັບສະໜູນການຕິດຕາມກວດກາເກີນຈຳນວນ (ໂກຕາ) ທີ່ອະນຸມັດ ໃນເຂດອ່າງເກັບນ້ຳຂອງໂຄງການເຂື່ອນໄຟຟ້າ									ກວດກາປ່າໄມ້ແຂວງ ພກປ ແລະ ຫກປ ເມືອງ
ກິດຈະກຳ 7.7	ຈັດຊື້ອຸປະກອນຮັບໃຊ້ຫ້ອງການ, ເຄື່ອງແທບເລັດ (tablet), GPS ແລະ ເຄື່ອງມືທີ່ຈຳເປັນ ເພື່ອຮັບໃຊ້ວຽກງານການນຳໃຊ້ກົດໝາຍ									ກວດກາປ່າໄມ້ແຂວງ ພກປ ແລະ ຫກປ ເມືອງ
ກິດຈະກຳ 7.8	ຕິດຕາມກວດກາລາດຕະເວນບ່ອນລັກລອບຕັດໄມ້ໃນເຂດປ່າປ້ອງກັນ									ກວດກາປ່າໄມ້ແຂວງ ພກປ ແລະ ຫກປ ເມືອງ
ອົງປະກອບຍ່ອຍ 8: ການຈ່າຍຄ່າບໍລິການລະບົບນິເວດປ່າໄມ້ *[MOs:1,2,3,4]*										
ກິດຈະກຳ 8.1	ການປະເມີນເງື່ອນໄຂການຈ່າຍຄ່າບໍລິການລະບົບນິເວດປ່າໄມ້ (PFES) ຢູ່ ແຂວງຫຼວງພະບາງ									ພກປ ພຊສ
ກິດຈະກຳ 8.2	ທົດລອງສິ່ງເສີມກິດຈະກຳ ກ່ຽວກັບ PFES ທີ່ຕິດພັນກັບການນຳໃຊ້ທີ່ ດິນປ່າໄມ້ເຊັ່ນ: ບໍລິສັດນ້ຳປາປາ, ເຂື່ອນໄຟຟ້າ, ທ່ອງທ່ຽວທຳມະຊາດ ແລະ ອື່ນໆ									ພກປ ພຊສ

ອົງປະກອບ ແລະ ກິດຈະກຳ	ແຜນຈັດຕັ້ງປະຕິບັດປະຈຳປີ								ພາກສ່ວນຮັບຜິດຊອບ
	ປີ 1	ປີ 2	ປີ 3	ປີ 4	ປີ 5	ປີ 6	ປີ 7	ປີ 8	
ອົງປະກອບ 3: ການຄຸ້ມຄອງທາງສັງຄົມ(ຊີວິດການເປັນຢູ່)									

ອົງປະກອບຍ່ອຍ 1: ການປູກພືດເສດຖະກິດແບບຍືນຍົງຢູ່ເຂດພູດອຍ *[MOs:1,2,5]*										
ກິດຈະກຳ 1.1	ດຳເນີນການຄົ້ນຄ້ວາ ເພື່ອກຳນົດຮູບແບບການປູກພືດເສດຖະກິດແບບຍືນຍົງ ລວມທັງການກະສິກຳ-ປ່າໄມ້ແບບປະສົມປະສານ ແລະ ການຂະຫຍາຍການຜະລິດກະສິກຳ									ປູກຝັງ, ສົ່ງເສີມ, ພັດທະນາທີ່ດິນກະສິກຳ/ພກປ
ກິດຈະກຳ 1.2	ການຝຶກອົບຮົມ ແລະ ສ້າງຄວາມເຂັ້ມແຂງໃຫ້ພະນັກງານສົ່ງເສີມ ກ່ຽວກັບຕົວແບບການຜະລິດກະສິກຳແບບຍືນຍົງ ແລະ ປັບປຸງຮູບແບບຕ່າງໆ ຂອງການຜະລິດກະສິກຳໃຫ້ດີຂຶ້ນ									ປູກຝັງ, ສົ່ງເສີມ, ພັດທະນາທີ່ດິນກະສິກຳ/ພກປ
ກິດຈະກຳ 1.3	ສະໜອງທຶນຮອນໃຫ້ປະຊາຊົນໂດຍກົງ (ເຄື່ອງມື, ຝຸ່ນ, ແນວພັນ) ເພື່ອທຳການຜະລິດ									ປູກຝັງ, ສົ່ງເສີມ/ພກປ
ກິດຈະກຳ 1.4	ພັດທະນາ ແລະ ສະໜັບສະໜູນສະຫະກອນກະເສດ									ສົ່ງເສີມ/ພກປ
ອົງປະກອບຍ່ອຍ 2: ການລ້ຽງສັດແລະປູກຫຍ້າອາຫານສັດ*[MOs:1,2,5]*										
ກິດຈະກຳ 2.1	ການຝຶກອົບຮົມ ແລະ ສ້າງຄວາມເຂັ້ມແຂງໃຫ້ພະນັກງານສົ່ງເສີມ ກ່ຽວກັບເຕັກນິກການລ້ຽງສັດ									ລ້ຽງສັດ/ພກປ
ກິດຈະກຳ 2.2	ສະໜອງທຶນຮອນໃຫ້ປະຊາຊົນໂດຍກົງ (ເຄື່ອງມື, ຝຸ່ນ, ແນວພັນ) ເພື່ອປູກຫຍ້າ									ລ້ຽງສັດ/ພກປ
ກິດຈະກຳ 2.3	ສະໜອງທຶນຮອນ ແລະ ແນວພັນສັດໃຫ້ປະຊາຊົນໂດຍກົງ ເພື່ອປັບປຸງການລ້ຽງສັດ									ລ້ຽງສັດ/ພກປ
ກິດຈະກຳ 2.4	ສະໜັບສະໜູນດ້ານເຕັກນິກວິຊາການເພື່ອເຂົ້າຫາແຫຼ່ງສິນເຊື່ອ									ລ້ຽງສັດ/ພກປ
ອົງປະກອບຍ່ອຍ 3: ການພັດທະນາທ່ອງທ່ຽວທຳມະຊາດໂດຍທ້ອງຖິ່ນມີສ່ວນຮ່ວມ *[MOs:1,2,5]*										
ກິດຈະກຳ 3.1	ປະເມີນແຫຼ່ງທ່ອງທ່ຽວທີ່ມີເງື່ອນໄຂ ເພື່ອຊຸກຍູ້ທ່ອງທ່ຽວທຳມະຊາດ									ຫ້ອງການທ່ອງທ່ຽວ, ພກປ, ຫກປ ເມືອງ

ກິດຈະກຳ 3.2	ການຝຶກອົບຮົມ ແລະ ສ້າງຄວາມເຂັ້ມແຂງໃຫ້ພະນັກງານສົ່ງເສີມ ກ່ຽວກັບວຽກງານທ່ອງທ່ຽວທຳມະຊາດໂດຍທ້ອງຖິ່ນເປັນເຈົ້າການ									ຫ້ອງການທ່ອງທ່ຽວ, ພກປ, ຫກປ ເມືອງ
ກິດຈະກຳ 3.3	ສະໜອງທຶນຮອນໂດຍກົງ (ປ້າຍ, ກິດຈະກຳປັບປຸງຊີວິດການເປັນຢູ່) ເພື່ອຊຸກຍູ້ສົ່ງເສີມການທ່ອງທ່ຽວທຳມະຊາດ									ຫ້ອງການທ່ອງທ່ຽວ, ພກປ, ຫກປ ເມືອງ

6. ການສ້າງແຜນດຳເນີນງານ ແລະ ແຜນການເງິນ

6.1. ການກະກຽມອົງການຈັດຕັ້ງປະຕິບັດ ແລະ ການຈັດຕັ້ງປະຕິບັດ

ຄວາມຮັບຜິດຊອບທັງໝົດໃນການຈັດຕັ້ງປະຕິບັດ PRAP ແມ່ນ ຄະນະຊີ້ນຳ REDD+ ຂັ້ນແຂວງ ມີສິດໜ້າທີ່ໃນການ ຊີ້ນຳ ແລະ ຕິດຕາມກວດກາການຈັດຕັ້ງປະຕິບັດວຽກງານ REDD+ ພາຍໃນແຂວງ. ຄະນະດັ່ງກ່າວມາຈາກຫຼາຍພາກສ່ວນກ່ຽວຂ້ອງຂອງແຂວງ ໂດຍມີ ທ່ານຮອງເຈົ້າແຂວງ ຜູ້ຮັບຜິດຊອບຊີ້ນຳວຽກງານເສດຖະກິດຂອງແຂວງເປັນປະທານ. ຄະນະຊີ້ນຳ REDD+ ຂັ້ນແຂວງ ມີໜ້າທີ່ ຊີ້ນຳ ລວມ ໂດຍມີ ຫ້ອງການ REDD+ ປະຈຳແຂວງ ພາຍໃນ ພະແນກກະສິກຳ ແລະ ປ່າໄມ້ແຂວງ ເປັນເສນາທິການໃນການປະສານງານກັບ ທຸກພາກສ່ວນທີ່ກ່ຽວຂ້ອງພາຍໃນແຂວງ. ສະນັ້ນ , ຫ້ອງການ REDD+ ປະຈຳແຂວງ ຈຶ່ງມີໜ້າທີ່ຮັບຜິດຊອບໃນການຄຸ້ມຄອງ , ຈັດຕັ້ງ ປະຕິບັດ ແລະ ຕິດຕາມກວດກາພາກສ່ວນຕ່າງໆທີ່ຈັດຕັ້ງປະຕິບັດ PRAP ຕາງໜ້າໃຫ້ຄະນະຊີ້ນຳ REDD+ ຂັ້ນແຂວງ.

ການກຳນົດນະໂຍບາຍ ແລະ ມາດຕະການໃນພາກ 5 ແມ່ນກວມເອົາຫຼາຍຂະແໜງການກ່ຽວຂ້ອງໃນຫຼາຍ ລະດັບເຊັ່ນ: ລະດັບຊາດ, ແຂວງ ແລະ ເມືອງ. ເວົ້າລວມແລ້ວ ອົງການຈັດຕັ້ງລັດ ຢູ່ ຂັ້ນສູນກາງ ຈະເປັນຜູ້ຮັບຜິດຊອບໃນການຄົ້ນຄ້ວານະໂຍບາຍ ແລະ ມາດຕະການ , ທົບ ທວນ ແລະ ເຊື່ອມເຂົ້າໃນຂະບວນການວາງແຜນຂອງແຂວງ ແລະ ສ້າງຂີດຄວາມສາມາດໃຫ້ອົງການຈັດຕັ້ງກ່ຽວຂ້ອງ ຢູ່ ຂັ້ນແຂວງ ຊຶ່ງອົງ ການຈັດຕັ້ງເຫຼົ່ານີ້ມີໜ້າທີ່ຜັນຂະຫຍາຍເປັນແຜນການຂອງແຂວງ ໂດຍກວມເອົາຫຼາຍໜ້າວຽກເຊັ່ນ: ການຮ່ວມມືປະສານງານ, ການສະໜັບ ສະໜູນດ້ານວິຊາການ, ການສ້າງຄວາມເຂັ້ມແຂງ ແລະ ການຈັດຕັ້ງປະຕິບັດນະໂຍບາຍ ແລະ ມາດຕະການທີ່ກຳນົດ. ອົງການຈັດຕັ້ງຂັ້ນ ເມືອງຈະເປັນຜູ້ປະຕິບັດຕົວຈິງ ແລະ ຕິດຕາມກວດກາພາຍໃຕ້ການຊີ້ນຳຂອງແຂວງ. ເນື່ອງຈາກວ່າຂີດຄວາມສາມາດຂອງພະນັກງານທີ່ສັງ ກັດນຳອົງການຈັດຕັ້ງຕ່າງໆຂອງລັດຍັງມີຂໍ້ຈຳກັດນັບແຕ່ຂັ້ນເມືອງໄປຫາຂັ້ນແຂວງ ຕະຫຼອດຮອດຂໍ້ຈຳກັດດ້ານການເງິນ ຈຶ່ງຈຳເປັນຕ້ອງໄດ້ ຝຶກອົບຮົມ ແນໃສ່ເພື່ອຮັບປະກັນປະສິດທິພາບຂອງການຈັດຕັ້ງປະຕິບັດນະໂຍບາຍ ແລະ ມາດຕະການຂອງ PRAP. ນອກຈາກການສ້າງ ຄວາມເຂັ້ມແຂງໃນຫຼາຍລະດັບແລ້ວ ການຍາດແຍ່ງການຊ່ວຍເຫຼືອດ້ານງົບປະມານການເງິນ ແລະ ການສະໜັບສະໜູນດ້ານວິຊາການຈາກ ພາຍນອກຍັງມີຄວາມຈຳເປັນ ຊຶ່ງຄາດວ່າຄວນຊຸກຍູ້ໃຫ້ພາກເອກະຊົນເຂົ້າມາມີສ່ວນຮ່ວມ.

ສະເພາະພະແນກກະສິກຳ ແລະ ປ່າໄມ້ແຂວງ ມີໜ້າທີ່ສຳຄັນຕົ້ນຕໍໃນການວາງແຜນ, ຕິດຕາມກວດກາ ແລະ ປະເມີນຜົນການຈັດຕັ້ງປະຕິ ບັດແຜນພັດທະນາຕ່າງໆຂອງແຂວງ, ເຊື່ອມໂຍງ PRAP ເຂົ້າກັບແຜນດັ່ງກ່າວ ແລະ ສະຫຼຸບລາຍງານຄວາມຄືບໜ້າ ແລະ ຜົນກະທົບຂອງ ການຈັດຕັ້ງປະຕິບັດ ໂດຍການສະໜັບສະໜູນຈາກຫ້ອງການ REDD+ ປະຈຳແຂວງ.

6.1.1. ພາກສ່ວນຮັບຜິດຊອບໃນການຄຸ້ມຄອງບໍລິຫານPRAP

ອົງການຈັດຕັ້ງ	ຫ້ອງການ REDD+ ຂັ້ນແຂວງ ເປັນເສນາໃຫ້ຄະນະຊີ້ນຳ REDD+ ຂັ້ນແຂວງ
ພາລະບົດບາດ ແລະ ໜ້າທີ່ ຮັບຜິດຊອບ	ເປັນຫ້ອງການຂຶ້ນກັບພະແນກກະສິກຳ ແລະ ປ່າໄມ້ແຂວງ ແລະ ພາຍໃຕ້ການ ຊີ້ນຳຂອງຄະນະ ຊີ້ນຳ REDD+ ຂັ້ນແຂວງ ມີໜ້າທີ່ຮັບຜິດຊອບໃນການບໍລິຫານຄຸ້ມຄອງ ແລະ ປະສານງານກັບ ທຸກພາກສ່ວນກ່ຽວຂ້ອງ ໃນການຈັດຕັ້ງປະຕິບັດວຽກງານກ່ຽວກັບ REDD+ ພາຍໃນແຂວງ.
ການພົວພັນດ້ານການຈັດຕັ້ງ ແລະ ຂໍ້ຜູກພັນ ລະຫວ່າງອົງການຈັດຕັ້ງ ແລະ ແຜນງານ ER ຊຶ່ງຄາດວ່າ ຈະເຊັນສັນຍາຈ່າຍເງິນຄ່າຫຼຸດ ຜ່ອນການປ່ອຍອາຍພິດເຮືອນ ແກ້ວ ກັບກອງທຶນການບອນ FCPF	ພະແນກກະສິກຳ ແລະ ປ່າໄມ້ ແມ່ນອົງການຈັດຕັ້ງຂອງລັດ ຢູ່ ຂັ້ນແຂວງ ຂຶ້ນກັບການ ຊີ້ນຳຂອງ ກະຊວງກະສິກຳ ແລະ ປ່າໄມ້ ຮັບຜິດຊອບສ້າງເອກະສານ ERPD. ສັນຍາ ERPA ກັບກອງ ທຶນການບອນ FCPF ຈະແມ່ນກະຊວງການເງິນເປັນຜູ້ລົງນາມ.
ຜູ້ຕິດຕໍ່ພົວພັນ	ທ່ານ ຊ້າງ ຊະນະຜົນ
ຕຳແໜ່ງ	ຫົວໜ້າຫ້ອງການ REDD+ ຂັ້ນແຂວງ

ບ່ອນພົວພັນ	ພະແນກກະສິກຳ ແລະ ປ່າໄມ້ ແຂວງຫຼວງພະບາງ
ໂທລະສັບ	+856-71-254378
E-mail	xang_xanaphon@yahoo.com
ເວັບໄຊ	

6.1.2. ສະຖາບັນ ແລະ ອົງການຈັດຕັ້ງທີ່ກ່ຽວຂ້ອງກັບການຈັດຕັ້ງປະຕິບັດ PRAP

ອົງການຈັດຕັ້ງກ່ຽວຂ້ອງ	**ພາລະບົດບາດ ແລະ ໜ້າທີ່ຮັບຜິດຊອບໃນPRAP**
ລະດັບຊາດ	
ກະຊວງກະສິກຳ ແລະ ປ່າໄມ້	ຮັບຜິດຊອບດ້ານນະໂຍບາຍ, ຊີ້ນຳວຽກງານກະສິກຳ ແລະ ປ່າໄມ້.
ກົມປ່າໄມ້	ກົມປ່າໄມ້ຂຶ້ນກັບກະຊວງກະສິກຳ ແລະ ປ່າໄມ້ ຮັບຜິດຊອບໃນການກຳນົດນະໂຍບາຍ, ຄຸ້ມຄອງ ແລະ ປົກປັກຮັກສາຊັບພະຍາກອນປ່າໄມ້ໃນທົ່ວປະເທດ. ຄົ້ນຄ້ວາ ແລະ ທົບທວນນະໂຍບາຍ ໃຫ້ສອດຄ່ອງກັບເປົ້າໝາຍຂອງ PRAP. ສ້າງຄວາມເຂັ້ມແຂງ ແລະ ສະໜັບສະໜູນດ້ານວິຊາການ ເພື່ອຊ່ວຍ ພະແນກ ກປ ໃນການຈັດຕັ້ງປະຕິບັດ PRAP.
ພະແນກ REDD+, ກົມປ່າໄມ້, ກະຊວງ ກປ	ຮັບຜິດຊອບການຈັດຕັ້ງປະຕິບັດ ແລະ ການປະສານງານວຽກງານ REDD+ ໃນທົ່ວປະເທດ. ຊ່ວຍຊຸກຍູ້ ຫ້ອງການ REDD+ ປະຈຳແຂວງ ໃນການສ້າງຄວາມເຂັ້ມແຂງ, ທົບທວນ ແລະ ປັບປຸງນະ�โยบายທີ່ກ່ຽວຂ້ອງຂອງຫ້ອງການດັ່ງກ່າວໃນລະດັບແຂວງ.
ກົມກວດກາປ່າໄມ້	ຮັບຜິດຊອບກວດກາການບັງຄັບໃຊ້ກົດໝາຍປ່າໄມ້, ກົດໝາຍສັດນ້ຳ-ສັດປ່າ ແລະ ຂໍ້ກຳນົດກົດລະບຽບອື່ນໆທີ່ກ່ຽວຂ້ອງ. ສະໜັບສະໜູນດ້ານວິຊາການ ແລະ ສ້າງຄວາມເຂັ້ມແຂງໃຫ້ພາກສ່ວນກວດກາປ່າໄມ້ແຂວງໃນການບັງຄັບໃຊ້ກົດໝາຍ ເພື່ອຈັດຕັ້ງປະຕິບັດ PRAP.
ພະແນກຄຸ້ມຄອງປ່າໄມ້ບ້ານ ແລະ ເຄື່ອງປ່າຂອງດົງ, ກົມປ່າໄມ້	ຮັບຜິດຊອບສ້າງນະໂຍບາຍ, ຄູ່ມືແນະນຳ ແລະ ສະໜັບສະໜູນດ້ານວິຊາການ ໃນການຄຸ້ມຄອງ ປ່າໄມ້ຂັ້ນບ້ານ ແລະ ເຄື່ອງປ່າຂອງດົງ. ສ້າງຄວາມເຂັ້ມແຂງໃຫ້ ພະແນກ ກປ ແຂວງ ໃນການ ຈັດຕັ້ງປະຕິບັດການຄຸ້ມຄອງປ່າໄມ້ບ້ານ.
ກົມປູກຝັງ	ຂຶ້ນກັບກະຊວງ ກປ ຮັບຜິດຊອບສ້າງນະໂຍບາຍ, ຄຸ້ມຄອງ ແລະ ປົກປັກຮັກສາຊັບພະຍາກອນ ຕ່າງໆດ້ານກະສິກຳໃນທົ່ວປະເທດ. ຄົ້ນຄ້ວາ ແລະ ທົບທວນນະໂຍບາຍໃຫ້ສອດຄ່ອງກັບເປົ້າ ໝາຍຂອງ PRAP. ສ້າງຄວາມເຂັ້ມແຂງ ແລະ ສະໜັບສະໜູນດ້ານວິຊາການ ເພື່ອຊ່ວຍ ພະ ແນກ ກປ ໃນການຈັດຕັ້ງປະຕິບັດ PRAP.
ກົມຄຸ້ມຄອງ ແລະ ພັດທະນາທີ່ ດິນກະສິກຳ	ຂຶ້ນກັບກະຊວງ ກປ ຮັບຜິດຊອບການວາງແຜນ ແລະ ຄຸ້ມຄອງທີ່ດິນກະສິກຳ. ສ້າງຄວາມ ເຂັ້ມແຂງ ແລະ ສະໜັບສະໜູນດ້ານວິຊາການໃຫ້ ພະແນກ ກປ ເພື່ອຈັດຕັ້ງປະຕິບັດແຜນນຳໃຊ້ ທີ່ດິນ ແລະ ຈັດສັນທີ່ດິນອີງຕາມ PRAP.
ກົມພັດທະນາຊົນນະບົດ ແລະ ສະຫະກອນ	ຂຶ້ນກັບກະຊວງ ກປ ຮັບຜິດຊອບວຽກງານສົ່ງເສີມກະສິກຳ ແລະ ການພັດທະນາສະຫະກອນ ກະເສດໃນລະດັບທ້ອງຖິ່ນ ທັງເປັນຜູ້ໃຫ້ບໍລິການດ້ານວິຊາການ ແລະ ສ້າງຄວາມເຂັ້ມແຂງໃຫ້ ພະແນກ ກປ ເພື່ອຈັດຕັ້ງປະຕິບັດ PRAP.
ສະຖາບັນຄົ້ນຄ້ວາກະສິກຳ, ປ່າໄມ້ ແລະ ພັດທະນາຊົນນະບົດ	ເປັນສະຖາບັນແຫ່ງຊາດ ຮັບຜິດຊອບຄົ້ນຄ້ວາດ້ານນະໂຍບາຍ, ເຕັກນິກວິຊາການ ແລະ ການ ຕະຫຼາດ ສຳລັບຂະແໜງກະສິກຳ ແລະ ປ່າໄມ້. ສະໜັບສະໜູນການທົບທວນ ແລະ ຄົ້ນຄ້ວາຕົວ ແບບດ້ານກະສິກຳ ເພື່ອຈັດຕັ້ງປະຕິບັດຕາມທິດທາງຂອງ PRAP.
ກົມຄຸ້ມຄອງທີ່ດິນ, ກະຊວງຊັບ ພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງ	ຮັບຜິດຊອບການວາງແຜນນຳໃຊ້ທີ່ດິນ, ສະໜັບສະໜູນດ້ານວິຊາການ ໃຫ້ຂະແໜງຄຸ້ມຄອງທີ່ ດິນຂອງ ພະແນກ ຊສ ໃນການຈັດຕັ້ງປະຕິບັດ PRAP.

ແວດລ້ອມ	
ກົມຄຸ້ມຄອງສິ່ງແວດລ້ອມ, ກະຊວງຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ	ຮັບຜິດຊອບແຜນຄຸ້ມຄອງສິ່ງແວດລ້ອມ ແລະ ສັງຄົມ (ESMMP) ຂອງບັນດາໂຄງການພັດທະນາພື້ນຖານໂຄງລ່າງ. ສະໜັບສະໜູນດ້ານວິຊາການ ໃຫ້ຂະແໜງຄຸ້ມຄອງສິ່ງແວດລ້ອມ ຂອງ ພະແນກ ຊສ ໃນການຈັດຕັ້ງປະຕິບັດ ESMMP ພາຍໃຕ້ການຂອງ PRAP.
ກະຊວງການເງິນ	ຮັບຜິດຊອບຄຸ້ມຄອງ ແລະ ຈັດສັນງົບປະມານຈາກແຫຼ່ງທຶນທັງພາຍໃນ ແລະ ພາຍນອກ. ຊ່ວຍໃນການອອກແບບ, ສ້າງ ແລະ ຈັດຕັ້ງປະຕິບັດແຜນງົບປະມານ ໃນການລົງທຶນດ້ານກະສິກຳ ແລະ ປ່າໄມ້.
ລະດັບແຂວງ	
ຄະນະຊີ້ນຳ REDD+ ຂັ້ນແຂວງ	ມາຈາກຫຼາຍຂະແໜງການ ຮັບຜິດຊອບກິດຈະກຳກ່ຽວກັບ REDD+ ພາຍໃນແຂວງ ລວມທັງຮັບຜິດຊອບລວມການຈັດຕັ້ງປະຕິບັດ PRAP.
ຫ້ອງການ REDD+ ປະຈຳແຂວງ	ເປັນເສນາທິການໃຫ້ຄະນະຊີ້ນຳ REDD+ ຂັ້ນແຂວງ ໃນການປະຕິບັດໜ້າທີ່ປະຈຳໃນແຕ່ລະວັນໃນການຄຸ້ມຄອງ ແລະ ປະສານງານກັບທຸກພາກສ່ວນກ່ຽວຂ້ອງ ໃນການຈັດຕັ້ງປະຕິບັດ PRAP.
ຫ້ອງວ່າການແຂວງ	ຮັບຜິດຊອບກຳນົດເປົ້າໝາຍ ແລະ ຍຸດທະສາດການພັດທະນາຂອງແຂວງ. ແນະນຳຂັ້ນຕອນຂອງ PRAP ເພື່ອໃຫ້ພາກສ່ວນກ່ຽວຂ້ອງຂັ້ນແຂວງຈັດຕັ້ງປະຕິບັດໃຫ້ບັນລຸເປົ້າໝາຍ.
ພະແນກ ກປ ແຂວງ	ຂຶ້ນກັບ ກະຊວງ ກປ, ບົດບາດ ແລະ ໜ້າທີ່ຮັບຜິດຊອບຄ້າຍຄືກະຊວງ ແຕ່ຢູ່ໃນລະດັບແຂວງ ຕົ້ນຕໍແມ່ນປະສານງານການຈັດຕັ້ງປະຕິບັດກິດຈະກຳຂອງ PRAP.
ຂະແໜງປູກຝັງ, ພະແນກ ກປ	ຂຶ້ນກັບ ກົມປູກຝັງ, ສະໜັບສະໜູນດ້ານວິຊາການ, ປະສານງານ ແລະ ສ້າງຄວາມເຂັ້ມແຂງໃຫ້ຫ້ອງການ ກປ ເມືອງ ເພື່ອຄຸ້ມຄອງການຈັດຕັ້ງປະຕິບັດ PAMs.
ຂະແໜງຄຸ້ມຄອງທີ່ດິນກະສິກຳ, ພະແນກ ກປ	ຂຶ້ນກັບ ກົມຄຸ້ມຄອງ ແລະ ພັດທະນາທີ່ດິນກະສິກຳ, ສະໜັບສະໜູນດ້ານວິຊາການ, ປະສານງານ ແລະ ສ້າງຄວາມເຂັ້ມແຂງໃຫ້ພະນັກງານໃນການວາງແຜນນຳໃຊ້ທີ່ດິນ ພາຍໃຕ້ການຂອງ PRAP.
ຂະແໜງປ່າໄມ້, ພະແນກ ກປ	ຂຶ້ນກັບ ກົມປ່າໄມ້, ຮັບຜິດຊອບຄຸ້ມຄອງ ແລະ ປົກປັກຮັກສາ 3 ປະເພດປ່າ ຢູ່ ຂັ້ນແຂວງ. ປະຕິບັດໜ້າທີ່ໃນການຄຸ້ມຄອງ PAMs ກ່ຽວກັບປ່າໄມ້.
ຂະແໜງສົ່ງເສີມກະສິກຳ ແລະ ປ່າໄມ້, ພະແນກ ກປ	ຂຶ້ນກັບພະແນກ ກປ, ຮັບຜິດຊອບສົ່ງເສີມວຽກງານກະສິກຳ ແລະ ປ່າໄມ້. ຊຸກຍູ້ຫ້ອງການ ກປ ເມືອງ ແລະ ຊຸມຊົນທ້ອງຖິ່ນ ໃນການສ້າງຄວາມເຂັ້ມແຂງ ແລະ ຝຶກອົບຮົມ ໃນການຮັບເອົາຮູບແບບການຜະລິດກະສິກຳ-ປ່າໄມ້ແບບໃໝ່.
ຂະແໜງແຜນການ, ພະແນກ ກປ	ຮັບຜິດຊອບການວາງແຜນ ແລະ ຕິດຕາມກວດກາກິດຈະກຳຂອງ ພະແນກ ກປ ແນໃສ່ເພື່ອປະກັນໃຫ້ບັນລຸຕາມແຜນຂອງ PRAP. ຕິດຕາມກວດກາ ແລະ ປະເມີນຜົນ PRAP.
ຂະແໜງລ້ຽງສັດ ແລະ ການປະມົງ, ພະແນກ ກປ	ຮັບຜິດຊອບສ້າງຄວາມເຂັ້ມແຂງ ແລະ ສະໜັບສະໜູນດ້ານວິຊາການໃນການພັດທະນາຮູບແບບການລ້ຽງສັດພາຍໃນແຂວງຕາມກອບຂອງ PRAP.
ຂະແໜງຄຸ້ມຄອງ ແລະ ພັດທະນາທີ່ດິນ, ພຊສ	ຂຶ້ນກັບກົມຄຸ້ມຄອງທີ່ດິນ, ຮັບຜິດຊອບຈັດຕັ້ງປະຕິບັດອົງປະກອບ 1: ການຄຸ້ມຄອງທີ່ດິນແບບປະສົມປະສານ ພາຍໃຕ້ການຂອງ PRAP.
ຂະແໜງຄຸ້ມຄອງສິ່ງແວດລ້ອມ, ພຊສ	ຂຶ້ນກັບກົມຄຸ້ມຄອງທີ່ດິນ, ຮັບຜິດຊອບຈັດຕັ້ງປະຕິບັດ ESMMPພາຍໃຕ້ການຂອງ PRAP.
ພະແນກການເງິນ	ຂຶ້ນກັບກະຊວງການເງິນ, ຮັບຜິດຊອບຄຸ້ມຄອງ ແລະ ຈັດສັນງົບປະມານຈາກພາຍໃນ ແລະ ພາຍນອກ. ຊ່ວຍໃນການອອກແບບ, ສ້າງ ແລະ ຈັດຕັ້ງປະຕິບັດແຜນງົບປະມານ ສຳລັບການລົງທຶນ

	ດ້ານກະສິກຳ ແລະ ປ່າໄມ້ຂອງ PRAP.
ພາກເອກະຊົນ	ບໍ່ທັນກຳນົດເທື່ອ ແຕ່ອີງໃສ່ແຜນການຂອງແຂວງ ແລະ ລະບຽບຫຼັກການດ້ານການເງິນຂອງ PAM ພາກເອກະຊົນຈະມີບົດບາດສະໜັບສະໜູນດ້ານການເງິນໃຫ້ PAM ແລະ ພັດທະນາຕົວແບບສຳລັບການລົງທຶນໃນຂະແໜງກະສິກຳ ແລະ ປ່າໄມ້.
ລະດັບເມືອງ	
ຫ້ອງການ ກປ ເມືອງ	ຂຶ້ນກັບ ພະແນກ ກປ ແລະ ກະຊວງ ກປ, ຮັບຜິດຊອບການຈັດຕັ້ງປະຕິບັດກິດຈະກຳຕົວຈິງ ເປັນຕົ້ນແມ່ນ ການຄຸ້ມຄອງ PAM ຢູ່ ຂັ້ນເມືອງ ທັງເປັນໃຈກາງໃນການປະສານງານກັບ ທ້ອງຖິ່ນ.
ຫ້ອງການ ຊສ	ຂຶ້ນກັບ ພຊສ ແລະ ກຊສ, ຮັບຜິດຊອບການຈັດຕັ້ງປະຕິບັດຕົວຈິງກ່ຽວກັບການຄຸ້ມຄອງທີ່ດິນ ແບບປະສົມປະສານ ຢູ່ ຂັ້ນເມືອງ ທັງເປັນໃຈກາງໃນການປະສານງານກັບທ້ອງຖິ່ນ.
ລະດັບກຸ່ມບ້ານ	
ກຸ່ມບ້ານ	ຮັບຜິດຊອບຈັດຕັ້ງປະຕິບັດຕົວຈິງການຄຸ້ມຄອງປ່າໄມ້, ສິ່ງແວດລ້ອມ ແລະ ສັງຄົມ ຢູ່ ຂັ້ນບ້ານ ທັງເປັນໃຈກາງໃນການປະສານງານກັບຊຸມຊົນທ້ອງຖິ່ນ.

