Asia-Pacific Network for Sustainable Forest Management

and Rehabilitation

COMPLETION REPORT

Multi-function forest restoration and management of degraded forest areas in Cambodia

December 2011- March 2015

Ministry of Agriculture, Forestry and Fisheries

Institute of Forest and Wildlife Research and Development, the Forestry Administration of Cambodia

April 2015

BASIC INFORMATION

Project Title (ID)	Multi-function forest restoration and management of degraded forest areas in Cambodia
Supervisory Agency	Forestry Administration
Executing Agency	Institute of Forest and Wildlife Research and Development
Implementing Agency	Institute of Forest and Wildlife Research and Development
Date of Project Agreement: [dd/mm/yy] 13/12/2011 - 12/12/14 (extended to 12 March 2015)	
Duration of implementation: [December/2011-December/2014], 36 months (extended to March 2015)	

Total project budget (in USD)	441,830.00	**APFNet assured Grant (in USD)**	386,570.00
Actual project cost (in	386,554.64	**APFNet disbursed Grant(in USD)**	342,380.00

Disbursement Status	Date of disbursement	Amount(in USD)
Initial disbursement	10-May-12	91,210.00
2nd fund receipt	21-Nov-12	44,660.00
3rd fund receipt	26-Jun-13	101,970.00
4th fund receipt	04-Dec-13	31,580.00
5th fund receipt	26-Feb-14	49,970.00
6th fund receipt	04-Aug-14	22,990.00
Balance to be disbursed		

Reporting Status (period covered: mm/yy-mm/yy)	Schedule [1]implementation	Project progress status[2]
13 December 2012 – 12 March 2013	On track	satisfactory
13 March 2013 – 12 September 2013	On track	Satisfactory
13 September 2013 – 12 December 2013	On track	Satisfactory
13 December 2013 – 12 June 2014	On track	Satisfactory
13 June 2014 – 12 March 2015	Completion Report	Satisfactory

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[1] Schedule [1]implementation status could be on track/behind/ahead of schedule
[2] Project progress status could be ranked as satisfactory, dissatisfactory, moderately satisfactory, moderately dissatisfactory

Abbreviation and Acronyms

AWP   Annual Work Plan

CDRI   Cambodia Development Resource Institute

EA   Executing agency

FA   Forestry Administration

FAC   Forestry Administration Cantonment

HVT   High-value timber

IRD   Institute of Forest and Wildlife Research and Development

MER   Mid-Term Evaluation Report

MET   Mid-Term Evaluation Team

OWP   Overall Work Plan

PSC   Project Steering Committee

RUA   Royal University of Agriculture

SWOT   Strengths, weaknesses, opportunities and threats

TOR   Terms of reference

Executive Summary

In Cambodia, about 400,000 ha of natural forests have been placed under the management of local communities, through Community Forestry system, living in or adjacent to the forests for livelihood and income generation. However, the community forests are degraded and the communities themselves do not have the means to restore the forests to a more productive condition.

The Asia-Pacific Network for Sustainable Forest Management and Rehabilitation provided financial support to a three-year project, Multi-function forest restoration and management of degraded forest areas in Cambodia. The project sites are located in two community forests (CF), O Soam CF and Tbneng Lech CF, which are in Kampong Thom and Siem Reap provinces, respectively. The objective was to enhance the restoration of community forests in Siem Reap and Kampong Thom provinces for production of timber and NTFPs as a means to improve livelihood of local community. In order to achieve the defined objective, three outputs were identified: 1) Community nursery established in each pilot site; 2) Models of forest restoration plots established in each pilot site; and 3) Knowledge and experience on multi-functional forest restoration published and disseminated to relevant stakeholders and general public.

The project has achieved the three outputs as planned. A community nursery and its affiliated facilities have been established at each CF. Representatives of communities and local FA have learned the techniques of seedling production and forest rehabilitation. Four one-hectare plots of model forest restoration were established at each site. In addition, a total area of 50 ha of degraded forests (30 ha in O Soam and 20 ha in Tbeng Lech) were restored with priority species which include high-value timber species, rattan, bamboo and fruit trees. Forest restoration was committed to achieve the long-term vision of the two communities, "the community forests recovered with abundance of timber trees and NTFPs that can support the construction needs and livelihood improvement."

The outcome of the greatest importance arising from this project has been the development of capacity of local communities to produce seedlings and conduct forest rehabilitation. Knowledge and skills on seed collection, seed pretreatment, preparation of potting mixes and, particularly, the nurseries and affiliated facilities did not exist at the two CFs before the project intervention. Importantly, the two CFs have become a model of community forest restoration. Every year, these CFs have attracted different visitors (visitors from other CFs around the country, university students, local and international participants attending workshops in Cambodia) to their sites to learn the techniques of forest restoration. Adding demonstration plots to the CFs means that visitors have something new to learn.

The project brought about significant improvement on local environment and socio-economic of the two communities. In addition to the nurseries which become a source of income generation, thousands of multiple species, rattan, bamboo, fruit trees, and particularly high-value timber (HVT) species, planted for enrichment the community forests will become significant sources of livelihood and income generation in the future.