6.2. ງົບປະມານສຳລັບການຈັດຕັ້ງປະຕິບັດ PRAP

ງົບປະມານທັງໝົດຂອງ PRAP ໄລຍະ 8 ປີ (2018-2025) ແມ່ນ $20.14 ລ້ານ ເທົ່າກັບ 161.09 ຕື້ກີບ (ຕາຕະລາງ 14). ໃນນີ້ $3.73ລ້ານ ແມ່ນສຳລັບການຄຸ້ມຄອງທີ່ດິນແບບຄົບວົງຈອນ (ອົງປະກອບ 1) , $11.16ລ້ານ ສຳລັບການຄຸ້ມຄອງປ່າໄມ້ (ອົງປະກອບ 2) ແລະ $5.25 ລ້ານ ສຳລັບການຄຸ້ມຄອງທາງສັງຄົມ-ຊີວິດການເປັນຢູ່ (ອົງປະກອບ 3).

ຕາຕະລາງ 14: ງົບປະມານທັງໝົດຂອງPRAP

PRAP	ງົບປະມານ (USD)		
ອົງປະກອບ	2018 - 2020	2021 - 2025	ລວມ
ອົງປະກອບ 1: ການຄຸ້ມຄອງທີ່ດິນແບບຄົບວົງຈອນ	$1,852,500	$1,874,500	$3,727,000
ອົງປະກອບ2: ການຄຸ້ມຄອງປ່າໄມ້	$5,233,499	$5,925,751	$11,159,250
ອົງປະກອບ 3: ການຄຸ້ມຄອງທາງສັງຄົມ (ຊີວິດການເປັນຢູ່)	$1,777,706	$3,471,669	$5,249,375
ລວມ	$8,863,705	$11,271,920	$20,135,625

6.3. ແຫຼ່ງທຶນ

ໃນຂະນະທີ່ PRAP ຈະປະກອບສ່ວນເຂົ້າໃນແຜນງານ ER, ແຫຼ່ງທຶນແມ່ນມີຄວາມຕ້ອງການ ເພື່ອປະກອບສ່ວນໃນການຈັດຕັ້ງປະຕິບັດ PRAP ເພື່ອຮັບປະກັນໃຫ້ການຊຳລະອີງຕາມຜົນງານ ຊຶ່ງມີຄວາມສຳຄັນທີສຸດໃນໄລຍະເລີ່ມຈັດຕັ້ງປະຕິບັດ PRAP ກ້າວໄປສູ່ການໄດ້ຮັບການຊຳລະອີງຕາມຜົນງານ. ແຫຼ່ງທຶນທີ່ມີຈຳກັດຂອງແຂວງ ເປັນອຸປະສັກອັນໃຫຍ່ຫຼວງສຳລັບການຈັດຕັ້ງປະຕິບັດ PRAP ຈຶ່ງຈຳເປັນ ການສະໜັບສະໜູນທຶນຈາກພາຍນອກ ເພື່ອຈັດຕັ້ງປະຕິບັດ PRAP.

ຕາຕະລາງ 2: ໂຄງການ ແລະ ແຫຼ່ງທຶນ ເພື່ອຈັດຕັ້ງປະຕິບັດPRAP

ແຫຼ່ງທຶນ/ໂຄງການ	ມາຈາກ	ຄາດຄະເນ ງົບປະມານ	ອົງປະກອບ
ກອງທຶນພັດທະນາຊັບພະຍາກອນປ່າໄມ້	ກົມປ່າໄມ້/ກປ		1,2
ກອງທຶນປົກປັກຮັກສາສິ່ງແວດລ້ອມ	ກຊສ		1,2,3
ໂຄງການ F-REDD	JICA	$ 100, 000	1, 2
ໂຄງການ LENS2 ສ້າງຄວາມເຂັ້ມແຂງ	EPF/ກຊສ ທະນາຄານໂລກ	$ 150, 000	1
ໂຄງການ LENS2 ຄຸ້ມຄອງປ່າປ້ອງກັນ	EPF/ກຊສ ທະນາຄານໂລກ	$ 600, 000	1,2,3
ໂຄງການປຸງແຕ່ງຜະລິດຕະພັນສັດພາກເໜືອ	ADB	$ 3,500,000	3
ໂຄງການຄຸ້ມຄອງປ່າໄມ້ບ້ານ	kfw	$ 4,000,000	2
ໂຄງການຄຸ້ມຄອງໄມ້ສັກຫຼວງພະບາງ			2
ບໍລິສັດ/ເຂື່ອນໄຟຟ້າ	ພາກເອກະຊົນ		1,2
ໂຄງການ REDD+ຢູ່ ແຂວງຫຼວງພະບາງ - ທົດລອງຈັດຕັ້ງປະຕິບັດ ກິດຈະກຳ ເພື່ອຄວບຄຸມການຖາງປ່າເຮັດໄຮ່ແບບເລື່ອນລອຍ	NAFRI/ມະຫາວິ ທະຍາໄລ Waseda		1,2,3
ລວມ:		$ ຈະກຳນົດຕາມພາຍຫຼັງ	

6.4. ການວິເຄາະດ້ານເສດຖະກິດຂອງໂຄງການ[14]

ອັດຕາຜົນຕອບແທນການລົງທຶນທີ່ຄາດຫວັງ (ERR) ໄລຍະ 8 ປີ ຂອງໂຄງການແມ່ນ 0% ແລະ NPV (10%) of $-2.5 ລ້ານ USD (**ຕາຕະລາງ 16**). ງົບປະມານໃຊ້ຈ່າຍທັງໝົດຂອງໂຄງການ ແມ່ນລວມທັງງົບປະມານຂອງ PRAP ແລະ ການປະກອບສ່ວນທາງດ້ານວັດຖຸ ຂອງທຸກພາກສ່ວນທີ່ໄດ້ຮັບຜົນປະໂຫຍດ. ລາຍຮັບແມ່ນຄາດວ່າຈະມາຈາກການຂາຍຜະລິດຕະພັນຈາກປ່າໄມ້ ແລະ ການລົງທຶນດ້ານກະສິ ກຳ[15]. ຖ້າ ERR ໝູນວຽນຄືນສະເພາະແຕ່ການລົງທຶນດ້ານປ່າໄມ້ ແລະ ກະສິກຳ ມັນສະແດງໃຫ້ເຫັນກະແສໄຫຼວຽນດ້ານການເງິນໃນທາງ ບວກສູງເຖິງ 72%. ການລົງທຶນໃນທາງກົງຈະສາມາດປະກອບສ່ວນຫຼຸດຜ່ອນອັດຕາການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມ ໂຊມ ແຕ່ເຖິງຢ່າງໃດກໍດີ ຜົນກະທົບກຈະ ມີຈຳກັດສຳລັບຜູ້ທີ່ໄດ້ຮັບຜົນປະໂຫຍດຈາກໂຄງການ ແລະ ການນຳໃຊ້ທີ່ດິນຂອງເຂົາເຈົ້າ. ອີກ ດ້ານໜຶ່ງ, ການປະຕິບັດນະໂຍບາຍ ແລະ ລະບຽບຫຼັກການຕ່າງໆ ຊຶ່ງບໍ່ນຳຜົນປະໂຫຍດທາງດ້ານການເງິນມາໃຫ້ໂດຍກົງ ເປັນຕົ້ນແມ່ນຂອດ ການປະສານງານໃນການວາງແຜນນຳໃຊ້ທີ່ດິນ, ການກຳນົດຄືນເນື້ອທີ່ປ່າໄມ້ (3 ປະເພດປ່າ) ແລະ ການນຳໃຊ້ລະບຽບກົດໝາຍ ກໍ ມີສ່ວນ ເຮັດໃຫ້ຜົນກະທົບທີ່ມີຕໍ່ປ່າໄມ້ ໂດຍສະເພາະແມ່ນການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມຫຼຸດລົງໃນທົ່ວແຂວງ.

6.5. ການວິເຄາະຄວາມອ່ອນໄຫວ[16]

ການວິເຄາະຄວາມອ່ອນໄຫວໄດ້ຖືກດຳເນີນ ເພື່ອກຳນົດຜົນກະທົບທີ່ອາດເ ກີດຂຶ້ນກັບ ERR ແລະ NPV ຈາກການປ່ຽນແປງທາງດ້ານ

[14]ການວິເຄາະດ້ານເສດຖະກິດແມ່ນເຮັດຮູບແບບດຽວກັນກັບPRAP ຂອງແຂວງຫົວພັນ

[15] ລາຍຮັບຈາກການທ່ອງທ່ຽວທຳມະຊາດ (ກິດຈະກຳ 3.3 ຂອງອົງປະກອບການຄຸ້ມຄອງທາງສັງຄົມ) ບໍ່ໄດ້ລວມຢູ່ໃນການວິເຄາະ ເນື່ອງຈາກວ່າບໍ່ ມີຕົວຢ່າງດ້ານການນຳເຂົ້າ/ຜົນໄດ້ຮັບເພື່ອ ເປັນບ່ອນອ້າງອີງ

[16]ການວິເຄາະດ້ານຄວາມອ່ອນໄຫວແມ່ນເຮັດຮູບແບບດຽວກັນກັບPRAP ຂອງແຂວງຫົວພັນ

ແຜນງົບປະມານຂອງໂຄງການ ແລະ ການປ່ຽນແປງຂອງລາຍຮັບ. ERR ມີຄວາມອ່ອນໄຫວຕໍ່ການປ່ຽນແປງຂອງລາຍຮັບ ແລະ ງົບປະມານໃຊ້ຈ່າຍໃນລະດັບ 10% – 20%. ລາຍລະອຽດການວິເຄາະຄວາມອ່ອນໄຫວແມ່ນຢູ່ໃນຕາຕະລາງ 16.

ຕາຕະລາງ3: ການວິເຄາະດ້ານເສດຖະກິດ ແລະ ຄວາມອ່ອນໄຫວຂອງໂຄງການ

ຄາດການດ້ານການເງິນ	ERR (%) – ໄລຍະ 8 ປີ	NPV (USD) – ໄລຍະ 8 ປີ
ກໍລະນີໃນຂັ້ນພື້ນຖານ	0%	-2,483,427
ງົບປະມານໃຊ້ຈ່າຍ PRAP: +10%	-19%	-6,542,516
ງົບປະມານໃຊ້ຈ່າຍ PRAP: -10%	-16%	1,575,663
ງົບປະມານໃຊ້ຈ່າຍ PRAP: +20%	-48%	-10,601,605
ງົບປະມານໃຊ້ຈ່າຍ PRAP: -20%	34%	5,634,752
ລາຍຮັບ: +10%	15%	1,327,320
ລາຍຮັບ: -10%	-21%	-6,294,173
IRR/NPV @ +20% ລາຍຮັບ	28%	5,138,067
IRR/NPV @ -20% ລາຍຮັບ	ບໍ່ມີຂໍ້ມູນ[17]	-10,104,920

[17]ບໍ່ສາມາດຄິດໄລ່ເປັນຕົວເລກໄດ້ເນື່ອງຈາກວ່າກະແສເງິນສົດໃນທາງບວກຈະບໍ່ສາມາດສຳເລັດ ແລະ ຄ່າໃຊ້ຈ່າຍແມ່ນສູງກ່ວາຜົນປະໂຫຍດ

7. ລະບົບການຕິດຕາມກວດກາ ແລະ ປະເມີນຜົນ

ຫ້ອງການ REDD+ ຂັ້ນແຂວງທີ່ຂຶ້ນກັບພະແນກກະສິກຳແລະປ່າໄມ້ ສົມທົບກັບພະແນກແຜນການແລະການລົງທຶນແຂວງ ເປັນຜູ້ຮັບຜິດຊອບຫຼັກໃນການຈັດຕັ້ງປະຕິບັດ PRAP ລວມທັງການປະສານງານກັບພາກສ່ວນຕ່າງໆທີ່ຈັດຕັ້ງປະຕິບັດນະໂຍບາຍ ແລະ ມາດຕະການ (PAMs) ເພື່ອເກັບກຳຂໍ້ມູນທີ່ຈຳເປັນເພື່ອຕິດຕາມກວດກາ ແລະ ປະເມີນຜົນ.

ການອອກແບບລະບົບຕິດຕາມກວດກາ ແລະ ປະເມີນຜົນ ແມ່ນຈະໄດ້ອີງໃສ່ນະໂຍບາຍ ແລະ ມາດຕະການທີ່ກຳນົດໃນຕາຕະລາງ ໃນພາກ 4 ຊຶ່ງໄດ້ກຳນົດເປົ້າໝາຍເບື້ອງຕົ້ນຂອງແຕ່ລະກິດຈະກຳ. ເພື່ອຕິດຕາມກວດກາ ແລະ ປະເມີນຄວາມຄືບໜ້າ ໂດຍອີງໃສ່ເປົ້າໝາຍທີ່ກຳນົດ ຕ້ອງໄດ້ພິຈາລະນາອີງປະກອບຫຼາຍຢ່າງ ລວມທັງການຈັດຕັ້ງປະຕິບັດ PAMs, ຜົນໄດ້ຮັບໃນໄລຍະສັ້ນ ແລະ ໄລຍະຍາວຂອງເປົ້າໝາຍທີ່ກຳນົດ, ການມີສ່ວນຮ່ວມຂອງພາກສ່ວນກ່ຽວຂ້ອງ (ລວມທັງການຮ່ວມ ມືມີສ່ວນຮ່ວມຂອງແມ່ຍິງ ແລະ ກຸ່ມຊົນເຜົ່າ), ການຄຸ້ມຄອງທາງດ້ານການເງິນ ແລະ ຜົນປະໂຫຍດທີ່ໄດ້ຮັບຮ່ວມກັນ.

ເນື່ອງຈາກວ່າການຈັດຕັ້ງປະຕິບັດ PRAP ແມ່ນຢູ່ຫຼາຍຈຸດ ແລະ ຫຼາຍລະດັບໃນທົ່ວແຂວງ ສະນັ້ນການຕິດຕາມກວດກາ ແລະ ສະຫຼຸບລາຍງານ ຕ້ອງໄດ້ກວມເອົາຫຼາຍພາກສ່ວນ ລວມທັງລະດັບກຸ່ມບ້ານຂຶ້ນໄປຫາເມືອງ, ແຂວງ ແລະ ລະດັບຊາດ. ການເກັບກຳ, ການແລກປ່ຽນຂໍ້ມູນຂ່າວສານ, ການປະກອບຄຳຄິດເຫັນ ແລະ ການສະຫຼຸບລາຍງານ ຄວາມຄືບໜ້າຂອງແຕ່ລະຜົນໄດ້ຮັບ ຕ້ອງຮັບປະກັນຄວາມໂປ່ງໃສໃນທຸກຂັ້ນຕອນ. ສະນັ້ນຈຶ່ງຈຳເປັນຕ້ອງໄດ້ມີການປະສານງານຢ່າງໃກ້ສິດລະຫວ່າງ ຫ້ອງການ REDD+ ຂັ້ນແຂວງ ແລະ ພະແນກແຜນການ ແລະ ການລົງທຶນແຂວງ. ນອກນັ້ນ, ການອອກແບບ ແລະ ການທົບທວນລະບົບຕິດຕາມກວດກາ ແລະ ປະເມີນຜົນ ຕ້ອງໄດ້ສົມທົບ ແລະ ປະສານງານຢ່າງໃກ້ສິດກັບອີກ 5 ແຂວງທີ່ຈັດຕັ້ງປະຕິບັດແຜນງານ ER (ER program) ເພື່ອຮັບປະກັນໃຫ້ລະບົບຕິດຕາມກວດກາ ແລະ ປະເມີນຜົນຂອງແຕ່ລະແຂວງມີຄວາມສອດຄ່ອງພາຍໃຕ້ແຜນງານ ER ອັນດຽວກັນ.

ເອກະສານຊ້ອນທ້າຍ 1: ຕາຕະລາງເພີ່ມເຕີມ

ຕາຕະລາງ A1. ສັງລວມກອງປະຊຸມປຶກສາຫາລືຂະບວນການສ້າງ PRAP ຢູ່ ແຂວງຫຼວງພະບາງ

ຕາຕະລາງ A2. ສັງລວມສາເຫດທາງກົງ ແລະ ທາງອ້ອມຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ອີງໃສ່ຜົນຂອງການ ປຶກສາຫາລື ຢູ່ ຂັ້ນເມືອງ ແລະ ກຸ່ມບ້ານ

ຕາຕະລາງ A3. ສັງລວມການຝຶກອົບຮົມສ້າງຄວາມເຂັ້ມແຂງ ກ່ຽວກັບ REDD+ ຢູ່ ແຂວງຫຼວງພະບາງ

ຕາຕະລາງ A4. ຈຳນວນປະຊາກອນຂອງແຂວງຫຼວງພະບາງ ປີ1995– 2015

ຕາຕະລາງ A5. ໂຄງການກໍ່ສ້າງເຂື່ອນໄຟຟ້າ ຢູ່ ແຂວງຫຼວງພະບາງ

ຕາຕະລາງ A1. ສັງລວມກອງປະຊຸມປຶກສາຫາລືຂະບວນການສ້າງ PRAP ຢູ່ ແຂວງຫຼວງພະບາງ

ລະດັບຂອງການປຶກສາຫາລື (ຂັ້ນສູນກາງ, ແຂວງ, ເມືອງ, ກຸ່ມບ້ານ, ບ້ານ)	ຄັ້ງວັນທີ	ສະຖານທີ່ປະຊຸມ	ເມືອງທີ່ເຂົ້າຮ່ວມ/ຜູ້ມີສ່ວນຮ່ວມ	ຜູ້ເຂົ້າຮ່ວມ		ຂັ້ນຕອນ/ໝາຍເຫດ
				ທັງໝົດ	ຍິງ	
ກອງປະຊຸມປຶກສາຫາລື ຢູ່ ຂັ້ນເມືອງ ຄັ້ງທີ 1	10/02/2016	ຫຼວງພະບາງ	ຫຊສ, ຫກປ ຫຼວງພະບາງ	4	0	ເກັບກຳຂໍ້ມູນເບື້ອງຕົ້ນ ກ່ຽວກັບຈຸດທີ່ມີການທຳລາຍປ່າໄມ້ ຢ່າງຮ້າຍແຮງ, ສາເຫດ ແລະ ວິທີແກ້ໄຂ
	18/02/2016	ນ້ຳບາກ	ຫຊສ, ຫກປ ນ້ຳບາກ	3	0	
	18/02/2016	ປາກອູ	ຫຊສ, ຫກປ ປາກອູ	6	0	
	19/02/2016	ງອຍ	ຫຊສ, ຫກປ ງອຍ	5	0	
	19/02/2016	ຈອມເພັດ	ຫຊສ, ຫກປ ຈອມເພັດ	6	0	
	22/02/2016	ໂພນທອງ	ຫຊສ, ຫກປ ໂພນທອງ	7	0	
	22/02/2016	ນານ	ຫຊສ, ຫກປ ນານ	3	0	
	23/02/2016	ວຽງຄຳ	ຫຊສ, ຫກປ ວຽງຄຳ	4	0	
	23/02/2016	ຊຽງເງິນ	ຫຊສ, ຫກປ ຊຽງເງິນ	4	0	
	24/02/2016	ປາກແຊງ	ຫຊສ, ຫກປ ປາກແຊງ	4	0	
	24/02/2016	ພູຄູນ	ຫຊສ, ຫກປ ພູຄູນ	5	0	
	25/02/2016	ໂພນໄຊ	ຫຊສ, ຫກປ ໂພນໄຊ	4	0	
	ລວມ: 55 ທ່ານ					
ກອງປະຊຸມປຶກສາຫາລື ຢູ່ ຂັ້ນແຂວງ ຄັ້ງທີ 1	4/8/2016	ຫຼວງພະບາງ	- ຄະນະຊີ້ນຳREDD+ ຂັ້ນແຂວງ, ອົງການຈັດຕັ້ງຂອງລັດ, ສຶກສາ ແລະ ສະຖາບັນຄົ້ນຄ້ວາ ແລະ ພາກເອກະຊົນ ຢູ່ ຂັ້ນແຂວງ ແລະ ເມືອງ - ຂະແໜງການປ່າໄມ້ ແລະ ຂະແໜງການກ່ຽວຂ້ອງອື່ນ ລວມທັງກະສິກຳ, ຄຸ້ມຄອງທີ່ດິນ, ສິ່ງແວດລ້ອມ, ຄົມມະນາຄົມຂົນສົ່ງ, ພະລັງງານ, ບໍ່ແຮ່, ທ່ອງທ່ຽວ	52	6	ແລກປ່ຽນຜົນຂອງການສຳຫຼວດ ເກັບກຳຂໍ້ມູນ ກ່ຽວກັບສາເຫດຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ, ການຂະຫຍາຍເນື້ອທີ່ກະສິກຳ, ການຟື້ນຟູປ່າ ຢູ່ ຂັ້ນເມືອງ. ປຶກສາຫາລືວິທີແກ້ໄຂ ຢູ່ ແຂວງ ຫຼວງພະບາງ.
ກອງປະຊຸມປຶກສາຫາລື ຢູ່ ຂັ້ນແຂວງ ຄັ້ງທີ 2	12-14/10/2016	ຫຼວງພະບາງ	- ຄະນະຊີ້ນຳ REDD+ ຂັ້ນແຂວງ, ອົງການຈັດຕັ້ງຂອງລັດ, ໂຄງການໃຫ້ທຶນຊ່ວຍເຫຼືອ, ສຶກສາ ແລະ ສະຖາບັນຄົ້ນຄ້ວາ ແລະ ພາກເອກະຊົນ ຢູ່ ຂັ້ນແຂວງ ແລະ ເມືອງ - ຂະແໜງການປ່າໄມ້ ແລະ ຂະແໜງການກ່ຽວຂ້ອງອື່ນ ລວມທັງກະສິກຳ, ຄຸ້ມຄອງທີ່ດິນ, ສິ່ງແວດລ້ອມ, ຄົມມະນາ ຄົມຂົນສົ່ງ, ພະ ລັງງານ, ບໍ່ແຮ່, ທ່ອງທ່ຽວ	63	10	ກຳນົດນະໂຍບາຍ, ມາດຕະການ ແລະ ກົດຈະກຳ ເພື່ອຫຼຸດຜ່ອນການທຳລາຍປ່າໄມ້, ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ, ການປົກປັກຮັກສາປ່າໄມ້, ການຟື້ນຟູປ່າ ຢູ່ ແຂວງຫຼວງພະບາງ.
ກອງປະຊຸມປຶກສາຫາລື ຢູ່ ຂັ້ນເມືອງ ຄັ້ງທີ 2	14-15/3/2017	ຫຼວງພະບາງ	- ອົງການຈັດຕັ້ງຂອງລັດ ຢູ່ ຂັ້ນເມືອງ - ຂະແໜງການປ່າໄມ້ ແລະ ຂະແໜງການກ່ຽວຂ້ອງອື່ນ ລວມທັງກະສິກຳ, ຄຸ້ມຄອງທີ່ດິນ, ສິ່ງແວດລ້ອມ, ຄົມມະນາ ຄົມຂົນສົ່ງ, ພະລັງງານ, ບໍ່	15	4	ມື້ທີ 1: ປຶກສາຫາລືກ່ຽວກັບຂັ້ນຕອນຂອງ REDD+ ຢູ່ຂັ້ນເມືອງ ສາເຫດ ແລະ ພາກສ່ວນກ່ຽວຂ້ອງ ກັບການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ. - ສະເໜີກ່ຽວກັບ REDD+, - ສະພາບ REDD+ ຢູ່ ສປປ
	1-2/3/2017	ນ້ຳບາກ		23	2	
	23-24/2/2017	ປາກອູ		28	4	
	6-7/3/2017	ງອຍ		24	3	
	14-15/2/2017	ຈອມເພັດ		38	4	
	9-10/3/2017	ໂພນທອງ		22	1	
	23-24/2/2017	ນານ		19	3	

	13-14/2017	ວຽງຄຳ	ແຮ່, ທ່ອງທ່ຽວ	20	0	ລາວ; - FCPF ແລະ PRAP; - ຄົ້ນຄ້ວາເປັນກຸ່ມເພື່ອກຳນົດ ສາເຫດຫຼັກ, ພາກສ່ວນກ່ຽວ ຂ້ອງ, ສາເຫດທາງອ້ອມຂອງການທຳລາຍ ປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ ເສື່ອມໂຊມ. ມື້ທີ 2: ປຶກສາຫາລືກ່ຽວກັບ ນະໂຍບາຍ ແລະ ມາດຕະການ ຢູ່ ຂັ້ນເມືອງ. - ສະເໜີກ່ຽວກັບນະໂຍບາຍ ແລະ ມາດຕະການ; - ຄົ້ນຄ້ວາ ແລະ ສະເໜີຜົນຂອງ ການຄົ້ນຄ້ວາເປັນກຸ່ມ; - ຈັດບູລິມະສິດນະໂຍບາຍ ແລະ ມາດຕະການ; - ປັບປຸງແຜນ ແລະ ປິດສະຫຼຸບ ສັງລວມ.
	7-9/3/2017	ຊຽງເງິນ		18	1	
	23-24/2/2017	ປາກແຊງ		23	1	
	28/2-1/3/2017	ພູຄູນ		17	1	
	7-8/3/2017	ໂພນໄຊ		23	2	
	ລວມ: 270 ທ່ານ					
ກອງປະຊຸມປຶກສາ ຫາລື ຢູ່ ຂັ້ນກຸ່ມບ້ານ	2017/3/16	ຫຼວງພະບາງ	ກຸ່ມເມືອງຂາຍ	28	2	ມື້ທີ 3: ປຶກສາຫາລື ຢູ່ ຂັ້ນກຸ່ມ ບ້ານ. - ສະເໜີຈຸດປະສົງ; - ຄົ້ນຄ້ວາເປັນກຸ່ມເພື່ອກຳນົດ ສາເຫດຫຼັກ ແລະ ພາກສ່ວນກ່ຽວ ຂ້ອງກັບການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ແລະ ວິທີແກ້ໄຂ (PAMs); - ວິເຄາະຜົນປະໂຫຍດ ແລະ ຄວາມສ່ຽງຂອງ PAMs.
	2017/3/3	ນ້ຳບາກ	ກຸ່ມນ້ຳດວນ	38	10	
	2017/2/25	ປາກອູ	ກຸ່ມຫ້ວຍໂອດ	31	6	
	2017/3/8	ງອຍ	ກຸ່ມໂພນໄຊ	36	7	
	2017/2/16	ຈອມເພັດ	ກຸ່ມນ້ຳຈ່ານ	52	8	
	2017/3/11	ໂພນທອງ	ກຸ່ມທອງໃສ	26	1	
	2017/2/25	ນານ	ກຸ່ມຫ້ວຍຫອຍ	34	0	
	2017/3/15	ວຽງຄຳ	ກຸ່ມມົກຂະ	37	2	
	2017/3/10	ຊຽງເງິນ	ກຸ່ມນ້ຳມິ່ງ	28	2	
	2017/2/25	ປາກແຊງ	ກຸ່ມບວມຜະແສງ	39	9	
	2017/3/2	ພູຄູນ	ກຸ່ມຜາເກັ່ງນ້ອຍ	33	4	
	2017/3/9	ໂພນໄຊ	ກຸ່ມຈອມຈຽງ	21	5	
	ລວມ: 403 ທ່ານ					
ກອງປະຊຸມປຶກສາ ຫາລື ຢູ່ ຂັ້ນແຂວງ ຄັ້ງສຸດທ້າຍ	2017/9/23	ຫຼວງພະບາງ	ຄະນະຊີ້ນຳREDD+ ຂັ້ນ ແຂວງ,ຫ້ອງການ REDD+ ຂັ້ນແຂວງ, ຮອງເຈົ້າເມືອງ ແລະ ທີມງານສ້າງ PRAP; ລວມທັງອົງການຈັດຕັ້ງຂອງ ລັດ, ສຶກສາ ແລະ ສະຖາບັນ ຄົ້ນຄ້ວາ ແລະ ພາກເອກະຊົນ ຢູ່ ຂັ້ນແຂວງ ແລະ ເມືອງ; ຂະແໜງປ່າໄມ້ ແລະ ຂະແໜງ ການອື່ນເຊັ່ນ: ກະສິກຳ, ຄຸ້ມ ຄອງທີ່ດິນ, ສິ່ງແວດລ້ອມ, ຄົມມະນາ ຄົມຂົນສົ່ງ, ພະລັງງານ, ບໍ່ແຮ່, ທ່ອງທ່ຽວ	59	1	ກອງປະຊຸມ 1 ມື້ ເພື່ອປຶກສາຫາລື ຜົນຂອງການເກັບກຳຂໍ້ມູນ ແລະ ປຶກສາຫາລື ຢູ່ ຂັ້ນເມືອງ ແລະ ກຸ່ມ ບ້ານ ເພື່ອເປັນເອກະພາບ ກ່ຽວກັບ ຮ່າງ PRAP ສະບັບທຳອິດ

ຕາຕະລາງ A2. ສັງລວມສາເຫດທາງກົງ ແລະ ທາງອ້ອມຂອງການທຳລາຍປ່າໄມ້ ແລະ ການເຮັດໃຫ້ປ່າໄມ້ເສື່ອມໂຊມ ອີງໃສ່ຜົນຂອງການ ປຶກສາຫາລື ຢູ່ ຂັ້ນເມືອງ ແລະ ກຸ່ມບ້ານ

ເມືອງ	ສາເຫດທາງກົງ	ສາເຫດທາງອ້ອມ
ຈອມເພັດ	1. ການຖາງປ່າເຮັດໄຮ່ແບບເລື່ອນລອຍ	ການເພີ່ມຂຶ້ນຂອງປະຊາກອນ; ຄວາມຕ້ອງການສິນຄ້າປະເພດສະບຽງອາຫານໃນສັງຄົມມີຫຼາຍ; ຂາດອາຊີບທີ່ແນ່ນອນ/ບໍ່ມີເນື້ອທີ່ນາ; ບໍ່ມີທຶນຮອນເພື່ອເຮັດອາຊີບອື່ນທີ່ໝັ້ນຄົງ; ພາກລັດບໍ່ມີການສົ່ງເສີມສ້າງງານໃຫ້ເຂົາເຈົ້າພຽງພໍ; ການຄຸ້ມຄອງຈັດສັນທີ່ດິນຍັງບໍ່ທົ່ວເຖິງ
	2. ການປູກໄມ້ອຸດສາຫະກຳເປັນສິນຄ້າ (ບໍລິສັດ)	ລາຄາສິນຄ້າ (ລາຄາຕະຫຼາດດີ ຈຶ່ງມີການປູກຫຼາຍຂຶ້ນ); ການປະຕິບັດກົດໝາຍບໍ່ເຂັ້ມງວດ; ການວາງແຜນນຳໃຊ້ທີ່ດິນບໍ່ທົ່ວເຖິງ; ນະ�โยบายການພັດທະນາຂອງລັດຖະບານ
	3. ການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍ	ຄວາມຕ້ອງການຂອງສັງຄົມສູງ; ອາຊີບຂອງປະຊາຊົນບໍ່ໝັ້ນຄົງ; ຍ້ອນການເພີ່ມຂຶ້ນ-ຍົກຍ້າຍປະຊາກອນ; ການປະຕິບັດລະບຽບກົດໝາຍບໍ່ເຂັ້ມງວດ; ສະພາບແວດລ້ອມເສື່ອມໂຊມ
	4. ໄຟໄໝ້ລາມປ່າ	ຈູດໄຮ່ + ຈູດທົ່ງຫຍ້າ; ລ່າສັດ; ບໍ່ປະຕິບັດລະບຽບ
ງອຍ	1. ການຖາງປ່າເຮັດໄຮ່ແບບເລື່ອນລອຍ	ບໍ່ມີອາຊີບອັນແນ່ນອນ; ສະມັດຕະພາບການຜະລິດຕ່ຳ; ບໍ່ມີທາງເລືອກໃນການດຳລົງຊີວິດ/ຄວາມທຸກຍາກ; ຮູບແບບການດຳລົງຊີວິດແບບຄອງເດີມ; ການປະຕິບັດລະບຽບກົດໝາຍບໍ່ເຂັ້ມງວດ; ຄວາມຕ້ອງການ/ທ່າແຮງຂອງຕະຫຼາດ
	2. ການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍ	ການເພີ່ມຂຶ້ນຂອງປະຊາກອນແລະການກໍ່ສ້າງພື້ນຖານໂຄງລ່າງ; ຄວາມຕ້ອງການຂອງຕະຫຼາດ; ຄວາມທຸກຍາກ; ການຖືຄອງທີ່ດິນ; ການດຳລົງຊີວິດຕາມຮີດຄອງເດີມ; ການປະຕິບັດລະບຽບກົດໝາຍບໍ່ເຂັ້ມງວດແລະການວາງແຜນນຳໃຊ້ທີ່ດິນບໍ່ທົ່ວເຖິງ
	3. ການຂະຫຍາຍເນື້ອທີ່ກະສິກຳ	ຍ້ອນຢາກຫຼຸດຜ່ອນການຖາງປ່າເຮັດໄຮ່ແບບເລື່ອນລອຍ; ຍ້ອນຢາກປ່ຽນອາຊີບໃໝ່ທີ່ໝັ້ນຄົງ; ບໍ່ນຳໃຊ້ເຕັກນິກວິຊາການ; ຄວາມຕ້ອງການຂອງຕະຫຼາດ
	4. ການອະນຸຍາດຕັດໄມ້ຖືກຕ້ອງຕາມກົດໝາຍ	ການເພີ່ມຂຶ້ນຂອງປະຊາກອນແລະການຍົກຍ້າຍ; ຄວາມຕ້ອງການຂອງຕະຫຼາດ; ການພັດທະນາພື້ນຖານໂຄງລ່າງ; ນະ�โยบายດ້ານການພັດທະນາຂອງລັດຖະບານ; ການປະຕິບັດລະບຽບກົດໝາຍຍໍ່ເຂັ້ມງວດ
ໂພນທອງ	1. ການຖາງປ່າເຮັດໄຮ່ແບບເລື່ອນລອຍ	ຂາດພື້ນທີ່ຜະລິດແບບຖາວອນ; ຂາດເຕັກນິກວິຊາການ; ການເພີ່ມຂຶ້ນ ແລະ ການຍົກຍ້າຍຂອງປະຊາກອນ; ຮູບແບບການດຳລົງຊີວິດຕາມຮີດຄອງເດີມ; ການເສື່ອມໂຊມຂອງດິນ; ຄວາມຕ້ອງການຂອງຕະຫຼາດ
	2. ການຂະຫຍາຍເນື້ອທີ່ກະສິກຳ	ການເຮັດໄຮ່ເລື່ອນລອຍ; ການເໜັງຕີງຂອງພົນລະເມືອງ (ພົນລະເມືອງເພີ່ມຂຶ້ນ); ການພັດທະນາໂຄງຮ່າງການຕະຫຼາດ; ຕ້ອງການເນື້ອທີ່ການຜະລິດ
	3. ການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍ	ປຸກສ້າງ; ເພື່ອຈຳໜ່າຍເປັນສິນຄ້າ; ຜະລິດຕະພັນເຟີນິເຈີຮັບໃຊ້ສັງຄົມ
	4. ການຂຸດຄົ້ນບໍ່ແຮ່	ນະ�โยบายຂອງລັດຖະບານ(ຄວາມຕ້ອງການທາງດ້ານງົບປະມານ); ລະບຽບກົດໝາຍບໍ່ເຂັ້ມງວດ
ວຽງຄຳ	1. ການຂະຫຍາຍເນື້ອທີ່ກະສິກຳ	ການເພີ່ມຂຶ້ນຂອງປະຊາກອນ; ຄວາມຕ້ອງການຂອງຕະຫຼາດສູງ; ນຳໃຊ້ສານເຄມີຊ່ວຍແຮງງານ (ຢາຂ້າຫຍ້າ); ຄະນະກຳມະການຂາດການກວດກາການນຳໃຊ້ທີ່ດິນ; ບໍ່ທັນມອບສິດຄອບຄອງທີ່ດິນກະສິກຳໃຫ້ຄອບຄົວ; ສະມັດຕະພາບ

		ການຜະລິດຍັງຕ່ຳ
	2. ການຖາງປ່າເຮັດໄຮ່ແບບເລື່ອນລອຍ	ພົນລະເມືອງເພີ່ມຂຶ້ນ; ຄວາມຕ້ອງການຂອງຕະຫຼາດ; ຮູບແບບດຳລົງຊີວິດ ແບບຮີດຄອງເດີມ; ການວາງແຜນນຳໃຊ້ທີ່ດິນບໍ່ທົ່ວເຖິງ; ປະຊາຊົນບໍ່ມີອາຊີບອື່ນປ່ຽນແທນ
	3. ໄຟໄໝ້ລາມປ່າ	ບໍ່ມີແລວກັນໄຟໃນການຈູດໄຮ່-ສວນ; ສະຕິຕື່ນຕົວໃນການຈັດຕັ້ງປະຕິບັດກົດໝາຍບໍ່ເຂັ້ມງວດ; ຈູດປ່າເພື່ອລ່າສັດ; ໄຟໄໝ້ລາມປ່າແບບບັງເອີນ
	4. ການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍ	ຄວາມຕ້ອງການຂອງຕະຫຼາດ ແລະ ການປຸກສ້າງ; ຍ້ອນປະຊາຊົນເຫັນຜົນປະ�โຫຍດສ່ວນຕົວ; ການຈັດຕັ້ງບ້ານບາງບ້ານບໍ່ເຂັ້ມແຂງ; ການປະຕິບັດລະບຽບກົດໝາຍບໍ່ເຂັ້ມງວດ
ປາກແຊງ	1. ການຖາງປ່າເຮັດໄຮ່ແບບເລື່ອນລອຍ	ປະຊາຊົນບໍ່ມີອາຊີບທີ່ໝັ້ນຄົງ; ການຄຸ້ມຄອງ ແລະ ນຳໃຊ້ທີ່ດິນຜະລິດ ບໍ່ຖືກຕ້ອງຕາມລະບຽບຫຼັກການ; ຍ້ອນປະຊາຊົນຍັງມີຄວາມທຸກຍາກ; ປະຊາຊົນຍັງມີແນວຄິດຄອງເດີມ
	2. ການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍ	ຄວາມຕ້ອງການ/ທ່າແຮງຂອງຕະຫຼາດ; ຂາດທາງເລືອກໃນການດຳລົງຊີວິດ, ຄວາມທຸກຍາກ; ການພັດທະນາໂຄງລ່າງພື້ນຖານ; ນະ�โยบายด้านการพัฒนาของลัดถะบาน; ການປະຕິບັດລະບຽບກົດໝາຍບໍ່ເຂັ້ມງວດ
	3. ການຂະຫຍາຍເນື້ອທີ່ກະສິກຳ	ການເພີ່ມຂຶ້ນຂອງປະຊາກອນ; ຄວາມຕ້ອງການຂອງຕະຫຼາດ; ສະມັດຕະພາບຕ່ຳ/ດິນເສື່ອມໂຊມ; ຂາດທາງເລືອກໃນການດຳລົງຊີວິດ; ການປະຕິບັດກົດໝາຍບໍ່ທັນເຂັ້ມງວດ; ຮູບແບບການດຳລົງຊີວິດໄປຕາມຮີດຄອງເດີມ
	4. ໄຟໄໝ້ລາມປ່າ	ຈູດໄຮ່ + ຈູດສວນ; ຈູດປ່າລ່າເນື້ອ; ຂາດການບໍ່ລະມັດລະວັງ; ການຈັດຕັ້ງກົດລະບຽບບໍ່ເຂັ້ມງວດ
ນ້ຳບາກ	1. ການຖາງປ່າເຮັດໄຮ່ແບບເລື່ອນລອຍ	ບໍ່ມີອາຊີບທີ່ແນ່ນອນແລະຄວາມຊົນເຄີຍຂອງປະຊາຊົນ; ພື້ນທີ່ການຜະລິດມີຄວາມຄ້ອຍຊັນ; ຍ້ອນຄວາມຊົນເຄີຍ
	2. ການປູກໄມ້ອຸດສາຫະກຳ	ການພັດທະນາທາງດ້ານເສດຖະກິດສັງຄົມ; ຍ້ອນການລົງທຶນຂອງຕ່າງປະເທດ; ມີຕະຫຼາດຮັບຮອງ
	3. ການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍ	ຄວາມຕ້ອງການຂອງຕະຫຼາດສູງຂຶ້ນ; ບໍ່ມີອາຊີບແນ່ນອນ; ການເຜີຍແຜ່ນິຕິກຳບໍ່ທົ່ວເຖິງ
	4. ການຂະຫຍາຍເນື້ອທີ່ກະສິກຳ	ນະ�โยบายของลัดต่ำการผะลิดเป็นสินค้า; ປະຊາກອນເພີ່ມຂຶ້ນ; ຄວາມຕ້ອງການຂອງສັງຄົມ/ລາຄາດີຂຶ້ນ; ອາຊີບປະຊາຊົນບໍ່ແນ່ນອນ
ປາກອູ	1. ການຖາງປ່າເຮັດໄຮ່ແບບເລື່ອນລອຍ	ບໍ່ມີອາຊີບທີ່ແນ່ນອນແລະຄວາມຊົນເຄີຍຂອງປະຊາຊົນ; ພື້ນທີ່ການຜະລິດມີຄວາມຄ້ອຍຊັນ; ການຈັດສັນພື້ນທີ່ຍັງບໍ່ທັນທົ່ວເຖິງ(ສຳເລັດ 3 ກຸ່ມ,24ບ້ານ) ບ້ານທັງໝົດ 82ບ້ານ
	2. ການປູກໄມ້ອຸດສາຫະກຳ	ການພັດທະນາທາງດ້ານເສດຖະກິດສັງຄົມ; ຍ້ອນການລົງທຶນຂອງຕ່າງປະເທດ
	3. ການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍ	ຄວາມຕ້ອງການຂອງຕະຫຼາດສູງຂຶ້ນ; ບໍ່ມີອາຊີບແນ່ນອນ; ການເຜີຍແຜ່ນິຕິກຳບໍ່ທົ່ວເຖິງ;ເຈດຕະນາລະເມີດ
ໂພນໄຊ	1. ການຖາງປ່າເຮັດໄຮ່ແບບເລື່ອນລອຍ	ບໍ່ມີອາຊີບທີ່ແນ່ນອນ; ພົນລະເມືອງເພີ່ມຂຶ້ນ; ການວາງແຜນນຳໃຊ້ທີ່ດິນຈຳກັດ
	2. ການຂະຫຍາຍເນື້ອທີ່ກະສິກຳ	ຍ້ອນຕະຫຼາດມີຄວາມຕ້ອງການສູງ; ຍ້ອນແນວທາງນະโยบายของพัก-ลัด (ການປູກການລ້ຽງ); ການເພີ່ມຂຶ້ນຂອງພົນລະເມືອງ
	3. ໄຟໄໝ້ລາມປ່າ	ຈູດໄຮ່ຫຼືສວນທີ່ບໍ່ໄດ້ແກດ(ສ້າງແລວກັນໄຟ); ຈູດປ່າເພື່ອລ່າສັດ

	4. ການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍ	ຄວາມຕ້ອງການຂອງຕະຫຼາດສູງຂຶ້ນ; ບໍ່ມີອາຊີບແນ່ນອນ; ລະດັບຄວາມຮັບຮູ້ບໍ່ທັນສູງ; ການເຜີຍແຜ່ນິຕິກຳບໍ່ທົ່ວເຖິງ
ຫຼວງພະບາງ	1. ການຖາງປ່າເຮັດໄຮ່ແບບເລື່ອນລອຍ	ບໍ່ມອາຊີບໝັ້ນຄົງ; ເນື້ອທີ່ມີຈຳກັດ; ການຖາງປ່າຈັບຈອງພື້ນທີ່ດິນ; ການເພີ່ມຂຶ້ນຂອງພົນລະເມືອງ
	2. ການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍ	ຍ້ອນບໍ່ມີອາຊີບຫຼັກແຫຼ່ງ; ຍ້ອນລາຄາສູງ ແລະ ຂາຍໄດ້ງ່າຍ; ຄວາມຕ້ອງການຂອງຕະຫຼາດຢາກໄດ້ໄມ້ລາຄາຖືກ; ຄວາມໂລບສ່ວນບຸກຄົນ; ການຝ່າຝືນລະບຽບກົດໝາຍຂອງພັກລັດວາງອອກ
	3. ໄຟໄໝ້ລາມປ່າ	ຍ້ອນການຊອກຢູ່ຫາກິນຂອງປະຊາຊົນ(ການລ່າສັດ); ດິນຟ້າອາກາດມີການປ່ຽນ ແປງ (ທຳມະຊາດ); ຈູດໄຮ່-ສວນ; ການຈູດປ່າເພື່ອຈັບຈ່ອງທີ່ດິນ ແລະ ປ່າໄມ້
	4. ການຂະຫຍາຍເນື້ອທີ່ກະສິກຳ	ເພື່ອພັດທະນາເສດຖະກິດຄອບຄົວໃຫ້ດີຂຶ້ນ; ຍ້ອນຄວາມຕ້ອງການຂອງ ຕະຫຼາດ; ການເຂົ້າເຖິງຕະຫຼາດໃຫ້ພຽງພໍ; ນະ�โยบาย, ยุดทะสาดการพัดทะนาที่ເປັນ ທາງການ ແລະ ມີຂອບເຂດ
ນານ	1. ການຖາງປ່າເຮັດໄຮ່ແບບເລື່ອນລອຍ	ຍ້ອນພື້ນຖານການດຳລົງຊີວິດ; ອາຊີບຍັງບໍ່ໝັ້ນຄົງ; ຂາດທຶນຮອນ
	2. ການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍ	ການປະຕິບັດດ້ານກົດໝາຍຍັງບໍ່ທັນເຂັ້ມງວດ; ຍ້ອນຄວາມທຸກຍາກ ແລະ ຂາດທາງເລືອກໃນການດຳລົງຊີວິດ; ຍ້ອນຄວາມຕ້ອງການຂອງຕະຫຼາດ
	3. ການປູກໄມ້ອຸດສາຫະກຳ	ຍ້ອນຄວາມຕ້ອງການຂອງຕະຫຼາດຢາງພະລາໃນຕ່າງປະເທດຫຼາຍ; ປະຊາຊົນບໍ່ມີອາຊີບຖາວອນ
	4. ການຂະຫຍາຍເນື້ອທີ່ກະສິກຳ	ຍ້ອນການຍົກຍ້າຍ ແລະ ການເພີ້ມຂຶ້ນຂອງປະຊາກອນ; ຍ້ອນຄວາມຕ້ອງການຂອງຕະຫຼາດ; ຍ້ອນການປະຕິບັດລະບຽບກົດໝາຍຍັງບໍ່ທັນເຂັ້ມງວດ
ຊຽງເງິນ	1. ການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍ	ຍ້ອນຄວາມທຸກຍາກ; ຍ້ອນຄວາມບໍ່ເຂົ້າໃຈຕໍ່ບັນຫາສິ່ງແວດລ້ອມ; ຍ້ອນຄວາມຕ້ອງການນຳໃຊ້ເຂົ້າໃນການປຸກສ້າງ ແລະ ອື່ນໆ; ຍ້ອນຄວາມຕ້ອງການຂອງຕະຫຼາດສູງ
	2. ການສ້າງເຂື່ອນໄຟຟ້າ ແລະ ຕະຂ່າຍ	ຍ້ອນການກະຕຸ້ນເສດຖະກິດ; ນະ�โยบายของลัดถะบานในการพัดทะนา; ຂາດໄຟຟ້າຊົມໃຊ້ພາຍໃນ ແລະ ຕ່າງປະເທດ; ຟື້ນຟູພື້ນຖານໂຄງລ່າງ; ການເພີ້ມ ຂຶ້ນຂອງພົນລະເມືອງ
	3. ການຂະຫຍາຍເນື້ອທີ່ກະສິກຳ	ການເພີ້ມຂຶ້ນຂອງປະຊາກອນ; ການຍົກຍ້າຍພ້ອມທັງການກຳນົດທີ່ດິນບໍ່ຈະແຈ້ງ; ເສດຖະກິດມີການຂະຫຍາຍຕົວ; ຄວາມຕ້ອງການສິນຄ້າຂອງຕະຫຼາດ; ຍ້ອນການປູກພືດອຸດສະຫະກຳເພີ່ມຂຶ້ນ; ນະ�โยบายด้านการพัดทะนา
	4. ການກໍ່ສ້າງເສັ້ນທາງ	ເພື່ອຄວາມສະດວກໃນການໄປມາຫາສູ່; ສະດວກໃນການຂົນສົ່ງສິນຄ້າ ; ຊຸກຍູ້ການພັດທະນາທ້ອງຖິ່ນ; ທີ່ດິນປ່າໄມ້ຫຼຸດລົງ; ສິ່ງແວດລ້ອມ/ທຳມະຊາດປ່ຽນ ແປງ
	1. ການຖາງປ່າເຮັດໄຮ່ແບບເລື່ອນລອຍ	ປະຊາຊົນຍັງມີຄວາມທຸກຍາກ; ອາຊີບຍັງບໍ່ໝັ້ນຄົງ; ຄວາມຊິນເຄີຍແບບດັ້ງ ເດີມ; ປະຕິບັດລະບຽບຍັງບໍ່ເຂັ້ມງວດ; ການວາງແຜນນຳໃຊ້ທີ່ດິນຍັງບໍ່ທັນທົ່ວເຖິງ; ນະ�โยบายด้านการพัดทะนาบໍ່ຈະແຈ້ງ; ສິ່ງອຳນວຍຄວາມສະດວກ (ຢາຂ້າ

ພູຄູນ		ຫຍ້າ -ຈັກສະຕິນ); ປະຊາຊົນເພີ່ມຂຶ້ນ ແລະ ທີ່ດິນມີຄວາມຈຳກັດ
	2. ການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍ	ຍ້ອນການລັກລອບຊື້-ຂາຍໄມ້; ເສດຖະກິດຂະຫຍາຍຕົວໄວ (ການຕະຫຼາດ); ການຈັດຕັ້ງປະຕິບັດລະບຽບກົດໝາຍບໍ່ເຂັ້ມງວດ; ການພັດທະນາພື້ນຖານໂຄງລ່າງ (ການກໍ່ສ້າງເສັ້ນທາງ); ປະຊາຊົນທຸກຍາກ
	3. ການອະນຸຍາດຕັດໄມ້ຖືກຕ້ອງຕາມກົດໝາຍ	ຂາດທຶນຮອນໃນການພັດທະນາ; ຍ້ອນຄວາມຮັບຮູ້ຍັງຕ່ຳ; ການກຳນົດນະໂຍບາຍຍັງບໍທັນສອດຄ່ອງເປັນຕົ້ນຕໍ່ກັບຜູ້ທີ່ມີຜົນງານ (ໄມ້); ການພັດທະນາໂຄງລ່າງພື້ນຖານ; ການກໍ່ສ້າງເສັ້ນທາງ; ເຂື່ອນໄຟຟ້າ; ສະໂມສອນເມືອງ
	4. ການຂະຫຍາຍເນື້ອທີ່ກະສິກຳ	ເນື້ອທີ່ປ່າໄມ້ຫຼຸດລົງ; ດິນຊຸດໂຊມ; ປະຊາກອນເພີ່ມຂຶ້ນ; ປະຊາຊົນມີຄວາມທຸກຍາກ; ການນຳໃຊ້ທີ່ດິນບໍ່ຖືກເປົ້າໝາຍ; ຄວາມຕ້ອງການສິນຄ້າຂອງຕະຫຼາດເພີ່ມຂຶ້ນ

ຕາຕະລາງ A3. ສັງລວມການຝຶກອົບຮົມສ້າງຄວາມເຂັ້ມແຂງ ກ່ຽວກັບ REDD+ ຢູ່ ແຂວງຫຼວງພະບາງ

ລ/ດ	ຫົວຂໍ້ຝຶກອົບຮົມ	ກຳນົດ (ມື້)	ເລີ່ມວັນທີ	ສຳເລັດວັນທີ	ສະຖານທີ່	ເນື້ອໃນ	ກຸ່ມເປົ້າໝາຍ	ຈຳນວນ ສຳມະນາ ກອນ	ຍິງ	ຝຶກໂດຍ
1	ເພີ່ມຂີດຄວາມສາມາດ ໃຫ້ປ່າໄມ້ຊຸມຊົນ-ແນວ ທາງໃນການເພີ່ມທະວີ ບົດບາດຂອງແມ່ຍິງເຂົ້າ ໃນວຽກງານປ່າໄມ້	5	21 ສິງຫາ 2016	27 ສິງຫາ 2016	RECOFTC ບາງກອກ	ຮັບຮູ້ ແລະ ເຂົ້າໃຈ ບົດບາດຂອງແມ່ຍິງ ໃນວຽກງານປ່າໄມ້	ພະນັກງານ ພະແນກກະສິກຳ ແລະ ປ່າໄມ້ແຂວງ ຫຼວງພະບາງ	2	0	RECOFTC
2	FPIC	5	26 ກັນຍາ 2016	30 ກັນຍາ 2016	RECOFTC ບາງກອກ	ເຂົ້າໃຈກ່ຽວກັບການ ເຫັນດີເຫັນພ້ອມຢ່າງ ເປັນອິດສະຫຼະໂດຍ ຮັບຮູ້ລ່ວງໜ້າໃນການ ພັດທະນາ	ພະນັກງານ ພະແນກກະສິກຳ ແລະ ປ່າໄມ້ແຂວງ ຫຼວງພະບາງ	2	0	RECOFTC
3	ການປົກປ້ອງໃນການ ຄຸ້ມຄອງປ່າໄມ້ແບບຍືນ ຍົງ ແລະ REDD+	1	13 ຕຸລາ 2016	13 ຕຸລາ 2016	ພະແນກກະສິກຳ ແລະ ປ່າໄມ້ແຂວງຫຼວງພະບາງ	ການປົກປ້ອງ ແລະ REDD+ ສຳລັບ ພະນັກງານເມືອງ ຈາກ 12 ເມືອງຂອງ ແຂວງຫຼວງພະບາງ	ພະນັກງານພະ ແນກ ກປ, ຫ້ອງການ ກປ, ຫ້ອງການ ຊສຈາກ 12 ເມືອງ	39	8	RECOFTC
4	ຄວາມຮູ້ພື້ນຖານກ່ຽວ ກັບ REDD+ ໃຫ້ ຄະນະຊີ້ນຳ REDD+ ຂັ້ນແຂວງ	2	12 ທັນວາ 2016	13 ທັນວາ 2016	ພະແນກກະສິກຳ ແລະ ປ່າໄມ້ແຂວງຫຼວງພະບາງ	ຄວາມຮູ້ພື້ນຖານ ກ່ຽວກັບ REDD+	ຄະນະຊີ້ນຳ REDD+ ຂັ້ນ ແຂວງ	33	4	RECOFTC
5	ການປົກປ້ອງທາງສັງຄົມ ສຳລັບວຽກງານຄຸ້ມຄອງ ປ່າໄມ້ແບບຍືນຍົງ ແລະ	2	15 ທັນວາ 2016	16 ທັນວາ 2016	ພະແນກກະສິກຳ ແລະ ປ່າໄມ້ແຂວງຫຼວງພະບາງ	ການປົກປ້ອງທາງ ສັງຄົມ ສຳລັບວຽກ ງານຄຸ້ມຄອງປ່າໄມ້	ພະນັກງານພະ ແນກ ກປ, ຫ້ອງການ ກປ,	37	5	RECOFTC

	REDD+ ສຳລັບ ທ້ອງຖິ່ນ					ແບບຍືນຍົງ ແລະ REDD+ ສຳລັບ ທ້ອງຖິ່ນ	ຫ້ອງການ ຊສຈາກ 12 ເມືອງ			
6	ຝຶກອົບຮົມຮ່ວມ FAO-RECOFTC: ຊຸກຍູ້ສົ່ງເສີມບົດບາດ ແມ່ຍິງໃນການຄຸ້ມຄອງ ຊັບພະຍາກອນທຳມະ ຊາດ	4	23 ມັງກອນ 2017	26 ມັງກອນ 2017	RECOFTC ບາງກອກ	ບົດບາດຍິງຊາຍໃນ ການຄຸ້ມຄອງຊັບພະ ຍາກອນທຳມະຊາດ	ພະນັກງານ ພະ ແນກ ກະສິກຳ ແລະ ປ່າໄມ້ ແຂວງ ຫຼວງພະບາງ	2	0	RECOFTC
								115	17	

ແຫຼ່ງຂໍ້ມູນ: ໂຄງການສະໜັບສະໜູນການຄຸ້ມຄອງປ່າໄມ້ແບບຍືນນານ ແລະ REDD+ (F-REDD)

ຕາຕະລາງ A4. ຈຳນວນປະຊາກອນຂອງແຂວງຫຼວງພະບາງ ປີ 1995 - 2015

	ເມືອງ	1995	2005	2015	ການປ່ຽນແປງ (%)	ການປ່ຽນແປງ (%)
01	ຫຼວງພະບາງ	63,765	78,516	90,300	23.1%	15.0%
02	ຊຽງເງີນ	34,266	33,497	33,400	-2.2%	-0.3%
03	ນານ	28,321	28,028	28,100	-1.0%	0.3%
04	ປາກອູ	21,242	24,045	25,800	13.2%	7.3%
05	ນ້ຳບາກ	47,082	59,795	68,900	27.0%	15.2%
06	ງອຍ	39,772	40,679	29,700	2.3%	-27.0%
07	ປາກແຊງ	25,889	23,424	22,200	-9.5%	-5.2%
08	ໂພນໄຊ	24,525	29,646	32,600	20.9%	10.0%
09	ຈອມເພັດ	24,859	28,887	30,100	16.2%	4.2%
10	ວຽງຄຳ	38,931	40,362	28,600	3.7%	-29.1%
11	ພູຄູນ	16,188	20,160	23,200	24.5%	15.1%
	ໂພນທອງ			19,100		
	ລວມ	364,840	407,039	432,000	11.6%	6.1%

ແຫຼ່ງຂໍ້ມູນ: ພະແນກແຜນການ ແລະ ການລົງທຶນ, ແຂວງຫຼວງພະບາງ (2016)

ຕາຕະລາງ A5. ໂຄງການກໍ່ສ້າງເຂື່ອນໄຟຟ້າ ຢູ່ ແຂວງຫຼວງພະບາງ

ລ/ດ	ຊື່ໂຄງການ	ສະຖານທີ່	ກຳລັງ ການຜະລິດ MW	ການຈ່າຍກະແສ ໄຟຟ້າ GWH/ປີ	ເຈົ້າຂອງໂຄງການ/ຜູ້ ພັດທະນາ	ເຊັນ MOU ແລ້ວ	ສະພາບ	ສຳເລັດປີ
I	**ເຂື່ອນທີ່ສາມາດຜະລິດກະແກໄຟຟ້າໄດ້ແລ້ວ**		**370.73**					
1	ນ້ຳງື່ມ 5	ພູຄູນ	120	507	ໄຟຟ້າລາວ (EDL)		ຜະລິດແລ້ວ	2012
2	ນ້ຳດົງ	ຫຼວງພະບາງ	1	5	ໄຟຟ້າລາວ (EDL)		ຜະລິດແລ້ວ	1970
3	ນ້ຳມອງ	ນ້ຳບາກ	70 kw		ໄຟຟ້າລາວ (EDL)		ຜະລິດແລ້ວ	2000
4	ກະຕ່າງສະເລື່ອນ	ໂພນໄຊ	3 kw		ທຶນ EU		ຜະລິດແລ້ວ	2010
5	ນ້ຳອູ 2	ງອຍ	120	546	Sinohydro (ຈີນ)	15/10/2006	ຜະລິດແລ້ວ	2016
6	ນ້ຳຄານ 2	ຊຽງເງີນ	130	558	ໄຟຟ້າລາວ (EDL)	13/10/2006	ຜະລິດແລ້ວ	2016
II	**ກຳລັງກໍ່ສ້າງ**		**1,345**					
1	ນ້ຳຂອງ (ເຂື່ອນໄຊຍະບູລີ)	ໄຊຍະບູລີ-ຫຼວງພະບາງ	1,285	7,406	ສ ການຊ່າງ (ໄທ)	4/5/2007	ກຳລັງກໍ່ສ້າງ	2019
2	ນ້ຳຄານ 3	ຊຽງເງີນ	60	249.5	ໄຟຟ້າລາວ (EDL)	13/10/2006	ກຳລັງກໍ່ສ້າງ	2017
III	**ເຊັນ MOU ແລ້ວ**		**1,989.8**					
1	ນ້ຳອູ 1	ປາກອູ	180	710	Sinohydro (ຈີນ)	15/10/2006		
2	ນ້ຳອູ 3	ງອຍ	210	826	Sinohydro (ຈີນ)	15/10/2006		
3	ນ້ຳຂອງ	ປາກອູ	1,200	6,500	Petro VN Power Co. (ຫວຽດນາມ)	13/10/2007		
4	ນ້ຳເຊືອງ 1	ຫຼວງພະບາງ	30	113.9	Sesuan group (ຈີນ)	9/9/2013	ກຳລັງເກັບກຳຂໍ້ມູນ	
5	ນ້ຳເຊືອງ 2	ປາກແຊງ	108	385.2	ຄືຂ້າງເທິງ	9/9/2013	ກຳລັງເກັບກຳຂໍ້ມູນ	
6	ນ້ຳເຊືອງ 4	ປາກແຊງ	42	147.2	ຄືຂ້າງເທິງ	9/9/2013	ກຳລັງເກັບກຳຂໍ້ມູນ	
7	ນ້ຳເຊືອງ 5	ວຽງຄຳ	47.1	155.8	ຄືຂ້າງເທິງ	9/9/2013	ກຳລັງເກັບກຳຂໍ້ມູນ	
8	ນ້ຳເຊືອງ 6	ປາກແຊງ	72	242.1	ຄືຂ້າງເທິງ	9/9/2013	ກຳລັງເກັບກຳຂໍ້ມູນ	
9	ນ້ຳງາ 1	ນ້ຳບາກ	53.7	298	ບໍລິສັດດວງປະເສີດ	26/11/2007		

10	ນ້ຳຄານ 4	ໂພນໄຊ	47		ຄືຂ້າງເທິງ			
IV	**ເຊັນ MOU ໂດຍທ້ອງຖິ່ນ**		**106.2**					
1	ເຂື່ອນນ້ຳບາກ	ນ້ຳບາກ	15		DSK group	8/4/2010	ກຳລັງເກັບກຳຂໍ້ມູນ	
2	ນ້ຳສະນັນ	ຊຽງເງີນ	15		ບໍລິສັດພູສີ	23/2/2015		
3	ນ້ຳມາດ	ໂພນທອງ	15		ຄືຂ້າງເທິງ	10/1/2013		
4	ນ້ຳແຊງ	ປາກແຊງ	15		ຄືຂ້າງເທິງ	11/1/2013		
5	ນ້ຳມີ	ວຽງຄຳ	15		ຄືຂ້າງເທິງ	12/1/2013		
6	ນ້ຳມິ່ງ 1	ຊຽງເງີນ	15		ບໍລິສັດດວງຖາວອນ	16/1/2014		
7	ນ້ຳມິ່ງ 2	ຊຽງເງີນ	15		ບໍລິສັດມິ່ລີ່ກໍ່ສ້າງໄຟຟ້າ ແລະ ຊົນລະປະທານ	11/15/2015		
8	ນ້ຳແຊງ	ນານ	1.2	8.5	ໄຟຟ້າລາວ (EDL)	7/11/2014		
	ລວມ:		**3,812.73**					
V	**ໂຄງການທີ່ໄດ້ສຳຫຼວດ**							
1	ນ້ຳຫຼົ້ງ	ຈອມເພັດ	7		ໄຟຟ້າລາວ (EDL)			
2	ນ້ຳລາວ	ວຽງຄຳ	15		ບໍລິສັດພູສີ			
3	ນ້ຳພັກ	ນານ	1		ບໍລິສັດມວນຊົນກໍ່ສ້າງ			
4	ນ້ຳໂຊກ	ນານ	1		ຄືຂ້າງເທິງ			
5	ນ້ຳລາວ	ພູຄູນ	15		ບໍລິສັດດວງດາວເພັດ			
6	ນ້ຳທີ	ພູຄູນ	10		ບໍລິສັດດວງດາວເພັດ			
7	ນ້ຳມິ່ງ	ຊຽງເງີນ	15		ບໍລິສັດບຸນສະຫວັດ			
	ລວມ:		**64**					

ແຫຼ່ງຂໍ້ມູນ: ພະແນກພະລັງງານ ແລະ ບໍ່ແຮ່, ແຂວງຫຼວງພະບາງ (2016)

ເອກະສານຊ້ອນທ້າຍ 2: ຕາຕະລາງເພີ່ມເຕີມ ສຳລັບແຜນງົບປະມານຈັດຕັ້ງປະຕິບັດ PRAP

ຕາຕະລາງ B1: ສັງລວມແຜນທາງດ້ານການເງິນ ແລະ ການຈັດສັນງົບປະມານ ສຳລັບ 3 ອົງປະກອບຂອງ PRAP.