CONTENTS

1. BACKGROUND AND INTRODUCTION

1.1 Project context

In Cambodia, the majority of rural communities access to the forests for livelihoods and income generation. Local communities have been involved in management of forest resources through Community Forestry system. By 2010, nearly 400,000 ha of natural forests have been placed under the management of local communities living in or adjacent to the forests. One of the objectives of community forestry system is to improve livelihoods of participating communities through access to timber and non-timber forest products (NTFP). However, the majority of community forests are severely degraded with poorly stocked with timber and non-timber forest products. Forest degradation has reduced forest quality and diminished forest products which in turn severely threatened livelihood of local communities. Community forests lack natural regeneration, specifically those of high-value timbers and NTFP trees, as mature seed-producing trees are limited. The situation is exacerbated as many community forests are located in fragmented forest landscapes or are isolated from climax forests resulting in the lack of proper seed dispersal. Furthermore, the forests have never been rehabilitated, and such rehabilitation occurs through a natural regeneration process which is slow and only naturally selected species are able to capture the sites.

In order to reverse these conditions and improve livelihood of local communities through managing community forests, there is an urgent need to restore the productivity and function of the forests. However, this task is enormous for an institution responsible for the forestry given the limited resources allocated to the sector. Therefore, this project seeks to hand on knowledge and skills on forest restoration to local communities managing the forests. Key persons from selected communities were trained on forest restoration both in theory and practice. The project intervention brought about significant changes to the community forests in terms of increased tree density and diversity of forest products.

1.2 Project goal(s) and objectives

As identified in the project document, the broad goal of the project was to develop the capability of the Forestry Administration of the Royal government of Cambodia on the management and restoration of the country's biodiversity.

The project objective was to enhance the restoration of community forests in Siem Reap and Kampong Thom provinces for production of timber and NTFPs as a means to improve livelihood of local community.

Both, the goal and objective identified in the project document, however, are vague, and the Midterm Evaluation Team (MET) suggested a clear goal and specific and measurable objectives as follows:

Goal: "To rehabilitate the degraded forests in the project sites to a status well stocked with high-value timber species species and high value NTFPs and/or with multifunction, and the project sites become a recognized national model on forest rehabilitation and rural
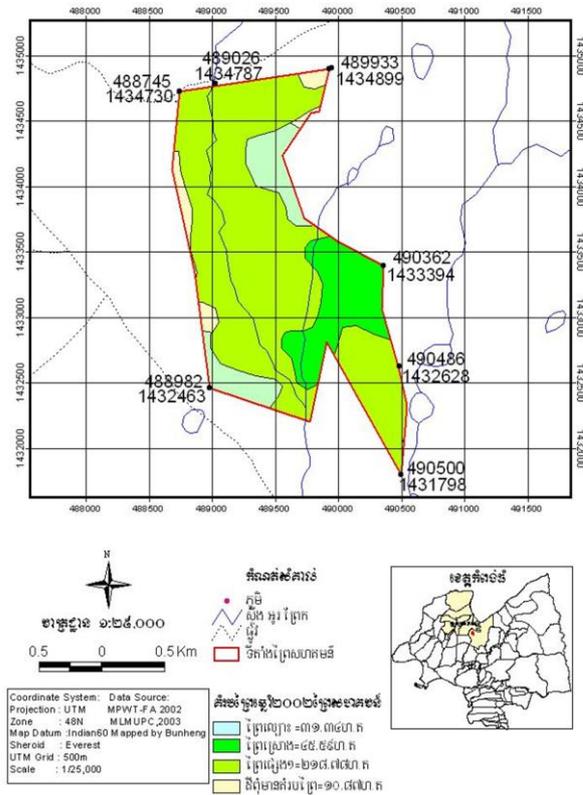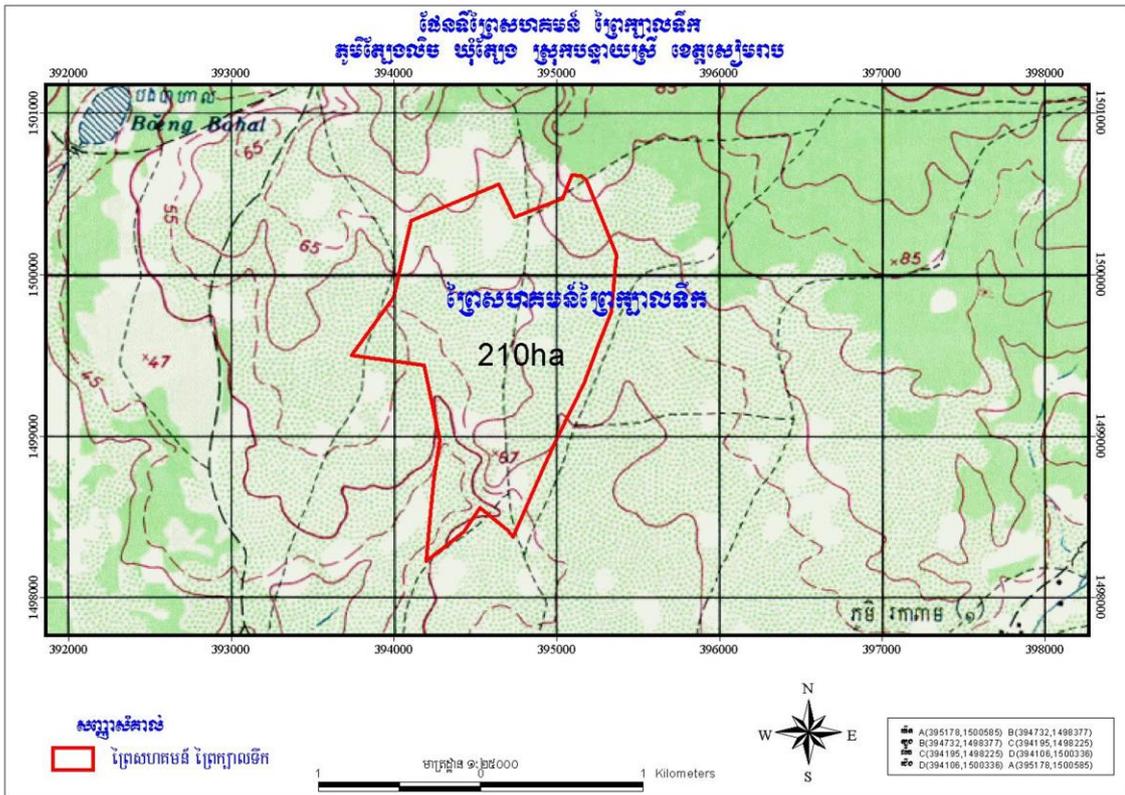
Figure 1 Maps of Tbeng Lech and O Soam Community Forests located in Siem Reap and Kampong Thom provinces, respectively.