ຕາຕະລາງ B2: ແຜນງົບປະມານປະຈຳປີຕະຫຼອດໄລຍະຂອງ PRAP (2018-2025)

ຂໍ້ສັງເກດໃນການຂຶ້ນແຜນງົບປະມານສຳລັບ PAMs ຂອງ PRAP ແຂວງຫຼວງພະບາງ:

- ຕົວເລກງົບປະມານສຳລັບກິດຈະກຳລວມທັງຄ່າແຮງງານ ແລະ ຄ່າວັດຖຸອຸປະກອນ ແມ່ນຄິດໄລ່ໂດຍອີງໃສ່ລາຄາຫົວໜ່ວຍຂອງແຜນງົບປະມານຂອງ PRAP ຂອງແຂວງຫົວພັນ ທີ່ໂຄງການ CliPAD ເປັນຜູ້ສ້າງຂຶ້ນ. ງົບປະມານໃຊ້ຈ່າຍໃນການຈັດຕັ້ງປະຕິບັດ PAMs ແມ່ນລວມທຸກຄ່າໃຊ້ຈ່າຍ ຍົກເວັ້ນການປະກອບສ່ວນຂອງພະນັກງານລັດ ທີ່ເປັນວັດຖຸ (ຍົກຕົວຢ່າງ: ເງິນເດືອນ). ບາງຕົວຢ່າງຂອງຄ່າໃຊ້ຈ່າຍທີ່ລວມໃນນີ້ ມີ: ຄ່າຈ້າງຊ່ຽວຊານຕ່າງປະເທດ, ພະນັກງານສັນຍາຈ້າງພາຍໃນ, ຄ່າຈ້າງ ທີ່ປຶກສາ, ອັດຕາກິນນອນ ໄປວຽກຂອງພະນັກງານ, ການຈັດກອງປະຊຸມ, ການຝຶກອົບຮົມ, ການສະໜອງອຸປະກອນຮັບໃຊ້, ວຽກງານສ້າງຈິດສຳນຶກ ແລະ ກິດຈະກຳຕົວຈິງ ຢູ່ ຂັ້ນບ້ານ.
- ຜົນປະໂຫຍດທີ່ໄດ້ຮັບ (ເຊັ່ນ: ຜົນຜະລິດກະສິກຳ, ໄມ້/ໄມ້ຟືນ) ແມ່ນຄິດໄລ່ໂດຍອີງໃສ່ຕົວເລກ ທີ່ຄາດກະ ແລະ ລາຄາ ທີ່ໄດ້ກ່າວກ່ອນໜ້າເປັນບ່ອນອີງ. ຜົນປະໂຫຍດຈາກຜົນຜະລິດແຕ່ລະຊະນິດ ແມ່ນຄິດໄລ່ລວມເປັນປີ.
- ພາຍຫຼັງສຳເລັດການປະເມີນຄວາມຄຸ້ມຄ່າຂອງໂຄງການແລ້ວ ຈຶ່ງຈະຄິດໄລ່ລາຍຮັບເງິນສົດທີ່ເກີດຈາກການລົງທຶນໃນໂຄງການ ໂດຍອີງໃສ່ຕົວເລກຫຼຸດລົ່ນ ລະຫວ່າງຕົ້ນທຶນວັດຖຸທັງໝົດໃນແຕ່ລະປີ ແລະ ຄ່າໃຊ້ຈ່າຍລວມທັງຊັບສິນທີ່ຊື້ເຂົ້າມາໃນໂຄງການ ແລະ ຜົນປະໂຫຍດທີ່ຈະໄດ້ຮັບໃນແຕ່ລະປີ.
- ການວິເຄາະຄວາມຄຸ້ມຄ່າຂອງໂຄງການ ແມ່ນວິເຄາະໄລຍະ 8 ປີ ຂອງໂຄງການ.
- ມູນຄ່າສຸດທິປະຈຸບັນ (NPVs) ຫຼື ຄວາມແຕກຕ່າງລະຫວ່າງ ລາຍຮັບສຸດທິ ແລະ ລາຍຈ່າຍສຸດທິ ໃນອັດຕາຫຼຸດຜ່ອນ 10%, ແລະ ອັດຕາຜົນຕອບແທນການລົງທຶນພາຍໃນ (IRRs) ກໍໄດ້ເຮັດການປະເມີນ ສຳລັບໄລຍະ 8 ປີ ຂອງໂຄງການເຊັ່ນກັນ.

ຕາຕະລາງ B1: ສັງລວມແຜນທາງດ້ານການເງິນ ແລະ ການຈັດສັນງົບປະມານ ສຳລັບ 3 ອົງປະກອບຂອງ PRAP

ອົງປະກອບ/ ກິດຈະກຳ		ລາຍລະອຽດຄ່າໃຊ້ຈ່າຍ	ຫົວໜ່ວຍ	ລາຄາຫົວໜ່ວຍ	ຈຳນວນ	ລວມ (USD)	ລວມ (1,000 ກີບ)
ອົງປະກອບ 1: ການຄຸ້ມຄອງທີ່ດິນແບບຄົບວົງຈອນ							
ອົງປະກອບຍ່ອຍ 1: ການປັບປຸງການວາງແຜນນຳໃຊ້ທີ່ດິນຂັ້ນແຂວງ ແລະ ເມືອງ							
ກິດຈະກຳ 1.1	ສ້າງກົນໄກການປະສານງານກ່ຽວກັບທີ່ດິນ ໂດຍປະກອບມີກຳມະການຈາກຂະແໜງການປ່າໄມ້	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	1	15,000	120,000
		ພະນັກງານລາວ	ເດືອນ	3,000	3	9,000	72,000
		ກອງປະຊຸມ	ກອງ ປະຊຸມ	2,500	2	5,000	40,000
ກິດຈະກຳ 1.2	ສະໜັບສະໜູນດ້ານວິຊາການເພື່ອເຊື່ອມໂຍງ 3 ປະເພດປ່າ ເຂົ້າໃນແຜນຈັດສັນທີ່ດິນຂັ້ນແຂວງ, ແຜນນຳໃຊ້ທີ່ດິນ ແລະ ແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມຂອງແຂວງ	ຝຶກອົບຮົມ	ຝຶກອົບຮົມ	4,000	6	24,000	192,000
		ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	6	90,000	720,000
ກິດຈະກຳ 1.3	ຈັດຊື້ຈັດຫາເຄື່ອງມືອຸປະກອນ ເພື່ອສະໜັບສະໜູນການປັບປຸງວຽກງານວາງແຜນນຳໃຊ້ທີ່ດິນ	ອຸປະກອນ	ເມືອງ	15,000	13	195,000	1,560,000
ກິດຈະກຳ 1.4	ຈັດຕັ້ງປະຕິບັດການປັບປຸງວຽກງານວາງແຜນນຳໃຊ້ທີ່ດິນຂັ້ນແຂວງ ແລະ ເມືອງ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	4	60,000	480,000
		ພະນັກງານລາວ	ເດືອນ	3,000	12	36,000	288,000
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	24	36,000	288,000
ອົງປະກອບຍ່ອຍ 2: ການວາງແຜນນຳໃຊ້ທີ່ດິນແບບມີສ່ວນຮ່ວມ ຢູ່ ຂັ້ນບ້ານ							
ກິດຈະກຳ 2.1	ສ້າງຄວາມເຂັ້ມແຂງ ແລະ ຝຶກອົບຮົມໃຫ້ພະນັກງານ ກ່ຽວກັບການວາງແຜນນຳໃຊ້ທີ່ດິນແບບມີສ່ວນຮ່ວມ (PLUP)	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	3	45,000	360,000
		ພະນັກງານລາວ	ເດືອນ	3,000	3	9,000	72,000
		ຝຶກອົບຮົມ	ຝຶກອົບຮົມ	4,000	6	24,000	192,000
ກິດຈະກຳ 2.2	ຈັດຕັ້ງປະຕິບັດການວາງແຜນນຳໃຊ້ທີ່ດິນແບບມີສ່ວນຮ່ວມ ຢູ່ ຂັ້ນບ້ານ	ພະນັກງານລາວ	ເດືອນ	3,000	15	45,000	360,000
		ຈັດຕັ້ງປະຕິບັດກິດຈະກຳ	ບ້ານ	5,000	180	900,000	7,200,000
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	120	180,000	1,440,000
ອົງປະກອບຍ່ອຍ 3: ການຂຶ້ນທະບຽນທີ່ດິນ ແລະ ອອກໃບຕາດິນ							
ກິດຈະກຳ 3.1	ສ້າງຄວາມເຂັ້ມແຂງ ແລະ ຝຶກອົບຮົມໃຫ້ພະນັກງານ ກ່ຽວກັບຂັ້ນຕອນການຂຶ້ນທະບຽນທີ່ດິນ ແລະ ອອກໃບຕາດິນ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	2	30,000	240,000
		ພະນັກງານລາວ	ເດືອນ	3,000	6	18,000	144,000
		ຝຶກອົບຮົມ	ຝຶກອົບຮົມ	4,000	6	24,000	192,000
ກິດຈະກຳ 3.2	ຈັດຕັ້ງປະຕິບັດການຂຶ້ນທະບຽນທີ່ດິນ ແລະ ອອກໃບຕາດິນ ຄຽງຄູ່ກັບການສ້າງຈິດສຳນຶກ ແລະ ເຜີຍແຜ່ກົດໝາຍວ່າດ້ວຍທີ່ດິນ, ກົດໝາຍວ່າດ້ວຍການສືບທອດ, ກົດໝາຍວ່າດ້ວຍຄອບຄົວ ແລະ ກົດໝາຍອື່ນໆທີ່ກ່ຽວຂ້ອງ	ພະນັກງານລາວ	ເດືອນ	3,000	14	42,000	336,000
		ຈັດຕັ້ງປະຕິບັດກິດຈະກຳ	ບ້ານ	5,000	100	500,000	4,000,000
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	70	105,000	840,000
ອົງປະກອບຍ່ອຍ 4: ການນຳໃຊ້ກົດໝາຍ ແລະ ການຄຸ້ມຄອງສຳປະທານທີ່ດິນ ແລະ ການຜະລິດຕາມສັນຍາ ສຳລັບການປູກພືດເສດຖະກິດ ແລະ ການປູກໄມ້							
ກິດຈະກຳ 4.1	ກວດກາລະອຽດການສຳປະທານທີ່ດິນ ແລະ ການຜະລິດຕາມສັນຍາໃນປະຈຸບັນ ສຳ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	4	60,000	480,000

	ລັບການປູກພືດເສດຖະກິດ ແລະ ປູກໄມ້ໃນທົ່ວແຂວງ	ພະນັກງານລາວ	ເດືອນ	3,000	8	24,000	192,000
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	8	12,000	96,000
ກິດຈະກຳ 4.2	ສ້າງຄວາມເຂັ້ມແຂງ ແລະ ຝຶກອົບຮົມໃຫ້ພະນັກງານ ກ່ຽວກັບຂັ້ນຕອນການອະນຸມັດ ແລະ ຕິດຕາມກວດກາການສຳປະທານທີ່ດິນ ແລະ ການຜະລິດຕາມສັນຍາ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	2	30,000	240,000
		ພະນັກງານລາວ	ເດືອນ	3,000	4	12,000	96,000
		ຝຶກອົບຮົມ	ຝຶກອົບຮົມ	4,000	12	48,000	384,000
ກິດຈະກຳ 4.3	ຄຸ້ມຄອງ ແລະ ຕິດຕາມກວດກາການສຳປະທານທີ່ດິນ ແລະ ການຜະລິດຕາມສັນຍາ ຢູ່ຈຸດທົດລອງຂອງແຂວງຫຼວງພະບາງ	ພະນັກງານລາວ	ເດືອນ	3,000	18	54,000	60,000
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	130	195,000	60,000
ອົງປະກອບຍ່ອຍ 5: ການນຳໃຊ້ກົດໝາຍ ແລະ ການຄຸ້ມຄອງໂຄງການກໍ່ສ້າງພື້ນຖານໂຄງລ່າງ							
ກິດຈະກຳ 5.1	ສ້າງຈິດສຳນຶກໃຫ້ພະນັກ ງານແຂວງ ແລະ ເມືອງ ກ່ຽວກັບການນຳໃຊ້ກົດໝາຍປ່າໄມ້, ການຄຸ້ມຄອງ ແລະ REDD+	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	6	90,000	720,000
		ພະນັກງານລາວ	ເດືອນ	3,000	6	18,000	144,000
		ປຸກຈິດສຳນຶກ	ເມືອງ	10,000	26	260,000	2,080,000
ກິດຈະກຳ 5.2	ສ້າງຄວາມເຂັ້ມແຂງ ແລະ ຝຶກອົບຮົມກ່ຽວກັບການປະເມີນຜົນກະທົບດ້ານສິ່ງແວດລ້ອມ ແລະ ສັງຄົມ (ESMMP) ໃນຂັ້ນຕອນການວາງແຜນໂຄງການກໍ່ສ້າງພື້ນຖານໂຄງລ່າງ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	6	90,000	720,000
		ພະນັກງານລາວ	ເດືອນ	3,000	6	18,000	144,000
		ຝຶກອົບຮົມ	ຝຶກອົບຮົມ	4,000	26	104,000	832,000
ກິດຈະກຳ 5.3	ສ້າງຄວາມເຂັ້ມແຂງ ແລະ ຝຶກອົບຮົມໃຫ້ພະນັກງານ ກ່ຽວກັບຂັ້ນຕອນການປຶກສາຫາລືແບບມີສ່ວນຮ່ວມ ແລະ ກົນໄກການຮ້ອງທຸກສຳລັບໂຄງການ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	4	60,000	480,000
		ພະນັກງານລາວ	ເດືອນ	3,000	6	18,000	144,000
		ຝຶກອົບຮົມ	ຝຶກອົບຮົມ	4,000	26	104,000	832,000
ກິດຈະກຳ 5.4	ທົດລອງວາງແຜນ ແລະ ຈັດຕັ້ງປະຕິບັດແຜນຄຸ້ມຄອງ ແລະ ຕິດຕາມກວດກາຜົນກະທົບດ້ານສິ່ງແວດລ້ອມ ແລະ ສັງຄົມ ໃນໂຄງການກໍ່ສ້າງເຂື່ອນໄຟຟ້າທີ່ຄັດເລືອກເພື່ອທົດລອງ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	4	60,000	480,000
		ພະນັກງານລາວ	ເດືອນ	3,000	6	18,000	144,000
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	40	60,000	480,000
ອົງປະກອບ 2: ການຄຸ້ມຄອງປ່າໄມ້							
ອົງປະກອບຍ່ອຍ 1: ການກຳນົດ/ກວດກາຄືນ 3 ປະເພດປ່າ ໃນລະດັບຊາດແຂວງ ແລະ ເມືອງ ແບບພູມີທັດ							
ກິດຈະກຳ 1.1	ຈັດຕັ້ງຄະນະກຳມະການຄຸ້ມຄອງ 3 ປະເພດປ່າ ໂດຍມາຈາກຂະ ແໜງການຕ່າງໆທີ່ກ່ຽວຂ້ອງ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	1	15,000	120,000
		ພະນັກງານລາວ	ເດືອນ	3,000	2	6,000	48,000
		ກອງປະຊຸມ	ກອງ ປະຊຸມ	2,500	2	5,000	40,000
ກິດຈະກຳ 1.2	ປະເມີນລະອຽດເນື້ອທີ່ດິນ, ເນື້ອທີ່ສຳປະທານ, ແຫຼ່ງນ້ຳ, ເຂດເຊື່ອມຕໍ່ຊີວະນາໆພັນ ແລະ ການບໍລິການລະບົບນິເວດປ່າໄມ້ ອື່ນໆທີ່ຢູ່ພາຍໃນ ແລະ ອ້ອມຂ້າງ 3 ປະເພດປ່າ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	9	135,000	
		ພະນັກງານລາວ	ເດືອນ	3,000	15	45,000	
		ຝຶກອົບຮົມ	ຝຶກອົບຮົມ	4,000	9	36,000	288,000
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	18	27,000	216,000
ກິດຈະກຳ 1.3	ສ້າງແຜນທີ່ເນື້ອທີ່/ການນຳໃຊ້ທີ່ດິນໃນ 3 ປະເພດປ່າ ອີງໃສ່ຜົນຂອງການປະເມີນໃນ ກິດຈະກຳ 1.2	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	9	135,000	
		ພະນັກງານລາວ	ເດືອນ	3,000	9	27,000	216,000

ກິດຈະກຳ 1.4	ກອງປະຊຸມປຶກສາຫາລື ໂດຍການເຂົ້າຮ່ວມຂອງຂະແໜງການກ່ຽວຂ້ອງຂັ້ນແຂວງ ແລະ ເມືອງ ເພື່ອຕົກລົງເປັນເອກະພາບ	ກອງປະຊຸມ	ກອງ ປະຊຸມ	2,500	24	60,000	480,000
ກິດຈະກຳ 1.5	ຈັດຊື້ອຸປະກອນຮັບໃຊ້ຫ້ອງການ, ຊອບແວ ແລະ ເຄື່ອງ GPS ເພື່ອສ້າງລະບົບຄຸ້ມຄອງຂໍ້ມູນຂ່າວສານກ່ຽວກັບປ່າໄມ້ລວມທັງ 3 ປະເພດປ່າ ແລະ ເອກະສານທາງການອື່ນໆ	ອຸປະກອນ	ເມືອງ	15,000	24	360,000	2,880,000
ກິດຈະກຳ 1.6	ສະໜັບສະໜູນດ້ານວິຊາການ ເພື່ອເກັບຮັກສາ ແລະ ຄຸ້ມຄອງຂໍ້ມູນ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	6	90,000	720,000
		ພະນັກງານລາວ	ເດືອນ	3,000	12	36,000	288,000
		ຝຶກອົບຮົມ	ຝຶກອົບຮົມ	4,000	6	24,000	192,000
ອົງປະກອບຍ່ອຍ 2: ການຄຸ້ມຄອງປ່າໄມ້ແບບພູມິທັດໃນເຂດປ່າປ້ອງກັນ							
ກິດຈະກຳ 2.1	ທົດລອງຈັດຕັ້ງປະຕິບັດການຄຸ້ມຄອງລະດັບມະຫາພາກໃນເຂດປ່າປ້ອງກັນທີ່ເປັນບູລິມະສິດ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	8	120,000	960,000
		ພະນັກງານລາວ	ເດືອນ	3,000	15	45,000	360,000
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	12	18,000	144,000
		ຈັດຕັ້ງປະຕິບັດກິດຈະກຳ	ບ້ານ	5,000	45	225,000	1,800,000
ກິດຈະກຳ 2.2	ຈັດຕັ້ງປະຕິບັດ ແລະ ຍົກລະດັບການຄຸ້ມຄອງປ່າໄມ້ລະດັບມະຫາພາກ ໃນແຕ່ລະເຂດປ່າປ້ອງກັນ ແລະ 3 ປະເພດປ່າທີ່ຢູ່ອ້ອມຂ້າງ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	6	90,000	720,000
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	90	135,000	1,080,000
		ພະນັກງານລາວ	ເດືອນ	3,000	20	60,000	480,000
		ຈັດຕັ້ງປະຕິບັດກິດຈະກຳ	ບ້ານ	5,000	270	1,350,000	10,800,000
ອົງປະກອບຍ່ອຍ 3: ການຄຸ້ມຄອງປ່າໄມ້ບ້ານ							
ກິດຈະກຳ 3.1	ສະໜັບສະໜູນດ້ານເຕັກນິກວິຊາການ ສຳລັບກົນໄກສະໜອງທຶນແບບຍາວນານ ເພື່ອຄຸ້ມຄອງປ່າໄມ້ບ້ານ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	12	180,000	1,440,000
		ພະນັກງານລາວ	ເດືອນ	3,000	12	36,000	288,000
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	3	4,500	36,000
		ຈັດຕັ້ງປະຕິບັດກິດຈະກຳ	ບ້ານ	5,000	2	10,000	80,000
		ຝຶກອົບຮົມ	ຝຶກອົບຮົມ	4,000	3	12,000	96,000
ກິດຈະກຳ 3.2	ສະໜັບສະໜູນດ້ານເຕັກນິກວິຊາການ ເພື່ອເພີ່ມທາງເລືອກໃນການດຳລົງຊີວິດ ດ້ວຍກິດຈະກຳທີ່ຕິດພັນກັບປ່າໄມ້ໂດຍປະຊາ ຊົນເປັນເຈົ້າການ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	12	180,000	1,440,000
		ພະນັກງານລາວ	ເດືອນ	3,000	12	36,000	288,000
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	3	4,500	36,000
		ຈັດຕັ້ງປະຕິບັດກິດຈະກຳ	ບ້ານ	5,000	2	10,000	80,000
		ຝຶກອົບຮົມ	ຝຶກອົບຮົມ	4,000	3	12,000	96,000
ກິດຈະກຳ 3.3	ສະໜັບສະໜູນດ້ານເຕັກນິກວິຊາການ ເພື່ອເພີ່ມມູນຄ່າໃຫ້ຜະລິດຕະພັນປ່າໄມ້ບ້ານ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	12	180,000	1,440,000
		ພະນັກງານລາວ	ເດືອນ	3,000	12	36,000	288,000
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	3	4,500	36,000
		ຈັດຕັ້ງປະຕິບັດກິດຈະກຳ	ບ້ານ	5,000	2	10,000	80,000
		ຝຶກອົບຮົມ	ຝຶກອົບຮົມ	4,000	3	12,000	96,000

ກິດຈະກຳ 3.4	ສະໜັບສະໜູນດ້ານເຕັກນິກວິຊາການ ເພື່ອຮັກສາ ແລະ ປັບປຸງກົນໄກການຈ່າຍຄ່າບໍລິການລະບົບນິເວດ, ຄຸນຄ່າທາງຊີວະນາໆພັນ, ການບໍລິການເຂດຮັກສາແຫຼ່ງນ້ຳ ແລະ ປະລິມານສະສົມຂອງການບອນປ່າໄມ້ ໂດຍຜ່ານກິດຈະກຳທີ່ຕິດພັນກັບປ່າໄມ້ ໂດຍປະຊາຊົນເປັນເຈົ້າການ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	12	180,000	1,440,000
		ພະນັກງານລາວ	ເດືອນ	3,000	12	36,000	288,000
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	3	4,500	36,000
		ຝຶກອົບຮົມ	ຝຶກອົບຮົມ	4,000	3	12,000	96,000
ກິດຈະກຳ 3.5	ຈັດຕັ້ງປະຕິບັດ ແລະ ຍົກລະດັບຕົວແບບການຄຸ້ມຄອງປ່າໄມ້ບ້ານ	ອຸປະກອນ	ເມືອງ	15,000	1	15,000	120,000
		ພະນັກງານລາວ	ເດືອນ	3,000	12	36,000	288,000
		ຈັດຕັ້ງປະຕິບັດກິດຈະກຳ	ບ້ານ	5,000	40	200,000	1,600,000
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	40	60,000	480,000
ອົງປະກອບຍ່ອຍ 4: ການປູກໄມ້ ແລະ ການຟື້ນຟູປ່າ							
ກິດຈະກຳ 4.1	ການປະເມີນພື້ນທີ່ໆມີເງື່ອນໄຂບູລະນະຟື້ນຟູໃຫ້ເປັນປ່າໃນເຂດທີ່ດິນປ່າໄມ້ທີ່ເສື່ອມ�โຊມ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	12	180,000	1,440,000
		ພະນັກງານລາວ	ເດືອນ	3,000	12	36,000	288,000
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	36	54,000	432,000
ກິດຈະກຳ 4.2	ການຈັດຕັ້ງປະຕິບັດຟື້ນຟູປ່າທຳມະຊາດໃນເຂດປ່າເສື່ອມโຊມ	ອຸປະກອນ	ເມືອງ	15,000	12	180,000	1,440,000
		ພະນັກງານລາວ	ເດືອນ	3,000	60	180,000	1,440,000
ກິດຈະກຳ 4.3	ສະໜັບສະໜູນທຶນຮອນ ເພື່ອໃຫ້ປະຊາຊົນຈັດຕັ້ງປະຕິບັດປູກໄມ້ຟື້ນຟູປ່າໃນເຂດປ່າເສື່ອມโຊມ	ການລົງທຶນສະສົມ	ຮຕ	6,250	633,750	5,070,000	6,250
ອົງປະກອບຍ່ອຍ 5: ການປ້ອງກັນໄຟໄໝ້ລາມປ່າ							
ກິດຈະກຳ 5.1	ສ້າງຈິດສຳນຶກກ່ຽວກັບການປ້ອງກັນໄຟໄໝ້ລາມປ່າ ຢູ່ ຂັ້ນບ້ານ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	1	15,000	120,000
		ພະນັກງານລາວ	ເດືອນ	3,000	4	12,000	96,000
		ປູກຈິດສຳນຶກ	ເມືອງ	10,000	96	960,000	7,680,000
ກິດຈະກຳ 5.2	ສ້າງລະບົບເພື່ອຕິດຕາມກວດກາໄຟໄໝ້ລາມປ່າ ແລະ ທົດລອງລະບົບໃນພື້ນທີ່ຄັດເລືອກເພື່ອທົດລອງ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	12	180,000	1,440,000
		ພະນັກງານລາວ	ເດືອນ	3,000	12	36,000	288,000
ກິດຈະກຳ 5.3	ການຈັດຕັ້ງປະຕິບັດການຕິດຕາມກວດກາປ່າໄມ້ ເພື່ອປ້ອງກັນໄຟໄໝ້ລາມປ່າ	ອຸປະກອນ	ເມືອງ	15,000	12	180,000	1,440,000
		ຝຶກອົບຮົມ	ຝຶກອົບຮົມ	4,000	60	240,000	1,920,000
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	120	180,000	1,440,000
ອົງປະກອບຍ່ອຍ 6: ການຄຸ້ມຄອງສວນປູກໄມ້ສັກ ແລະ ການປັບປຸງຕ່ອງໂສ້ມູນຄ່າ							
ກິດຈະກຳ 6.1	ການປະເມີນພື້ນທີ່ປູກໄມ້ສັກ ເພື່ອຍົກລະດັບການຄຸ້ມຄອງສວນປູກແບບຍືນຍົງ ເພື່ອໃຫ້ໄດ້ຮັບການຢັ້ງຢືນ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	6	90,000	720,000
		ພະນັກງານລາວ	ເດືອນ	3,000	6	18,000	144,000
		ກອງປະຊຸມ	ກອງ ປະຊຸມ	2,500	2	5,000	40,000
ກິດຈະກຳ 6.2	ສະໜັບສະໜູນເຕັກນິກວິຊາການ ເພື່ອເພີ່ມທະວີຄວາມເຂັ້ມ ແຂງໃຫ້ກຸ່ມຊາວກະສິກອນປູກໄມ້ສັກ ແລະ ເຄືອຂ່າຍຂອງເຂົາ ເຈົ້າ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	3	45,000	360,000
		ພະນັກງານລາວ	ເດືອນ	3,000	4	12,000	96,000
		ຝຶກອົບຮົມ	ຝຶກອົບຮົມ	4,000	35	140,000	1,120,000

		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	70	105,000	840,000
ກິດຈະກຳ 6.3	ສະໜັບສະໜູນເຕັກນິກວິຊາການ ເພື່ອຈັດຕັ້ງປະຕິບັດການຄຸ້ມຄອງສວນປູກໄມ້ສັກໃຫ້ຖືກຕ້ອງຕາມຫຼັກວິຊາການ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	3	45,000	360,000
		ພະນັກງານລາວ	ເດືອນ	3,000	4	12,000	96,000
		ຝຶກອົບຮົມ	ຝຶກອົບຮົມ	4,000	35	140,000	1,120,000
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	70	105,000	840,000
ກິດຈະກຳ 6.4	ສະໜັບສະໜູນເຕັກນິກວິຊາການ ເພື່ອຊຸກຍູ້ສິ່ງເສີມການ ແລະ ປັບປຸງໃຫ້ທັນສະໄໝ ໃນການເພີ່ມມູນຄ່າໃຫ້ການປຸງແຕ່ງຜະລິດຕະພັນຈາກໄມ້ສັກ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	3	45,000	360,000
		ພະນັກງານລາວ	ເດືອນ	3,000	4	12,000	96,000
		ຝຶກອົບຮົມ	ຝຶກອົບຮົມ	4,000	35	140,000	1,120,000
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	70	105,000	840,000
ກິດຈະກຳ 6.5	ສະໜັບສະໜູນເຕັກນິກວິຊາການ ເພື່ອຊຸກຍູ້ສິ່ງເສີມວິສາຫະກິດຂະໜາດນ້ອຍ ໃນການເພີ່ມມູນຄ່າໃຫ້ຜະລິດຕະພັນຈາກໄມ້ສັກ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	3	45,000	360,000
		ພະນັກງານລາວ	ເດືອນ	3,000	4	12,000	96,000
		ຝຶກອົບຮົມ	ຝຶກອົບຮົມ	4,000	35	140,000	1,120,000
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	70	105,000	840,000
ກິດຈະກຳ 6.6	ຈັດຊື້ວັດຖຸອຸປະກອນ ເພື່ອຊຸກຍູ້ສິ່ງເສີມການຄຸ້ມຄອງສວນປູກໄມ້ສັກໃຫ້ມີຄວາມຍືນຍົງ ແລະ ປັບປຸງຕ່ອງໂສ້ມູນຄ່າ	ອຸປະກອນ	ເມືອງ	15,000	10	150,000	1,200,000
ອົງປະກອບຍ່ອຍ 7: ການນຳໃຊ້ກົດໝາຍ ແລະ ການຄຸ້ມຄອງການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍ							
ກິດຈະກຳ 7.1	ສ້າງຈິດສຳນຶກ ແລະ ເຜີຍແຜ່ນະໂຍບາຍຕ່າງໆກ່ຽວກັບປ່າໄມ້, ກົດ ໝາຍ ແລະ ຂໍ້ກຳນົດອື່ນໆ ຢູ່ ຂັ້ນເມືອງ ແລະ ກຸ່ມບ້ານ ໃນເຂດທີ່ເປັນບຸລິມະສິດ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	2	30,000	240,000
		ພະນັກງານລາວ	ເດືອນ	3,000	6	18,000	144,000
		ປຸກຈິດສຳນຶກ	ເມືອງ	10,000	96	960,000	7,680,000
ກິດຈະກຳ 7.2	ສ້າງລະບົບຕິດຕາມກວດກາການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	8	120,000	960,000
		ພະນັກງານລາວ	ເດືອນ	3,000	8	24,000	192,000
ກິດຈະກຳ 7.3	ສ້າງຄວາມເຂັ້ມແຂງ ແລະ ຝຶກອົບຮົມກ່ຽວກັບການກວດກາໄມ້ ຢູ່ ຈຸດດ່ານກວດກາ, ສະໜາມໄມ້, ໂຮງງານປຸງແຕ່ງ ແລະ ໂຮງງານ/ຮ້ານເຟີນິເຈີ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	4	60,000	480,000
		ພະນັກງານລາວ	ເດືອນ	3,000	4	12,000	96,000
		ຝຶກອົບຮົມ	ຝຶກອົບຮົມ	4,000	2	8,000	64,000
ກິດຈະກຳ 7.4	ຕິດຕາມ ແລະ ກວດກາລາດຕະເວນບ່ອນຂຸດຄົ້ນໄມ້, ການຂົນສົ່ງໄມ້ ຢູ່ ສະໜາມ 2 ແລະ ເສັ້ນທາງລຳລຽງໄມ້, ທາງບົກ ແລະທາງນ້ຳ ແລະ ຈຸດທີ່ຫຼໍ່ແຫຼມ	ພະນັກງານລາວ	ເດືອນ	3,000	6	18,000	144,000
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	144	216,000	1,728,000
ກິດຈະກຳ 7.5	ສະໜັບສະໜູນການກວດກາໂຮງງານປຸງແຕ່ງໄມ້, ໂຮງງານເຟີນິເຈີ, ສາງເກັບມ້ຽນໄມ້ ແລະ ເຄື່ອງປ່າຂອງດົງ	ພະນັກງານລາວ	ເດືອນ	3,000	6	18,000	144,000
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	144	216,000	1,728,000
ກິດຈະກຳ 7.6	ສະໜັບສະໜູນການຕິດຕາມກວດກາເກີນຈຳນວນ (ໂກຕາ) ທີ່ອະນຸມັດໃນເຂດອ່າງເກັບນ້ຳຂອງໂຄງການເຂື່ອນໄຟຟ້າ	ພະນັກງານລາວ	ເດືອນ	3,000	6	18,000	144,000
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	72	108,000	864,000
ກິດຈະກຳ 7.7	ຈັດຊື້ອຸປະກອນຮັບໃຊ້ຫ້ອງການ, ເຄື່ອງແທບເລັດ (tablet), GPS ແລະ ເຄື່ອງມືທີ່ຈຳເປັນ ເພື່ອຮັບໃຊ້ວຽກງານການນຳໃຊ້ກົດໝາຍ	ອຸປະກອນ	ເມືອງ	15,000	12	180,000	1,440,000
ກິດຈະກຳ 7.8	ຕິດຕາມກວດກາລາດຕະເວນບ່ອນລັກລອບຕັດໄມ້ໃນເຂດປ່າປ້ອງກັນ	ພະນັກງານລາວ	ເດືອນ	3,000	6	18,000	144,000
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	72	108,000	864,000

ອົງປະກອບຍ່ອຍ 8: ການຈ່າຍຄ່າບໍລິການລະບົບນິເວດປ່າໄມ້							
ກິດຈະກຳ 8.1	ການປະເມີນເງື່ອນໄຂການຈ່າຍຄ່າບໍລິການລະບົບນິເວດປ່າໄມ້ (PFES) ຢູ່ ແຂວງຫຼວງພະບາງ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	3	45,000	360,000
		ພະນັກງານລາວ	ເດືອນ	3,000	3	9,000	72,000
		ກອງປະຊຸມ	ກອງ ປະຊຸມ	2,500	2	5,000	40,000
ກິດຈະກຳ 8.2	ທົດລອງສິ່ງເສີມກິດຈະກຳ ກ່ຽວກັບ PFES ທີ່ຕິດພັນກັບການນຳໃຊ້ທີ່ດິນປ່າໄມ້ເຊັ່ນ: ບໍລິສັດນ້ຳປາປາ, ເຂື່ອນໄຟຟ້າ, ທ່ອງທ່ຽວທຳມະຊາດ ແລະ ອື່ນໆ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	4	60,000	480,000
		ພະນັກງານລາວ	ເດືອນ	3,000	6	18,000	144,000
		ຝຶກອົບຮົມ	ຝຶກອົບຮົມ	4,000	6	24,000	192,000
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	9	13,500	108,000
ອົງປະກອບ 3: ການຄຸ້ມຄອງທາງສັງຄົມ (ຊີວິດການເປັນຢູ່)							
ອົງປະກອບຍ່ອຍ 1: ການປູກພືດເສດຖະກິດແບບຍືນຍົງ ຢູ່ ເຂດພູດອຍ							
ກິດຈະກຳ 1.1	ດຳເນີນການຄົ້ນຄ້ວາ ເພື່ອກຳນົດຮູບແບບການປູກພືດເສດຖະ ກິດແບບຍືນຍົງ ລວມ ທັງການກະສິກຳ-ປ່າໄມ້ແບບປະສົມປະ ສານ ແລະ ການຂະຫຍາຍການຜະລິດກະສິກຳ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	6	90,000	720,000
		ພະນັກງານລາວ	ເດືອນ	3,000	10	30,000	240,000
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	24	36,000	288,000
ກິດຈະກຳ 1.2	ການຝຶກອົບຮົມ ແລະ ສ້າງຄວາມເຂັ້ມແຂງໃຫ້ພະນັກງານສົ່ງເສີມ ກ່ຽວກັບຕົວແບບ ການຜະລິດກະສິກຳແບບຍືນຍົງ ແລະ ປັບປຸງຮູບແບບຕ່າງໆຂອງການຜະລິດກະສິກຳ ໃຫ້ດີຂຶ້ນ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	9	135,000	1,080,000
		ພະນັກງານລາວ	ເດືອນ	3,000	9	27,000	216,000
		ຝຶກອົບຮົມ	ຝຶກອົບຮົມ	4,000	6	24,000	192,000
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	36	54,000	432,000
ກິດຈະກຳ 1.3	ສະໜອງທຶນຮອນໃຫ້ປະຊາຊົນໂດຍກົງ (ເຄື່ອງມື, ຝຸ່ນ, ແນວພັນ) ເພື່ອທຳການຜະລິດ	ລົງທຶນທຸກໆ 3 ປີ	ຮຕ	101	14,595	1,477,787	11,822,297
ກິດຈະກຳ 1.4	ພັດທະນາ ແລະ ສະໜັບສະໜູນສະຫະກອນກະເສດ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	3	45,000	360,000
		ພະນັກງານລາວ	ເດືອນ	3,000	6	18,000	144,000
		ຝຶກອົບຮົມ	ຝຶກອົບຮົມ	4,000	6	24,000	192,000
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	72	108,000	864,000
ອົງປະກອບຍ່ອຍ 2: ການລ້ຽງສັດ ແລະ ປູກຫຍ້າອາຫານສັດ							
ກິດຈະກຳ 2.1	ການຝຶກອົບຮົມ ແລະ ສ້າງຄວາມເຂັ້ມແຂງໃຫ້ພະນັກງານສົ່ງເສີມ ກ່ຽວກັບເຕັກນິກ ການລ້ຽງສັດ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	1	15,000	120,000
		ພະນັກງານລາວ	ເດືອນ	3,000	3	9,000	72,000
		ຝຶກອົບຮົມ	ຝຶກອົບຮົມ	4,000	3	12,000	96,000
ກິດຈະກຳ 2.2	ສະໜອງທຶນຮອນໃຫ້ປະຊາຊົນໂດຍກົງ (ເຄື່ອງມື, ຝຸ່ນ, ແນວພັນ) ເພື່ອປູກຫຍ້າ	ລົງທຶນທຸກໆ 3 ປີ	ha	152	8,400	1,274,700	10,197,600
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	96	144,000	1,152,000
ກິດຈະກຳ 2.3	ສະໜອງທຶນຮອນ ແລະ ແນວພັນສັດໃຫ້ປະຊາຊົນໂດຍກົງ ເພື່ອປັບປຸງການລ້ຽງສັດ	ຄິດໄລ່ງົບປະມານຊ່ວຍເຫຼືອ	ຄອບຄົວ	225	4,800	1,077,888	8,623,104
		ອັດຕາກິນນອນ	ເປັນຄັ້ງ	1,500	96	144,000	1,152,000

ກິດຈະກຳ 2.4	ສະໜັບສະໜູນດ້ານເຕັກນິກວິຊາການເພື່ອເຂົ້າຫາແຫຼ່ງສິນເຊື່ອ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	6	90,000	720,000
		ພະນັກງານລາວ	ເດືອນ	3,000	12	36,000	288,000
		ຝຶກອົບຮົມ	ຝຶກອົບຮົມ	4,000	24	96,000	768,000
ອົງປະກອບຍ່ອຍ 3: ການພັດທະນາທ່ອງທ່ຽວທຳມະຊາດໂດຍທ້ອງຖິ່ນມີສ່ວນຮ່ວມ							
ກິດຈະກຳ 3.1	ປະເມີນແຫຼ່ງທ່ອງທ່ຽວທີ່ມີເງື່ອນໄຂ ເພື່ອຊຸກຍູ້ທ່ອງທ່ຽວທຳມະຊາດ	ຊ່ຽວຊານຕ່າງປະເທດ	ເດືອນ	15,000	6	90,000	720,000
		ພະນັກງານລາວ	ເດືອນ	3,000	10	30,000	240,000
ກິດຈະກຳ 3.2	ການຝຶກອົບຮົມ ແລະ ສ້າງຄວາມເຂັ້ມແຂງໃຫ້ພະນັກງານສົ່ງເສີມ ກ່ຽວກັບວຽກງານທ່ອງທ່ຽວທຳມະຊາດໂດຍທ້ອງຖິ່ນເປັນເຈົ້າການ	ຝຶກອົບຮົມ	ຝຶກອົບຮົມ	4,000	3	12,000	96,000
ກິດຈະກຳ 3.3	ສະໜອງທຶນຮອນໂດຍກົງ (ປ້າຍ, ກິດຈະກຳປັບປຸງຊີວິດການເປັນຢູ່) ເພື່ອຊຸກຍູ້ສົ່ງເສີມການທ່ອງທ່ຽວທຳມະຊາດ	ຈັດຕັ້ງປະຕິບັດກິດຈະກຳ	ບ້ານ	5,000	30	150,000	1,200,000
ລວມງົບປະມານເພື່ອຈັດຕັ້ງປະຕິບັດPAMs ທັງໝົດ:			**$20,135,625**			**161,085,001,143 ກີບ**	

ຕາຕະລາງ B2: ແຜນງົບປະມານປະຈຳປີຕະຫຼອດໄລຍະຂອງ PRAP (2018-2025)

ອົງປະກອບ/ອົງປະກອບຍ່ອຍ /ກິດຈະກຳ		**ງົບປະມານຕໍ່ປີ (USD)**								**ລວມ**
		1	2	3	4	5	6	7	8	
ອົງປະກອບ 1: ການຄຸ້ມຄອງທີ່ດິນແບບຄົບວົງຈອນ										
ອົງປະກອບຍ່ອຍ 1: ການປັບປຸງການວາງແຜນນຳໃຊ້ທີ່ດິນຂັ້ນແຂວງ ແລະ ເມືອງ										
ກິດຈະກຳ 1.1	ສ້າງກົນໄກການປະສານງານກ່ຽວກັບທີ່ດິນ ໂດຍປະກອບມີກຳມະການຈາກຂະແໜງການປ່າໄມ້	26,000	3,000	0	0	0	0	0	0	29,000
ກິດຈະກຳ 1.2	ສະໜັບສະໜູນດ້ານວິຊາການເພື່ອເຊື່ອມໂຍງ 3 ປະເພດປ່າ ເຂົ້າໃນແຜນຈັດສັນທີ່ດິນຂັ້ນແຂວງ, ແຜນນຳໃຊ້ທີ່ດິນ ແລະ ແຜນພັດທະນາເສດຖະກິດ-ສັງຄົມຂອງແຂວງ	57,000	57,000	0	0	0	0	0	0	114,000
ກິດຈະກຳ 1.3	ຈັດຊື້ຈັດຫາເຄື່ອງມືອຸປະກອນ ເພື່ອສະໜັບສະໜູນການປັບປຸງວຽກງານວາງແຜນນຳໃຊ້ທີ່ດິນ	195,000	0	0	0	0	0	0	0	195,000
ກິດຈະກຳ 1.4	ຈັດຕັ້ງປະຕິບັດການປັບປຸງວຽກງານວາງແຜນນຳໃຊ້ທີ່ດິນຂັ້ນແຂວງ ແລະ ເມືອງ	54,000	54,000	24,000	0	0	0	0	0	132,000
ອົງປະກອບຍ່ອຍ 2: ການວາງແຜນນຳໃຊ້ທີ່ດິນແບບມີສ່ວນຮ່ວມ ຢູ່ ຂັ້ນບ້ານ										
ກິດຈະກຳ 2.1	ສ້າງຄວາມເຂັ້ມແຂງ ແລະ ຝຶກອົບຮົມໃຫ້ພະນັກງານ ກ່ຽວກັບການວາງແຜນນຳໃຊ້ທີ່ດິນແບບມີສ່ວນຮ່ວມ (PLUP)	26,000	26,000	26,000	0	0	0	0	0	78,000
ກິດຈະກຳ 2.2	ຈັດຕັ້ງປະຕິບັດການວາງແຜນນຳໃຊ້ທີ່ດິນແບບມີສ່ວນຮ່ວມ ຢູ່ ຂັ້ນບ້ານ	0	225,000	225,000	225,000	225,000	225,000	0	0	1,125,000
ອົງປະກອບຍ່ອຍ 3:ການຂຶ້ນທະບຽນທີ່ດິນ ແລະ ອອກໃບຕາດິນ										
ກິດຈະກຳ 3.1	ສ້າງຄວາມເຂັ້ມແຂງ ແລະ ຝຶກອົບຮົມໃຫ້ພະນັກງານ ກ່ຽວກັບຂັ້ນຕອນການຂຶ້ນທະບຽນທີ່ດິນ ແລະ ອອກໃບຕາດິນ	29,000	29,000	14,000	0	0	0	0	0	72,000

ກິດຈະກຳ 3.2	ຈັດຕັ້ງປະຕິບັດການຂຶ້ນທະບຽນທີ່ດິນ ແລະ ອອກໃບຕາດິນ ຄຽງຄູ່ກັບການສ້າງ ຈິດສຳນຶກ ແລະ ເຜີຍແຜ່ກົດໝາຍວ່າດ້ວຍທີ່ດິນ, ກົດໝາຍວ່າດ້ວຍການສືບ ທອດ, ກົດໝາຍວ່າດ້ວຍຄອບຄົວ ແລະ ກົດໝາຍອື່ນໆທີ່ກ່ຽວຂ້ອງ	0	77,000	77,000	71,000	71,000	118,000	118,000	115,000	647,000
ອົງປະກອບຍ່ອຍ 4: ການນຳໃຊ້ກົດໝາຍ ແລະ ການຄຸ້ມຄອງສຳປະທານທີ່ດິນ ແລະ ການຜະລິດຕາມສັນຍາ ສຳລັບການປູກພືດເສດຖະກິດ ແລະ ການປູກໄມ້										
ກິດຈະກຳ 4.1	ກວດກາລະອຽດການສຳປະທານທີ່ດິນ ແລະ ການຜະລິດຕາມສັນຍາໃນປະຈຸ ບັນ ສຳລັບການປູກພືດເສດຖະກິດ ແລະ ປູກໄມ້ໃນທົ່ວແຂວງ	48,000	48,000	0	0	0	0	0	0	96,000
ກິດຈະກຳ 4.2	ສ້າງຄວາມເຂັ້ມແຂງ ແລະ ຝຶກອົບຮົມໃຫ້ພະນັກງານ ກ່ຽວກັບຂັ້ນຕອນການ ອະນຸມັດ ແລະ ຕິດຕາມກວດກາການສຳປະທານທີ່ດິນ ແລະ ການຜະລິດຕາມ ສັນຍາ	0	0	45,000	0	0	45,000	0	0	90,000
ກິດຈະກຳ 4.3	ຄຸ້ມຄອງ ແລະ ຕິດຕາມກວດກາການສຳປະທານທີ່ດິນ ແລະ ການຜະລິດຕາມ ສັນຍາ ຢູ່ ຈຸດທົດລອງຂອງແຂວງຫຼວງພະບາງ	0	0	45,000	45,000	45,000	24,000	45,000	45,000	249,000
ອົງປະກອບຍ່ອຍ 5: ການນຳໃຊ້ກົດໝາຍ ແລະ ການຄຸ້ມຄອງໂຄງການກໍ່ສ້າງພື້ນຖານໂຄງລ່າງ										
ກິດຈະກຳ 5.1	ສ້າງຈິດສຳນຶກໃຫ້ພະນັກ ງານແຂວງ ແລະ ເມືອງ ກ່ຽວກັບການນຳໃຊ້ກົດໝາຍ ປ່າໄມ້, ການຄຸ້ມຄອງ ແລະ REDD+	184,000	0	0	184,000	0	0	0	0	368,000
ກິດຈະກຳ 5.2	ສ້າງຄວາມເຂັ້ມແຂງ ແລະ ຝຶກອົບຮົມກ່ຽວກັບການປະເມີນຜົນກະທົບດ້ານ ສິ່ງແວດລ້ອມ ແລະ ສັງຄົມ (ESMMP) ໃນຂັ້ນຕອນການວາງແຜນໂຄງການ ກໍ່ສ້າງພື້ນຖານໂຄງລ່າງ	106,000	0	0	106,000	0	0	0	0	212,000
ກິດຈະກຳ 5.3	ສ້າງຄວາມເຂັ້ມແຂງ ແລະ ຝຶກອົບຮົມໃຫ້ພະນັກງານ ກ່ຽວກັບຂັ້ນຕອນການ ປຶກສາຫາລືແບບມີສ່ວນຮ່ວມ ແລະ ກົນໄກການຮ້ອງທຸກສຳລັບໂຄງການ	91,000	0	0	91,000	0	0	0	0	182,000
ກິດຈະກຳ 5.4	ທົດລອງວາງແຜນ ແລະ ຈັດຕັ້ງປະຕິບັດແຜນຄຸ້ມຄອງ ແລະ ຕິດຕາມກວດກາ ຜົນກະທົບດ້ານສິ່ງແວດລ້ອມ ແລະ ສັງຄົມ ໃນໂຄງການກໍ່ສ້າງເຂື່ອນໄຟຟ້າທີ່ ຄັດເລືອກເພື່ອທົດລອງ	46,500	7,500	7,500	46,500	7,500	7,500	7,500	7,500	138,000
ອົງປະກອບ 2: ການຄຸ້ມຄອງປ່າໄມ້										
ອົງປະກອບຍ່ອຍ 1: ການກຳນົດ/ກວດກາຄືນ 3 ປະເພດປ່າ ໃນລະດັບຊາດແຂວງ ແລະ ເມືອງ ແບບພູມີທັດ										
ກິດຈະກຳ 1.1	ຈັດຕັ້ງຄະນະກຳມະການຄຸ້ມຄອງ 3 ປະເພດປ່າ ໂດຍມາຈາກຂະ ແໜງການ ຕ່າງໆທີ່ກ່ຽວຂ້ອງ	26,000	0	0	0	0	0	0	0	26,000
ກິດຈະກຳ 1.2	ປະເມີນລະອຽດເນື້ອທີ່ດິນ, ເນື້ອທີ່ສຳປະທານ, ແຫຼ່ງນ້ຳ, ເຂດເຊື່ອມຕໍ່ຊີວະ ນາງພັນ ແລະ ການບໍລິການລະບົບນິເວດປ່າໄມ້ ອື່ນໆທີ່ຢູ່ພາຍໃນ ແລະ ອ້ອມ ຂ້າງ 3 ປະເພດປ່າ	81,000	81,000	81,000	0	0	0	0	0	243,000
ກິດຈະກຳ 1.3	ສ້າງແຜນທີ່ເນື້ອທີ່/ການນຳໃຊ້ທີ່ດິນໃນ 3 ປະເພດປ່າ ອີງໃສ່ຜົນຂອງການປະ ເມີນໃນກິດຈະກຳ 1.2	54,000	54,000	54,000	0	0	0	0	0	162,000
ກິດຈະກຳ 1.4	ກອງປະຊຸມປຶກສາຫາລື ໂດຍການເຂົ້າຮ່ວມຂອງຂະແໜງການກ່ຽວຂ້ອງຂັ້ນ ແຂວງ ແລະ ເມືອງ ເພື່ອຕົກລົງເປັນເອກະພາບ	20,000	20,000	20,000	0	0	0	0	0	60,000
ກິດຈະກຳ 1.5	ຈັດຊື້ອຸປະກອນຮັບໃຊ້ຫ້ອງການ, ຊອບແວ ແລະ ເຄື່ອງ GPS ເພື່ອສ້າງ ລະບົບຄຸ້ມຄອງຂໍ້ມູນຂ່າວສານກ່ຽວກັບປ່າໄມ້ລວມທັງ 3 ປະເພດປ່າ ແລະ ເອກະສານທາງການອື່ນໆ	120,000	120,000	120,000	0	0	0	0	0	360,000
ກິດຈະກຳ 1.6	ສະໜັບສະໜູນດ້ານວິຊາການ ເພື່ອເກັບຮັກສາ ແລະ ຄຸ້ມຄອງຂໍ້ມູນ	50,000	50,000	50,000	0	0	0	0	0	150,000

ອົງປະກອບຍ່ອຍ 2: ການຄຸ້ມຄອງປ່າໄມ້ແບບພູມິທັດໃນເຂດປ່າປ້ອງກັນ										
ກິດຈະກຳ 2.1	ທົດລອງຈັດຕັ້ງປະຕິບັດການຄຸ້ມຄອງລະດັບມະຫາພາກໃນເຂດປ່າປ້ອງກັນທີ່ເປັນບູລິມະສິດ	156,000	156,000	96,000	0	0	0	0	0	408,000
ກິດຈະກຳ 2.2	ຈັດຕັ້ງປະຕິບັດ ແລະ ຍົກລະດັບການຄຸ້ມຄອງປ່າໄມ້ລະດັບມະຫາພາກ ໃນແຕ່ລະເຂດປ່າປ້ອງກັນ ແລະ 3 ປະເພດປ່າທີ່ຢູ່ອ້ອມຂ້າງ	0	0	0	339,000	339,000	339,000	309,000	309,000	1,635,000
ອົງປະກອບຍ່ອຍ 3: ການຄຸ້ມຄອງປ່າໄມ້ບ້ານ										
ກິດຈະກຳ 3.1	ສະໜັບສະໜູນດ້ານເຕັກນິກວິຊາການ ສຳລັບກົນໄກສະໜອງທຶນແບບຍາວນານ ເພື່ອຄຸ້ມຄອງປ່າໄມ້ບ້ານ	77,500	82,500	82,500	0	0	0	0	0	242,500
ກິດຈະກຳ 3.2	ສະໜັບສະໜູນດ້ານເຕັກນິກວິຊາການ ເພື່ອເພີ່ມທາງເລືອກໃນການດຳລົງຊີວິດດ້ວຍກິດຈະກຳທີ່ຕິດພັນກັບປ່າໄມ້ໂດຍປະຊາ ຊົນເປັນເຈົ້າການ	77,500	82,500	82,500	0	0	0	0	0	242,500
ກິດຈະກຳ 3.3	ສະໜັບສະໜູນດ້ານເຕັກນິກວິຊາການ ເພື່ອເພີ່ມມູນຄ່າໃຫ້ຜະລິດຕະພັນປ່າໄມ້ບ້ານ	77,500	82,500	82,500	0	0	0	0	0	242,500
ກິດຈະກຳ 3.4	ສະໜັບສະໜູນດ້ານເຕັກນິກວິຊາການ ເພື່ອຮັກສາ ແລະ ປັບປຸງກົນໄກການຈ່າຍຄ່າບໍລິການລະບົບນິເວດ, ຄຸນຄ່າທາງຊີວະນາໆພັນ, ການບໍລິການເຂດຮັກສາແຫຼ່ງນ້ຳ ແລະ ປະລິມານສະສົມຂອງການກອບປ່າໄມ້ ໂດຍຜ່ານກິດຈະກຳທີ່ຕິດພັນກັບປ່າໄມ້ ໂດຍປະຊາຊົນເປັນເຈົ້າການ	77,500	77,500	77,500	0	0	0	0	0	232,500
ກິດຈະກຳ 3.5	ຈັດຕັ້ງປະຕິບັດ ແລະ ຍົກລະດັບຕົວແບບການຄຸ້ມຄອງປ່າໄມ້ບ້ານ	0	0	0	65,500	83,000	65,000	65,000	32,500	311,000
ອົງປະກອບຍ່ອຍ 4: ການປູກໄມ້ ແລະ ການຟື້ນຟູປ່າ										
ກິດຈະກຳ 4.1	ການປະເມີນພື້ນທີ່ໆມີເງື່ອນໄຂບູລະນະຟື້ນຟູໃຫ້ເປັນປ່າໃນເຂດທີ່ດິນປ່າໄມ້ທີ່ເສື່ອມ�โຊມ	90,000	90,000	90,000	0	0	0	0	0	270,000
ກິດຈະກຳ 4.2	ການຈັດຕັ້ງປະຕິບັດຟື້ນຟູປ່າທຳມະຊາດໃນເຂດປ່າເສື່ອມ�โຊມ	0	0	0	126,000	126,000	36,000	36,000	36,000	360,000
ກິດຈະກຳ 4.3	ສະໜັບສະໜູນທຶນຮອນ ເພື່ອໃຫ້ປະຊາຊົນຈັດຕັ້ງປະຕິບັດປູກໄມ້ຟື້ນຟູປ່າໃນເຂດປ່າເສື່ອມ�โຊມ	0	90,449	90,550	90,550	90,550	90,550	90,550	90,550	633,750
ອົງປະກອບຍ່ອຍ 5: ການປ້ອງກັນໄຟໄໝ້ລາມປ່າ										
ກິດຈະກຳ 5.1	ສ້າງຈິດສຳນຶກກ່ຽວກັບການປ້ອງກັນໄຟໄໝ້ລາມປ່າ ຢູ່ ຂັ້ນບ້ານ	138,000	123,000	123,000	123,000	120,000	120,000	120,000	120,000	987,000
ກິດຈະກຳ 5.2	ສ້າງລະບົບເພື່ອຕິດຕາມກວດກາໄຟໄໝ້ລາມປ່າ ແລະ ທົດລອງລະບົບໃນພື້ນທີ່ຄັດເລືອກເພື່ອທົດລອງ	72,000	72,000	72,000	0	0	0	0	0	216,000
ກິດຈະກຳ 5.3	ການຈັດຕັ້ງປະຕິບັດການຕິດຕາມກວດກາປ່າໄມ້ ເພື່ອປ້ອງກັນໄຟໄໝ້ລາມປ່າ	0	0	0	264,000	84,000	84,000	84,000	84,000	600,000
ອົງປະກອບຍ່ອຍ 6: ການຄຸ້ມຄອງສວນປູກໄມ້ສັກ ແລະ ການປັບປຸງຕ່ອງໂສ້ມູນຄ່າ										
ກິດຈະກຳ 6.1	ການປະເມີນພື້ນທີ່ປູກໄມ້ສັກ ເພື່ອຍົກລະດັບການຄຸ້ມຄອງສວນປູກແບບຍືນຍົງ ເພື່ອໃຫ້ໄດ້ຮັບການຢັ້ງຢືນ	56,500	56,500	0	0	0	0	0	0	113,000
ກິດຈະກຳ 6.2	ສະໜັບສະໜູນເຕັກນິກວິຊາການ ເພື່ອເພີ່ມທະວີຄວາມເຂັ້ມ ແຂງໃຫ້ກຸ່ມຊາວກະສິກອນປູກໄມ້ສັກ ແລະ ເຄືອຂ່າຍຂອງເຂົາເຈົ້າ	0	83,000	38,000	38,000	38,000	35,000	35,000	35,000	302,000
ກິດຈະກຳ 6.3	ສະໜັບສະໜູນເຕັກນິກວິຊາການ ເພື່ອຈັດຕັ້ງປະຕິບັດການຄຸ້ມຄອງສວນປູກໄມ້ສັກໃຫ້ຖືກຕ້ອງຕາມຫຼັກວິຊາການ	0	83,000	38,000	38,000	38,000	35,000	35,000	35,000	302,000
ກິດຈະກຳ 6.4	ສະໜັບສະໜູນເຕັກນິກວິຊາການ ເພື່ອຊຸກຍູ້ສິ່ງເສີມການ ແລະ ປັບປຸງໃຫ້ທັນສະໄໝ ໃນການເພີ່ມມູນຄ່າໃຫ້ການປຸງແຕ່ງຜະລິດຕະພັນຈາກໄມ້ສັກ	0	83,000	38,000	38,000	38,000	35,000	35,000	35,000	302,000