livelihood improvement". Re-phrasing as such will make the project more meaningful with increasing impacts, and well prepare it as a demon/showcase on forest rehabilitation for Cambodia.

Objective 1: "xx restoration demonstration plots and xx ha of restoration areas fully established as designed in community forests in the project sites". The MET also suggested a new objective as Objective 2: "capacity of FA and local communities on forest restoration developed and enhanced". Re-phrasing and developing project objectives as such will not result in any addition of project activities, but will make project objectives specific and measurable.

Considering the project remaining time frame after the mid-term evaluation and budget left, the APFNet Secretariat recommended the project goal and objective remain unchanged, but the Institute of Forest and Wildlife Research and Development (IRD) is highly requested to identify and submit specific measurable indicators to assess the achievement of the project goal and objectives.

1.3 Project expected outputs and outcomes

The project has three outputs as follows:
Output 1: Community nursery established in each pilot site
Indicators:
1. Annual work plan and overall work plan prepared, approved and used.
2. Two nurseries (one in each pilot site) established (equipped with basic facilities, such as nursery beds, shading area, storage, water supply facilities and tools) and producing seedlings.
3. A forest track of three km opened in natural forests for studying seed phenology.
4. Five staff from local Forestry Administration and two community members trained on nursery management.
5. Research results on seed pre-treatment and germination of some priority tree species and optimum potting mix published and disseminated".

Output 2: Models of forest restoration plots established in each pilot site
Indicators:
1. The two forest sites zoned and appropriate methods of forest restoration suggested for each zone.
2. Between two to three models of forest restoration plots of about 2 ha each established in each pilot site. These model plots will be used as demonstration plots.
3. One research plot of about 1 ha on forest restoration established in each pilot site.

Output 3: Knowledge and experience on multi-functional forest restoration published and disseminated to relevant stakeholders and general public.
Indicators:
1. Policy and legislative framework for the forest restoration reviewed.
2. A "Technical Note on Forest Restoration" published and disseminated to relevant stakeholders.

3. A TV spot on forest restoration produced and presented by two TV channels.
4. A workshop on "forest restoration for livelihood improvement and biodiversity conservation organized.

2. PROJECT IMPLEMENTATION

2.1 Project schedule and implementation arrangements

As the aim of the project was to hand on knowledge and skill on forest restoration to local communities, it was designed in such a way presented in the sequential order of outputs. In order that local communities can restore their forests, nursery is the prerequisite. Then local communities need to learn some basic knowledge and skill on nursery management, which include seed collection, seed pretreatment, preparation of potting mixes and maintenance of seedlings. These activities were scheduled for the first year of project time frame (2012). When the nurseries are built, local communities can produce seedlings for forest restoration. More importantly, they have to know how to restore their forests, and this is why the model forest restoration plots were established in each CF. Local communities have to involve in the real practice of forest restoration. These activities were scheduled in the second year (2013). As local communities and the project team have been implementing the project for two years, they must learned something which are of beneficial for sharing with other stake holders, and this is why publication of Technical Note, production of TV spot and workshop were scheduled in the final year. In general, the project's three outputs have been realized.

One significant change to the project document was the move of project site from Koh Kong province (protected forest) to Kampong Thom province (community forest). The move, followed the implementation of the government policy on land titling, was made to avoid any negative impacts to the project implementation, particularly land security, in Koh Kong. As a consequence, the change of the project site has brought some effects to the scope and scale of the project implementation as follows:

- First of all, the objective 1: To restore a degraded forest of protected forest in Koh Kong province for environmental protection and biodiversity conservation of a protected forest, was no longer applicable as the new site is located inside a community forest. The new site fit nicely to objective 2 of the project document, the same as the site in Siem Reap. As a result, the project team worked toward achieving one objective, "to enhance the restoration of community forests in Siem Reap and Kampong Thom provinces for production of timber and NTFPs as a means to improve livelihood of local community";
- On the contrary, the three outputs identified in the project document and its associated activities, will not be affected by the change of the project site; and
- The other effect is that the establishment of the nursery in O Soam was in two months behind the site in Siem Reap. This delay does not affect subsequent activities in the site.