ກິດຈະກຳ 6.5	ສະໜັບສະໜູນເຕັກນິກວິຊາການ ເພື່ອຊຸກຍູ້ສິ່ງເສີມວິສາຫະກິດຂະໜາດນ້ອຍ ໃນການເພີ່ມມູນຄ່າໃຫ້ຜະລິດຕະພັນຈາກໄມ້ສັກ	0	83,000	38,000	38,000	38,000	35,000	35,000	35,000	302,000
ກິດຈະກຳ 6.6	ຈັດຊື້ວັດຖຸອຸປະກອນ ເພື່ອຊຸກຍູ້ສິ່ງເສີມການຄຸ້ມຄອງສວນປູກໄມ້ສັກໃຫ້ມີ ຄວາມຍືນຍົງ ແລະ ປັບປຸງຕ່ອງໂສ້ມູນຄ່າ	0	75,000	75,000	0	0	0	0	0	150,000
ອົງປະກອບຍ່ອຍ 7: ການນຳໃຊ້ກົດໝາຍ ແລະ ການຄຸ້ມຄອງການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍ										
ກິດຈະກຳ 7.1	ສ້າງຈິດສຳນຶກ ແລະ ເຜີຍແຜ່ນະໂຍບາຍຕ່າງໆກ່ຽວກັບປ່າໄມ້, ກົດ ໝາຍ ແລະ ຂໍ້ກຳນົດອື່ນໆ ຢູ່ ຂັ້ນເມືອງ ແລະ ກຸ່ມບ້ານ ໃນເຂດທີ່ເປັນບຸລິມະສິດ	156,000	126,000	126,000	120,000	120,000	120,000	120,000	120,000	1,008,000
ກິດຈະກຳ 7.2	ສ້າງລະບົບຕິດຕາມກວດກາການຂຸດຄົ້ນໄມ້ທີ່ຜິດກົດໝາຍ	72,000	72,000	0	0	0	0	0	0	144,000
ກິດຈະກຳ 7.3	ສ້າງຄວາມເຂັ້ມແຂງ ແລະ ຝຶກອົບຮົມກ່ຽວກັບການກວດກາໄມ້ ຢູ່ ຈຸດດ່ານ ກວດກາ, ສະໜາມໄມ້, ໂຮງງານປຸງແຕ່ງ ແລະ ໂຮງງານ/ຮ້ານເຟີນິເຈີ	0	0	40,000	40,000	0	0	0	0	80,000
ກິດຈະກຳ 7.4	ຕິດຕາມ ແລະ ກວດກາລາດຕະເວນບ່ອນຂຸດຄົ້ນໄມ້, ການຂົນສົ່ງໄມ້ ຢູ່ ສະໜ າມ 2 ແລະ ເສັ້ນທາງລຳລຽງໄມ້, ທາງບົກ ແລະທາງນ້ຳ ແລະ ຈຸດທີ່ຫຼໍ່ແຫຼມ	0	0	39,000	39,000	39,000	39,000	39,000	39,000	234,000
ກິດຈະກຳ 7.5	ສະໜັບສະໜູນການກວດກາໂຮງງານປຸງແຕ່ງໄມ້, ໂຮງງານເຟີນິເຈີ, ສາງເກັບ ມ້ຽນໄມ້ ແລະ ເຄື່ອງປ່າຂອງດົງ	0	0	39,000	39,000	39,000	39,000	39,000	39,000	234,000
ກິດຈະກຳ 7.6	ສະໜັບສະໜູນການຕິດຕາມກວດກາເກີນຈຳນວນ (ໂກຕາ) ທີ່ອະນຸມັດໃນເຂດ ອ່າງເກັບນ້ຳຂອງໂຄງການເຂື່ອນໄຟຟ້າ	0	0	21,000	21,000	21,000	21,000	21,000	21,000	126,000
ກິດຈະກຳ 7.7	ຈັດຊື້ອຸປະກອນຮັບໃຊ້ຫ້ອງການ, ເຄື່ອງແທບເລັດ (tablet), GPS ແລະ ເຄື່ອງມືທີ່ຈຳເປັນ ເພື່ອຮັບໃຊ້ວຽກງານການນຳໃຊ້ກົດໝາຍ	0	180,000	0	0	0	0	0	0	180,000
ກິດຈະກຳ 7.8	ຕິດຕາມກວດກາລາດຕະເວນບ່ອນລັກລອບຕັດໄມ້ໃນເຂດປ່າປ້ອງກັນ	0	0	21,000	21,000	21,000	21,000	21,000	21,000	126,000
ອົງປະກອບຍ່ອຍ 8: ການຈ່າຍຄ່າບໍລິການລະບົບນິເວດປ່າໄມ້										
ກິດຈະກຳ 8.1	ການປະເມີນເງື່ອນໄຂການຈ່າຍຄ່າບໍລິການລະບົບນິເວດປ່າໄມ້ (PFES) ຢູ່ ແຂວງຫຼວງພະບາງ	59,000	0	0	0	0	0	0	0	59,000
ກິດຈະກຳ 8.2	ທົດລອງສິ່ງເສີມກິດຈະກຳ ກ່ຽວກັບ PFES ທີ່ຕິດພັນກັບການນຳໃຊ້ທີ່ດິນ ປ່າໄມ້ເຊັ່ນ: ບໍລິສັດນ້ຳປາປາ, ເຂື່ອນໄຟຟ້າ, ທ່ອງທ່ຽວທຳມະຊາດ ແລະ ອື່ນໆ	48,500	48,500	18,500	0	0	0	0	0	115,500
ອົງປະກອບ 3: ການຄຸ້ມຄອງທາງສັງຄົມ (ຊີວິດການເປັນຢູ່)										
ອົງປະກອບຍ່ອຍ 1: ການປູກພືດເສດຖະກິດແບບຍືນຍົງ ຢູ່ ເຂດພູດອຍ										
ກິດຈະກຳ 1.1	ດຳເນີນການຄົ້ນຄ້ວາ ເພື່ອກຳນົດຮູບແບບການປູກພືດເສດຖະ ກິດແບບຍືນຍົງ ລວມທັງການກະສິກຳ-ປ່າໄມ້ແບບປະສົມປະ ສານ ແລະ ການຂະຫຍາຍການ ຜະລິດກະສິກຳ	78,000	78,000	0	0	0	0	0	0	156,000
ກິດຈະກຳ 1.2	ການຝຶກອົບຮົມ ແລະ ສ້າງຄວາມເຂັ້ມແຂງໃຫ້ພະນັກງານສິ່ງເສີມ ກ່ຽວກັບຕົວ ແບບການຜະລິດກະສິກຳແບບຍືນຍົງ ແລະ ປັບປຸງຮູບແບບຕ່າງໆຂອງການ ຜະລິດກະສິກຳໃຫ້ດີຂຶ້ນ	0	80,000	80,000	80,000	0	0	0	0	240,000
ກິດຈະກຳ 1.3	ສະໜອງທຶນຮອນໃຫ້ປະຊາຊົນໂດຍກົງ (ເຄື່ອງມື, ຝຸ່ນ, ແນວພັນ) ເພື່ອທຳການ ຜະລິດ	0	123,149	123,149	246,298	246,298	246,298	246,298	246,298	1,477,787
ກິດຈະກຳ 1.4	ພັດທະນາ ແລະ ສະໜັບສະໜູນສະຫະກອນກະເສດ	0	0	80,000	35,000	26,000	18,000	18,000	18,000	195,000
ອົງປະກອບຍ່ອຍ 2: ການລ້ຽງສັດ ແລະ ປູກຫຍ້າອາຫານສັດ										
ກິດຈະກຳ 2.1	ການຝຶກອົບຮົມ ແລະ ສ້າງຄວາມເຂັ້ມແຂງໃຫ້ພະນັກງານສິ່ງເສີມ ກ່ຽວກັບ	22,000	7,000	7,000	0	0	0	0	0	36,000

	ເຕັກນິກການລ້ຽງສັດ									
ກິດຈະກຳ 2.2	ສະໜອງທຶນຮອນໃຫ້ປະຊາຊົນໂດຍກົງ (ເຄື່ອງມື, ຝຸ່ນ, ແນວພັນ) ເພື່ອປູກຫຍ້າ	109,050	109,050	200,100	200,100	200,100	200,100	200,100	200,100	1,418,700
ກິດຈະກຳ 2.3	ສະໜອງທຶນຮອນ ແລະ ແນວພັນສັດໃຫ້ປະຊາຊົນໂດຍກົງ ເພື່ອປັບປຸງການລ້ຽງສັດ	152,736	152,736	152,736	152,736	152,736	152,736	152,736	152,736	1,221,888
ກິດຈະກຳ 2.4	ສະໜັບສະໜູນດ້ານເຕັກນິກວິຊາການເພື່ອເຂົ້າຫາແຫຼ່ງສິນເຊື່ອ	37,000	37,000	0	37,000	37,000	0	37,000	37,000	222,000
ອົງປະກອບຍ່ອຍ 3: ການພັດທະນາທ່ອງທ່ຽວທຳມະຊາດໂດຍທ້ອງຖິ່ນມີສ່ວນຮ່ວມ										
ກິດຈະກຳ 3.1	ປະເມີນແຫຼ່ງທ່ອງທ່ຽວທີ່ມີເງື່ອນໄຂ ເພື່ອຊຸກຍູ້ທ່ອງທ່ຽວທຳມະຊາດ	60,000	60,000	0	0	0	0	0	0	120,000
ກິດຈະກຳ 3.2	ການຝຶກອົບຮົມ ແລະ ສ້າງຄວາມເຂັ້ມແຂງໃຫ້ພະນັກງານສົ່ງເສີມ ກ່ຽວກັບວຽກງານທ່ອງທ່ຽວທຳມະຊາດໂດຍທ້ອງຖິ່ນເປັນເຈົ້າການ	0	0	4,000	4,000	4,000	0	0	0	12,000
ກິດຈະກຳ 3.3	ສະໜອງທຶນຮອນໂດຍກົງ (ປ້າຍ, ກິດຈະກຳປັບປຸງຊີວິດການເປັນຢູ່) ເພື່ອຊຸກຍູ້ສິ່ງເສີມການທ່ອງທ່ຽວທຳມະຊາດ	0	0	25,000	25,000	25,000	25,000	25,000	25,000	150,000
ງົບປະມານທັງໝົດເພື່ອຈັດຕັ້ງປະຕິບັດ PRAP ແຕ່ 2018-2025 ລວມທຸກອົງປະກອບ ($USD)		**2,830,286**	**3,244,884**	**2,788,535**	**2,988,684**	**2,274,184**	**2,176,184**	**1,934,184**	**1,898,684**	**20,135,625**

Separate Volume

2-18 Survey on Implementation and Potential of Payment for Forest Ecosystem Services (PFES) in Luang Prabang

Ministry of Agriculture and Forestry
Department of Forestry (DoF)

Japan International Cooperation Agency (JICA)

Sustainable Forest Management and REDD+ Support Project

Survey on Implementation and Potential of Payment for Forest Ecosystem Services (PFES) in Luang Prabang

<Draft Final Report>

June 2017

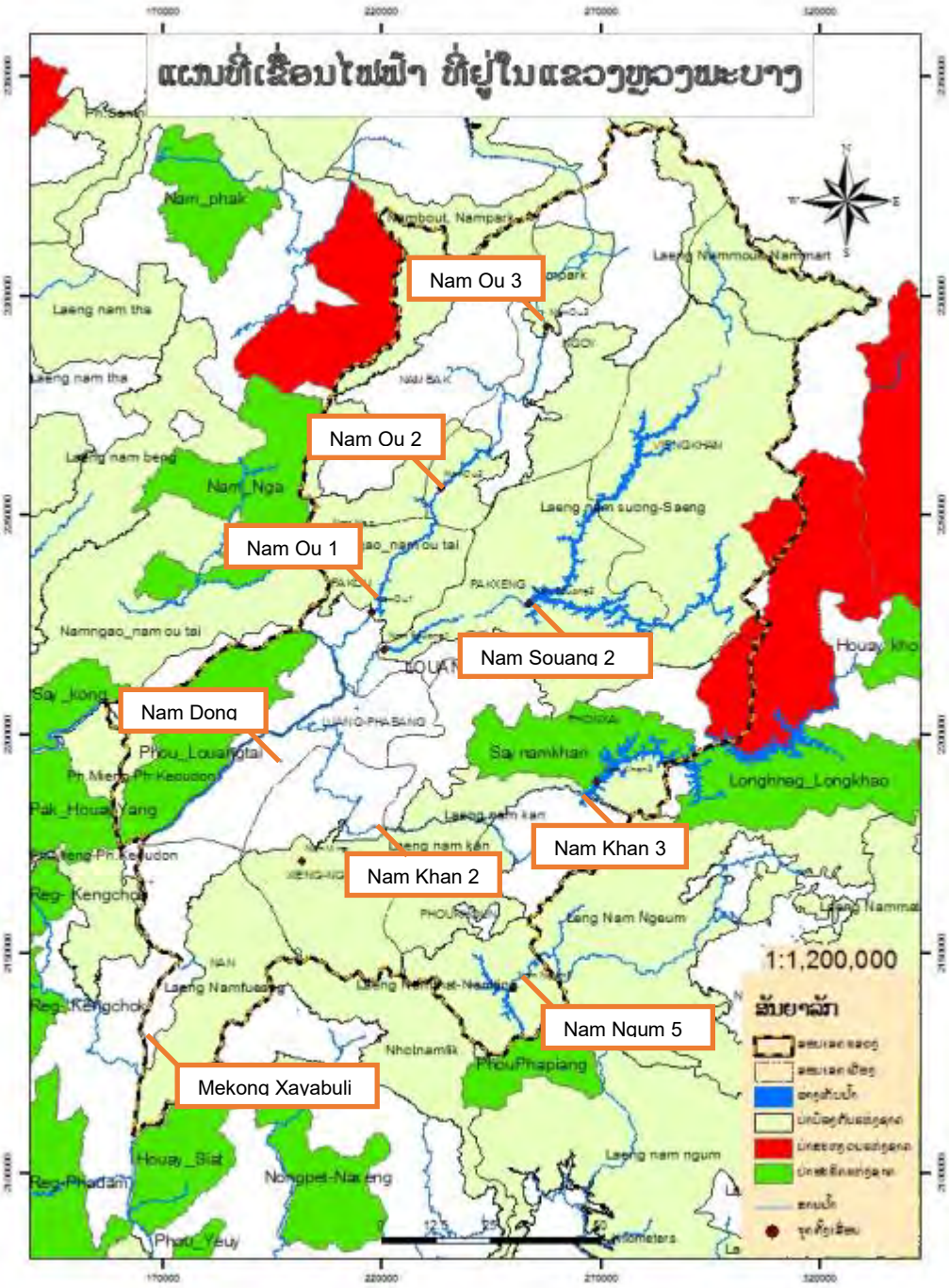

Figure 1 Location Map of Major Hydropower Dams and Conservation/Protection Forests in Luang Prabang Province

Table 1 List of Hydropower Dams in Luang Prabang Province

Name	District	Installed Capacity	Year of Completion	Investors
Nam Dong	LPB	1MW	1971	EDL 100%
Nam Ngum 5	Phoukout	120MW	2012	Sinohydro 85% EDL Gen 15%
Nam Khan 2	Xieng Ngun	130MW	2016	EDL Gen 100%
Nam Ou 2	Ngoy	120MW	2016	Sinohydro 90% EDL Gen 10%
Nam Khan 3	Xieng Ngun	60MW	2016	EDL Gen 100%
Mekong Xayabuli	Nan	1,285MW	2019 (plan)	Sokansang 30% Natee Synergy 25% EDL 20% Electricity Generating 12.5% Bangkok Expressway 7.5% PT Construction 5%
Nam Ou 3	Ngoy	210MW	2020 (plan)	Sinohydro China National
Nam Ou 1	Pak Ou	180MW	2020 (plan)	Sinohydro China National
Nam Seuang 1	LPB	30MW	– 2030 (plan)	China Sichuang Gurong Group
Nam Seuang 2	LPB	108MW	– 2030 (plan)	China Sichuang Gurong Group

Source: Department of Energy Policy and Planning, Ministry of Energy and Mines, *Hydropower Development Updated*, July 2016

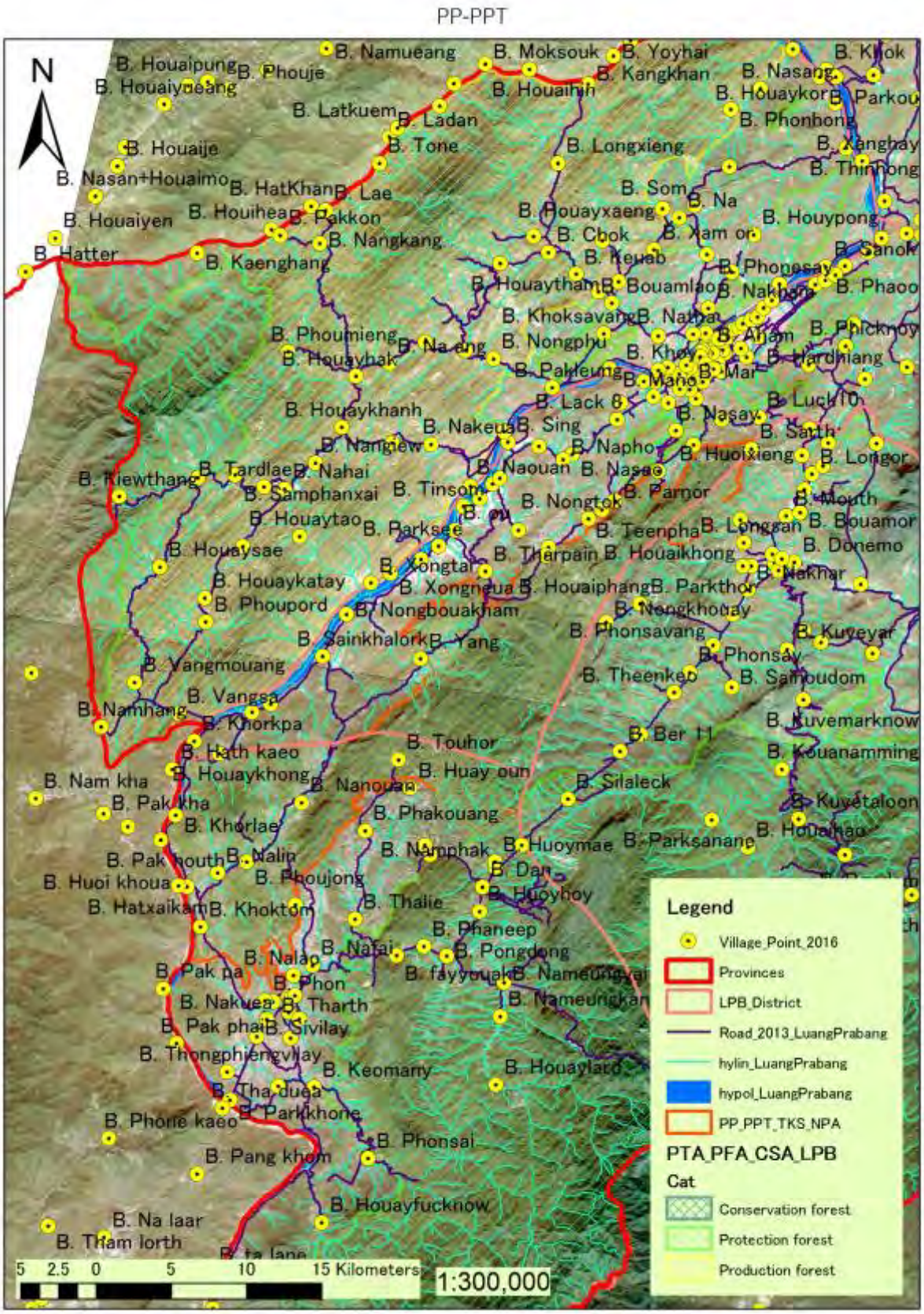

Figure 2 Location Map of Phoupheung-Phouphathoun (PP-PPT) National Protection Forest Area (NPTA)

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List of Abbreviations

ADB	Asian Development Bank
BCC	Biodiversity Conservation Corridors Project
BCI	Biodiversity Conservation Corridors Initiative
BSM	Benefit-Sharing Mechanism
CA	Concession Agreement
CBI	Community and Biodiversity Investment
CBT	Community Based Tourism
COD	Commercial Operation Date
DAFO	District Agriculture and Forestry Office
DESIA	Department of Environmental and Social Impact Assessment, MONRE
DOE	Department of Environment, MONRE
DOF	Department of Forestry, MAF
DWR	Department of Water Resources, MONRE
DFRM	Department of Forest Resources Management (transferred from MONRE to MAF in 2016)
EDL	
EDL-Gen	EDL-Generation Public Company
EIA	Environment Impact Assessment
ESMD	Environmental and Social Management Division
EMC	Environment Management Committee
EMMP	Environmental Management and Monitoring Plan
EMP	Environmental Management Plan
EMU	Environmental Management Unit
EPF	Environmental Protection Fund
FRDF	Forestry and Forest Resource Development Fund
F-REDD	Sustainable Forest Management and REDD+ Support Project
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
IFI	International Financial Institution
JICA	Japan International Cooperation Agency
JV	Joint Venture
LEnS2	Second Lao Environment and Social Project, World Bank
LPB	Luang Prabang
LPWSE	Luang Prabang Water Supply State Enterprise
NMLA	National Land Management Authority (merged into MONRE)
NPA	National Protected Area
MAF	Ministry of Agriculture and Forestry
MEM	Ministry of Energy and Mines
MOF	Ministry of Finance
MONRE	Ministry of Natural Resources and Environment
MPI	Ministry of Planning and Investment
MW	Megawatt
NA	National Assembly
NNP1	Nam Ngiep 1 Power Company
NPTA	National Protection Forest Area
NTFP	Non-Timber Forest Product

PAFO	Provincial Agriculture and Forestry Office
PES	Payment for Ecosystem Service
PFA	Protection Forest Area
PFES	Payment for Forest Ecosystem Service
PICE	Policy Implementation and Capacity Enhancement
PONRE	Provincial Department of Natural Resources and Environment
PP-PPT	Phoupheung-Phouphathoun
RAP	Resettlement Action Plan
RBC	River Basin Management Committees
REDD	Reducing Emissions from Deforestation and forest Degradation
RMU	Resettlement Management Unit
SED	Social and Environmental Division
SEMFOP	Social and Environmental Management Framework and Operati Plan, Nam Theun 2 Hydropower Project
SMMP	Social Management and Monitoring Plan
SNV	SNV Netherlands Development Organisation
SOE	State-Owned-Enterprise
THPC	Theun-Hinboun Power Company
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development
USD	United States Dollar`
WB	World Bank
WCS	World Conservation Society
WMPA	Watershed Management and Protection Authority
WMP	Watershed Management Plan
WREA	Water Resources and Environment Agency (a precursor institute of MONRE)
WTP	Water Treatment Plant

Survey on Implementation and Potential of Payment for Forest Ecosystem Services (PFES) in Luang Prabang

1. Introduction

1.1. Background and Objectives

Sustainable funding in forestry sector is one of the critical issues to overcome the budgetary obstacles in Laos including Luang Prabang Province. Policy arrangement for sustainable funding on forest management has already been in place. Prime Minster Decree 333 on Protection Forest states that forest service users such as hydropower project and ecotourism company should contribute the fund for management to the Forest and Forest Resource Development Fund. Revised Water and Water Resources Law (2017) also states that developers of water resources must contribute funds for watershed and water resource protection. Some cases have contributed a part of the revenue to forest management. However, other cases do not well-functioned so far.

F-REDD will support protection forest management in Phoupheung-Phouphathoun (PP-PPT) National Protection Forest Area (NPTA) straddling 3 districts (Luang Prabang, Nan, Xienngun) of Luang Prabang Province. There are some forest ecosystem service uses including water supply facility, small scale hydropower facility, ecotourism, operating in and around the NPTA. Those could be the potential PFES providers to ensure sustainable forest management in the NPTA, however, it is not clear enough to what extent and how these users have supported to environmental and forest management as payment for forest ecosystem services (PFES) or payment for ecosystem services (PES) or not at this moment.

In order to investigate possibility of introducing PFES in Luang Prabang Province esp. in PP-PPT Protection Forest, the project supports to conduct survey with three main components as follows;

1) Review policy and institutional arrangement of PFES in Laos and neighboring country, especially Vietnam.
2) Update current situation of PFES at PP-PPT NPTA and in Luang Prabang Province.
3) Collect outcomes and lesson leant from advanced cases in Luang Prabang Province and other Provinces.
4) Recommend potential payers of PFES and its arrangements including amount, payment modalities, uses to meet the expectations of users/payers and so on, and improvement of existing PFES arrangements in PP-PPT Protection Forest and Luang Prabang Province.

It is expected that the result of survey can facilitate the discussion between PAFO and forest eco-system service users, especially water supplier and tourism organizations to contribute a part of their revenue for forest management in the future.

1.2. Scope of the Study

This study focuses only on PFES or PES. Either PFES or PES scheme is a payment for a well-defined environmental service between service user and service provider with a condition that the user pays only as long as the provider delivers the service. In case that hydropower dam company provides the fund for their conservation forest in upper stream for water flow stabilization, PFES should deliver to the service provider such as concerned agency and local people involved in conservation forest activity. PFES is not necessary for monetary payment but also in-kind payment.

Main ecosystem services include, but not limited to;

- Watershed services (for hydropower project)
- Landscape amenity (for ecotourism)
- Biodiversity conservation (for ecotourism)

On the other hand, this study excludes;

- Compensation for destroying/damaging environment (Mining)
- General CSR (Corporate Social Responsibility) activities (i.e. supporting arbor day event)

1.3. Methodologies of the Analysis

In order to examine the feasibility of PFES implementation at PP-PPT NPTA and in Luang Prabang Province, concerned authorities and organizations of forest ecosystem service user including water supply authority, hydropower project, and ecotourism companies in Luang Prabang and Vientiane are interviewed from 15th May 2017 to 9th June 2017. In addition, advanced cases on implementing PFES such as Nam Theun 2 hydropower project, Theun Him Boun Hydropower project, Nam Ngiep 1 hydropower project, Nam ha NBCA, have been desk-reviewed.

1.4. Concept of PFES and Definition Applied in This Study

The concept of “Payment for Ecosystem Services (PES)” has been provoking discussions and is still far from consensus among the stakeholders as well as academics. Wunder (2005) defines PES as a voluntary transaction where a well-defined environmental service is being bought by at least one buyer from at least one supplier of that service under conditionality. The buyer makes payments only if the service supplier continuously secures the provision of that service. However, this definition is too strict to implement on the ground.

In order to discuss current status and possible forms of PFES to implement at PP-PPT NPTA and in Luang Prabang Province, “PFES” in this study is defined as any payment for environmental services on maintaining, compensation, rehabilitation and/or enhancement in the forestry sector.

2. Policy and Institutional Arrangement of PFES in Laos

2.1. Key Institutions Related to PFES – MAF and MONRE

Engagement of World Bank and Asian Development Bank as co-financers to the Nam Theun 2 Hydropower Project rose the environmental and social standards of all hydropower projects in Laos[1]. The National Policy for Environmental and Social Sustainability for Hydropower Sector in Lao PDR (2005) was the indispensable component in elevating hydropower environmental and social standards. Key institutions established through the Policy were the Water Resources and Environmental Agency (WREA) and Environmental Protection Fund (EPF). Later in 2011, WREA was merged with various departments from different ministries to form the Ministry of Natural Resources and Environment (MONRE)[2].

MONRE is one of the most important players for PFES as the Ministry has several concerned agencies including Department of Environmental and Social Impact Assessment (DESIA), Department of Water Resources (DWR), Department of Environment (DOE) and Lao National Mekong Committee Secretariat. Until 2016, Department of Forest Resources Management (DFRM) also belonged to the Ministry.

In 2016, the jurisdiction over conservation and protection forests was transferred from MONRE to MAF/DOF. Two ministries currently discuss on the demarcation of the water resources management and conservation/protection forests management, especially for the activities implemented in cooperation with mining and power companies operating in Laos.

2.2. Policy, Law and Regulations related to PFES in Laos

(1) Efforts on Institutionalizing PES in Laos

Nam Theun 2 Hydropower Project, which entered into a commercial operation in 2010, is the start of raising awareness on PES and PFES in Laos as the project was largely financed by World Bank and Asian Development Bank and must be consistent with the requirements by these international financial institutions. The project drew a huge and long-time criticism on its social and environmental impact on the construction site, which is located in Nakai-Nam Theun Conservation Forest Area.

(2) Decree on Environmental Impact Assessment

In February 2010, the Decree on Environmental Impact Assessment was issued by the Prime Minister's Office and its guideline was developed with a support by the Government of Finland in 2011. The decree describes not only environmental impact assessment procedure including formulation of Environmental Management and Monitoring Plan (EMMP) and Social Management and Monitoring Plan (SMMP) but also implementation of environmental and social management and monitoring plans. The decree requires to have a plan for plantation of trees, restoration of forest and conservation of forest areas which are the originating sources of water in an EMMP.

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[1] T. Bumrungsap and L. Delphanque (2005), *Nam Theun 2: Sustainable Energy for South East Asia*, International Energy Journal: Vol.6, No.1, Part 4, June 2005, p.4-81

[2] Johnston (2012), *Laos – Nam Ngiep 1 Hydropower Project Trip Report*, USAID/Washington.
S. Thoummavongsa and X. Bounsou (2013), Sustainable Management of Hydropower in Lao PDR, GMSARN Interionational Journal 7 (2013)

(3) Decree on Establishment and Activities of River Basin Committee

In June 2010, the Decree on Establishment and Activities of River Basin Committees (RBC) was approved and the RBCs are under jurisdiction of Department of Water Resources (DWR) of MONRE. RBC of each basin executes the principle of Integrated Water Resources Management (IWRM), a process of development promoting water resources management in order to maximize the social and economic benefits, to ensure equity in society and the permanence of ecosystems in the concerned river basin (Article 2 and 3). The RBC has a fund for river basin management and development from the government budget, grant assistance from international organizations and other countries, royalties, service charges, fines, and contributions from water resources development in the river basin based on the principle of polluter pay (Article 12). Based on the decree, Nam Ngum RBC has been created.

(4) Decree on Protection Forest

In July 2010, Decree on Protection Forest (Prime Minister's Decree No. 333 / 2010) was issued in order to define principles, procedures, management, protection and conservation, development and sustainable use of the Protection Forest. Hydropower projects are required to contribute the fund of 1% of total value of the sale of the electricity. Ecotourism companies also must contribute the fund of 1% of their annual income.

At the issue of the decree, Department of Forestry (DOF) still had jurisdiction over conservation forest and protection forest so the decree states that the project which has impacts on and makes profits from Protection Forest must contribute to the Forest and Forestry Resources Development Fund (FRDF) under the department.

(5) Revised Environmental Protection Law

Revised Environmental Protection Law was passed the National Assembly in December 2012 and came into force in 2013. In terms of PFES, the law stipulates on Forest Protection and Development (Part I, Chapter 1, Article 16), Environmental Services (Part I, Chapter 4, Article 44 and 45), Environmental Rehabilitation (Part V), and Environmental Protection Fund (Part VII). In Article 66 of Part VII on the Sources of Environmental Protection Fund, (1) Environmental rehabilitation fees from investment projects or activities, and (2) Payment for ecological services are defined as two of seven sources of EPF.

(6) Policy on Sustainable Hydropower Development in Lao PDR

Decree on the Approval and Promulgation of the Policy on Sustainable Hydropower Development in Lao PDR was approved by the Prime Minister in January 2015, and the Policy Guidelines for the Implementation of Policy on Sustainable Hydropower Development in Lao PDR was prepared by the Ministry of Energy and Mines (MEM) with support of the World Bank in the same year.

The Policy Guideline defines 4 ministries of Ministry of Planning and Investment (MPI), Ministry of Finance (MOF), Ministry of Energy and Mines (MEM) and Ministry of Natural Resources and Environment (MONRE) as key agencies responsible for implementation of the Policy on Sustainable Hydropower Development, and Ministry of Agriculture and Forestry (MAF) is just positioned as one of the other concerned agencies to be invited to participate in technical discussions.

Based on Decrees on Protection Forest (2010) and Conservation Forest (draft at the time of issuing the Policy Guideline), the Policy Guideline assigns the Department of Forest Resources Management (DFRM) as key agency for Water Resource and Water Management and Conservation.

(7) Decree on Conservation Forest

In May 2015, the government issued the Decree on Conservation Forest (Government Office Decree No. 134/ 2015), which regulates principles, establishment, allocation, management, protection, use and conversion of the Conservation Forest at national, provincial, district and village levels. The Decree also stipulates on the obligation for the developers of hydropower, mining, road construction, electricity grid networks to contribute to funds for reforestation to compensate for the loss of vegetation in Conservation Forest Area at US$800 per hectare. In addition to the compensation, hydropower projects are also requested to contribute additional funds of USD 2 per hectare per year for the water catchment areas for the activities on the management and protection of Conservation Forest. Ecotourism companies that make use of Conservation Forest and surrounding area also must contribute one percent of the total annual income.

(8) Poor Coordination Among Relevant Government Agencies

According to Robichaud (2014), a great efforts to institutionalize the PES and PFES have been made by Government of Laos for the past several years as following.

- Drafting of legislation related to collection and use of a forest ecosystem service fee, including water-use fee. This was led by the Department of Forestry (DOF) and the National Assembly (NA)
- Meetings and discussions on potential applications of PES in Laos, led by the Environmental Protection Fund and the Center of Research and Information of the National Land Management Authority (NLMA).
- Discussions on the collection and use of water-use fees from hydropower projects in selected watersheds (Nam Theun and Nam Ngum), led by Water Resources and Environment Agency (WREA), a precursor institution of the Ministry of Natural Resources and Environment (MONRE).

However, Robichaud (2014) pointed out that 'these actions have been disjointed and dispersed across various ministries and departments, with few concrete achievements to date[3]'

2.3. Funds Related to PFES

(1) Environmental Protection Fund

Outline of Environmental Protection Fund (EPF)

Environmental Protection Fund (EPF) was established in 2005 as a government body that would receive all kinds of contributions from international donors and the private sector such as hydropower and mining companies, although it cannot access a direct fiscal transfer from line ministries due to its off-budget nature. The Fund finances to various government agencies for the purpose of strengthening environmental protection, sustainable natural resources management, biodiversity conservation and community development.

EPF provides financial support through five windows as follows.

① Policy Implementation and Capacity Enhancement (PICE)
② Community and Biodiversity Investment (CBI)
③ Pollution Control

[3] Willian Robichaud (2014), *Motivation for payments for ecosystem services in Laos: The essential alignment*, Center for International Forestry Research, p.11

④ Sustainable Land Management
⑤ Water Resource Management

The first two of the five windows (PICE and CBI) are currently financed by the Second Lao Environment and Social Project (LENS2) of World Bank. A part of royalty for water resources is used through Water Resource Management Window.

Usages and budgets of subprojects are approved by the Board of Directors consisting of vice-ministers of the relevant ministries and the vice presidents of the party organizations, chaired by the Minister of MONRE.

Contribution to EPF by the Mining and Hydropower Companies

According to the Law on Electricity (revised in 2011) and Law on Minerals (revised in 2011), the mining and hydropower companies have an obligation to contribute to EPF in accordance with concession agreement. From 2005 to 2010, total USD 265,878 was paid to EPF and the amount increased to approximately USD 2 million from 2011 to 2015. It is expected to attain amount of USD 30 million for the five years from 2016 to 2020.

However, most of the contribution to the fund has been made by mining companies. For example, during the15 months from 1st October 2015 to 31st December 2016, EPF received total US$ 647,040 from private companies, of which, US$447,040 were from 66 mining companies and US$ 200,000 were from a single hydropower company – Theun-Hinboun Hydropower Company. Theun-Hinboun Hydropower Company contributed to the fund of USD200,000 per year based on the Environmental Management and Monitoring Plan (EMMP). Hongsa Power Company will start to contribute to the fund of USD 300,000 per year since 2017.

There are 133 hydropower projects in operation, under construction or at the planning stage. Concession Agreements (CA) of 19 hydropower projects state on the contribution to EPF but most of the hydropower companies have not implemented their duty. 37 hydropower projects have CAs without description on the contribution to EPF. Remained hydropower projects still have not reached at signing of the concession agreements.

(2) Forest Resources Development Fund

The Forestry and Forest Resource Development Fund (FRDF) was established under the Department of Forestry (DOF) by the Prime Minister's Decree No. 38 in 2005. Purpose of setting up the fund is to develop its own fund for management and development of forest resources in conservation and protection areas, plantation establishment, regeneration of forest, watershed management and environmental protection.

FRDF's funding sources are summarized as below.

① Forest royalty, fees for the use of forests, forestland and forest resources
② Fees for timber and NTFPs harvested from plantations
③ Fees for forest, forest land and forest resources inventory
④ Contributions from national and international profit-oriented organizations involved in business activities in the forestry sector including NTFPs and wildlife
⑤ Contributions from non-profit sources involved in the forestry sector such as international agencies, national agencies, individuals, private and public organizations

⑥ Other incomes including interest earned from bank deposits and net returns from investments
⑦ Income consisting of a share of the money derived from competitive bidding for the sales of timber derived from Production Forests as stated in Prime Minister Decree 59/PM, dated 22 May 2002, on Sustainable Production Forest Management.

But actually, most of the revenue comes from ⑦ the share of the money derived from competitive bidding for the sales of timber derived from Production Forests, and a small part from ② the fees for timber and NTFPs harvested from plantations.

In addition, the Decree on Protection Forest (Prime Minister's Decree No.333/ 2010) states that the all projects that create impacts on and have profits from the protection forests and protection forestry lands directly and indirectly must contributes to fund. The decree refers to the mining, road construction, hydropower development and entrepreneurs of the ecotourism business as follows (Article 31).

① The project developers in mining must contribute the fund for restoration of surface and landscape, and re-plantation;
② The project developers in road construction, the grids, and other deployment projects that change the protection forests and protection forestry lands permanently must contribute funds for restoration and re-plantation based on the actual directly impact areas;
③ The project developers in the hydroelectric power development projects must contribute the funds of 1% (one percent) of total value of the sale of the electricity per annual;
④ The entrepreneurs of the ecotourism business must contribute funds of 1% (one percent) from their annual incomes of that ecotourism.

However, FRDF has never received any contributions mentioned in the above Decree.

3. Current Status of PFES Scheme at PP-PPT NPTA and in Luang Prabang Province

3.1. Water Supply Companies

(1) LPWSE's Water Treatment Plants in PP-PPT

Luang Prabang Water Supply State Enterprise (LPWSE) is a 100% State-Owned-Enterprise (SOE), which is responsible for water supply in Luang Prabang Province. The existing water supply system is as shown in Table 1.

Table 2 Existing Water Supply System to Luang Prabang City Area

1) WTPs		2) Reservoirs	
Nam Khan	12,000 m^3/day capacity Source: Khan River Issues: Actual production is less than 10,000 m^3/day since flocculation and sedimentation tanks were not constructed. The system loss is very high at 19% (should be less than 10%)	Phoumanong	1,000 m^3 capacity (Quadrate type, Height: 5 m) Construction Year: 2010 Issues: Expansion is required but the space is limited
Phoophneng	9,000 m^3/day capacity Source: Spring Issues: Water production and quality are indicative of seasonal fluctuations	Kuatermieng	1,570 m^3 capacity (Quadrate type, Height: 5 m) Construction Year: 2002 Issues: Expansion of the reservoir is required but there is no space.
Souphanouvong	1,000 m^3/day capacity Source: Mekong River Issues: The system loss is very high at 25% (should be less than 10%). The O&M cost is high and efficiencies are low. It is required to supply water from Nam Khan WTP.	Phousy	1,400 m^3 capacity (Circular type, Height: 5 m) Construction Year: 1969 Issues: Expansion of the reservoir is required but there is no space.
		Souphanouvong	1,000 m^3 Construction Year: 2007
3) Distribution: The total length is about 71 km consisting of pipes with DN40 to DN350.			

Source: JICA (2016), *Data Collection Survey on Regional Development in Luang Prabang, Lao PDR*

Note: WTPs process water for improving quality suitable for drinking, while the reservoir is a large natural or artificial lake used as a source of water supply.

Source: JICA (2016), *Data Collection Survey on Regional Development in Luang Prabang, Lao PDR*

Figure 3 Location Map of Existing and Future Water Supply System

As of May 2017, the company supplies water to Luang Prabang City at 14,000 m3 per day (6,000 m3 from Phoupheung Water Treatment Plant and 9,000 m3 from Nam Khan Water Treatment Plant). Phoupheung Water Treatment Plant is located in Phoupheng-Phouphathoun (PP-PPT) National Protection Forest Area (NPTA) while Nam Khan Water Treatment Plant is in Phanom Village along Nam Khan River.

LPWSE has another water treatment plant (WTP) at Houay Khao Village located in PP-PPT NPTA. The Houay Khao Water Treatment Plant has a capacity of 2,400 m3 per day but supplies water to Xieng Ngun District 1,300m3 per day as the demand from the district is still at low level.

(2) LPWSE's Forest Management and Conservation Activities in PP-PPT

As described above, LPWSE has two water treatment plants (WTP) in Phoupheung-Phouphathoun (PP-PPT) National Protection Forest Area (NPTA) – Phoupheung WTP and Houay Khao WTP.

Phoupheung WTP manages 2,038 hectare of water source forest belonging to PP-PPT NPTA in three (3) villages of Done Kang, Lak 10 and Houay Thong. The water purification plant hires a village forest volunteer in each of the three villages at 100,000 kip per month. The village forest volunteers are also provided with clothes, shoes and caps.

The WTP in Houay Khao Village manages another 639 hectare of water source forest in PP-PPT NPTA. The plant hires a Houay Khao villager for forest management and conservation at contract

basis since fiscal year 2006/07 and pays 600,000 kip per month.

The village forest volunteers or the contracted villager patrol the water source forest area allocated to the plant every week or every two weeks. Once a month, an officer from the WTP joins the patrol of the village forest volunteers or the contracted villager. When the patrol find tree cutting, shifting cultivation or livestock raising in the water resource forest area, they report to District Agriculture and Forestry Office (DAFO) to solve the issues together.

However, there are very few violated cases such as cutting timbers, slash and burn agriculture or raising livestock in the forest. Collecting firewood and growing small-scale of semi-wild vegetables around the natural trees are allowed by DAFO in the protection forest area.

On tree plantation day (1st June), LPWSE used to plant trees in the protection forest but the tree plantation has not been implemented for past 4 – 5 years as there are no land suitable for tree plantations.

(3) Nam Khan Water Treatment Plant of LPWSE

Nam Khan Water Treatment Plant (WTP) sources water from Nam Khan River at Phanom Village for supply water to Luang Prabang City. The plant implements activities to protect watershed area. The WTP patrols for preventing large-scale pig farm, usage of poisons in fisheries or pesticides along upper stream of Nam Khan River. However, the plant does not implement any activities for forest conservation.

(4) Thai Water Supply Companies

In 2013, Thai government supported LPWSE to formulate the Water Supply Master Plan of Luang Prabang Province. Following the assistance by the Thai government, two Thai companies – (1) Asia Nampapa Luang Prabang Company (Asia), and (2) Demco Lao Company (Demco) – invest in the water supply business of Luang Prabang Province. Both Thai companies use water from Nam Khan River for treatment and LPWSE buys the treated water from the both Thai companies for 30 years of the concession period. Asia Nam Papa started supplying water in 2015 and currently processes 5,000 m3 per day. Demco is at the stage of construction of a water treatment plant along Nam Khan River and supplies water to LPWSE at trial basis. The company will officially start supplying water in June 2017.

Both Thai companies do not conduct any activities for forest conservation as they have no allocated water source forests for management.

(5) Water Bottling Company at PP-PPT

Natural Mineral Water Co., Ltd., a company of DSK group in Luang Prabang, just fetches water from Phou Phoung Water Treatment Plant and pays water fee to the plant. Therefore, the water bottling company conducts no forest conservation activities.

3.2. Ecotourism Business and Possibility of PFES

(1) Tourism at Kuang Si Waterfall and Various Fees Collection

Trekking From Long Lao 1/2 Villages to Kuang Si Waterfall

Asian Development Bank (ADB) used to implement a tourism promotion project at Kuang Si Waterfall area. The project promoted Community-Based Tourism (CBT) in Long Lao 1 and 2 villages (Hmong and Khmu ethnic people). The project built toilets and a rest house. As a part the project, the village started collecting 2,000 kip from each visitor and additional 50,000 kip as hiring a local guide fee from each group of trekkers that cross the village area and walk down to Kuang Si Waterfall. Village entrance fee of 2,000 kip per visitor and deducted local guide fee are kept into the village fund.

Admission Fee at Kuang Si Waterfall

For more than a decade, admission fee has been collected at major tourism sites in Luang Prabang. With some exceptions, Tourism Division of Provincial Department of Information, Culture and Tourism used to collect the admission fee. But recently, officers from Provincial Department of Finance take it turns to collect the fee at most of the tourist sites.

Kuang Si Waterfall is located near the Phoupheung-Phouphathoun Protection Forest Area at 29 kilometers from the center of Luang Prabang City. At the entrance of Kuang Si Waterfall, admission fee is collected, and the fee for Laotian is 10,000 kip while that for foreigner is 20,000 kip.

Before March 2015, Provincial Department of Information, Culture and Tourism collected admission fee and Provincial Department of Finance inspected every three months. At that time, collected fee was allocated to Provincial Department of Information, Culture and Tourism (10%), Provincial Treasury (10%), salary of the staffs working at Kuang Si Waterfall (10%) and the remained 70% went to the government.

Since March 2015, two officers from Treasury and State Asset Divisions of Provincial Department of Finance directly collect admission fee. All the collected admission fee is sent to Provincial Treasury. Sales of ticket is input by using barcode system at the site, and the data is immediately shared with the Provincial Department of Finance in Luang Prabang City.

Division of Tourism under the Provincial Department of Information, Culture and Tourism submits proposal to the Provincial Governor's Office for necessary budget used for maintenance of tourism sites.

Management of Kuang Si Waterfall

Tourism site at Kuang Si Waterfall covers about 16 hectare of forestland belonging to District Conservation Forest Area. A team of 12 staffs hired by Provincial Department of Information, Culture and Tourism work for cleaning, maintenance of facilities and equipment, keeping security, etc. at the tourism site. When some facilities or equipment are broken, the management team reports to Provincial Department of Information, Culture and Tourism. The Department informs to Provincial Department of Finance and the Department of Finance allocates the necessary budget.

No forest conservation activity is conducted as the Kuang Si Waterfall Management Office understands that there is no violation such as cutting trees or slash and burn cultivation in the area.

(2) Ecotourism Business in Luang Prabang

Green Discovery Tour

Green Discovery Tour was established in Vientiane in 2001 as the first company to provide adventure activities as well as ecotourism in Laos. Luang Prabang Branch was set up in 2004 and currently 14

staffs work in the branch.

Tourism products of the Luang Prabang Branch consist of trekking (60%), kayaking (15%), cycling (15%) and rafting (7%). Rafting was provided at Nam Ou River but has been halted as the water level is too low because of the newly constructed Nam Khan 2 and 3 Hydropower Dams.

Main trekking routes for the branch is as follows.

① Long Lao 1 and 2 (Hmong and Khmu villages) – Kuang Si Waterfall
About half of the trekking tourist walk the route from Long Lao 1/2 Villages to Kuang Si Waterfall. This area is located in the PP-PPT Protection Forest Area and has been keeping good condition for trekking since the Luang Prabang Branch opened in 2004.

② Left Bank of Pak Ou River (Na Kho – Pha Tung Area)
This trekking route is located on the left bank of Pak Ou River. About a quarter of trekking tourists of the branch visit are dropped on the way to Phapong Village and walk to Nam Ou River. This area is categorized as District Protection Forest. The company receives more than 50 ha of land concession in the protection forest area at about US$20 per hectare per year. The concession period is 30 years and now is the 6 – 7th year. The company borrows the place for the purpose of setting up tree houses and zip-line facilities, which does not harm to the forest. But the facilities has not been set up and the concession area is just used for jungle trek. The company has zip-line in Vang Vieng (and normal camping) and zip-line (the biggest in Laos) and tree houses in Paksong, Champasack. Green Discovery Tour expects the area will not be developed because it belongs to District Protection Forest.

③ Right Bank of Pak Ou River (Houay Lo – Pha Pheung – Mok Chong – Hi Vang)
About 15% of trekking tourists visit this route on the right bank of Pak Ou River. This route is newly developed a couple of years ago. The area does not belong to protection or conservation forest areas.

The Luang Prabang Branch develops one or two new trekking routes every year because most of the rural areas are constantly changing in their landscapes. For example, roads change from small trail suitable for trekking and biking to paved road. Villages also change dramatically by electrification and become unauthentic. Thus, conservation and protection forest areas are attractive for the tourism companies to invest in ecotourism facilities. Although using District Protection Forest as concession land, the company pays only concession fees and does not contribute funds of 1% (one percent) from the annual incomes as stipulated in the Decree on Protection Forest.

Lao Outdoor Adventure and Ecotourism

Founder of Lao Outdoor Adventure and Ecotourism (Lao Outdoor) used to work as a staff in Green Discovery for a decade and established his own company in Luang Prabang in 2014. The company currently has 12 staffs in Luang Prabang Office and 6 staffs in Nong Kiaw of Ngoy District in Luang Prabang Province. The company offers ecotourism products including trekking, kayaking, cycling and study tour.

Lao Outdoor has 34 hectare of land concession in two villages of Nong Kiaw area for 30 years and set up zip-line. The company pays US$100 per hectare per year. This concession land is not categorized as conservation or protection forest area. The villagers are prohibited to conduct slash and burn cultivation or cutting trees while allows them to harvest Non-Timber Forest Products such as bamboo

shoots, mushrooms and other wild fruits and vegetables. The company has another concession land in Pak Ou District.

Tiger Trail Outdoor Adventures

Tiger Trail Outdoor Adventures (Tiger Trail) is one of the major tourism companies offing ecotourism products in Luang Prabang. Ecotourism sites of the company spread over 6 villages – Xianglom, Phongsavat, Houayfay, Houay Yen, Souandala and Ean in Luang Prabang and Xieng Ngun Districts.

Since 2008, Tiger tour and more than ten travel agents that purchase ecotourism products from the company collects US$2 from each customer for contributing village funds in the 6 villages. The fund is used for building clean toilets, digging new wells as well as training for cooking, serving and local guides. The company calls these activities as 'fair trek' and these activities contribute to the villages as well as enhancement of the customer's experience. The company has no land concession for the business and there are no activities for forest conservation.

Other Tourism Companies Utilizing Concession Land in Forest Area

Luang Prabang Travel and Tour received concession of Tad Sae Waterfall in 2007. The concession area is 15 hectare and belongs to the District Conservation Forest. The concession period is 25 years. The president of the company claims that the company is too small to implement any forest conservation activities. There are 2 restaurants, 1 coffee shop, 1 zip-line and elephant camp.

Lao Green Group possesses more than 10 ha of forestland concession and provides ecotourism products such as zip line in Pak Leuang Village of Chomphet District. The forest belongs to District Treasury and the company pays concession fee to the district government.

3.3. Power Generation Project and Environmental Obligations

(1) Nam Dong Hydropower Dam

Nam Dong Hydropower Station was built by French in 1971 for supply electricity in Luang Prabang City. In 1992, the grid from Nam Ngum 1 was connected to Luang Prabang by 115 kV transmission line. In 2016, EDL implemented overhaul of hydropower system in Nam Dong by using the government budget.

Even after power generating sector has been separated from EDL as EDL Gen, all the power stations with more than 1MW of installed capacity are still under the management of EDL. Installed capacity of Nam Dong Hydropower Station is 1MW and the station is managed by EDL Luang Prabang Branch.

Catchment area of Nam Dong Hydropower Station is within the Phoupheung-Phouphatheun Protection Forest Area. Nam Dong Hydropower Station requests the villagers living in the catchment area – Xieng Muak and Houay Thong Villages – to preserve the forest and not to cut big trees. The power station hopes to plant trees in the catchment area in the two villages but they cannot force the villagers to plant trees as most of the lands suitable for tree plantations are privately owned by these villagers.

Slash and burn cultivation is still conducted in the villages located in the catchment area. Corns and watercress is grown at commercial basis in Xieng Muak Village. The watercress is gown in the water by building many small dykes to keep the water level high so the sediment flows into the reservoir.

However, the power station cannot prevent the villagers from such agricultural practices because these are their livelihood for a long time. Only commercial pig and chicken farms are not allowed in the upstream area.

(2) Hongsa Lignite Power Station

Hongsa Lignite Power Station is located in Sayaboury Province and sends electricity to Thailand through Luang Prabang Province. The company, therefore, cleared forests along electric transmission line in Xieng Ngun, Luang Prabang and Chomphet Districts. As compensation for the clearance of forests, the company annually supports tree plantations in the three districts at average 3 – 4 hectares in each district. In 2007, the company supported 10 hectares of tree plantation in Yang Village of Luang Prabang District, which is located in outskirt of Phoupheun-Phouphatheun Protection Forest Area as suitable land for tree plantation could not be found in Xieng Ngun and Chomphet Districts.

(3) Mekong Sayabuli Hydropower Dam

Mekong Sayabuli Hydropower Dam is a Lao-Thai JV Project and currently under construction on Mekong River between Sayaboury and Luang Prabang Provinces. The project has US$4 million of budget plan for the activities including (1) establishment and strengthen of a committee for the watershed management, (2) survey and collecting information on the forest, land use and socio-economic status, (3) formulation of watershed management plan, (4) watershed management, maintenance and development, as well as (5) office management fee. A provincial officer claims that approximately USD1 million is expected to allocate for watershed management in Luang Prabang Province during the whole project period.

(4) Nam Khan 2 and 3 Hydropower Dams

Nam Khan 2 (130MW) and Nam Khan 3 (60 MW) Hydropower Dams completed in 2015 and in 2016 respectively. Both projects are 100% invested by the Government of Laos with a preferential loan from the Chinese Government, and managed under EDL-Generation Public Company (EDL-Gen). EDL-Gen is responsible for the implementation of environmental and social safeguard measures based on the Environmental Management Plan (EMP) and Watershed Management Plan (WMP).

However, it is said that the EMP and WMP are inadequate and these plans have not been fully implemented. According to a provincial officer, EDL-Gen are currently revising the EMP and WMP as well as other documents.

(5) Nam Ou 1, 2, 3 Hydropower Dams

Sinohydro is a Chinese state-owned hydropower engineering and construction company. Nam Ou 1, 2 and 3 Hydropower Dams are joint venture projects of EDL-Gen and Sinohydro. Nam Ou 2 Dam (130MW) in phase 1 was completed in 2015, while Nam Ou 1 and 3 Dams (180MW and 210 MW respectively) in phase 2 are under construction.

In Nam Ou Hydropower Project, the company has obligations to pay for the forest conservation and rehabilitation activities including forest surveys and monitoring, forest rehabilitation and biodiversity protection.

In the phase 1 or Nam Ou 2 Hydropower Dam construction, Provincial Department of Natural Resources and Environment (PONRE) worked as Environmental Management Unit (EMU) while Provincial Department of Energy and Mines took responsibility as Resettlement Management Unit (RMU). The responsibility for RMU has been transferred from Department of Energy and Mines to

PONRE in the 2nd phase of Nam Ou Hydropower Project.

(6) Nam Ngum 5 Hydropower Dam

Nam Ngum 5 Hydropower Project is also jointly invested by the EDL-Gen (15%) and Sinohydro (85%). The installed capacity is 120 MW and began commercial operation in 2012. The project is located on the Nam Ting River, which is one of the main tributary of Nam Ngum River. In accordance with Decree on the Environmental Impact Assessment, the Environmental Management Plan (EMP) was prepared in order to specify mitigating and monitoring measures in the fields such as air quality, soils, wildlife, water quality, etc. during design and construction phases as well as during the operation phase.

Nam Ngum 5 Environment Management Committee (NN5 EMC), which consists of officials from key provincial government agencies of the Luang Prabang and Xiengkhouang Provinces as well as from relevant ministries of the central government has been set up as a government agency. In addition to NN5 EMC, Environmental and Social Management Division (ESMD), which is responsible for overall planning, implementation of the environmental management, resettlement for the project and coordination with local authorities as well as the affected households has been established within the project. According to the EMP, reforestation of degraded areas during the operation phase will be implemented by the ESMD of Sinohydro Company as well as PAFO and DAFO[4].

In 2016, the project informed to PAFO Luang Prabang that it would implement the reforestation and the role of PAFO and DAFO would be inspection for the reforestation. But as of May 2017, no budget has been disbursed from the project for the inspection activities.

[4] Sinohydro (2007), *Nam Ngum 5 Hydropower Project, Update of Environmental Management Plan (EMP)*, Sinohydro Corporation and Dongsay Company Ltd., September 2007.

4. Outcomes and lessons learned from advanced cases of PFES schemes

4.1. Major Hydropower Dams

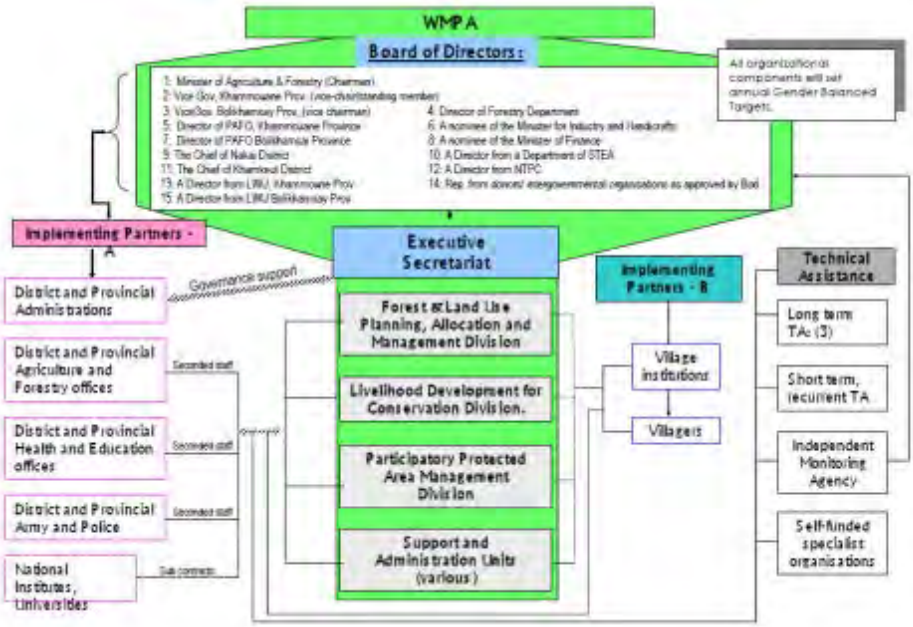
(1) Nam Theun 2 Hydropower Dam

Nam Theun 2 Hydropower Dam is invested by two private stakeholders and the Lao Government, and partly financed by the international financial institutions such as World Bank (WB) and the Asian Development Bank (ADB). The Nam Theun 2 Hydroelectric Plant started the commercial operation in 2010.

Watershed catchment area of the Nam Theun 2 Hydropower Dam is 4,025 km2, spreading from the middle to upper streams of Nam Theun River. The Nakai Nam Theun National Protected Area and its two corridors lie entirely within the watershed.

Watershed Management and Protection Authority (WMPA), which is a special purpose government entity chaired by the Minister of Agriculture and Forestry, responsible for the management of the conservation in the Nam Theun 2 watershed area as well as villagers' livelihood and community development. WMPA formulated the Social and Environmental Management Framework and Operational Plan (SEMFOP) as a management framework and operational plans to effectively protect the watershed, and its forests, habitats, wildlife, biodiversity, and safeguards of the people living in the watershed area.

A government official says that Nam Theun 2 Power Company has an obligation to contribute USD 3.5 million of funds to the EPF from 2010 to 2015 in CA, but is immune from the contribution to EPF. Instead, the company has been contributing to WMPA USD 1 million per year in order for the authority to implement SEMFOP. Baseline setting, institutional arrangements, management planning, program activities and budget framework for the operation of the WMPA are described in the SEMFOP. Organizational structure of WMPA and implementing partners are shown in Figure 4.



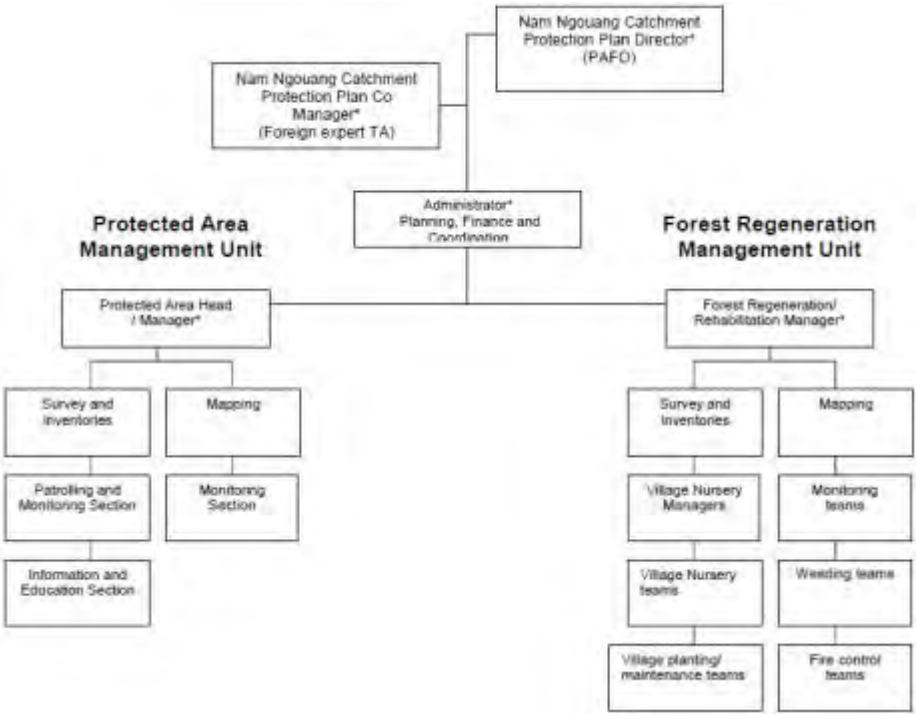
Source: Nam Theun 2 WMPA (2005), *SEMFOP-1, Part 6 Institutional and Management Framework*, p.5

Figure 4　Organizational Structure of WMPA and Implementing Partners

(2) Theun-Hinboun Expansion

Thuen-Hinboun Power Company (THPC) was established by the investments of three companies, and partly financed by the Asian Development Bank (ADB). Installed capacity of the original project was 220 MW and commercial operations began in 1998. The original project was so successful that THPC had decided to expand its generating capacity with additional 280 MW. Another reason for the expansion is that the construction of the Nam Theun 2 dam upstream on the Nam Theun could reduce the power generation at Theun Hinboun. Therefore, the expansion of the Theun Hinboun facilities partly aimed at mitigating the reduced water available and the resulting decline in power generation[5]. The Expansion Project was completed and started commercial operation in the early 2013.

As the Expansion Project required the resettlement of twelve villages from the reservoir area, THPC set up a new Social and Environmental Division (SED) to implement a wide range of programs designed to improve the living conditions of the people and to protect its environment in the watershed area. THPC developed Environmental Impact Assessment (EIA) and Environmental Management and Monitoring Plan (EMMP) as well as Resettlement Action Plan (RAP) in accordance with Asian Development Bank safeguard policies and the Equator Principles.



Source: THPC (2008), Theun Hinboun Expansion Project: Final EIA/EMMP, p.11-3
Note: Government organizations in the figure are as of 2008.

Figure 5　Organizational Structure for Catchment Biodiversity Development and Protection Plan

THPC has primary overall responsibility to carry out the EMMP and set up Social and Environmental

[5] THPC (2008), *Theun Hinboun Expansion Project: Final EIA/EMMP*, April 2008, p.1-1

Division (SED) for the purpose of the social and environmental monitoring and management programs. The SED is responsible for all social and environmental activities and work in close cooperation with the government organizations.

The EMMP has two programs for the biodiversity protection and development in the catchment area – (1) Provincial Protected Area Program, and (2) Forest Regeneration/ Rehabilitation Program. The first program intends to create Nam Gnouang Provincial Protected Area, a new Provincial Protected Area in Bolikhamxay Province. The latter program aims at regeneration and rehabilitation of the forest in the Nam Gnouang catchment area, where degraded land, secondary re-growth and old upland field in various stages of fallow are widely spread at the moment. The proposed organizational structure for these two programs is shown in figure 5.

Budgets for (1) Provincial Protected Area Program, and (2) Forest Regeneration/ Rehabilitation Program are USD 200,000 and USD 150,000 per year respectively after Commercial Operation Date (COD). The project also has budgets for these two programs at lesser amount during the construction period.

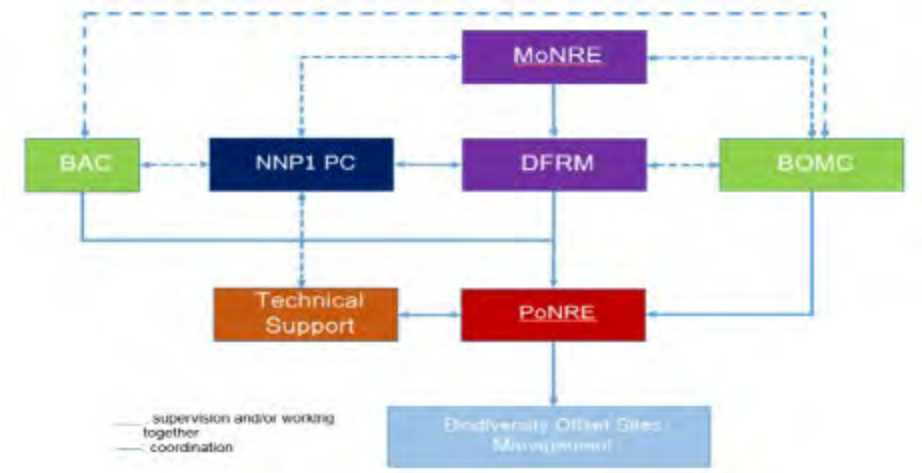
According to EMMP, THPC provides a contribution to the Environmental Protection Fund (EPF) of USD 200,000 per year after COD. Approximately 50% of the THPC's contribution to the EPF is earmarked to use additionally for the conservation programs in the vicinity of the project, such as the reforestation and conservation activities in the EMMP.

(3) Nam Ngiep 1 Hydropower Dam

Nam Ngiep 1 Hydropower Project is a Joint Venture of Kansai Electric Power of Japan, EGAT International of Thailand and the Lao Holding State Enterprise. The project will build two dams on the Ngiep River in Bolikhamxay, thereby creating a 70 km2 reservoir that will supply water to the plant's two power stations with 290 MW of installed capacity. The total catchment area is 4,495km2 and is composed of 33 tributaries (sub-catchment).