One of the assumption occurred during the project implementation is the availability of the right consultant at the time of need. This occurred in the second year of the project

implementation, and this moved the activities 2.1 and 2.3 about four months behind the schedule. Fortunately, the delay did not cause any effects on subsequent activities as the two activities were designed to documenting the site conditions and suggesting methods of forest restoration which local communities can use in the future. Please refer to Annex A for Implementation status (scheduled versus actual).

2.2 Project resources and costs

There were two sources of funding, APFNet Grant and Counterpart Fund for the project implementation. The counterpart fund (in-kind contribution) was used in three budget lines, project staff cost (salary of the project staff) and Office Operation cost (such as office space, office and facility maintenance) and procurement. The grant from APFNet was spent for the 10 budget lines listed in the table below. Two budget lines, Publication & Dissemination Cost and Office Operation Cost, were significantly underspent. The budgets from these two budget lines were moved to other budget lines where expenses were higher than the budgets. These are Travel and Related Cost, Meeting and Training Cost, Field Activities Cost and Monitoring, Evaluation and Audit Cost.

More expense is observed with the Travel and Related Cost and Field Activities Cost because of additional activities, particularly the forest restoration of 10% of CFs (Activity 2.7). This activity required travels to the field sites and expenses related to forest restoration. Meeting and Training Cost was over-expensed because of the increase of the frequency of the Project Steering Committee (PSC) meeting from one to two annually following recommendation from the MET. The last two meetings were organized in the provinces where members of the PSC visited the project sites before the meetings. Also two more training courses on nursery management were organized (additional to the original work plan) at the two nurseries. The higher cost incurred for Monitoring, Evaluation and Audit mainly related to monitoring of forest restoration (Activity 2.7). The project financial details are listed in Annex B.

Expenses (USD)	APFNet Grant		Counterpart Fund	
	Anticipated	Actual	Anticipated	Actual
Project staff cost (salary and allowance for project staff and management personnel)	85,100.00	81,850.00	28,400.00	28,400.00
Consultancy cost (local and international consultants' cost)	40,350.00	37,634.75		
Travel and related cost (air fare, local travel, per-diem and etc)	35,380.00	47,113.48		
Meeting and training cost (venue, facility, hospitality, peakers/experts' fees , participants accommodation, meeting material, etc)	19,290.00	25,544.74		
Field activities cost	78,180.00	90,898.84		

Publication &Dissemination cost (formulation, editing, publishing of articles, reports, books and information products and organization of outreach activities, media activities)	12,190.00	7,578.75		
Office Operation cost (project administrative management fee and administrative staff cost, lease/rental of office premises, office and facility maintenance, etc)	43,600.00	21,321.77	26,400.00	26,400.00
Procurement (purchase of vehicles, equipment, facilities etc)	50,800.00	48,518.50	460.00	456.00
Monitoring, evaluation and audit cost	21,680.00	25,794.34		
Miscellaneous		299.47		
TOTAL	386,570.00	386,554.64	55,260.00	55,256.00

2.3 Procurement and consultant recruitment

During the project implementation, a number of assets were purchased. These include, but not limited to, a pickup truck, motorcycles, laptop computers, cameras and tools used in the nurseries. These assets were directly used by the project and contributed to the achievement of project goals and objectives. The detailed list of purchased assets is shown in the Appendices 1.1.1 and 1.1.2.

In addition, 11 service agreements were made between the Project Director and Consultants. The consultants were contracted to perform different tasks identified in the project document. Every service agreement was checked and approved by the APFNet Secretariat. The list of consultants, their tusks, and types of outputs are shown in the table below. The detailed outputs are shown in Annex D.

Activity	Consultant	Tasks and function	Output
Activity 1.8	A/Professor Von Monin (Dean of the Forestry Faculty, RUA)	Training course on nursery management for local communities in Siem Reap and Kampong Thom provinces	Lecture note Technical Report
Activity 1.11	Mr. Kim Soben (Senior lecturer, post graduate study, RUA)	Develop a guideline and provide training course on research in the nursery to local communities in Siem Reap and Kampong Thom.	Lecture note Technical Report Technical Report English
Activity 2.1	Dr. Koy Ra (Freelance consultant)	Conduct field surveys to assess the physical conditions of the two pilot community forests for deciding methods of forest restoration	Technical Report
Activity 2.2	Mr. Am Sobol and Mr Heng Tharoth	To conduct a survey on community envision of forest restoration in the two community forests, O Soam and Tbeng Lech	Technical report Leaflet English Leaflet Khmer

Activity 2.3	Dr. Koy Ra (Freelance consultant)	To suggest methods of forest restoration for the two community forests based on their physical conditions (Activity 2.1)	Technical report
Activity 2.5	Dr. Edward Manigo (Freelance consultant)	To prepare research design on forest restoration in community forests, in Kampong Thom and Siem Reap provinces, for biodiversity conservation and livelihood improvement.	Technical report Research proposal Guide for data analysis
Activity 3.1	Dr. Edward Manigo (Freelance consultant)	To review existing policies and legislative framework in relation to forest restoration, with special attentions to restoration of community forests for livelihood improvement and income generation	Technical report
Activity 3.1	Dr. Koy Ra (Freelance consultant)	To conduct a study on the livelihood value of the community forests before and after the introduction of the project	Technical report
Activity 3.2	Dr. Edward Manigo (Freelance consultant)	To review literature and compile lessons learned on forest restoration from the three-year project implementation into a technical note titled "Technical Note on Forest Restoration".	Technical report
Activity 3.3	Mr. Thieu Thadeth	To prepare a TV spot on community participatory forest restoration in community forests, in Kampong Thom and Siem Reap provinces, for biodiversity conservation and livelihood improvement	TV spot
Activity 3.4	Dr. Koy Ra (Freelance consultant)	To provide assistance in organizing the workshop on "Forest restoration for livelihood improvement and biodiversity conservation, and accompanying the review team from APFNet to conduct field checks in the project sites in Siem Reap and Kampong Thom provinces. This task includes compiling the proceeding of the workshop.	Proceeding of the workshop
Auditing	AT&C (CAMBODIA) CO.,LTD.	Financial auditing year 1	- Internal control - Statement of fund receipts and disbursements
	AT&C (CAMBODIA) CO.,LTD.	Financial auditing year 2	- Internal control - Statement of fund receipts and disbursements
	AT&C (CAMBODIA) CO.,LTD.	Financial auditing year 3	- Internal control - Statement of fund

			receipts and disbursements

2.4 Monitoring & evaluation and reporting

During the project implementation, five progress reports were submitted to APFNet. A midterm evaluation by APFNet was conducted in September 2013 (second year of project implementation). The Midterm Evaluation Team (MET) consisted of three members, Dr. Dachang Liu (team leader), Ms. Weina Sun (Program Officer, APFNet) and Mr. Peng Peng (Program Officer, APFNet). The MET's findings are as follows:

- The project is quite relevant, in terms of its consistency with the objectives and focus of APFNet and its meeting Cambodia's needs for restoration of degraded forests and improvement in community livelihood through forest restoration. The project activities designed to address the "degradation" problem are appropriate, though some of the activities may not be sufficient.
- Project performance (project accomplishment by activity, stakeholder involvement, project costs and finance, and project documentation) is also rated as "good". Most of the 16 project activities executed are completed as planned and is satisfactory.
- Several issues, regarding project planning and implementation, need to be addressed, including (i) the current project goal and objective are not well presented with proper indicators, which may lead to difficulty in achieving and in project result measurement. It is suggested stating project goal more clearly as "rehabilitate the degraded forests in the project sites to a status well stocked with HVT species and high value NTFPs and/or with multifunction, and the project sites become a recognized national model on forest rehabilitation and rural livelihood improvement'' and project objective as "XX restoration demonstration plots and xx ha of restoration areas fully established as designed in community forests in the project sites. (Accordingly, a number of indicators need further adjustments. (ii) Given multiplefunctions of forests serve a significant project component, additional project site(s) relating to biodiversity conservation or multifunction should be considered if resources allow; (iii) few activities were designed and executed to generate income in short term, not in line with project objective of income increase by 10% within project implementation period; (iv) more efforts are needed on capacity building, to achieve the objective -- 20% local FA staff and 10-20% community members learnt technique of forest restoration; and (v) several project activities were executed behind the schedule, which should be avoided in the third project year.
- If all these issues can be effectively fine-tuned and addressed in the third project year, the project can become a good example and demonstration for forest restoration in Cambodia and regions in similar conditions, with some technique and methods well developed for forest restoration, capacity built for foresters and community members, and a good basis formed for income generation and livelihood for communities in the project sites.

Based on the evaluation findings, conclusions and the lessons learnt, eight recommendations were provided for the project team and APFNet to consider in the next phase to achieve maximum project outcomes. The recommendations and actions that have been taken by the project team are shown in the table below:

No.	Recommendation	Action by
1	Rephrasing the goal and objectives	Please see Section 1.2
2	Establish one restoration plot in the protected forest to increase representativeness of forest types for restoration, and pilot different restoration techniques.	A two-ha area located along the main river in O Soam was identified, and forest restoration were conducted. Enrichment planting was undertaken in year 3 with mixed species of bamboo, rattan and HVT.
3	Organize more training for community members on seed collection, seedling production, nursery management, forest restoration and management for multiple benefits.	Two more training courses (additional to work plan) on nursery management (one each at Tbeng Lech and O Soam) were organized for local communities. The courses were conducted by field staff using manual developed by the consultant in the first year. A total number of 49 participants attended the two courses of which 28 were women. Therefore, the total number of participants that have been trained is 89 of which 40 are women.
4	Plant rattan and other NTFP species in future restoration efforts that are able to generate income especially cash income in short term.	Bamboo, rattan, fruit trees and pine apple were used in the forest restoration areas in year 3. Their number was about 50% and 28% of the total number of seedlings planted in Tbeng Lech and O Soam, respectively. Pineapples (3,900 seedlings) were planted in the form of agroforestry system, in the community forest (O Soam) and on farm lands (Tbeng Lech).
5	Identify the ownership of the nursery and affiliated resources on the nursery built on a private land, and take full advantage of the established nurseries to produce seedlings not only for restoration needs but also meet potential market demand.	The nursery in Tbeng Lech was built on the land belong to Mr. Mao Nga, the head of the Tbeng Lech CF. A contractual agreement was made in May 2012 (Appendices 1.6.1 – 1.6.3). The nursery and affiliated facilities will be used by members of the CF at least for five years after project completion.

Apart from HVT, the two nurseries have produced seedlings of fruit trees for distributing to members of the CFs and selling. There are about 4,500 seedlings remain (maintained) in Tbeng Lech nursery; about 1,000 of which are fruit trees of various species (Appendix 1.10.3). In O Soam, 1,100 seedlings of *Hopea odorata* remain in the |

		nursery. The nursery in O Soam has been contracted to supply 3,600 seedlings, the majority of which are fruit trees (*D. cochinchinensis*, moringa, papaya, mango, jackfruit, custard apple and milk fruit) to local Forestry Administration for planting in 2015.
6	Attach more importance to recording baseline data so as to make contrast between growth of seedlings that were planted and left for natural regeneration.	In each one-ha plot of the model forest restoration, four sample plots were located, two in the thinned area and two in the unthinned area. In each sample plot, 20 seedlings were tagged for data collection. Height and basal diameter of the tagged seedlings were recorded four times (Appendix 2.6.1), and results were incorporated into the Technical Note.
7	Communication between APFNet and EA, as well as within the PSC and PMB should be enhanced to ensure project efficiency.	Four PSC meetings were conducted, one each in the first two years and two in the final year. The PSC meetings approve the annual work plan and oversee the implementation of the activities in the field. The meeting also included the field visit of the PSC members to the two project sites. Also the project management unit meets quarterly to discuss the progress of the project implementation. The meeting was also the forum for the project management to providing technical guidance to members of the project staff. The communication with the APFNet Secretariat was regular made by email and telephone on subjects related to project implementation. All contractual agreements and ToR of consultancies were submitted to APFNet Secretariat for approval before implementation.
8	Enhance project sharing among stakeholders, other organizations through leaflets, FA website and other channels available and publish research results to increase project impacts and people's recognition to it.	Two leaflets showcasing the project and income generated from the community forests published and distributed to local FA relevant NGOs and visitors to the two sites. A TV spot showcasing the APFNet project and importance of the community forests was produced. The two project sites have been used as field studies/visits for a number of workshops or workshops related to forest restoration organized

		or co-organized by the IRD (Section 2.5). During the last two years, the two project sites, particularly Tbeng Lech CF, hosted a number of visits of other CFs from different parts of Cambodia. One of the important subjects for discussion of the visitors is "How to rehabilitate the forest to meet the needs of local communities?" Therefore, the nurseries and model forest restoration plots are mostly visited. All technical reports (consultancy reports) were uploaded onto the IRD website (http://www.irdfa.org).

2.5 Dissemination and knowledge sharing

Sharing of knowledge has been partly discussed above (Section 2.4). The followings highlight activities/events occurred during the last two years.

During the last two years, the two project sites, particularly Tbeng Lech CF, hosted a number of visits of other CF representatives from different parts of Cambodia, researchers/scientists from Japan, University students, local FA officials and tourists. The purposes of the visits, among others, are to learn CF management and conduct field research activities. The nurseries and model forest restoration plots are among the sites mostly visited by visitors.

Some selected pictures showcasing the field activities were put in display during the inauguration ceremony of the new IRD's building in May 2014. The ceremony was presided over by a Deputy Prime Minister, H. E. Keat Chhon.

A case study on community forestry for sustainable management and livelihoods in O Soam published in the Cambodia Development Review in 2014. The authors are Mr. Lonn Pichdara, member of the PSC, Mr. Chea Nareth, and Mr. Ma Vuthy, project staff. The authors began with the overview of the current status of Community Forestry in Cambodia, and then went on to the case study in O Soam CF where they highlighted some important sources of income that can be generated from the forest, such as honey and fish. They also conducted a SWOT analysis for O Soam CF and provided recommendations emphasizing on the need to build capacity of local communities on management and entrepreneurship. The article is available for free download at: cdri.org.kh/webdata/cdr/2014/cdr14-3e.pdf.

Knowledge and skill gained from the forest restoration at the two communities were disseminated to university students (BSc. Degree). Since 2013, the Project Coordinator has been invited, as a guest lecturer, to the Faculty of Forestry, Royal University of Agriculture. He teaches forest restoration.

In April 2014, the IRD co-organized a regional training workshop with the ASEAN-Korea

Environmental Cooperation Project (AKECOP) on "Forest Landscape Restoration" for participants from Cambodia, Myanmar, Lao PDR and Vietnam. The workshop was held in Phnom Penh with the visit to O Soam CF. Some questions relating to biological and social aspects of forest restoration/rehabilitation were raised. For example, "Why pioneer species like *Albizia lebbeckoides* are planted? (a legume species planted in a site with low soil fertility) and "Why the existing trees are removed and new seedlings planted? (the removed trees were considered low value and the planted trees are of high-value timber species valued by communities). Pioneer species, such as *Pinus merkusii*, *Albizia lebbeck* and *Albizia lebbeckoides* were selected for planting in O Soam. The selection was based on the site conditions (the forest soil contains very high percentage of sand with very limited nutrient) and the area is totally expose to the sun light.

The project outcome was presented in the in the APFNet's focal point meeting in Chiang Mai, Thailand, from 7 – 8 May 2014. The presentation focused on the establishment of the community nurseries, training of local communities on nursery management and rehabilitation of the community forests. The representative from FAO noticed the removal of large quantity of trees before planting of the HVT and rattan. In the forest rehabilitation program, the removal of the trees (forest cover) was made where natural gaps in the forests do not exist. Generally, forest rehabilitation was conducted in degraded forests and the forest areas covered with pioneer tree species. This means that if those species are retained, the forest will end up with only low-value species, which cannot fulfill the community visions on the forest management. In short, forest rehabilitation is a silvicultural technique responded to the needs of local communities.

On 19 December 2014, 35 delegates from 16 countries, such as Bangladesh, Cambodia, China, Fiji, Indonesia, Myanmar, Nepal, Philippines, PNG, Sri Lanka, Thailand and Vietnam, attending the workshop on Mainstreaming the Restoration of Degraded Forests into Forestry Strategic Plans, visited Tbeng Lech CF. Mr. Qu Guilin, Executive Director of the APFNet, was among the visitors. The workshop was co-organized by the IRD, APFNet, and FAO. Other international organizations participated in the event were IUCN and RECOFTC. Many members of the project officials, Project Director, technical assistant, and field staff, and representatives of Tbeng Lech CF were at the site for sharing their experience with the visitors. The community nursery, forest restoration areas and an agroforestry site implemented by a farmer were visited. Some important topics for discussions include: "How to determine the species to be removed?" (The CF members identified the species they wanted to retain and marked them with red paint; those without marking were removed. However, a check was made by the project team before the thinning to make sure that only about 50% of the canopy cover would be opened). Other question was "What do people want from the forest?" (See community visions). In general, participants think that what they have seen is a success story and they recommended to expand the forest restoration activities to other community forests in Cambodia.

3. PROJECT PARTNERES' PERFORMANCE

3.1 Performance of Supervisory Agency

The Supervising Agency, Forestry Administration, has been very supportive during the implementation of the project. It mainly provided administrative supports as follows:
- Issuing mission letters for the project officials to undertake field work;
- Assigning a Deputy Director General to chair the Project Steering Committee; and
- Attending/presiding over workshops (inception and completion workshops).

3.2 Performance of Executing Agency

A working group (hereinafter referred to as group), composing of 10 staff members, was formally established by the Forestry Administration to manage the project. The group frequently met in three- or six-month period under the leadership of the Project Director. It is responsible for the implementation of the defined project activities and makes sure the project outputs are realized.

3.3 Performance of Implementing Agency, consultants (technical assistants), contractors, and suppliers

Some of the tasks predefined in the project document were assigned to consultants (Section 2.3). Finding the consultants with relevant knowledge and skill is not difficult, but matching the consultancy time frame with that of the consultants was not always easy. For example, a few months delay occurred to Activity 2.1 and Activity 2.3 (Annex A). In general, the outputs produced by the consultants are of significantly important to achieving the project outputs.

Production of TV spot (Activity 3.3) was the only activity causing the delay by the consultant/company. The consulting group needed much longer time than anticipated. There were several reshooting, revisions/editions. Lot of contributions from the project management on reviewing and corrections of the draft TV spot was made. However, the final product was satisfied by the management.

3.4 Performance of APFNet

APFNet provided both financial and technical supports during the project implementation. It provided:
- timely support and clear guidance for project planning, implementation and management;
- timely disbursement of project grant;
- effective communication with project executing agency and partners in proper facilitation in undertaking project activities and project dissemination; and
- external M&Es during the project implementation and shared swift feedbacks accordingly.

4. PROJECT PERFORMANCE

4.1 Project achievements

The project has achieved the three outputs as planned. A community nursery and its affiliated facilities have been established at each CF. Representatives of communities and local FA have learned the techniques of seedling production and forest rehabilitation. Four one-hectare plots of model forest restoration were established at each site. A total area of 50 ha (30 ha in O Soam and 20 ha in Tbeng Lech) have been restored (Appendix 2.7.2) with priority species identified by communities. Enrichment planting was identified as the appropriate method of forest restoration in the two sites considering the species composition, soil condition and local needs. Priority species identified by communities, the majority of which are timber trees, were planted. Forest restoration was committed to achieve the long-term vision of the two communities, "the community forests recovered with abundance of timber trees and NTFPs that can support the construction needs and livelihood improvement". The above mentioned activities meet the project objective, "to enhance the restoration of a community forest in Siem Reap and Kampong Thom provinces for production of timber and NTFPs as a means to improve livelihood of local community".

The outcome of the greatest importance arising from this project has been the development of capacity of local communities to produce seedlings and conduct forest rehabilitation. Knowledge and skills on seed collection, seed pretreatment, preparation of potting mixes, and particularly the nurseries and affiliated facilities did not exist at the two CFs before the project intervention. Importantly, the two CFs have become a hub of the forest restoration models. Every year, these CFs have attracted different visitors (CF members, university students, local and international participants attending workshops in Cambodia) to their sites to learn the techniques of restoration of community forests. Local communities can proudly stand in front of any visitors and share their knowledge and experience on forest restoration with the visitors. Six members of local communities, three from each site, were invited to the completion workshop to share their experience to other participants.

4.2 Project Impacts

As a forest restoration/rehabilitation project, it is no doubt that the project bring about significant improvement to the environment. Specifically, the density of HVT and particularly the diversity of species have been increased through enrichment planting of multiple tree species. And as a result, forest functions will be enhanced.

From a socio-economic point of view, it is expected that the communities will fully embrace the process of forest restoration as the actions recommended in restoration of community forest. The project implementation process has motivated the communities to see themselves as the key players of the process and thus, they take ownership of each of the elements that make up a forest restoration structure and adapting the process to their needs. The project has created an opportunity for the pilot communities to generate income, through selling of poles and other NTFPs. It is also expected that some of the forest restoration practices, such as patrolling of the community forest, prevention of forest fire,

will be implemented by the community itself even if there is no financial follow-up from the donor.

The project beneficiaries are local communities and local FA. The nurseries (and their supporting facilities), and knowledge and skill on seedling production (nursery management) and forest restoration can be used for the short term and long term benefits (Section 4.3). Local communities at the two project sites have become new partners to local FA and NGOs as they can be reliable suppliers of seedlings and even trainers for other CFs. In addition, thousands of multiple species including rattan, bamboo, fruit trees, and particularly HVT species planted in the two CFs. These planted species will enrich the community forests which will become significant sources of livelihood and income generation. As the two CFs are widely visited by other stake holders, adding nurseries and demonstration plots means that visitors have something more beneficial to learn.

4.3 Sustainability

Three aspects of the project outcomes will be sustained at least in the next 5-10 years. The first is the community forests are well protected. The boundaries of O Soam CF were clearly demarcated with participation of local authorities and local FA, i.e., the CF is well recognized on the ground. This means that the forests will continue to thrive at their full potential. And this will results in abundance of NTFPs. The second is the nurseries that have become an additional source of income generation for local communities. Knowledge and skills on seedling production obtained during the project implementation will be used for producing seedlings, including fruit trees, for supplying to local markets, NGOs and government institutions involving in tree planting. For example, O Soam nursery has been contracted to supply 3,600 seedlings of six species (four of them are fruit trees) to local FA for planting in 2015. It is anticipated that such a contract will be made every year considering the increasing need of tree planting by local FA and NGOs. In addition, activities, such as agro-forestry system, will not be costly for the follow-up activities, as the main component of the activities is the interest of the community members to produce agricultural crops. The third is the demonstration models of forest restoration which will continue to playing an important role in showcasing methodologies of forest restoration to visitors (local and international), particularly other CFs. This also means that local communities at the two CFs will remain the key players to disseminating knowledge on forest restoration to others.

5. CONCLUSION, LESSONS LEARNED AND RECOMMENDATIONS

5.1 Conclusion

In conclusion, the project activities have been fully completed. The three project outputs have been achieved as expected. The three outputs, particularly outputs 1 and 2, were designed to meet the project objective, to enhance the restoration of community forests in Siem Reap and Kampong Thom provinces for production of timber and NTFPs as a means to improve livelihood of local community.

5.2 Lessons learned and recommendations

Several lessons can be drawn from the implementation of the project as follows:

As indicated in the midterm evaluation report, the project objective is not specific [although a series of interventions (activities) and expected outputs were clearly identified]. Therefore, it is difficult to evaluate the project achievement based on the defined objective alone.   In order to formulate a good project proposal, a feasibility study in the proposed areas has to be conducted. This includes consulting relevant stake holders and collection and analyzing of information related to environment and socio-economic of the areas, and then set up clear or SMART objectives.

What we have learned from the implementation of the project is that participation of local communities and local FA is the key success in forest restoration and community forest management in general. We observed that local communities at the two project sites have a willingness to learn all aspects of forest restoration because they have a common goal, reverse their forests back to the conditions before they were degraded. This was expressed in community visions, such as in O Soam: *"A forest comprising of big trees of high-value timber species that support the construction needs, with abundant NTFPs and creeks with fishes that support the livelihoods of the community."*

Forest rehabilitation is not just about the forests but also about people depending on the forests for livelihood and income generation. A holistic approach has to be adopted when planning forest rehabilitation. Therefore, it is recommended that future forest restoration programs should include components/activities other than those closely related to forest restoration. Activities related to improved livelihood of local communities, promotion of wood-based enterprise at the communities and community-based ecotourism should be considered for future forest restoration programs.

Extend the 15-Year Term of CF Agreement. Community forests are forests owned by the state that have been allocated to communities under a 15-year agreement. But the development of the CF within 15 years may not be sufficient for many CFs due to the degraded condition of their forests. If a community starts rehabilitating the forests, it will take time before the forests recovered. The forest restoration is long term in nature as the growth rate of many indigenous species, particularly the HVT species, is relatively slow. Longer term of CFs will motivate the communities in developing and investing on rehabilitation of the degraded forests and they can be assured to get benefits from their investments.

Annex F Photos, media cliffs and other materials used/available for project outreach

Nursery construction. (1-3), Nursery in Tbeng Lech before, under and after construction. (5 and 6), Nursery in O Soam under and after construction. (5), Office cum storage in O Soam under construction.

Training of local communities on seedling production and nursery management. (1-3), Training sessions. (4-6), Participants are practicing on preparation of potting mixes and seed germination.

Establishment of demonstration plots on forest restoration. (1), Natural forest without thinning. (2), Part of the demonstration plot after thinning. Note the remaining trees are marked with red paint. (3 and 4), High-value timber species were planted in the forest gaps (after thinning). (5 and 6), Monitoring of planted seedlings.

Forest restoration. (1 – 3), High-value timber species and rattan are planted in the artificial gaps (lines were created in the natural forests to create space for planting the identified species). (4), Bamboo seedlings were planted in the natural gaps. (5), Seedlings of pineapple were acclimatized before planting. (6), Creation of agro-forestry system on a farm land in Tbeng Lech. Note that the farmers already planted pineapples, and seedlings of fruit trees are being planted.

Visit of delegates from countries in the region paid visits to O Soam (1-3) and Tbeng Lech (4) to study the real-world practice of forest restoration in the two community forests in 2014

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Visits of delegates from countries in the region to O Soam (1-3) and Tbeng Lech (4) to study the real-world practice of forest restoration in the two community forests. (please refer to Section 2.5 for detailed information).