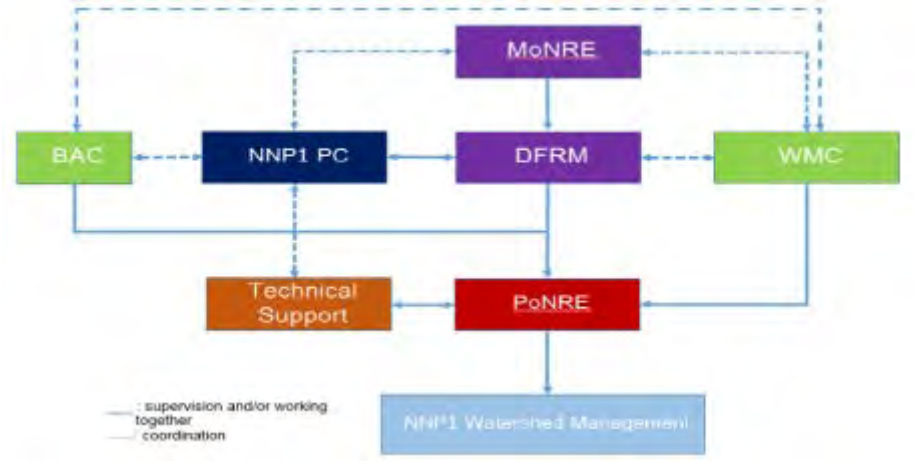
The Concession Agreement (CA) between the Government of Lao PDR and Nam Ngiep 1 Power Company (NNP1) signed in 2013 sets out the roles and responsibilities on the biodiversity conservation between the two sides. NNP1 provides financial and technical support to the Government for the preparation and implementation of biodiversity conservation while the Government takes necessary actions to ensure the prescribed measures including formalizing necessary biodiversity offset for both terrestrial and aquatic habitats, and effectively implements in accordance with the CA. NNP1 is contributing funding to protect the watershed around the reservoir for the four years of construction and throughout the 27-years concession period.

Biodiversity Offset Framework, which is developed by DFRM/MONRE in cooperation with NNP1, outlines necessary arrangements to implement actions for protection and development biodiversity in the Nam Ngiep 1 Watershed Area. The Framework consists of two actions; those are (1) Biodiversity Offset and (2) Biodiversity Conservation in Nam Ngiep 1 Watershed Management. Institutional structures proposed in the Biodiversity Offset Framework are shown in Figure 6 and 7.



Source: DFRM/MONRE (2015), *Nam Ngiep Biodiversity Offset Framework (update)*, p.8
Note: Government organizations in the figure are as of 2015.

Figure 6 Organizational Structure for Biodiversity Offset Sites Management



Source: DFRM/MONRE (2015), *Nam Ngiep Biodiversity Offset Framework (update)*, p.10
Note: Government organizations in the figure are as of 2015.

Figure 7 Organizational Structure for Watershed Management

In 2014, Nam Ngiep 1 Watershed Management Committee was established in order to supervise the preparation and implementation of watershed management as well as the biodiversity offset program. The committee is co-chaired by Vice Governor of Xaysomboun Province and the BolikhamxayGovernor, Deputy Chaired by the Head of PONRE in Xaysomboun and Deputy Head of PONRE in Bolikhamxay Province, and comprised of related provincial departments and governor of concerned districts.

NNP1 has a plan to provide the government with a total USD 3,872,000 for the biodiversity offset program and a total USD 6,550,020 for the Watershed Management Fund, which is managed by the Nam Ngiep 1 Watershed Management Committee. In addition, the company will directly incur

expenditures for biodiversity offset and watershed management in amount of USD 2,176,920. Furthermore, the company shall contribute a total USD 990,000 to the Environmental Protection Fund (EPF). The fund provided by the company will be used for the biodiversity conservation and watershed management activities in Bolikhamxay and Xaysomboun Provinces[6].

4.2. National Protected Area Supported by Foreign Donor Projects

(1) International Donors and Ecotourism Projects in NPAs

Since the 1990s, the international donors have implemented various ecotourism projects in NPAs in cooperation with Department of Tourism or former Lao National Tourism Authority (LNTA). Major ecotourism projects in NPAs supported by the international donors are as following.

① Nam Ha Ecotourism Project – UNESCO/ Government of New Zealand
② Nam Et Phou Louey NPA – WCS/ Global Environmental Facility (WB)
③ Phou Xang Hae Ecotourism Project – SNV Netherlands Development Organization
④ Phou Khao Khouay Tourism Development Project – DED (Precursor of GIZ)
⑤ Xe Pian NPA Ecotourism Project – ADB

These projects aim to conserve biodiversity and traditional culture while generating adequate income to the local people.

(2) Nam Ha NPA in Luang Namtha Province

Forest conservation efforts in Nam Ha area dates back to 1980, when the area was identified as the provincial protected area. In 1993, Nam Ha area was declared as NPA by the Prime Minister's Decree No. 164/1993.

Nam Ha Ecotourism Project, which is the first and longest ecotourism project in Laos, was launched in 1999 with technical assistance by UNESCO as well as financial support mainly from the Government of New Zealand. During the phase 1 from 1999 to 2001, the project developed a model for sustainable ecotourism by a series of guidelines and practices that sought to maximize the benefits of ecotourism for both the provincial stakeholders and the target communities.

In the phase 1 of the project, Nam Ha NPA Trekking Permit was introduced and USD 1 per person per day is levied on all tours, whether or not they pass through the protected area. In Luang Namtha Districts, the trekking permit revenue are paid to the Provincial NPA Management Unit while the fees are paid to the District Agriculture and Forestry Offices (DAFOs) in Muang Sing and Vieng Phoukha Districts. These fees are used for conservation activities such as patrolling, trail maintenance and conservation awareness-raising activities in villages[7]. Thus, a portion of the trekking permit revenue is used to hire local villagers to implement these conservation and maintenance activities under the supervision of NPA managers[8].

However, in fact, the villages only receive benefits when they are visited by trekkers. Johnston (2011)

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[6] DFRM/MONRE (2015), *Nam Ngiep Biodiversity Offset Framework (update)*
[7] UNDP (2012), *Nam Ha Ecotourism Project, Lao PDR – Equator Initiative Case Study Series*, New York, pp.8 – 9.
[8] Chris Lyttleton (2002), *UNESCO-Lao National Tourism Authority Nam Ha Ecotourism Project, External Review*, UNESCO Bangkok

recommended that the protection of wildlife should be implemented in a broader landscape and not just village by village[9].

(3) Xe Pian NPA in Champasak Province

From 2006 to 2009, ADB implemented the Biodiversity Conservation Corridors Initiative (BCI) Pilot Phase on the forestland covering 32,000 hectare strip between the Dong Hua Sao and Xe Pian National Protected Areas in Champasak Province. Since 2011, Biodiversity Conservation Corridors (BCC) Project has been implemented as Phase 2 of the BCI Pilot Phase in the same area.

As a part of BCC Project, community based tourism (CBT) is developed and promoted in Kiat Ngong Village, which is located in Xe Pian NPA. CBT in Kiat Ngong Village supported by BCC Project aims to include as many families as possible in order to distribute income from tourism as fairly as possible. For each service provided in the village is a group that has a queue system for sharing the work. In Kiat Nhong Village there are service groups for ecotourism as following.

① Elephant group – there are 15 elephants in Kiet Ngong. 13 are owned by 13 different families and 2 are owned by the government. A total of 30 families benefit from revenues generated by the elephant tours.
② Guide group – there are 12 village guides in Kiet Ngong. Guides have been selected based on their knowledge on the forest.
③ Canoe group – approximately 30 families involved in providing canoe services.
④ Homestay group – There are 20 families in the homestay group.
⑤ Guesthouse group – There are 27 families in the guesthouse group. Their duties are to keep the bathrooms clean, prepare beds, clean the sheets, boil drinking for guests, and help service guests as needed.
⑥ Massage group – 10 people have been trained in traditional massage.
⑦ Cooking group – 10 families cook and serve at community guesthouse.

At the entrance of Xe Pian NPA, which is located at 5 – 6 kilometers from Kian Ngong Village, entrance ticket valid for 7 days is sold to foreigner at 20,000 kip per person and to Laotian at 5,000 kip. Collected money was allocated once a year based on the ratios signed by the Provincial Governor as following.

① 40% : Xe Pian National Protected Area Management Activities - Supports patrolling, checkpoints, ecosystem rehabilitation, biodiversity surveys, awareness raising and tourism development
② 30%: Village Conservation & Development Activities - Supports village conservation, patrolling units and small-scale village development projects that are linked to the goals of conservation
③ 10%: Administration and field Office Costs for Xe Pian NPA
④ 5%: National Heritage Management Fund
⑤ 5%: National General Budget
⑥ 5%: National Tourism Management Fund
⑦ 5%: Forestry Resources Development Fund

Annual income from the entrance fee used to reach at 100 million kip per year but has gradually decreased to 50 million kip per year in recent years.

Xe Pian NPA Management Activities, which shares 40 percent of total revenue, is mostly used for patrolling and tree sapling production.

[9] Leslie Johnson (2011), *Laos – National Route 3*, USAID, Washington

Patrol activity is implemented twice a month by two teams. A villager for the patrol is paid 50,000 kip per day. Purpose of the patrol is to find illegal logging. Shifting cultivation is not conducted in the area as the villagers own large paddy fields and this is their main income source. Fishing is another important income source for the villagers.

Xe Pian National Protected Area Management Office produces tree saplings with the villagers (Kian Ngong Village) and promotes tree plantation. Their tree plantation plan is more than 50 hectares a year. Xe Pian NPA spreads over 2 provinces 3 districts and 13 villages are located in the NPA. There are 90 villages in and surrounding area of Xe Pian NPA.

5. Lessons learnt and recommendations for future implementation of PFES in LPB Prov.

5.1. Ecotourism Sector

(1) Capability of Ecotourism Companies on PFES

Despite the statements on the contribution to funds from the entrepreneurs of the ecotourism business in the Decree of Conservation/Protection Forest, it is difficult to apply the obligation because of their business scale is much smaller and less affordable than the hydropower and mining companies. In addition, their ecotourism operation areas are changing year by year with a few exceptions as the development of roads and dams as well as electrification make the existing area improper as ecotourism site.

The exceptional cases are 1) a few well-preserved areas like the trekking route from Long Lao 1/2 to Kuang Si Waterfall, and 2) ecotourism operator's concession land to set up ecotourism facilities such as zip-lines and tree-houses.

(2) Admission Fee of Kuang Si Waterfall

The trekking route from Long Lao 1/2 to Kuang Si Waterfall is one of the most popular and long-used ecotourism sites in Luang Prabang Province as the area is well-preserved from various development pressures as part of Phoupheung-Phouphathoun (PP-PPT) National Protection Forest Area (NPTA).

At the entrance of Kuang Si Waterfall, officers from the Provincial Department of Finance directly collect admission fee and the fee is sent to Provincial Treasury. Expenditure of the collected fee is decided by the Provincial Governor's Office. Therefore, it is recommended for PAFO to negotiate for the usage of the fees collected at Kuang Si Waterfall for the rehabilitation and protection activities in PP-PPT NPTA.

In some NPAs such as Nam Ha and Xe Pian, various kinds of fees are collected from the visitors. At Xe Pian NPA, collected entrance fee is allocated based on the ratios signed by the Provincial Governor, and 40% is used for management activities of the NPA while 30% is spent for village conservation and development activities. At Phoupheung-Phouphathoun (PP-PPT) National Protection Forest Area (NPTA), the similar system might be able to be introduced by a decision at the provincial level.

(3) Concession Land in Conservation/Protection Forest Areas

Some tourism operators have concession lands in conservation and protection forest areas. Ecotourism facilities and equipment such as zip-lines and tree-houses are set up and provided for the visitors. The tourism operators currently just pay concession fees and have no contribution for management, maintenance and developments of the conservation and protection forests. Long-term maintenance of well-protected forests for the surrounding area is essential for the ecotourism operators to invest in the concession land. Therefore, the tourism operators that have concession land located in the conservation and protection forest areas should contribute the funds in accordance with the Decrees on Conservation/Protected Forests, and the government must secure not to allow any development activities and to preserve the concession land as well as its surrounding area in conservation or protection forest areas instead.

5.2. Hydropower and Water Supply Companies

(1) Hydropower Companies

Implementation of the Obligation in Decrees of Conservation/Protection Forest

As of the end of June 2016, 40 hydropower stations are in operation and additional 50 dams are expected to complete by 2020. Hydropower dams make not only great impact but also profits from forests in watershed area. Decree of Conservation Forest and Decree of Protection Forest state that hydropower companies have obligation to contribute to funds for reforestation to compensate for the loss of vegetation in Conservation and Protection Forest Areas. But in reality, a few hydropower companies contribute to funds despite the obligations stipulated in their CAs. Hydropower companies should implement their contribution to the funds as the stable water inflow to the reservoirs is a great benefit to them.

Disclosure of the Information on Assessment, Planning, Implementation and Monitoring

Decree on Environmental Impact Assessment (2010) make it obligatory for all the hydropower companies to develop Environmental Management and Monitoring Plan (EMMP) and Social Management and Monitoring Plan (SMMP) in a part of EIA. All the hydropower companies, therefore, prepare these plans to get permission to start the construction work. In general, hydropower projects financed by international financial institutions (IFI) like World Bank or Asian Development Bank develop detailed and well-structured plans. In addition, these hydropower projects have obligations to report and disclose the plans in accordance with the requirement from the lenders. Thus, it is recommended to oblige all the hydropower companies to disclose the information on assessment, planning, implementation and monitoring.

Expansion of MAF's Role in the Formulation of EIA

The Decree on EIA states that MONRE is responsible for providing technical guidelines on preparation of reports on the environmental impact assessment, environment management and monitoring plans (EMMP), and social management and monitoring plans (SMMP). However, this results in insufficient management and monitoring activities described in EMMP. At the stage of formulation of EIA as well as EMMP and SMMP of each hydropower project,.MAF should have more important responsibilities and roles including impact assessment on forests and biodiversity in EIA, formulation of plans for forest rehabilitation and maintenance as well as biodiversity protection and development in EMMP.

Strengthen the Inspection and monitoring by PAFO and DAFO

Implementation of EMMP and SMMP at construction and operation stages has the same tendencies that the hydropower projects backed by IFI implement their social and environmental obligations in more serious manner. All the hydropower companies should have obligations to develop and disclose monitoring reports regularly to the public. It is also important that PAFO and DAFO should take proactive role in implementation of environmental obligations, especially on biodiversity protection and development as well as rehabilitation and maintenance of the protection and conservation forest areas. All the hydropower companies should pay to the government in order to implement these activities in accordance with the EMMP and SMMP. PAFO and DAFO are, of course, required to spend the received fund correctly and to open the information.

More Benefit Sharing with the Local Residents

Environmental and social obligations of the hydropower projects should planned and implemented for the purpose of bringing more benefits to the local residents living in the watershed area as well as

along the downstream of the dam. The local residents living in the watershed area shall be prohibited from cutting trees or shifting cultivation, and are to be provided livelihood options for agriculture, reservoir fisheries and animal husbandry in return. In addition, the hydropower companies need to make efforts for the local residents to involve and gain incomes from the programs such as forest rehabilitation and maintenance as well as biodiversity protection and development, which are implemented in a part of their environmental and social obligations.

(2) Water Supply Company

Luang Prabang Water Supply Enterprise (LPWSE) has two water treatment plants (WTP) in Phoupheng-Phouphathoun National Protection Forest Area. These WTPs are allocated total 2,677 hectares of the protection forest as water source forests, and manage the forests in a very efficient and effective way. This model can be expanded to the whole Phoupheung-Phouphathoun (PP-PPT) National Protection Forest Area (NPTA).

Separate Volume

2-19 Ex-Post Monitoring of Participatory Land and Forest Management Project for Reducing Deforestation and Degradation (PAREDD)

Ex-Post Monitoring of Participatory Land and Forest Management Project for Reducing Deforestation and Degradation (PAREDD)

August 2016

I. Project outline

PAREDD is a technical cooperation project between the government of Lao PDR and Japan International Cooperation Agency (JICA), launched for developing a "System for Reducing Deforestation" through participatory land and forest management. This system is an approach to mitigate deforestation and forest degradation at village and village cluster levels in Northern Laos. Specifically, PAREDD aims to address the current threats to forests in Northern Laos by developing a participatory land and forest management system (PAREDD approach). These threats are increasing shifting cultivation and expansion of commercial crop cultivation. By its description, PAREDD is fundamentally a REDD+ project.

II. Duration of the project

August 2009 – August 2014 (with one year extension up to August 2015 for consolidation).

III. Project sites

Four (4) villages in Xiengngeun district and five (5) villages in Phonxay district, Luang Prabang province.

IV. Project purpose

A system of reducing deforestation and degradation, contributing to REDD+, is developed through participatory land and forest management.

V. Activities of the project

Type 1 activities (activities for forest management and rehabilitation)
Type 2 activities (activities for livelihood improvement of the local people)
Type 3 activities (activities for village development/small village infrastructure)

VI. Ex-post monitoring site

Four villages surrounding "Phouchomngae" district conservation forest area, Xiengngeun district, Luang Prabang province.

1) Ban Houaykhot
2) Ban Nakha
3) Ban Paktho
4) Ban Houaykhong

VII. Results of monitoring

- [**Ban Houaykhot**]

Type 1 activities

Item	Details	Planting	Area	Remained at present
1	Tree for reforestation (May Somfard)	11 saplings	0.02 ha	
2	Fruit tree (Avocada, lychee,		0.54 ha	~ 70 trees

	longan, jackfruit…)			

Questions & Answers

1) Q: Does village have plan to plant more trees?
   A: *No, because no more places for planting. The village is requesting district to allocate more land but no reply yet.*

2) Q: Planting long-term tree and fruit tree, which one is better?
   A: *Both are good but no place for more planting.*

3) Q: Which fruit trees are suitable for this area?
   A: *The fruit trees which have been planted such as avocado, lychee, longan are suitable except jackfruit.*

4) Q: Did all villagers join in caring the planted trees?
   A: *Yes, they did.*

5) Q: What are the problems so far with the long-term tree and fruit trees which have been planted?
   A: *No problems.*

Type 2 activities

Item	Details	Participants from beginning	Remained at present	Remarks
1	Chicken raising group	13 Households (HH) (260 heads)	15 HH plus (1,800 heads)	Already revolved
2	Pig raising group	5 HH (8 heads)	10 HH (46 heads)	As of March 2016
3	Goat raising group	6 HH (12 heads)	36 heads	8 HH still could not pay back
4	Fish rearing group	3 HH		Switched from chicken raising and frog at first to fish and pig raising now
5	Paddy field expansion	6 HH		Very high risk for floods which occurred almost every year

Questions & Answers

1) Q: To what extent the activities can contribute to improve livelihood?
   A: *Not much but when in need they can sell their livestock for money.*

2) Q: What is an appropriate activity in terms of effectiveness, efficiency and sustainability?
A: *Livestock raising is appropriate and can be sustained because villagers know how to raise since a long time.*

3) Q: What are the difficulties and pending issues?
A: *Chicken disease.*

4) Q: What are the reasons for success and failure?
A: *Reason for success is loan taker can pay back to the fund.*

5) Q: Does the benefit reach all households in the village? Why?
A: *No, not yet because the money is not enough.*

Type 3 activities

Item	Details	Present condition	Repair	Source of funding
1	Roofing of village meeting hall	Good		PAREDD provided
2	Wiring (installation of electricity) of meeting hall			From village fund
3	Community speaker			From village fund

VVS (Village Veterinary System)

VVS failed. The organizational structure dissolved. The VVS fund discontinued as well. The refrigerator for keeping vaccines and medicines is now in the house of the village deputy head.

Villagers are now going back to their traditional way of raising livestock such as using limestone and local herb (ເຄືອຂົ້າຮໍ/Kheuakhaohor) for disease prevention and treatment.

However, there are three VVS workers who have been trained before still remained in the village and whenever someone needs help they can provide the service, particularly when animals get sick only.

VDF (Village development Fund)

VDF is functioning well. There are now total 40,092,000 Kips in the fund with 7 million plus in cash. According to the village deputy head whom we interviewed, she said that they strictly follow the rule and regulations of the fund.

Loans released are mainly for livestock raising, growing crops and small trade (retail shop) in the village.

New activities using the money from VDF are i) small trade, ii) buying equipment (speaker) and

iii) installation of electricity to the meeting hall.

Needs of villagers:

1. More land for cultivation.
2. Grazing area (ສະນ່ຳ/Sanum) for goats. Now, goats are let roaming freely in the village.
3. Food processing for women.
4. Large scale pig raising in group (pig farm).
5. Office for village authorities (now using village meeting hall as office).

Observations/findings:

1. Paddy field expansion is high risk because most of the locations that are available for expansion are low-lying places which flood occurred almost every year.
2. No family engaged in shifting cultivation in Phouchomngae conservation area.
3. Poor household no longer existed in the village.
4. Villagers stick to their traditional way of raising livestock, they do not care about vaccination and they are not willing to pay for the vaccines and service.
5. Revolving fund is functioning well thanks to the strong Village Land and Forest Management Committee (LFMC) and strong village leadership. In addition, Houaykhot village has long experience with village fund and used to be "model
6. village" in terms of village development fund in the past.

[**Ban Nakha**]

Type 1 activities

Item	Details	Planting	Area	Remained at present
1	Tree for reforestation	660 saplings	1.5 ha	300 (360 died)

Questions & Answers

1) Q: Does village have plan to plant more trees?
   A: *Yes, the village has plan to plant only some more trees around the village meeting hall because there are no more vacant communal land in the village.*

2) Q: Planting long-term tree and fruit tree, which one is better?
   A: *Fruit tree planting on individual household basis because no village communal land.*

3) Q: Which fruit trees are suitable for this area?
   A: *Lychee, rambutan and chico fruit.*

4) Q: Did all villagers join in caring the planted trees?

A: *Yes, they did. Villagers choose "ວັນສິນ/Wansin" (buddist day) as the day for village collective work.*

5) Q: What are the problems so far with the long-term tree and fruit trees which have been planted?
A: *No problem with the long-term trees which have been planted because they are grown up now.*

Type 2 activities

Item	Details	Participants from beginning	Remained at present	Remarks
1	Pig raising group	56 heads (12 HH)	17 heads	With total income of ~46 million Kips from sales of 32 heads, 5 for consumption and 22 died
2	Goat raising group	36 heads (5 HH)	26 heads	With total income of 25,600,000 Kips from sales of 30 heads, 4 for consumption and 17 died

<u>Questions & Answers</u>

1) Q: To what extent the activities can contribute to improve livelihood?
A: *The activities can contribute to a certain extent, particularly when they get sick they can sell their livestock for treatment or send their children to school.*

2) Q: What is an appropriate activity in terms of effectiveness, efficiency and sustainability?
A: *Pig and goat raising and paddy field cultivation are most appropriate because villagers has long tradition of raising and animal feed can be easily sourced from the locality. Paddy field cultivation can bring higher yield.*

3) Q: What are the difficulties and pending issues?
A: *When it comes to the payback date, some loan takers did not like to pay.*

4) Q: What are the reasons for success and failure?
A: *Some loan takers did not use the money for the specified purpose and some run away with debt.*

5) Q: Does the benefit reach all households in the village? Why?
A: *Could revolve to 5 households only.*

Type 3 activities

Item	Details	Present condition	Repair	Source of funding
1	Village meeting hall	Roof damaged	Roof	Spent 420,000 Kips

		by termites		for repair from village collected money

VVS (Village Veterinary System)

VVS was in a disorganized state and finally failed. Villagers did not use VVS service, they said payments for vaccines, medicines and service fee were too high.

Same as in Houaykhot village, three VVS workers who have been trained are available for providing service when in need.

VDF (Village development Fund)

VDF is not functioning well and cannot be maintained. Reason of which is: when it came to the payback terms loan takers did not sell their livestock to get cash in order to pay back to the fund. As a result, the households who are on waiting list could not get the money for continuing the activity. Some could not pay back, some run away and in a special case the loan taker died.

There seemed to be no new loan requests from the VDF anymore.

According to the VDF book keeping records, as of March 2016 the money remained with pig raising group is 33,224,000 Kips and goat raising group 19,600,000 Kips.

Needs of villagers:

1. Funds for raising livestock and growing crops, unfortunately VDF could not help.
2. More land.

Observations/findings:

1. Poor management of LFMC and no accountability.
2. Weak village leadership because of change of the village head.
3. Villagers did not respect LFMC and village leaders because 60% of loan takers from the beginning were from LFMC and village authorities themselves.
4. Lack of sense of ownership, villagers think that this is the responsibility of the project and when the project ended nobody took care of it.

- [**Ban Paktho**]

Type 1 activities

Item	Details	Planting	Area	Remained at present
1	Fruit tree plantation	80 saplings	0.20 ha	Number is same

				and the trees already produced fruits
2	Tree around school	100 saplings	0.08 ha	100 trees

Questions & Answers

1) Q: Does village have plan to plant more trees?
   A: *Yes, the village wants to plant more fruit trees around the school for making fence.*

2) Q: Planting long-term tree and fruit tree, which one is better?
   A: *Fruit trees are better.*

3) Q: Which fruit trees are suitable for this area?
   A: *Pomelo, longan and rambutan.*

4) Q: Did all villagers join in caring the planted trees?
   A: *Village collects money and appoints some villagers to take care.*

5) Q: What are the problems so far with the long-term tree and fruit trees which have been planted?
   A: *No problems.*

Type 2 activities

Item	Details	Participants from beginning	Remained at present	Remarks
1	Pig raising group	24 heads (7 HH)	85 heads	With total income of ~15 million Kips from sales of 20 heads, 10 for consumption and 20 died
2	Goat raising group	42 heads (8 HH)	100 heads	With total income of ~80 million Kips from sales of 100 heads, 10 for consumption and 20 died
3	Fish rearing group	1,000 fries (2 HH)	Unknown	With total income of ~1 million Kips from sales of 50 kg of fish, and some for consumption
4	Frog raising group	1,500 young frogs (5 HH)	~800 died	

Questions & Answers

1) Q: To what extent the activities can contribute to improve livelihood?
   A: *Villagers can earn money from selling their livestock and improve their livelihood.*

2) Q: What is an appropriate activity in terms of effectiveness, efficiency and sustainability?
   A: *Pig and goat raising.*

3) Q: What are the difficulties and pending issues?
   A: *Grazing area for goats and disease outbreak.*

4) Q: What are the reasons for success and failure?
   A: *Pig and goat raising was a success due to experience of villagers while fish and frog raising was a failure due to no experience.*

5) Q: Does the benefit reach all households in the village? Why?
   A: *No, due to limited funds and non-compliance with the rule and regulations.*

Type 3 activities

Item	Details	Present condition	Repair	Source of funding
1	Chairs for village meeting hall	Some damaged (broken)	Because of plastic chair, could not be repaired	

VVS (Village Veterinary System)

Four VVS workers have been trained, now remained two. Most of the vaccines and medicines supported by PAREDD were expired because of non-use.

VVS service did not function well due to unwillingness of villagers. At the time of interview, there is a total of 300,000 Kips cash in the VVS fund.

VDF (Village development Fund)

VDF is functioning as normal and still can be maintained, for instance, the pig raising group got 14 million as loans and could pay back to the fund 14,882,000 Kips (incl. interest). Also, goat raising group received 22,400,000 Kips and could pay back 23,696,000 Kips.

The total amount of VDF at present is 49 million Kips.

Fish and frog raising activities did not produce positive results. No records of paying back.

Needs of villagers:

1. Need more funds for expanding livestock raising, especially pig and goat.

Observations/findings:

1. LFMC is still in its shape.
2. VDF functions well.
3. The only problem for Paktho village is VVS service, they could not do their job properly but not their fault.

[**Ban Houaykhong**]

Type 1 activities

Item	Details	Planting	Area	Remained at present
1	Fruit tree plantation	310 saplings	0.26 ha	152 due to drought

Questions & Answers

1) Q: Does village have plan to plant more trees?
A: *Yes, villagers want to plant more fruit trees.*

2) Q: Planting long-term tree and fruit tree, which one is better?
A: *Fruit trees are better.*

3) Q: Which fruit trees are suitable for this area?
A: *Pomelo and mango.*

4) Q: Did all villagers join in caring the planted trees?
A: *Yes, village joined in caring the fruit trees which planted.*

5) Q: What are the problems so far with the long-term tree and fruit trees which have been planted?
A: *No problems.*

Type 2 activities

Item	Details	Participants from beginning	Remained at present	Remarks
1	Chicken raising group	12 HH	15 HH	Paid back to VDF ~9 million Kips
2	Pig raising group	57 heads (14 HH)		Already revolved 2 rounds, paid back ~12 million Kips
3	Goat raising group	48 heads		Already revolved,

		(24 HH)		paid back ~29 million Kips
4	Food processing group (women' activities)	11 HH	3 HH (doing individually)	Dissolved

Questions & Answers

1) Q: To what extent the activities can contribute to improve livelihood?
   A: *Villagers can generate income for improving their livelihoods, particularly pig and goat raising because they have proper grazing areas.*

2) Q: What is an appropriate activity in terms of effectiveness, efficiency and sustainability?
   A: *Pig and goat raising.*

3) Q: What are the difficulties and pending issues?
   A: *Disease outbreak.*

4) Q: What are the reasons for success and failure?
   A: *- Pig and goat raising was a success due to availability of grazing areas.*
   - Women' activities, the food processing failed because it generated too small Income for each individual group member. Some members then changed to do other activities, for example, growing vegetables which they can earn more. Now, there are still 3 members remained and they continue to do but individually on their own not stay in group like before.

5) Q: Does the benefit reach all households in the village? Why?
   A: *The revolving fund is very beneficial and well functioning, so far it could reach 70% of total households in the village.*

Type 3 activities

Item	Details	Present condition	Repair	Source of funding
1	Renovation of village meeting hall	Good	Because of plastic chair, could not be repaired	
2	Chairs	Some broken	Wooden chairs could be repaired, plastic ones could not	Spent 300,000 Kips from VDF

VVS (Village Veterinary System)

Three VVS workers have been trained, now remained two. Most of the vaccines and medicines supported by PAREDD were expired because of non-use.

Two VVS workers have been idle for quite long time. No stock of medicines in the refrigerator. In case of sickness, villagers can easily buy from Xiengngeun for treating their animals because the village is near.

The VVS fund is not dissolved but does not grow either because no activities.

VDF (Village development Fund)

VDF is functioning as normal and still can be maintained, for instance, the pig raising group got 14 million as loans and could pay back to the fund 14,882,000 Kips (incl. interest). Also, goat raising group received 22,400,000 Kips and could pay back 23,696,000 Kips.

The total amount of VDF at present is 49 million Kips.

Fish and frog raising activities did not produce positive results. No records of paying back.

Needs of villagers:

1. Need more funds for raising pig and goat.

Observations/findings:

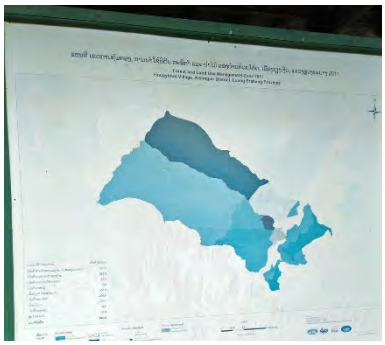
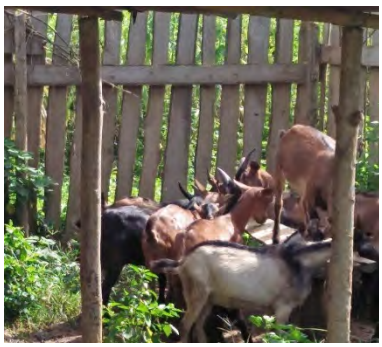
1. LFMC is doing their job properly. Thanks to strong leadership, particularly the strong and good example village head.
2. VDF is functioning well, it can revolve smoothly, for instance, loans released could get back with no problems. VDF could reimburse up to 80% of the loans released thus far.
3. Women' activities (food processing) looked good only at the beginning period but cannot be sustained due to low income generated and lack of business skills. Initial investment for this activity is also very low only 1.8 million Kips for a group with 11 members. Currently, there are three (3) members who still continue the activities but they do individually and produce only "deep fried banana" (ຈຶ່ນກ້ວຍ) not many kinds like before.

VIII. Recommendations and Lessons learned

<Recommendations>

The four villages which have been monitored do not much rely on the Phouchomngae conservation area for their living. Therefore, it is highly recommended as well to monitor the target villages in Houakhing cluster, Phonxay district, who rely heavily on forests for their livelihood in order to know clearly how effective PAREDD approach could contribute to forest protection.

If necessary, we can skip “Ban Houaykhing” where JCM REDD+ project is now working in order not to disturb them. I heard that JCM REDD+ project continued to make use VDF established under former PAREDD project which is one of the good news, I think.
<Lessons learned>

- A strong and powerful LFMC seemed to be the vital organ that ensure the success of activities implemented in the four villages which have been monitored.
- Sense of ownership needs to be strengthened together with stricter enforcement of laws and regulations.

Below are some pictures as of the present situation: