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REPORT ON COMPLETED PROJECTS AND PRE-PROJECTS

IN THE FIELD OF REFORESTATION AND FOREST MANAGEMENT

REPORT ON COMPLETED PROJECTS* AND PRE-PROJECTS IN THE FIELD OF REFORESTATION AND FOREST MANAGEMENT

- **COMPLETED PROJECTS**

(1) PD 28/00 Rev.2 (F) Integrated Management of Community Forests in the Valley of Mefou and Afamba (Central Province of Cameroon)

Budget and Funding Sources:

Total Budget:			US$	825,465
ITTO Budget:			US$	563,265
Government of Japan:	US$	533,265		
Government of the U.S.A.:	US$	20,000		
Government of Republic of Korea:	US$	10,000		
Government of Cameroon			US$	262,200

Implementing Agency: Forestry Dept. of Ministry of Environment and Forests (MINEF)

Session of Approval: ITTC Session XXX, June 2001, Yaoundé, Cameroon

Starting Date and Duration: 06 November 2002 / 36 months

Approved Revised Date of Project Completion: First project extension until November 2007 (NOLF.07-0047)
Second project extension until November 2008 (NOLF.08-0016)
Third project extension until August 2009 (NOLF.09-0170)

I. Introduction

The project was approved by the Council at its Thirtieth Session in June 2001 in Yaoundé, Cameroon and full financing was pledged by the Governments of Japan, USA and Korea during the same Session. The Agreement regulating the implementation of the project was signed on 15 November 2001. The first installment of funds was released on 06 November 2002. The project has been extended three times until August 2009, without additional ITTO funds, by the ITTO Secretariat, based on an official request including proper justification, a work plan and a budget. As an acceptable version of the project completion report was received in January 2011, the duration of the project implementation had lasted 96 months instead of 36 initially designed by the Executing Agency. The final financial audit report was received in October 2012.

II. Project Objective

The project aimed at ensuring the sustainability and productivity of village areas in the country's "*agroforestry zone"* through the development of community forests and the promotion of tree growing. The project specific objectives were the following: 1) to develop strategies for the participative management of woodlots and to create the necessary structures for follow up; 2) to set up community forests and develop the autonomous systems of forest management.

III. Project Achievements and Outputs

In accordance with the project document, final technical report, completion report and final financial audit report, all project activities were carried out through the cooperation of project key stakeholders (Ministry in charge of forestry, local authorities in the Mefou and Afamba Valley located in the Central Province of Cameroon, and associations representing local communities operating in different project sites selected for the availability of natural forests to be gazetted as community forests with the support of this project) and contributed to the achievements and outputs summarized in the following table:

***** Including financial audit

Objectives	Outputs	indicators	Level of execution	Potential for replication
Specific Objective N°1 : To develop strategies for the participative management of woodlots and to create the necessary structures for follow up	Technicians/agents trained in principles and approaches regarding community forestry	25 technicians/agents of the Forestry Directorate trained through workshops, field visits and distribution of community forestry documents.	More than 100% of execution, as 35 technicians/agents were trained in Mfou, Soa, awae and Esse counties.	High
	Technical structures and incentives measures for the establishment of community forests put in places	Additional personnel recruited for community forestry activities Forest inventory carried out. Satellite nursery for the production of seedlings established in SOA, AWAE and ESSE counties.	Fully achieved, as additional personnel was recruited, forest inventory carried out and a nursery established in each county.	High
	Local communities informed on the project objectives and partnership with local entities established in four counties (Mfou, Soa, Awae and Esse)	42 villages visited. 15 villages involved in the project implementation.	42 villages were visited in the SOA, AWAE and ESSE counties, and 17 out of them were supported by the project.	High
	Projects results shared with other national programmes/projects dealing with community forestry	3 workshops held. Field visits in the project areas	One workshop held for the dissemination of project results.	Low
Specific Objective N°2 : To set up community forests and develop the autonomous systems of forest management	10 to 15 requests for community forests prepared and approved	10 to 15 community forests reserved for gazetting process.	12 community forests reserved for gazetting process.	High
	8 to 10 simplified management plans developed and implemented	8 to 10 simplified management plans developed	8 simplified management developed and approved.	Medium
	Support and advice regarding the implementation of simplified management plans and the selling of forest products provided in 4 to 6 community forests	Special contracts for 4 to 6 community forest enterprises (CFE) established.	Special contracts signed for 8 CFE and associated annual felling permits.	Medium
	A collaborative system for the control of illegal forestry activities put in place in 2 to 4 community forests	Volume/quantity of illegal timber or non-timber confiscated.	Few equipment and materials, used for illegal activities, were sequestrated by forestry officers due to the lack of means.	Low
	Silvicultural and agroforestry system put in place in at least 2 community forests	6 trials on natural regeneration put in place. 5 ha of natural forests enriched with valuable timber species.	Neither trials nor enrichment carried out in newly established CFEs.	Very Low

In addition to the achievements and outputs mentioned in the above table, 15 community members in the Mfou, Soa, Awae and Esse counties were trained as trainers on apiculture techniques for the production of honey as source of additional income for local community members.

IV. Outcomes and Impacts

The achievement of the two project specific objectives had contributed to the realization of the development objective set by the project design and led to the main outcomes and impacts summarized in the following table:

Element	Situation before project	Situation after project completion
Participative management in community forestry (CF)	Weak capacity at the level of forestry administration in the Mefou and Afamba Valley	-Creation of an entity in charge of CF establishment and management in the Mfou, Soa, Awae and Esse counties -Personnel trained in the process for the establishment and management of CFs through a participative approach
Sensitization of local community participative management	No organization/institution dealing with CFs	-12 local committees put in place and committed to promote a sound management of CFs
Establishment of CFs with simplified management plan (SMP)	No CF established in the Mefou and Afamba Valley	8 CFs established with a SMP approved by the Government and a management convention signed by the Government of Cameroon
A concept note guidance developed for the management of CFs by local communities	No concept note guidance available	A concept note guidance has been developed to provide relevant advices for the establishment of CFs in the Mefou and Afamba Valley
Market studies and marketing for products from CFs	No market studies and marketing carried out in the Mefou and Afamba Valley	Market studies and marketing for products from CFs were carried out for CFs established with the support of this project in the Mefou and Afamba Valley.

The impact of project results was also noticed in the improvement of the mechanism for the establishment of CFs through the amendment and enrichment of the manual of procedures, with lessons learned from the implementation of this project in the Mefou and Afamba Valley.

V. Lessons Learnt and sustainability

Lessons learned during the project implementation in the Mefou and Afamba Valley Kabo forest concession had been compiled in internal reports circulated among appropriate directorates of the ministry in charge of forestry in Cameroon, for the improvement of procedures for creation, establishment and management of community forests. Among the lessons learned to achieve that goal, it is relevant to highlight the following: (1) The need to involve all relevant stakeholders in the process, from its first step, in order to ensure that they are well aware about their respective roles in the creation, establishment and management of CFs; and (2) The obligation to comply with Forest Law No.94/01 of 20 January 2001 did not allow using innovative initiatives which could be considered as illegal. Fortunately, this forest law is to be revised and updated in order to take into consideration new issues in forestry.

As regards sustainability, most of the project achievements regarding community forestry with the participation of local communities will continue to be covered by the government institutions both at the central and local level, in order to provide support to local communities considered as owners of CFs.

VI. Concluding Remarks

As the ITTO Secretariat received the Project Completion Report, Final Technical Reports (Simplified Management Plans of CFs) and the Final Financial Audit Report, the Project PD 028/00 Rev.2 (F) will be reported as completed, after the implementation of the follow-up/recommendations of the Management Services Division related to the review of the final financial audit report. Copies of the Completion Report and Technical Reports are available, upon written request, either from the Executing Agency or the Secretariat.

(2) PD 54/00 Rev.4 (F) Genetic Resistance of Iroko to *Phytolyma lata* – Phase II (Côte d'Ivoire)

Budget and Funding Sources:

Total Budget:			US$	472,152
ITTO Budget:			US$	378,584
CFC:	US$	258,584		
Government of U.S.A.:	US$	80,000		
Government of Japan:	US$	40,000		
Government of Côte d'Ivoire:			US$	93,568

Implementing Agency: Société de Développement des Forêts (SODEFOR)

Session of Approval: ITTC Session XXXII, May 2002, Bali, Indonesia

Starting Date and Duration: 19 February 2007 / 36 months

Approved Revised Date of Project Completion: First project extension until March 2011 (NOL.F.10-0059)
Second project extension until April 2012 (NOLF.12-0023)

I. Introduction

The project was approved by the Council at its Thirty-second Session in May 2002 and financing was secured during the same Session. The ITTO Agreement regulating the implementation of the project, as well as the CFC Grant Agreement, was signed on July 2005. The first disbursements of funds have been made by both the CFC and ITTO Secretariats in February 2007. Although all parties had signed in July 2005 the Grant Agreement, Project Agreement and Appraisal Agreement, finalized by the Secretariat of the Common Funds for Commodity (CFC), the project inception had been delayed due to the security status in the project site. A joint CFC-ITTO project inaugural mission was conducted in September 2006 in order to assess the conditions for the inception of the project in the new project site located in a secured zone of Cote d'Ivoire. The positive conclusion of the inaugural mission led to the first disbursement of funds by both the CFC and ITTO Secretariats for the commencement of the project implementation, in February 2007. Two project extensions were granted until April 2012, without additional ITTO funds, by the ITTO Secretariat, based on official requests including proper justification with appropriate detailed work plan and budget. As an acceptable version of the project completion report was received in February 2013, the duration of the project implementation had lasted 72 months instead of 36 initially designed by the Executing Agency. The post-election political turmoil in Cote d'Ivoire, from November 2010 to April 2011, has had also an impact on further extension of the duration of the project implementation. The final financial audit report was received in April 2013.

II. Project Objective

This proposed project was a follow-up to the project PD 3/95 Rev. 2 (F), which was the Phase I implemented by Ghana in collaboration with Cameroon and Cote d'Ivoire, which focused on the genetic improvement of Iroko species through the selection of resistant seeds and individuals, vegetative reproduction and silvicultural techniques for the establishment and development of healthy Iroko plantations. During thag Phase I, gene conservation plots of various Iroko provenances and arboreta of mother trees selected for their tolerance to attacks of the pest were established, and the production of cuttings from clones was developed. The development objective of Phase II was the conservation and sustainable management of the Iroko populations in Ivory Coast. The project specifically focused on broadening the genetic base of the available material for the collection of new provenances and on the establishment of experimental plantations of Iroko.

III. Project Achievements and Outputs

In accordance with the project document, completion report and final financial audit report, all project activities had been implemented in the new project site secured in the Gazetted Forest of Sangoue, as the previous project in Kani District (where the Phase I project had been implemented) was located the region occupied by rebel groups, in the Northern part of Cote d'Ivoire. Except the construction of a warehouse, because of the decrease of ITTO budget, due to the devaluation of the US Dollar vis-à-vis to CFA Franc

which is linked to Euro through a fixed exchange rate (1 Euro for 565 CFA Franc), the implementation of project activities contributed to the main following achievements and outputs:

- Clones of Iroko resistant to the attacks of Phytolyma lata were identified and used in the establishment of trial plots in order to get resistant clones to be subject to a comparative evaluation test, based on a complete randomized blocks experimental design, for a long term scientific follow-up by the executing Agency (SODEFOR);
- The Executing Agency has collected 4,4 kg of Iroko seeds from 34 pest-resistant mother trees located in 15 provenances, in Côte d'Ivoire (Biankouman, Sangouine, Tiemelekro, Koitienkro, Agnibilekro, Betie, Tanda and Tene forests);
- Regional exchange of experience and expertise had been undertaken with FORIG-Ghana through regular exchange of experts on how to implement the cuttings propagation techniques of Iroko, while that cooperation with ANAFOR (Cameroon) was focused on the participation of four Cameroonian experts in two workshops for information sharing;
- 2.01 ha of orchards of Iroko pest-resistant clones were established and had been subject to scientific assessment with the compilation of data and information on diameter and height, number of branches and phyto-sanitary status;
- A nursery, with a modern irrigation system, had produced around 12,000 seedlings of Milicia excelsa derived from cuttings propagation techniques based on the experiences learned from experts of FORIG-Ghana; and
- 100 ha of experimental mixed plantations (with Iroko representing 25% of seedlings planted), composed of Iroko pest-resistant seedlings and companion species (Khaya anthoteca, Tectona grandis and Acacia mangium), had been established and should be subject to long term scientific follow-up, in order to assess how the mixing of timber species could have an impact on the attacks of Phytolama lata on Iroko. The bushfire due to a long period of drought had destroyed 65 ha of experimental mixed plantations.

IV. Outcomes and Impacts

The achievement of the two project specific objectives had contributed to the realization of the development objective dealing with the improvement of genetic resistance of Iroko to the attacks of *Phytolama lata*, as summarized in the main following outcomes and impacts:

- The implementation of this project had contributed to make available pest-resistant plant materials of Iroko and test their viability through improved techniques of cuttings, with the involvement of the National Agronomy Research Centre of Cote d'Ivore (CNRA) and University of Yamoussoukro, for forestry restoration activities by timber industrialists, local communities, government institutions, etc.; and
- Technical cooperation have become a reality among SODEFOR (Cote d'Ivoire), ANAFOR (Cameroon) and FORIG (Ghana) on issues regarding exchange of information and expertise on Iroko pest-resistant plant materials.

V. Lessons Learnt and sustainability

The main lessons learned during the implementation of this project in a secure place in Cote d'Ivoire can be summarized as follows:

- Need to get the ITTO budget in Euro, for African countries having CFA Franc in common, in order to avoid the decrease of the budget due to the devaluation of US dollar, and therefore its impact on the smooth implementation of an ITTO project;
- Simplify administrative bureaucratic procedures to get authorization for the exchange of plant materials between research centers and/or institutions collaborating through the implementation of an ITTO project; and
- There is still a need to ensure the real financial support of private sector, which will be benefiting from the project results through the availability of pest-resistant Iroko plant materials. An appropriate sensitization campaign should be undertaken by SODEFOR, CNRA and University of Yamoussoukro and be targeting the private sector in Cote d'Ivoire.

As regards sustainability, most of the project outcomes will continue to be subject to scientific follow-up by the National Agronomy Research Centre of Cote d'Ivoire and the University of Yamoussoukro which will continue to collaborate with SODEFOR for field works to be undertaken by researchers and/or students on established orchards and plantations of pest-resistant Iroko. Most of the project results had been

replicated in Ghana and Cameroon, through a dissemination of scientific findings and expertise sharing process.

VI. Concluding Remarks

As the ITTO Secretariat received the Project Completion Report, Technical Reports and the Final Financial Audit Report, the Project PD 054/00 Rev.4 (F) will be reported as completed. Copies of the Completion Report and Technical Reports are available, upon written request, from either the Executing Agency or the Secretariat.

(3) PD 66/01 Rev.1 (F) Establishment of the Mengamé-Minkébé Transboundary Gorilla Sanctuary (MMGS) at the Cameroon-Gabon Border (Cameroon)

Budget and Funding Sources:

Total Budget:			US$	968,091
ITTO Budget:			US$	770,751
Government of Japan:	US$	530,751		
Government of Switzerland:	US$	200,000		
Government of U.S.A.:	US$	40,000		
Government of Cameroon:			US$	197,340

Implementing Agency:	Directorate of Fauna and Protected Areas, Ministry of Environment and Forestry
Session of Approval:	ITTC Session XXX, June 2001, Yaoundé, Cameroon
Starting Date and Duration:	17 September 2002 / 24 months
Approved Revised Date of Project Completion:	First Project Extension until December 2004 (NOLF.04-0633) Second Project Extension until June 2006 (NOLF.05-0121) Third Project Extension until June 2007 (NOLF.06-0222) Fourth Project Extension until June 2008 (NOLF.07-0258)

I. Introduction

The project was approved by the Council at its Thirtieth Session in June 2001. Full financing was pledged by the Governments of Japan, Switzerland and USA at the Thirty-first Council session in November 2001. The Agreement regulating the implementation of the project was signed on 24 April 2002 and the first disbursement of funds was made in September 2002. Four project extensions were granted until June 2008 without additional ITTO funds, by the ITTO Secretariat, based on official requests including proper justification with appropriate detailed work plan and budget. As an acceptable version of the project completion report was received in May 2011, the duration of the project implementation had lasted 104 months instead of 24 initially designed by the Executing Agency. The final financial audit report was received in January 2013.

II. Project Objective

The project aimed at contributing to the protection of the Gorillas and of their habitats in the MMGS. Specific objectives were as follows: (1) to put in place a collaborative management process for the sanctuary to ensure its protection, and (2) to initiate a process for trans-boundary cooperation between Cameroon and Gabon for the joint management of the gorilla sanctuary.

III. Project Achievements and Outputs

In accordance with the project document, technical reports, completion report and final financial audit report, most project activities were implemented and completed except the trans-boundary related activities due to the lack of political will of both countries (Cameroon and Gabon) to facilitate the project implementation. At the project completion, the main achievements and outputs could be summarized as follows:

- The boundaries of the Complex of Mengame Gorilla Sanctuary and Kom National Park had been demarcated and materialized with the cooperation of local communities living in 34 villages surrounding the protected area. This led to the mapping of a protected area of 95,800 hectares, divided in two blocks of 69,020 hectares (Mengame) and 26,780 hectares (Kom) respectively;
- The Executing Agency, with the support of relevant experts, prepared draft decrees dealing with the creation and establishment of the Complex of Mengame Gorilla Sanctuary and Kom National Park and submitted those draft decrees to the Prime Minister of the Government of Cameroon, for the approval process. The signing of those decrees is still pending at the office of the Prime Minister of Cameroon, for the formalization of the existence of the Complex of Mengame Gorilla Sanctuary and Kom National Park;
- The draft integrated management plan of the Complex of Mengame Gorilla Sanctuary and Kom National Park had been approved at the local level, in Oveng and Mvangane Counties, by the local communities and local authorities, in July 2007. The draft integrated management plan was developed with the inputs and findings of consultants reports (multi-resources inventory, socio-economic aspects, guidelines for the management of buffer zones, eco-tourism development, non-timber forest products) and the involvement of key stakeholders (governmental institutions, local authorities, local communities, forest concessionaires souring the protected area); and
- The technical collaboration had been initiated with the Commission on Forests of Central Africa (COMIFAC) in order to get this protect area being part of the TRIDOM Programme which includes three other protected areas (Dja in Cameroon, Minkebe in Gabon and Odzala in Congo-Brazzaville), in order to ensure the continuity of relevant project outcomes. The inclusion of this protected area in the TRIDOM Programme is subject to the signing of the decrees creating and establishing it.

IV. Outcomes and Impacts

The project implementation had contributed to the achievement of the first specific objective (to put in place a collaborative management process for the sanctuary to ensure its protection), while the second specific objective (to initiate a process for trans-boundary cooperation between Cameroon and Gabon for the joint management of the gorilla sanctuary) was not achieved as the transboundary-related activities were not implemented. The project implementation contributed to the main following outcomes and impacts:

- The preparation of an integrated in management plan of the Complex of Mengame Gorilla Sanctuary and Kom National Park had contributed to update the knowledge on the biodiversity and socio-economic aspects of this protected area, as well as those of the future buffer zone;
- The project office established in Oveng village was appreciated by villagers, as its electric generator had been providing light for the first time in this village; and
- All forest concessions surrounding the Complex of of Mengame Gorilla Sanctuary and Kom National Park had been sensitized on their role of buffer zone for the protection of this protect area, which is supposed to be part of the TRIDOM Programme, if its creation and establishment is approved by the Prime Minister of Cameroon.

V. Lessons Learnt and sustainability

Lessons learned during the project implementation in the Southern part of Cameroon, for the establishment of the Mengame-Minkebe transboundary gorilla sanctuary at the Cameroon-Gabon border, can be summarized as follows:

- The project strategy of involving relevant stakeholders, through a partnership among main relevant stakeholders and targeted beneficiaries (private forest concessions surrounding the protected area, governmental institution such as with the Ministry in charge of forestry, environmental NGOs and local communities) was key to the achievement of the project's first specific objective;
- In addition to the lack of political will, mentioned here above, the non-existence of similar structure operating in the Gabon's side within the Minkebe Gazetted Forest, the transboundary related activities could not be successfully implemented for the achievement of the project's second specific objective; and
- The success of biodiversity conservation in that Southern part of Cameroon will depend on the availability of alternative activities for livelihood and alternative sources of animal proteins in order to partially replace bush meat, for local communities.

For the continuity and sustainability of main project outcomes, the collaboration had been initiated with the Commission on Forests of Central Africa (COMIFAC) in order to get this protect area being considered as part of the TRIDOM Programme. The inclusion of this protected area in the TRIDOM Programme is subject to the approval of the decrees creating and establishing it by the prime Minister of Cameroon.

VI. Concluding Remarks

As the ITTO Secretariat had received the Project Completion Report, Technical Reports, Final Financial Audit Report, the Project PD 066/01 Rev.1 (F) will be reported as completed, after the implementation of the follow-up/recommendations of the Division of Operations related to the review of the final financial audit report. Copies of the Completion Report and Technical Reports are available upon request either from Executing Agency or from the Secretariat.

(4) PD 142/02 Rev.2 (F) Sustainable Production of National Forests under the "Regime of Forest Concessions" (Brazil)

Budget and Funding Sources:

Total Budget:			US$	1,325,394
ITTO Budget:			US$	878,157
Government of Japan:	US$	798,157		
Government of U.S.A.:	US$	80,000		
DIFLOR			US$	447,237

Implementing Agency:	Brazilian Forestry Service -SFB (formerly National Forest Program Directorate - DIFLOR), Ministry of the Environment (MMA)
Session of Approval:	ITTC Session XXXII, May 2002, Bali, Indonesia
Starting Date and Duration:	April 2005 / 24 months
Approved Revised Date of Project Completion:	First extension until December 2008 (CRFXLI) Second extension until December 2009 (CRFXLII) Third extension until March 2012 proposed during the PSC meeting held in Brasilia in November 2010

The Council approved and fully financed this project at its Thirty-second Session. The Agreement regulating the implementation of the project was signed in May 2004. Upon submission of the first Yearly Plan of Operation and a notification from the Executing Agency that the project was ready to start, the Secretariat disbursed the first installment of funds in April 2005.

The project envisions increasing the production of timber from sustainably managed natural forests in the Brazilian Amazon and is a cornerstone of the Brazilian National Forest Program, which has the goal of expanding the management of native forests in public areas to reach 50 million hectares by 2010. The Project specifically aims at carrying out the necessary preparatory studies to develop a "Regime of Forest Concessions" for sustainable timber production in Brazil, as well as to elaborate the related management plans and the rules and procedures for the concessions.

The slow implementation of project activities, mainly due to institutional arrangements and technical requirements for the management of the National Forests in Brazil has severely affected the development of the project. However, the EA has completed almost all the project scheduled activities.

The EA submitted a completion report, the final audit, as well as all products and articles required. Therefore, the project can be considered to be completed.

I. Introduction

The Brazilian territory is covered by approximately 5.5 million km2 of natural forests. The Amazon forest represents about 40% of this area, with Brazil being the country holding the largest extension of

tropical forests. The forest activity is economically important, contributing about 4% of the GDP of national exports, mainly from segments of pulp, paper, furniture, panels, and mechanically processed wood.

The model of colonization employed in the region, from the 1970s, was based on the expansion of the agricultural frontier with predatory exploitation of forest resources, especially for the disorderly situation associated with the opening of roads and the agrarian system of land distribution.

Origin and problem addressed

Despite having already advanced in the regulation of sustainable forest management for timber production in the region at the end of the 1990s, one of the factors limiting the expansion of forest management in the Amazon already identified was the agrarian issue. The large-scale production would require the availability of large areas acquired by companies, however an analysis of land tenure indicated that most of the forest was in the public domain and therefore legally inaccessible for forest production by private companies.

The debates on technical and scientific events soon raised the need to establish mechanisms to make feasible forest management of public lands, especially in the national forests, which are conservation units included in the category of sustainable use. A legal instrument to allow forest management of the national forests was seen as a legitimate alternative of forest policy.

Motivation for the project implementation

The scarcity of private forest for production and the supply of industries by unsustainable sources placed the forest sector in the Amazon in danger by the lack of promising scenarios. According to forecasts made at the time of elaboration of this project, within a few years the wood supply in Brazil would not meet the demand of forest-based industries and also the reduction of stock woods from Asian countries could further increase the pressure on Brazilian forests.

As for other conservation units, the primary requirement for the accomplishment of any productive activity in the national forests is the development of its management plan. Additionally in the process of preparing the management plan for the national forests, where necessary, it should be guaranteed the participation of the native or traditional people living there.

Relationship of the project with sectorial policies affecting the tropical timber market

At the formulation stage and starting period of the project, a political fact with potential impact on the tropical timber market was undoubtedly the creation of the National Forest Program (NFP). The NFP was formulated and approved to promote the sustainable forest development, harmonizing the economic use of forest resources and the protection of ecosystems, as well as expanding the markets of forest products both nationally and internationally.

Another public policy that certainly had an impact on the tropical timber market in the Amazon, was the establishment of a strategic plan to combat deforestation and the disorderly occupation of the territory.

With the launch of the Action Plan for the Prevention and Control of Deforestation in the Legal Amazon - PPCDAM in 2004, the field actions to curb deforestation gained scale, causing significant reduction in the annual deforestation rate.

The area of project operation was concentrated in Pará state, specifically in four National Forests, the FLONAS, Altamira, Caxiuanã and Itaituba I and II. It is important to note that National Forests Itaituba I and II are contiguous and united, with smaller areas than the other two, making them almost one forest. These four areas were chosen because each one has some particular condition for sustainable forest production through forest concessions. Among the conditions for their selection, it should be highlighted the location, access and forest potential for timber production.

II. Project Objective

The project was designed to contribute to the management of public forests in the Amazon, offering results that could accelerate the implementation of forest management through forest concessions. There follows the structure for its execution and a short description of activities undertaken to achieve each expected outcome.

Development objective

The development objective of the project was to contribute to the increase in the production of wood from sustainable management of native forests in the Brazilian Legal Amazon.

Specific Objective

The specific objectives were: i) to prepare management plans and ii) the establishment of rules and procedures for initiating the concession for the timber sustainable production from the National Forests of Caxiuanã, Altamira and Itaituba I and II.

III. Project Achievements and Outputs

Output 1: Framework for the implementation of the project established and organized

A working team was organized to implement the project, involving officials from the Ministry of Environment and IBAMA and subsequently the SFB and ICMBio, which are responsible for the purchase of goods and services from the National Forests, including the preparation of terms of reference and the companies, contracting as well as the preparation of project reports. Compliance with the result: 100%.

Output 2: Forest Inventories carried out at all project FLONAS.

Forest inventories of the FLONAS of Altamira, Caxiuanã and Itaituba I and II were carried out. This involved detailed planning based on maps and satellite images of forest stratification by forest type and the selection of sample units according to the importance of each stratum for production forestry. The forest inventories were designed to produce information for the zoning of the FLONAS and development of its Management Plan. In total, the project allowed the forest inventory of 1.7 million hectares of forests. Compliance with the result: 100%

Output 3: Socio-economic surveys carried out at all project FLONAS.

Socioeconomic surveys were carried out in the FLONAS of Altamira, Caxiuanã and Itaituba I and II. The methodology consisted of interviews with the local population, using as tool, a questionnaire developed by the Forest Service, designed to capture information on family composition, age, sex, family consumption standards, education, migration economic activities, transport used, income and relationship with forests. The data allowed for the establishment of standards of life for the communities living in national forests and a mapping of their location. Considering all national forests studied, a total of 598 families were interviewed. Compliance with the result: 100%

Output 4: Ecosystems Identified and studied in all project FLONAS.

The identification of ecosystems was made by local environmental studies, according to the methodology established by ICMBio, which is an adaptation of Rapid Ecological Assessment (AER). The study consisted of field surveys to obtain information on species of fish, insects and larger animals such as mammals and reptiles, as well as tree species. In the case of the FLONAS of Itaituba I and II, secondary information was used for the characterization of ecosystems, considering that there is information available from field studies done in nearby areas with similar characteristics. Compliance with the result: 100%

Output 5: Management plans for all project FLONAS developed.

Management plans for the FLONAS of Caxiuanã and Altamira were completed. The management plan preparation of conservation units is competence of the institution responsible for its management. The Management Plan of Conservation Units, PMUC (as for the acronyms in Portuguese) is the result of the analysis of all information produced from field surveys, secondary information, as well as workshops and the institutionalization of an advisory council with the participation of representatives of interest groups in the national forest. The approval of the management plan is completed with the publication of a decree in the Official Gazette. Although the project has worked to gather most of the information necessary for the preparation of the management plan, in the case of Itaituba I and II it was not possible to reach its conclusion. Compliance with the result: 70%

Output 6: Rules and procedures for the concessions established.

The law No. 11.284/2006 was approved in the National Congress. It deals with the management of public forests for the production of goods and services, including the National Forest Concession as a possibility. It

was approved as well the Presidential Decree No 6.063/2007, which regulates the main issues related to forest concession. In addition to these legal frameworks, the Forest Service has made progress in defining the main procedures and rules necessary for the implementation of forest concessions in the Amazon. At the end of the project some 200 thousand hectares of forests managed under forest concessions were already producing wood and another 1 million hectares of forests entered into the process of forest concession under bidding in 2013. Compliance with the result: 100%

A list of 27 items was presented by the EA as direct outputs from the project. The most significant are:

1. Diagnosis and Study of Vegetation Mosaic of the “Terra do Meio” ("Middle Earth") Technical Report 1, Expedition - November/2007;

2. Report on the Forest Sampling Inventory of the National Forest of Altamira - INAM Amazon Nature Institute

3. Socioeconomic survey of the residing population in the National Forest of Altamira (PA) and its surroundings - Institute of Integrated Studies Citizen of the Amazon – INEA

4. Management Plan of the National Forest of Altamira, Pará - Chico Mendes Institute for Conservation of Biodiversity – ICMBio

5. Rapid Ecological Assessment Report of the National Forest Caxiuanã

6. Report on the Forest Sampling Inventory of the National Forest of Caxiuanã – INAM Amazon Nature Institute

7. Socio-economic survey of the Caxiuanã National Forest, Pará - Brazilian Institute of Environment and Renewable Natural Resources – IBAMA

8. Management Plan of the Caxiuanã National Forest, Pará - Chico Mendes Institute for Conservation of Biodiversity – ICMBio

9. Forest Inventory of the National Forest Itaituba I - Final Report – ECO Florestal LTDA

10. Forest Inventory of the National Forest Itaituba II - Final Report – ECO Florestal LTDA

11. Socioeconomic Diagnosis of the National Forest Itaituba I (Western of Pará) - Chico Mendes Institute for Biodiversity Conservation

12. Socioeconomic Diagnosis of the National Forest Itaituba II (Western of Pará) - Chico Mendes Institute for Biodiversity Conservation

IV. Outcomes and Impacts

The project has brought about significant contributions to the process of construction of public policy instruments towards the managing of public forests through sustainable forest management. Considering the project objectives, structure and financial resources, in addition to the institutional changes that occurred during its execution, the main results can be expressed in two groups. The first refers to the management plans of the National Forests of the project, for being indispensable requisite for the implementation of forest concessions in these areas. The second refers to the rules and procedures for the operation of forest concessions, not only in the project Forests, but throughout the country, especially in the Amazon, where predominantly (around 90%) are public forests. Thus, the following is a description of these results, with reference to various studies and documents produced by the project and in the institutions involved.

Management Plans for the project National Forests.

National Forest of Caxiuanã

Studies conducted in the National Forests of Caxiuanã indicate a diverse forest landscape, represented by typical Amazonian forest ecosystem, with dry land, waterlogged areas, patches of secondary forest and non-forest vegetation similar to savannas. In its management plan, the FLONA of Caxiuanã was divided into six sectors or areas of management objectives and standards specific to each of them. They are:

Primitive Zone, Interference Experimental Zone, Population Zone, Zone of Sustainable Forest Management Community, Zone of Sustainable Forest Management, Special Use Zone and Buffer Zone.

These zones reflect the effort of several studies and constitute an important instrument for managing the National Forest. It is important to note that forest concessions, when implemented, will occupy the Zone of Sustainable Forest Management which, in the case of Caxiuanã, corresponds to 57% of the total area of the national forest.

National Forest of Altamira

The National Forest of Altamira is located in the region that corresponds to the Amazon tropical forests with rain of the monsoon variety, having a dry season of short duration, with rainfall less than 60 mm in the dry month. These zones are: Preservation Zone, Primitive Zone, Zone of Sustainable Forest Management, Zone of Sustainable Forest Management in Low Intensity, Conflicting Use Zone, Public Use Zone, Special Use Zone, Recovery Zone, and Buffer Zone.

In the case of the National Forest of Altamira and in accordance with what was defined in the zoning, forest concessions, when implemented, will occupy the Zone of Sustainable Forest Management which corresponds to 57% of the total area of the national forest.

National Forest of Itaituba I and II

The National Forest of Itaituba I has an area of 220,034 ha. Of this total, approximately 217,616 ha are occupied by natural forest, which represents 98.9% of the total area. The National Forest of Itaituba II has an area of 440,500 hectares. Of this total, approximately 410,385 hectares are occupied by natural forest, which represents 93.2% of the total area.

Legal matters

The project contributed to the development of rules for the implementation of forest concessions in public forests in Brazil, and this law was promulgated in 2006 and is being used for the provision of public areas in the Brazilian Amazon.

Forest concessions implementation

Management plans for the National Forests of Altamira and Caxiuanã were prepared. The process of forest concession in Altamira has already started with the publication of the pre-announcement of bidding. Although it was not possible to complete the management plan for the national forests of Itaituba I and II, all the necessary studies have been completed. Its conclusion is only a matter of time, since the process of contracting services for its preparation is already underway. It is important to note that these forests are the subject of a study for modeling of forest concessions, through a partnership between the Forest Service and the International Finance Corporation - IFC.

An important aspect to note is that the project contributed to the establishment of a concessions system being applied in other national forests in the region, including state forests, thus characterizing a multiplier effect.

In general terms, considering the context of project execution and the aspects of the topic covered - forest concessions, the extent and characteristics of the region involved, as well as institutional changes which happened, the project certainly achieved its main objectives.

V. Lessons Learnt and Sustainability

Lessons learned

The executing agency must have governance over all project activities under its responsibility. In projects that involve more than one institution in the public sector, the institutional and financial arrangements must provide that the executing agency should be responsible for the full cycle of project implementation. In the case of this project, for example, the execution of the project for an institution that had no governance (SFB) on all processes involved in the management of national forests made difficult and delayed the implementation of the planned activities.

Unforeseen Institutional changes have impacted the execution of projects. During project implementation, the organizational structures of the Ministry of Environmental and its related institutions have undergone a major structural change, altering the responsibilities regarding the management of the FLONAS and impacting the project execution.

The overlapping of institutional competencies on the same area made the implementation of the project difficult. Currently, the management of a National Forest involves three different federal institutions (ICMBio, IBAMA and SFB). As a result, the processes of decision-making and administrative flows have difficulties, generating delays in the implementation of project activities planned for the conservation unit.

Reconciling conservation interests (ICMBio) and sustainable use for the production of wood (SFB), was a challenge for the implementation of the project. The execution of the project involved the participation of two institutions with different competencies and different views on the type of management, despite the clarity of the object to create a national forest.

Sustainability

The four FLONA benefited by the project, will enter the process of concession of public forests in the coming years and thus generate income through sustainable production, thus serving to govern in regulating the timber market and benefiting local populations.

The law 11.284/2006 establishing the legal framework for forest concessions in public areas is already being used to regulate the practice of sustainable timber and non-timber forest activities and services. It is important to note that the rules of forest concession establish that part of the financial resources obtained with the payment of timber exploited must be transferred to the institution responsible for the National Forest.

VI. Concluding Remarks

The project achieved its objectives, contributing to the implementation of sustainable forest management in public forests of the Amazon, through the forest concession.

The National Forests can contribute significantly to the supply of wood from sustainable sources in the Amazon, without putting at risk the maintenance of standing forests, to the provision of the environmental services, to the employment opportunities and income generation for local populations, and economic development of the region on a sustainable basis.

(5) PD 248/03 Rev.4 (F) Antimary Forest Management Regional Training Center (Brazil)

Budget and Funding Sources:

Total Budget:			US$	784,800
ITTO Budget:			US$	577,800
Government of Switzerland:	US$	250,000		
Government of Japan:	US$	227,800		
Government of U.S.A.:	US$	100,000		
FUNTAC:			US$	207,000

Implementing Agency:	State of Acre Technology Foundation (FUNTAC)
Session of Approval:	ITTC Session XXXVII, December 2004, Yokohama, Japan
Starting Date and Duration:	July 2006 / 24 months
Approved Revised Date of Project Completion:	First extension until December 31, 2011 (XLVI)

A fourth revision of this project proposal was approved and fully funded by the Council at its Thirty-seventh Session in December 2004. The Agreement regulating the implementation of the project was signed in September 2005. Upon the submission of the Yearly Plan of Operations, the disbursement of funds were made in July 2006, November 2008, April 2009 and the final one in May 2011.

This project aims to contribute towards the sustainability of forest management practices in the Western Amazon and the achievement of ITTO's Objective 2000 through the establishment of a regional training center for sustainable forest management in the State of Acre. This proposed center takes advantage of the existing facilities in the Antimary State Forest and focus on improving the knowledge and

capacities of forest operators, technicians and forest workers at the forest management unit level. It also puts in place several dissemination mechanisms oriented towards the promotion of sustainable forest management practices. The location of the project makes it possible to carry out training activities not only for the Brazilian States of Acre, Amazonas, Rondônia and Mato Grosso, but also for the Bolivian Departments of Pando and Beni, and the Peruvian Department of Madre de Dios.

During the first half of 2013, the EA posted a version of the completion report, which had inconsistencies after examination by the ITTO Secretariat. It was requested to the EA that the corresponding changes and corrections be made in the shortest time as possible. Additionaly, the EA presented the final audit report and project products. Therefore, the project can be considered completed.

I Introduction

In Brazil most of the existing tropical forests are located in the Amazon region. They cover more than 50% of the 8.5 million square kilometers of the total country area. It is estimated that in the Amazon there are more than 250 million hectares that can be classified as production forest, representing an enormous potential for the regional socio economic development.

Among the Brazilian projects funded by ITTO is the Antimary Project, which supported the establishment of the Antimary State Forest (ASF), a public forest located in the Sena Madureira municipality, in the state of Acre. The State Forest covers a total area of approximately 47 thousand hectares. The project consolidated the Antimary State Forest, and produced several information needed for the preparation and implementation of the forest management plan. The proposal to establish a training center in Acre associated with a model center for training and forest administration was linked to a political decision of the Government of Acre to support the development of the forest industry by taking into account the principles of sustainability of tropical forests and the need to reduce poverty and improve the living conditions of the population of the region by promoting the Community Forest Management.

The selection of the Antimary State Forest - ASF for the establishment of the training center model on sustainable forest management takes into consideration several aspects and factors including:

- It was the first public forest to go into the Forest Management System on an industrial scale;
- This experience together with the Tapajos National Forest was used as reference in the elaboration of the Law Project that regulates the forest concessions on a national scale;
- The ITTO and The Government of Acre have already made several investments in the ASF Project, and the basic infrastructure is already available in the local;
- A sustainable forest management model is now operational in the ASF, and can be used to as a demonstration model or a case to be studied;
- The ASF structure has been used for the realization of trainings in sustainable forestry, directed to the communities and companies of Brazil, Bolivia and Peru
- The ASF is strategically located and can support the training needs of personnel from public and private organizations.

The State of Acre, based on experience gained along the last few years by implementation of several projects, for example the Antimary Project financed by ITTO, has developed several policies to protect forests and to regulate their use. The policy adopted by the State of Acre includes Law 1426 from December, 2001. This law defines the preservation and conservation of forests in the State and establishes a State System for Natural Protected Areas. Furthermore, through this law, the State Forestry Council and the State Forestry Fund were created.

In spite of the fact that the legal framework is well established, both at the Federal and Acre state level, there are problems in implementing forest management at the field level on a broad scale. The problem is severe particularly in remote areas in the Amazon region, such as in the Western Amazon. The state of Acre for instance has in place the entire legal framework to promote sustainable management, including incentives to support the development of a sustainable forest industry, but the field implementation continues to be difficult. The problems faced in Acre are similar, to some extent, to the problems faced in other States within the Brazilian Amazon region, and also in Bolivia, Peru and other Latin American countries.

The project contributed to the change of this situation. It established a training model center in forest management and administration in that region to train forest operators and workers on a continuous basis. The training center was established within a forest area (Antimary State Forest) now recognized as a model

for sustainable management of the region, transferring the know-how gained along the last years to persons directly involved in forest management operations in the region.

II. Project Objective

The training center is not just a training base for the dissemination of information on the experience gained in Antimary, but it is also responsible for forming competences and improving the administration and technical supervision processes in the production state forests. Besides this, it also serves to put into practice the knowledge of universities and research organizations operating in Brazil. It is also a place to exchange experiences among countries of the region, particularly Bolivia and Peru.

General Objective

The objective of the project was to contribute to the implementation of a sustainable forest policy in the Occidental Amazon as well as to capacitate human resources and disseminate information on forest management practices in the Occidental Amazon aimed at supporting the development of policies which promote sustainable forest management in the region.

Specific Objective

To build up human capacity and disseminate information regarding forest management practices in the Western Amazon aimed at supporting the development of forest policies which promote sustainable forest management in the region.

III. Project Achievements and Outputs

Output 1: A Regional Forest Management Training center established and operating.
Activities:

- To procure the services to enlarge and improve existing facilities at the Antimary Forest including lodging and training buildings.
- To hire the services to establish the enlarged/improved facilities.

Output 2: Implementation of a training program on appropriated forest practices for the sustainable management of tropical forests in the region, with 300 persons of the region trained.
Activities:

- To carry out consultations with stakeholders in the region and identify the need of specific training.
- To prepare a training program proposal, including sustainable forestry plan and practices, chain of custody and environmental and social monitoring.
- To prepare and convene a workshop to collect views on the training program proposed, improve and validate.
- To adapt the training materials of CENAFLOR (National Center of Forest Management Support) to the region.
- To prepare and print 4000 copies of training materials including a manual on forest practices adapted to the region.
- To prepare promotional material and disseminate information on the training program.
- To select candidates for the specific training courses.
- To carry out the training courses.
- To organize and carry out 10 “walk-in- the-forest days” to disseminate the training materials.
- To carry out an assessment of the efficiency and effectiveness of the training courses and propose changes for improvements.

Output 3: Forest Technical School strengthened and forming 25 forest technicians/year (with three vacancies per year for students from other Amazon basin countries).
Activities:

- To prepare and carry out two annual courses in forestry managing addressed to forest technician students.
- To prepare in a participatory manner and carry out a training program for the staff and instructors of the State Forest Technician School.
- To carry out an assessment of the efficiency and effectiveness of the training courses and propose changes for improvements

Output 4: An extension program on appropriated forest practices for the sustainable community management of tropical forest established, with 150 families benefited.
Activities:

- To prepare a technical assistance program for community forestry.
- To select 20 forest extension technicians to work on the technical assistance program.
- To elaborate and carry out the training for forest extension technicians.
- To procure and purchase the equipment and materials required for the active work of extension technicians;
- To provide equipment and start the work with the 20 forest extension technicians.
- Selection of 150 families in the Forest Settlement Project "Providência Capital".
- Provide technical assistance to the 150 families selected.
- To carry out an assessment of the efficiency and effectiveness of the technical assistance and propose changes for improvements

The project had as final outcomes the following products:

- Conducting operational training practices to reduce impact logging.
- Realization of 130 courses.
- Training of 2,188 people.
- Preparation of 4,000 copies of course materials.
- To strengthen the forest multiple use.
- Strengthening the Training Center in Forest Management.
- Expansion of the working area of the Training Center.

The project completed the activities and the expected results were all obtained. Some of the important aspects and data can be summarized as follows:

- The Regional Forest Management Training Center was established and is under operation;
- The training program on appropriated forest practices for the sustainable management of tropical forests in the region was successfully executed with 300 persons being trained, as shown by the numbers of courses (with the years in brackets):
  - 130 courses: 5 (2007), 19 (2008), 32 (2009), 23 (2010), 9 (2011), 16 (2012); and 26 (2013)
  - 2188 persons trained: 45 (2007), 312 (2008), 410 (2009), 339 (2010), 156 (2011), 304 (2012); and 622 (2013).
  - 30 people trained at the center for working in capacity building in forestry management as an extension work, multiplying such practices in communities and others sectors; and
  - 4000 copies of training materials, including a manual on forest practice adapted to Acre region, were printed in booklet format.

IV. Outcomes and Impacts

After completion of the planned activities in this project, it can be affirmed that the specific purpose related to building up human capacity and disseminating information in forest management practices in the Western Amazon aiming to support the development of the forest policies to promote the sustainable forest management in the region were achieved.

The Implementation of the training program was reached because the ASF (or FEA in Portuguese) has become a benchmark for training and visits of researchers, students from schools and universities, in addition to implementation of the research base. Strengthening of the Forest Technical School reached its objective through the implementation of the partnership in the education of egressed students in forestry technician course.

The extension program was only partly achieved because FUNTAC did not develop extension actions. However partnerships with the Secretary of Forest Development, Industry, Trade and Sustainable Services-SEDENS and Community Forest Producers Cooperative (Cooperfloresta) ensured compliance to sustainable communities.

The Project contributed to the development of the sustainable forest policy of Acre and enabled the spread of a model of forest management that can be implemented in state and production forests in the Acre State. Another relevant factor was the establishment of public-private partnerships, through cooperation and protocols of intentions, aimed at guaranteeing training and capacity building, human resources planning, for management of reduced impact logging techniques. In the social sphere, this project promoted the

development of the traditional productive sector with the introduction of techniques for planning, preparation and implementation of forestry activities.

V. Lessons Learnt and sustainability

The ITTO project showed a positive goal that was to build up human capacity and disseminate information in forest management practices in the Western Amazon. This corresponds to the expectations and strategies set by the Federal and State Governments for both the region and specifically to Acre. As to the viability of the training program in ASF, they were of fundamental importance to infrastructure deployment and integration of existing government institutions to support training activities for the community (SEDENS and COOPERFLORESTA) and technical training in reduced impact logging (SEDENS and EMBRAPA).

Factors that may compromise the continuity and sustainability of the project are:

- Lack of sufficient government or external financial input;
- Fragility of the community with respect to forest management;
- Lack of ability in negotiating bids;

A project of this magnitude requires a monitoring and a coordinator with a greater deal of autonomy in the implementation of his/her activities and in the search of results. That project coordination can have autonomy in the conducting of technical studies and also in courses of monitoring costs.

Realization of frequent monitoring and evaluation of activities implemented could be done more frequently and not only annually and necessarily involving in person meetings. The M&E activities should be during the project planning for immediate execution and implementation, and not only after one year of execution.

Deadlines for resolving bureaucratic issues such as acquisition of equipment and performance of bids shall be considered and better sized for compliance activities in the periods stipulated in the project. These problems must be resolved, because the period for carrying out field activities in the Amazon region, more specifically in Acre is very short (5 months), due to the rainy season.

Governmental changes during the execution of a project can cause serious damage, ranging from lack of activities continuity, changing of priorities, in methodology and in project staff, what may bring the non-fulfillment of the outputs and therefore the project objectives.

The project shall have its actions well thought and planned ahead, towards achieving full compliance with the goals and objectives in the times and periods established. This plan will involve the project team, already scaled with all professional and technical resources and partner institutions. The planning may occur in the form of a workshop for discussion and development of a strategic plan of actions, roles and responsibilities of each of the projects participants.

The project coordination must have experience in all areas relating to the project (technical and financial) and has to be trained in a timely manner. The work dedication shall be integral.

The funds must be transferred in period consistent with the achievement of field activities of the project and accountability.

VI. Concluding Remarks

The Project was essential for the establishment of a Training Center in Forest Management in the Antimary State Forest, in the geographic center of a huge forest area covering the States of Acre, Amazonas, Mato Grosso and Rondonia, but also the Bolivian Departments of Pando and Beni and the Peruvian Department of Madre de Dios. More than erecting a building, it was created the complete practice of forest training for workers, for technicians, for extensionists, for community forestry and other results. The possibility of real scale operations make the Center a preferential place for the forest training in reduced impact logging and other forest courses.

The project succeeded in all senses and achieved its expectations, reaching the objectives, outputs and goals present in the original proposal, without the need of significant changes during implementation.

(6) PD 428/06 Rev.2 (F) Promoting the Rehabilitation, Management and Sustainable Use of Tropical Bamboo Forests in the North-Western Region of Peru

Budget and Funding Sources:

Total Budget:			US$	789,378
ITTO Budget:			US$	502,978
Government of Japan:	US$	502,978		
Government of Peru:			US$	140,000
PERUBAMBU:			US$	146,400

Implementing Agency:	Peruvian Association for Bamboo (PERUBAMBU) in cooperation with the National Institute for Natural Resources (INRENA)
Session of Approval:	ITTC Session XLII, May 2007, Port Moresby, PNG
Starting Date and Duration:	April 2009 / 36 months
Approved Revised Date of Project Completion:	First extension until October 2012 (NOL F.10-0168) Second extension until December 2012 (CRF XLVI)

I Introduction

The Council approved the project during its Forty-second Session in May 2007 and full financing for its implementation was pledged during the Forty-fourth Session in November 2008. The final agreement regulating the implementation of the project was duly signed in March 2009. The first installment of funds was transferred in April 2009, after the submission, by the Executing Agency, of the first Yearly Plan of Operations, a request for the no-objection of the project's key personnel and a notification that implementation is about to begin, and the approval of the aforementioned by the Secretariat. The second installment was executed in July 2010, the third one in February 2011, the fourth in September 2011, and the fifth in March 2012, all based on the prior submission and approval of the corresponding required 6-monthly progress reports and yearly YPOs. However, in 2012 project implementation could no longer keep up with the initially projected timeline as some activities suffered delays, particularly due to the erratic climatic conditions in the project's area of influence. As such, the Executing Agency applied twice for an extension in time without additional funds, the first until October 2012 and the second until December 2012, in order to successfully complete the project. The Secretariat and the CRF further extended the required no-objections in this regard. The last tranche of funds was transferred in August 2012. The project also submitted its annual audited reports for the years 2009, 2010 and 2011. The project's completion report and the final financial audited report were received by the Secretariat in March 2013, together with several technical documents and other related project outputs.

II. Project Objective

Most tropical forests with bamboo stands, particularly those in easily accessible areas of the north western region of the country where a high percentage of the local communities live in poverty conditions, are rapidly being degraded due to unplanned and uncontrolled overexploitation and other demographic pressures. It was therefore paramount to seek and implement alternative sustainable activities before these resources are irremediably depleted.

This proposal envisaged reducing the tropical forest degradation and simultaneously improving the socioeconomic conditions of extremely poor rural communities, as well as their environmental quality, in the aforementioned region. More specifically, it aimed to ensure the rehabilitation and sustainable management of degraded or endangered tropical forests with bamboo stands and to effectively contribute to poverty alleviation in an area with a high level of unmet basic needs and hence with a high level of deforestation (185,000 ha/year) in Peru.

III. Project Achievements and Outputs

The Project's field activities were completed in December 2012 and the overall project was reported as completed in March 2013. In accordance with the project document, all the planned activities were carried out

during the project's lifespan and its achievements can be summarized by major outputs and products envisaged by the project, as follows:

Output 1: Local population (250 people) trained in intermediate techniques for rehabilitation, management and sustainable utilisation of forests with bamboo stands

All activities required to achieve this output were implemented, as follows:

- The project operated from facilities provided by the Regional Government of San Martin in the city of Moyobamba;
- A literature review was carried out and background information was compiled on bamboo biology and management worldwide;
- The project's outreach activities were widely disseminated throughout the rural communities of the Provinces of Moyobamba, Rioja and Lamas and Huallaga in the Department of San Martin and in the Province of Bagua in the Department of Amazonas;
- Bilateral cooperation agreements were signed for the implementation of bamboo forest management and rehabilitation activities with several beneficiary organizations, as follows: the Shampuyacu Native Community and the Jepelacio and the Yantaló Municipal Governments in the Alto Mayo region, the Pinto Recodo Municipal Government in Lamas, the Grand Saposoa Cooperativa Ltda. in the San Martín region, and the Municipal Governments of Aramango and Imaza in the province of Bagua, in the Amazonas region;
- Interinstitutional cooperation agreements were signed with the Amazonas and San Martin Regional Goverments and with the Alto Mayo Special Project – PEAM;
- Bamboo forest inventories were carried out in the Departments of San Martín (provinces of Moyobamba and Rioja) and Amazonas (province of Bagua);
- The identification and evaluation of taxonomic, physiological and morphological characteristics of bamboo species in the project area was carried out with the support of an international expert from Colombia. As expected, these studies facilitated the identification of species with suitable morphological characteristics and physical-mechanical properties to be used for the rehabilitation and management of permanent bamboo production forests;
- Physical-mechanical properties studies were carried out for bamboo species jointly with the Ministry of Housing, Construction and Sanitation and the National Engineering University, with a view towards using these in housing prototypes. These studies were performed according to international standards (ISO/DIS 22157 "Assessment of physical-mechanical properties of bamboo");
- A thesis was carried out to determine the number and distribution of Bamboo species, both native and exotic, throughout Peru, and concluded there were 108 species present corresponding to 22 genera, of which 9 are native and 14 are exotic;
- A study was carried to establish the main plagues and diseases of bamboo in the North Western Region of Peru;
- Ten workshops were organized to assist local communities to improve their skills in bamboo propagation techniques, bamboo plantation establishment and sustainable management, and the rehabilitation of degraded bamboo forests. The training was led by an international expert from Colombia and benefited more than 300 local people. Follow-up in-situ workshops focused on detailed plantation maintenance and fertilization were also carried out periodically;
- A workshop was organized in Aramango to train locals in bamboo construction techniques. The training was carried out by an international expert from Ecuador;
- With the participation of the afore-mentioned locally-trained workers, the bamboo construction of the Mini Bamboo Crafts Centre - MINCABAMBU was completed, and further equipped with bamboo processing equipment;
- Three workshops were organized to train 39 locals on the elaboration of bamboo furniture and handicrafts and were directed by an expert from the Philippines, the first in Lima and the other two in Aramango and Moyobamba; and
- The project's technical team participated at various conferences on bamboo in China and Japan, and also visited bamboo centres in Colombia and Ecuador with a view towards interchanging experiences.

Output 2: Tropical bamboo forests (200 ha) rehabilitated and sustainably managed

All activities required to achieve this output were implemented, as follows:

- Seven bamboo vegetative reproduction nurseries were established, five in the Department of San Martin (one in the native community of Shampuyacu and one each in the districts of Yantalo, Saposoa, Pinto Recodo and Calzada), and two in the Department of Amazonas (in the districts of Aramango and Imaza). These nurseries produced around 200,000 bamboo plants in 2012, enough to plant 500 hectares of bamboo, and are expected to produce this amount every year;
- A total of 246.41 hectares of high tropical humid forest lands belonging to small settlers and native communities have been rehabilitated with bamboo by using agroforestry systems in 13 districts: 11 in the Department of San Martin and 02 in the Department of Amazonas;
- 76 hectares of natural bamboo forests belonging to the native communities of Yarau, Atumplaya and Huascayacu are being commercially harvested, and a bit more than half of these are now being properly managed, and
- Five Bamboo Forest Management Demonstration Areas have been established: 3 in Aramango and 2 in Alto Mayo – the best were selected via a competition among all the local bamboo planters trained by the project.

Output 3: Rural communities (2000 people) actively involved in and economically benefiting from four bamboo production chains

All activities required to achieve this output were implemented, as follows:

- A total of 2 workshops were organized to train locals in the establishment of bamboo production chains, one in Aramango and another in Imaza;
- One community bamboo products enterprise was legally constituted and is currently operational – "Asociacion de Productores de Bambú del Rio Marañon";
- The guidelines for the development of bamboo forest management plans was developed but is still pending approval by the relevant authorities so as to come into effect;
- A total of three technical pamphlets were produced and disseminated among farmers interested in bamboo plantations and architectural plans for a prototype bamboo house were produced;
- The project participated in many events and fairs, entered into many bilateral agreements with other institutions, widely promoted the use of bamboo at different events, and widely disseminated project outputs and products via articles, videos and reports through the mass media; and
- The project organized a visit by the Director of Science and Technology Promotion (Concytec) and the President and the General Manager of the National Agrarian Bank (Agrobanco) to Moyobamba and Aramango.

IV. Outcomes and Impacts

All project objectives were achieved. Among the many tangible outcomes of the project, the following deserve to be mentioned due to the impact they have had in improving the livelihoods of the local farmers in northern Peru via sustainable management of bamboo forests and in providing state-of-the art knowledge regarding bamboos in Peru:

1. Identification and Assessment of the Bamboo Forest Management Sites in the Area of Influence of Project PD 428/06 Rev.2 (F);
2. Physical and Mechanical Properties of Bamboo (*Guadua angustifolia* Kunt) from three (03) Natural Bamboo Forests: Flor del Valle, Atumplaya and Aramango;
3. Taxonomic Identification of the Bamboos in the Northwest Region of Peru;
4. Report of the Genetic Study using Microsatellite Markers in Three Biotypes of *Guadua angustifolia* collected in Peru;
5. Scientific report of two new species of *Guadua* in Peru;
6. Booklet: Methods of Bamboo Propagation (*Guadua angustifolia*);
7. Booklet: Managing a Bamboo Stand;
8. Booklet: Bamboo, Present and Future of a Millennial Plant - Vol 1 & 2;
9. Manual on Bamboo Furniture Manufacturing;
10. Handbook on the Propagation and Management of Bamboo Forests;
11. Natural Bamboo Forest Management Plans - procedures (pending approval by the Peruvian authorities);
12. Supreme Decree D.S. 017-2012, Ministry of Housing, National Technical Standard E.100: Design and Construction with Bamboo; and
13. A credit line for Reforestation and Forest Conservation created by Agrobanco (National Agrarian Bank of Peru).

Moreover, the following outcomes and impacts can be highlighted:

- Information is now available on the biology and marketing for the main bamboo species found in the project's area of influence;
- Simple intermediate technologies have been adapted for the efficient non-industrial processing of bamboo species found in the project's area of influence;
- Technical documents are available for the dissemination of information about the rehabilitation and management of tropical forests with bamboo stands;
- Natural forests with bamboo stands have been rehabilitated in the project area and are being appropriately managed and sustainably harvested, both individually and in combination with other timber and non-timber forest resources;
- Stakeholders in the bamboo production chain have been duly trained in intermediate rehabilitation, management and/or utilization techniques, and are now sustainably harvesting tropical forests and producing articles that satisfy market demand;
- The income levels of local communities, particularly those who are living in poverty conditions and depend on forests resources for their livelihood, have substantially increased as a result of the sustainable management, utilization and marketing of bamboo. Due to the improvement of bamboo production chain in the villages found in the project's area of influence, bamboo canes that previously sold for US$ 0.80/unit, are now, just with better quality control, being sold for US$ 4.80/unit, an increase of 600%;
- Due to the dramatic price changes of bamboo products garnered by the project, some local farmers are even switching some of their cash crops back to a more permanent bamboo forest cover, and farmers in neighbouring valleys are also replicating the bamboo establishment and management techniques established by the project in the region; and
- Last but not least, both government institutions at the central level and regional levels and other associations that entered into collaboration agreements with the project have witnessed first-hand the improvement of the living standards of the farmers involved in improving and expanding their bamboo stands, and are now replicating the project's activities on their own in neighbouring valleys and regions; however, local people request future additional technical support from the EA.

V. Lessons Learnt and sustainability

The year 2011 was extremely dry, making it difficult to spread seed material and significantly limited the implementation of the plantations during that period. These difficulties caused a delay in raising awareness of the population, because the conditions did not allow the demonstration in the field. However in 2012, more favorable environmental conditions and intensive dissemination campaign on the scope of the project resulted in a significant increase of interest from local people to participate in training programs and access to the material for reforestation and management, as well as training in techniques for processing bamboo for construction and furniture making, Is therefore necessary to consider continuing the funding of these activities , but above all for training in sustainable resource use, considering its enormous impact in mitigating climate change.

As regards sustainability, it is necessary to continue strengthening the capacity of communities in bamboo processing techniques and further motivate the public about the importance and true value of the bamboo resources of the region. The subscription of a specific agreement with the Alto Mayo Special Programme will assist in supporting the aforementioned activities and also build another MINCABAMBÚ in the San Martin region, which will serve as an additional bamboo training center in that region of Peru. .

VI. Concluding Remarks

Overall, the project has significantly contributed towards the promotion and implementation of sustainable management practices of natural and planted bamboo forests, and in the efficient processing of bamboo in Ceja de Selva (moist hill forests) and Selva Alta (moist mountain forests) in the northern region of Peru.

As the ITTO Secretariat has received the Project Completion Report, several technical reports and the Final Financial Audit, this project can be reported as completed. Copies of the Completion Report and other technical documents are available either upon written request from the Secretariat or can be downloaded in digital format from ITTO's website at: http://www.itto.int or PeruBambu's website:http://perubambu.org.pe.

(7) PD 459/07 Rev.1 (F) Improving the Enabling Conditions for Sustainable Management of Sandalwood Forest Resources in East Nusa Tenggara Province, Indonesia

Budget and Funding Sources:

Total Budget:			US$	718,163
ITTO Budget:			US$	593,163
Government of Japan:	US$	583,163		
Government of Korea:	US$	10,000		
Government of Indonesia (Forestry Service of NTT Province & other parties):			US$	125,000

Implementing Agency: Directorate General of Forest Production Management of the Ministry of Forestry

Session of Approval: ITTC Session XLIII, November 2007, Yokohama, Japan

Starting Date and Duration: 5 November 2009 / 37 months

I Introduction

The project was approved by the Council during its 43rd Session in November 2007 and fully funded during the 44th ITTC Session in November 2008. A Memorandum of Understanding between the executing agency, the Directorate General of Forest Production Management of the Ministry of Forestry of Indonesia and the collaborating agency, the Forestry Service of East Nusa Tenggara Province was signed on 11 August 2009. The project initiated its operations in 5 November 2009 and completed the implementation of all project activities in December 2012.

II. Project Objective

Sandalwood (*Santalum album* Linn.) is a commercial timber species from East Nusa Tenggara (ENT) Province. Due to its specific characteristics such as handicrafts, woodcarvings, joss sticks, and oil for the perfume and cosmetics industries, sandalwood has attracted many interests and has been commercially traded since the 10th century. However, over the last two decades in the ENT province, the sandalwood population has been decreasing at an alarming rate. From 1970 to 1998, the annual legal production of sandalwood fluctuated between 87 and 995 tons, with an annual average of about 600 tons (Rohadi *et al*, 2004). Faced by the threat of its population extinction, the provincial government banned sandalwood harvesting in 1997. It was expected that this moratorium would bring about a recovery of sandalwood population in the province, but the recovery has not been materialized.

In order to address the problem of declining sandalwood resources, the project intended to contribute to the sustainable management of sandalwood resources in East Nusa Tenggara Province. The specific objective of the project was to strengthen the policy, economic incentives and local institutional frameworks for sustainable management of sandalwood resource in East Nusa Tenggara Province.

III. Project Achievements and Outputs

The main achievements and outputs produced by the project are summarized as follows:

Output 1: New effective policies at district level for managing the resources formulated and endorsed by the local government and being implemented by the executive agencies concerned

- One preparatory meeting and a workshop were executed to acquire information of the current condition related to the policy of sandalwood management at ENT Provincial and District levels
- Study and analysis in policy framework of management of sandalwood resources in ENT province and four target districts had been conducted by three national consultants and one international consultant
- In addition to a series of internal meetings, two public dialogues were organized in TTS and East Sumba districts to review draft of local Government regulation (PERDA) on sandalwood

- Consultation process with legislative members had been implemented to improve PERDA. Legislatives (DPRD) of TTS had continued adoption process for the improvement of PERDA according to existing regulations
- A comparative study was executed to Western Australia with the participation of 13 persons consisting of: decision makers of the Ministry of Forestry, ENT Province and four target districts [Alor, East Flores, South Central Timor (TTS) and East Sumba] and four farmers from four target districts.

Output 2: Suitable economic incentive framework to support sustainable sandalwood resources developed

- Study and analysis in economic incentive framework of management sandalwood resources had been carried out in district TTS by an international consultant
- Economic instruments to support sustainable sandalwood resources had been developed and recommended to be included in PERDA of sandalwood management
- Training for forestry staff in planning and non- timber forest products development had been carried out in the Jogyakarta Forest Research and Development Center which had succeeded in developing vegetative sandalwood culture from tissue culture and Gunung Kidul district, the location where sandalwood is planted by FORDA (Forest Research Development Agency) and Gajah Mada University. Participants of the training were forestry staff from the four Target Districts, Provincial Forestry Office and from the Directorate General of Forest Utilization.

Output 3: Capacity of forestry staff and communities leader improved for planning, managing and sustainable utilizing sandalwood resources

- Analysis of a need assessment in provincial and four target districts had been carried out to strengthen the organization of related-institutions in forest management and sandalwood development especially related to aspects of planning, silviculture and utilization.
- Training modules of sandalwood resources planning, silviculture and utilization had been developed in cooperation with a team from the Forestry Training and Education unit at Kupang (BPLK Kupang). These modules had been used by related institutions in the district or technical implementing units of MoF in implementing trainings of management and planting of sandalwood.
- A series of training for sandalwood farmers and community leaders had been executed in the four target districts. The aims of training activities were (a) to acquire technical knowledge and skill in sandalwood cultivation and (b) to motivate communities to plant in their land. Training method is in the form of instruction of theory and practice.

Output 4: Community awareness of sustainable management of sandalwood resources raised.

- Improvement of sandalwood regulations to synchronize policies in central and provincial level; the Ministry of Forestry currently improving the regulation related to Non-Timber Forest Product (including sandalwood) and regulation regarding wood legality from community forest, namely P. 51/2006 and P. 33/2007. One of the issues discussed is “ownership“ that sandalwood grown on private lands is owned by the land owners as mentioned in MoF regulations. The project also supported a discussion which was organized by provincial government of ENT regarding timber legality of sandalwood (Tata Usaha kayu cendana dari NTT) on June 15, 2012 in Kupang. Based on a recommendation from the local government of ENT, a new regulation P. 30/Menhut-II/2012 was signed by The Minister of Forestry on July 17, 2012.
- Dissemination of the improvement of PERDA on sandalwood management had been carried out in the four target districts and socialization of strategy on sandalwood development to community groups as well as religious leaders in the village level.
- Facilitating local institutions for sandalwood development had been carried out in the four target districts to strengthen the local institutions/farmers groups on the ground through:
- Development of a simple handbook of sandalwood cultivation techniques for communities/farmers group in Bahasa Indonesia
- A series of extensions and mobile training courses (theory and practice) on sandalwood cultivation for farmers in the four target districts
- Establishing permanent nurseries for communities in the four target districts
- A national workshop for mapping of stakeholder’s role in developing sandalwood strategy had been conducted by involving related stakeholders in ENT province including Bappeda (Regional Planning Agency) in order to sustain funding for sandalwood development.

IV. Outcomes and Impacts

The main outcomes and impacts of the project attaining its specific and development objectives are summarized as follows:

- The Master Plan for Sandalwood Development in East Nusa Tenggara Province, which was made with the support of the ITTO project team, is used as guidance for coordinated actions in order to return East Nusa Tenggara as a sandalwood province by 2030. ITTO is one of the partners highlighted in the Master Plan.
- New effective Policies in two target districts (South Central Timor and East Sumba) for managing the resources formulated and endorsed
- Appropriate economic incentive framework to support sustainable sandalwood resources developed and adopted in two target districts
- Capacity of forestry staff and communities leader in planning, silviculture and utilization of sustainable sandalwood resource in the four target districts (South Central Timor, East Sumba, Alor and Flores) increased.
- Raised public awareness on sustainable sandalwood management in the four target districts

On the participation of local communities in managing sandalwood, enabling conditions lead to the improvement of public/community support and awareness on sustainable management of sandalwood resource in provincial and district level. The communities' sense of ownership in the development of sandalwood, which had been belonged to local authorities, has been proved on the ground. Local people will participate actively on conservation and cultivation of sandalwood under the condition of an improved legal system in recognizing the rights of local people.

The local Government at provincial level (PEMDA) has showed its strong commitment to increasing local community livelihoods trough planting sandalwood that require immediate actions by all district governments and related stakeholders in ENT Province. This commitment has been reflected through the allocation of budget for seed preparation, procurement and the establishment of nurseries. This program has been growing through the involvement of community leaders, in particular religious leaders.

In revising the legal framework for sandalwood, key resources persons of the project from the four target districts have always been involved in order that the multi-stakeholder process could be replicated by other districts in compiling or revising the sandalwood PERDA. In addition, the provincial government has already included reviewing policy/regulation as the part of provincial programme strategy. These efforts show the very strong commitment of national and local governments to ensure the continuation of sustainable resource management of sandalwood.

V. Lessons Learnt and sustainability

The project had been widely recognized in East Nusa Tennara Province where sandalwood plays an important role in the livelihood of people in the Province both economically and culturally. A number of lessons have emerged from the project's implementation. Among the important lessons learned from the project implementation include:

- The sound project design based on an adequate problem analysis involving the main stakeholders has contributed significantly to the smooth implementation of the project and to the achievement of project objectives
- The project strategy pursued, re-examined involving knowledgeable resource persons prior to implementing the project, was in conformity to the actual project environment and facilitated the smooth project operations
- The successful completion of the project is attributable to the hardworking project management team, competent PSC, appropriate implementation strategy, cooperative primary beneficiaries as well as stakeholders and supportive ITTO Secretariat; these key success factors have to be taken into account in implementation of similar future projects
- Roles and responsibilities of any parties involved in project implementation particularly role of MoF as Executing Agency and Forestry Service in province level as Implementing Agency have been made clear from the onset of project operations in order to avoid confusion among the parties involved and inefficient project operations
- The mitigating measures for potential risks that were adequately identified and properly implemented has greatly contributed to the successful completion of the project with only minor extension in time duration of the project

To ensure project sustainability after project completion, the critical project activities to be implemented continuously after project completion include:

- Continue the process of legalizing PERDA in district level. It should be replicated in other district (up to now five districts in ENT province has issued sandalwood PERDA)
- Conduct training of the primary beneficiaries, i.e. community groups/religious leaders and local government staffs on technical skills for sandalwood plantation and planning
- Provide technical assistance on marketing of the product to Head of Villages
- Monitor community forest program which used sandalwood species in ENT
- Occasionally organize regional workshops for exchanging information on experience amongst the main stakeholders in district level
- Regularly conduct stakeholder discussions involving not only the primary but also secondary stakeholder groups, e.g. custom service, police, judicial service, universities, NGOs for purpose of sharing information on sandalwood management

The institutions that are responsible for implementing above critical activities are: the provincial and district government units through their respective forestry agencies and also the Ministry of Forestry through its technical regional offices (BP2HH) and Center for Forestry Education & Training. These institutions are respectively required to assign a sufficient number of staff to implement the activities. The funds needed for financing implementation of selected activities are to be sourced regularly from state budget appropriated through central, provincial and local treasures. To ensure adequacy and timely availability of funds, each responsible party must develop yearly budget plan and timely submit it to the Ministry of Finance in accordance with existing state budget allocation cycle.

Since the local government has stimulated local participation in maintaining sandalwood resource by offering more rational benefits to local communities, this is expected to encourage and motivate local communities to plant sandalwood in their land to improve short and long-term benefits for income generation, which may act as a driving force for the sustainable development of sandalwood resources in East Nusa Tenggara Province in the future.

VI. Concluding Remarks

The objective of the project has been successfully achieved through collective partnerships between the central, provincial and local governments and concerned local communities. Commitments by the provincial government were most crucial to ensure the sustainability of sandalwood along with the revised legal framework allowing farmers' ownership in sandalwood plantations in forest lands. Increasing interest of the local communities was also most encouraging. The Project received good support and cooperation from consultants, counterpart staff at the local government. Dedicated leadership of the project leader on the ground was a significant factor in ensuring success of the project.

Since the ITTO Secretariat has received the Project Completion Report, several Technical Reports, and Financial Audit Report, the Committee may wish to consider this project as completed.

(8) PD 460/07 Rev.2 (F) Achieving Sustainable Management of Mangrove Forests in China through Local Capacity Building and Community Development – Phase I (China)

Budget and Funding Sources:

Total Budget:	US$	393,399
Phase I		
ITTO Budget:	US$	277,333
Government of China:	US$	116,066

Implementing Agency: Beijing Forestry University in collaboration with Fujian Zhangjiakou Mangrove Nature Reserve

Session of Approval: ITTC Session XLIV, Nov.2008, Yokohama, Japan

Starting Date and Duration: January 2011 / 26 months

I. Introduction

The Council approved the project at its Forty-third Session in November 2007. The project was revised into Phase I and Phase II at the Forty-fourth Session of the Council in November 2008. Financing of Phase I was made in Spring 2010 Project Cycle. The agreement regulating the implementation of the project was duly signed on 11 Nov 2010. The project activities initiated in January 2011 had been completed in March 2013.

II. Project Objective

Mangrove forests in Zhejiang Province, Southern China are playing an important role by providing sources of income and ecological security systems for environmental protection. In recent years, the continuous exploitation and conversion of existing mangrove forests in Zhejiang Province had caused a serious impact to the environment.

The development objective of the project aimed to contribute to the sustainable management of mangrove forests in Southern China through local capacity building and community development. Its specific objectives were (1) to enhance the capacity of local forestry institutions in mangrove management and (2) to reduce community reliance on mangrove resources through sustainable income generating activities in the Fujian Zhangjiangkou Mangrove Natural Reserve where is dominated by mangrove communities with abundant species diversity and good growth conditions compared to the rest of mangrove forests in China.

III. Project Achievements and Outputs

The main achievements and outputs produced by Phase I are summarized as follows:

- Based on the relevant data and information, the existing issues on the mangrove forests management in the Fujian Zhangjiangkou Mangrove Natural Reserve were identified. A draft management plan and associated reports were prepared and published.
- The training need for the mangrove management was identified with the engagement of a national consultant.
- Data of the quantity and sale price of the main mangrove forests based aquatic products during the last five years were collected and an analysis was conducted.
- A study was carried out to estimate the environmental benefits generated by the Fujian Zhangjiangkou Mangrove Natural Reserve.
- A new management plan of the model forests had been reviewed by stakeholders including a consultation forum. The conclusion was that the new management plan is feasible and the selection of a demonstration mangrove forest is needed to adopt the new management plan.
- Training on mangrove forest management skill was conducted on May 11, 2012. The trainees mainly included the staff of the local nature reserve, as well as some local farmers. Through the training, the management skill and awareness of local people were further improved.
- All information about existing polices had been collected and reviewed during the stakeholder forum. Experts reviewed the existing polices and refined the weaknesses and strengths of the current mangrove conservation and management policies and concluded the legislation issue was a key to solve the land use and compensation issues in order to safeguard the sustainable management of mangrove forests.
- Through the project technical report entitled “Preliminary Analysis of Potential Demand for Eco-tourism”, local eco-tourism resources at the Fujian Zhangjiangkou Mangrove Nature Reserve were fully evaluated. An eco-tourism plan was developed and endorsed by relevant departments of the State Forestry Administration.
- As a platform to discuss the key issues on the mangrove forests management, a stakeholder consultation forum was established and operated. The stakeholders mainly include relevant staff from the local Forestry Bureau, Agricultural Bureau, Environment Protection Bureau, Ocean and Fishery Bureau, Water Affair Bureau, Education Bureau, representatives from Dongxia Township, Zhuta Village and Chuanchang Viallage, Zhuta Elementary and Middle School, as well as Chuanchang Elementary School. The topics of the forum had focused mainly on the management plan of MNR, eco-tourism demand based on the mangrove forests and the current policy on mangrove resources management, and emerging issues such as invasive species control.

IV. Outcomes and Impacts

The main outcomes and impacts of Phase I attaining its specific objective are summarized as follows:

- Through the implementation of Phase I, the local forestry institutions were actively involved; the existing problems in the current management plan and policy were fully analyzed; a new mangrove forest management plan was developed; and the awareness of the local forest institutions was improved through various training courses; relevant staff in the MNR, local forestry authorities, as well as local forest farmers were trained on the management of mangrove forests. But the capacity building is a long-term program and needs the continued active involvement of key stakeholders.

- Eco-tourism based activities in the mangrove forests had been recognized as a good substitution way to decrease the reliance on the local mangrove forests, as well as a good potential to generate economic benefits to both the MNR and local residents. However, building appropriate infrastructure is necessary with more inputs from a muti-channel although the eco-tourism resource was identified and the eco-tourism plan was developed.

- After the completion of Phase I, a demonstration model forest was chosen for the implementation of a new mangrove management plan. After the training, the awareness and management skills of local communities were improved and a stakeholder forum was established and operated. In fact, the development of an eco-tourism programme was identified as one of the suitable income generating activities in the near future.

The Fujian Zhangjiangkou Mangrove Nature Reserve was chosen as a demonstration site of mangrove forests in the Wetland Planning in the years 2011-2016 of China which had been formulated by the State Forestry Administration. Base on this central government's programme, some funds will be provided in the near future to further enhance the results of the project. Key stakeholders' high attention to the sustainable development and conservation of this mangrove nature reserve has been enhanced to ensure the environmental sustainability while providing economic incentives to local communities through eco-tourism.

V. Lessons Learnt and sustainability

The project had been widely recognized in the Fujian Zhangjiangkou Mangrove Nature Reserve. Key lessons learned from the implementation of Phase I include:

- To implement the sustainable management in mangrove areas, conflict of interests between the mangrove as protective and conservation areas in one side and commercial utilization in the other should be solved.
- A series of stakeholder consultation forums enhanced environmental awareness, sense of pride and spirit of local residents and putting the correct trade-off between environment and commercial values.
- More attention is needed to active local community participation in the construction, management and protection of mangroves in the design of a project as mangrove forests offer various job opportunities, local people's livelihoods and safeguard of the social security. Existing sources of income such as fishing, aqua culture (artificial shrimp breeding), artificial pearl breeding, hunting, fruit collection and other eco-tourism activities could be further explored and improved towards better productivity and sustainability in the identification and implementation of a similar project.
- Eco-tourism programme of mangrove forests, which was not well known in this province, now tends to receive high attention of decision makers.
- Effective communication and active participation of local stakeholders are very import in the identification of project elements; the Project Leader of Executive Agency plays an important role in improving the cooperation especially between the executive agency and cooperation agencies; the Project Leader and supporting staff should be familiar with ITTO rules and procedures to ensure the project is on track; and the supervision and monitoring is essential to review the progress of project implementation on the ground.

Technical reports produced by Phase I have been disseminated to selected forest libraries and interested parties. The main achievements and lessons of Phase I will be delivered to relevant workshops, extensions and other stakeholder consultation meetings for scaling up the effort of mangrove forest conservation and management in Southern China.

VI. Concluding Remarks

There have no critical differences between planned and actual implementation of Phase I. During the process of the implementation of Phase I, no obviously external influences, the original assumptions were valid. The participation of anticipated and actual project beneficiaries was the same, mainly the local forestry institution, MNR staff and local communities. However, the long-term sustainability of the project will depend on the implementation of Phase II which aims to conduct a series of training courses to improve the management of MNR and income generation for concerned local communities.

Since the ITTO Secretariat has received the Completion Report of Phase I, several Technical Reports, and Financial Audit Report, the Committee may wish to consider Phase I as completed.

(9) PD 482/07 Rev.2 (F) Sustainable Forest Production and Conservation with Community Participation in the Chepigana Forest Reserve of Darien, Panama

Budget and Funding Sources:

Total Budget:			US$	707,424
ITTO Budget:			US$	470,108
Government of Japan:	US$	320,108		
Government of U.S.A.:	US$	150,000		
Government of Panama:			US$	237,316

Implementing Agency: National Association for the Conservation of Nature (ANCON)

Session of Approval: ITTC Session XLIV, November 2008, Yokohama, Japan

Starting Date and Duration: February 2010 / 24 months
Approved Revised Date of Project Completion: First extension until December 2012 (NOL F.12-0159)

I Introduction

The Council approved the project at its Forty-fourth Session in November 2008 and full financing for its implementation was pledged during Spring 2009. The final agreement regulating the implementation of the project was duly signed in December 2009. The first installment of funds was transferred in January 2010, after the submission by the Executing Agency of the first Yearly Plan of Operations, a request for the no-objection of the project's key personnel and a notification that implementation is about to begin, and the approval of the aforementioned by the Secretariat. The second installment was executed in October 2010 and the third one in August 2011. The last tranche of funds was transferred in January 2012. However, in early 2012 project implementation could no longer keep up with the initially projected timeline as some activities suffered delays, particularly those related to the development of the short and long-term forest management plans and the approval of these by the competent authorities. As such, the Executing Agency applied for an additional extension in time until December 2012 without additional funds, in order to successfully complete the project, and the Secretariat further extended a no-objection in this regard. Moreover, the project completion report was sent to the Secretariat in in June 2013 and the final audit report was submitted to ITTO in august 2013.

II. Project Objective

This project envisaged promoting the sustainable production of tropical forest timber in the Chepigana Forest Reserve, while critical forest assets were conserved and local quality of life was improved. More specifically, it sought the production and commercialization of timber and non-timber forest products from the Chepigana Forest Reserve on the basis of environmental, economic and social sustainability, while simultaneously increasing conservation of forest values in the Bagre Highland Biological Corridor, which forms an integral part of the Chepigana Forest Reserve. Project's major outputs are: i) an Integrated Management Plan and other required planning tools for the Chepigana Forest Reserve ii) Communities trained in forest management and administrative aspects to be applied in the Chepigana Forest Reserve and its buffer zone; and iii) capacity has now been achieved to implement sustainable natural resource management and sustainable development enhanced in CBSB corridor and its buffer zone.

III. Project Achievements and Outputs

The Project's field activities were completed in early 2013 and the overall project was reported as completed in June 2013. The Final audited Report was received in August 2013. In accordance with the project document, the majority of the planned activities were carried out during the project's lifespan and its achievements can be summarized by major outputs and products envisaged by the project, as follows:

Output 1: Integrated Management Plan and other required planning tools for the Chepigana Forest Reserve developed and approved

All technical aspects and activities related to this output have been achieved. However, the approval process of the Integrated Management Plan by the competent authority, ANAM, was seriously delayed and is sought to be still pending. Overall, however, most activities under this output have been completed and the output has been achieved, and is only pending government approval, as follows:

- The photo-interpretation of satellite images and the field verification of the reserve was carried out;
- A total of 14 thematic maps using GIS were generated and a metadata established for the reserve;
- A 5-year zoning and development plan for the reserve was developed and the first two yearly plans of operation formulated (including an inventory of timber and non-timber forest products, a rapid ecological evaluation and an environmental impact assessment, and a participatory socio-economic survey rural appraisal); and
- The long-term forest management plan for entire Reserve was completed with the extensive participation of locals and submitted to the competent authorities – ANAM – for approval.

Output 2: Forest management and administrative training implemented in Chepigana Forest Reserve and its buffer zone

All activities required to achieve this output were implemented, as follows:

- A SWOT (Strength, Weakness, Opportunity, Threat) analysis of the Darien Federation of Producers through Agroforestry (FEPACHEDA) was carried out;
- FEPACHEDA was established as legally recognized organization; and
- Several training workshops were carried out to the benefit of the FEPACHEDA members on a diverse range of topics related to both enterprise management and forestry skills.

Output 3: Capacity to implement sustainable natural resource management and sustainable development enhanced in CBSB corridor and its buffer zone

All activities required to achieve this output were implemented, as follows:

- The project's Technical Consultative Committee, conformed by members from ANAM, Fundación Natura, FEPACHEDA and ANCON, was established and met regularly to discuss the implementation of forestry activities in the Chepigana Reserve;
- Many training workshops were carried out on the specifics of forest management, tree nursery establishment and maintenance, agroforestry and wildlife ranching, to the benefit of the local communities;
- A demonstration agroforestry ranch was established at Punta Patino, including iguana and lowland Agouti paca farms;
- 30 local volunteers were trained as forest rangers and further equipped so as to control and protect the forest reserve; and
- Several promotional activities to disseminate project objectives and results were carried out.

IV. Outcomes and Impacts

The project objectives were achieved. Among the many tangible products of the project, the following are worth highlighting:

- A Management Plan for the Chepigana Forest Reserve;
- A Forest Inventory of the Chepigana Forest Reserve;
- The legal establishment of the community enterprise FEPACHEDA;

- A Rapid Ecological Assessment of the Chepigana Forest Reserve;
- A Participatory Rural Evaluation of the Chepigana Forest Reserve; and
- Two Training Guides on Transparent Accounting and Management.

As regards the project's impacts, the National Environmental Authority of Panama (ANAM) now has an updated inventory of the Chepigana Forest Reserve which serves as an important indicator for the conservation status of these forests, as well as its wildlife. Moreover, this inventory compliments the focus of the Reserve's Management Plan and also serves as a tool for the appropriate use of the Reserve's resources. In addition, a Community Based Organization FEPACHEDA was established and further strengthened by proper training, and is now willing to work utilizing only sustainable practices in accordance with the conservation of the reserve's natural resources.

V. Lessons Learnt and sustainability

Among the many lessons learnt, the following can be highlighted: The respect for cultures, traditions and ideologies of local communities, including those of the projects beneficiaries, should always be maintained and continual communication with ANAM and other respective authorities should be constantly enforced and ensured, as well as collaboration with other local projects. Moreover, when working with communities in the Darién area, the most effective methodology is that of "learning by doing," which had very good results for the project at hand. As for upcoming projects, it is important to involve the target members of the community in the design and preparation of proposals as well as their direct involvement and active participation in project execution. This ensures that projects and their respective products and outcomes are developed in accordance with the real and actual necessities of the communities.

As regards sustainability, the following aspects should be highlighted: To ensure project sustainability, it is important to have the permanent involvement of institutions and government authorities that are present in the area such as the Ministry of Agricultural development (MIDA) and the municipal and provincial authorities of Darién end ensure their collaboration with the National Environmental Authority of Panama after the completion of the project. As for ANCON, work is still being done to ensure future funding to execute activities in conjunction with the primary beneficiaries of the project (FEPACHEDA) such as writing new grant proposals to continue activities that will fortify FEPACHEDA as a Community –based Organization.

VI. Concluding Remarks

Overall, the project has significantly contributed towards the sustainable management and conservation of the Chepigana Forest Reserve, its buffer zones and the Bagre Biological Corridor, while simultaneously improving the livelihoods of local communities in the Darien Region of Panama.

As the ITTO Secretariat has received the Project Completion Report, several technical reports and the Final Financial Audit, this project can be reported as completed. Copies of the Completion Report and some other technical documents and maps are available either upon written request from the Secretariat or can be downloaded shortly for free in digital format from ITTO's website at: http://www.itto.int

(10) PD 492/07 Rev.3 (F) Participatory Rehabilitation and Management Project for Mangroves and Watersheds in the Coastal Area of the Douala/Edéa Wildlife Reserve – "Douala-Edéa Mangrove Project" (Cameroon)

Budget and Funding Sources:

Total Budget:			US$	830,252
ITTO Budget:			US$	676,231
Government of Japan:	US$	526,231		
Government of the U.S.A.:	US$	150,000		
Cameroon Ecology:			US$	154,021

Implementing Agency: Cameroon Ecology (CAM-ECO)

Period of Approval: Spring 2009

Starting Date and Duration: 5 February 2010 / 36 months

I. Introduction

The project was approved under Spring 2009 Project Cycle through the electronic approval system put in place, as there is no longer a Council Session organized in spring, and it was fully financed at the same Project Cycle. The Agreement regulating the implementation of the project was signed on 5 November 2009. The first disbursement of ITTO funds was made on 5 February 2010. As an acceptable version of the project completion report was received in July 2013, the duration of the project implementation had lasted 41 months instead of 36 initially designed by the Executing Agency. The final financial audit report was received in September 2013.

II. Project Objective

The project aimed at contributing to ensure the sustainability of mangrove resources in order to improve the living conditions of surrounding communities. It specifically intended to contribute to the sustainable management of mangrove ecosystems around the Douala-Edéa Wildlife Reserve and associated watersheds.

III. Project Achievements and Outputs

In accordance with the project document, final technical report (Master Plan for the sustainable management of mangroves and watershed in the coastal area of the Douala/Edéa Wildlife Reserve), completion report and final financial audit report, all project activities were carried out and led to the main following achievements and outputs:

- Master Plan for the management of the mangroves and watersheds in the coastal area of the Douala/Edéa Wildlife reserve has been elaborated through a participatory process involving key relevant stakeholders. As a strategic document for national forest policy, the master plan was finalized and validated by those stakeholders which contributed to its elaboration (local communities, local and traditional authorities, governmental institutions, civil society organizations operational in the project target area, private sector, etc.). The 2035 Vision of the master would be operationalized through seven (7) strategic actions: (1) Legal, regulatory and institutional aspects; (2) Conservation and sustainable management ; (3) Participatory and fair management; (4) Sustainable structuring development projects ; (5) Sustainable fishery and environment-friendly socio-economic activities; (6) Climate and sustainable energy; and (7) Permanent environmental monitoring, pollution monitoring and establishment of an “Observatory of Mangroves”.
- Twenty-one (21) local associations for community interest (GIC) had been created and/or reinforced for the implementation of Income Generating Activities (IGA), in order to contribute to improving the livelihood of local communities involved in the implementation of selected project activities in the coastal area of the Douala/Édéa Wildlife Reserve. Sixteen (16) GICs had been legalized and their management committee members had been subject to sensitization campaigns on the importance of mangrove ecosystem and also trained on basic elements regarding the management of community forest enterprise;
- Three community forests had been created and established for two community groups (Dibeng and Bessombè), for which the project got the approval of conventions (signed between the ministry of forestry and fauna and those two community groups). For community group of Mossé, the creation and establishment of community forest was not approved at the project completion yet; and
- National workshop, aiming to validate the first draft of the master plan and share the main findings and results of this project, was held just before the project completion. It was attended by representatives of key stakeholders (local communities, representatives of decentralized administrative entities in the project area, representatives of the ministry of forestry and fauna, environmental NGOs).

IV. Outcomes and Impacts

The achievement of the project specific objectives had contributed to the realization of the development objective set by the project design and led to the main following outcomes and impacts:

- The implementation of this project has contributed to undertake the assessment of the surface

area covered with mangrove forests and the level of degradation affecting these ecosystems around the Douala/Edéa Wildlife Reserve. The findings of this assessment led to the elaboration of the master plan, to be used as reference document guiding the Government of Cameroon to prepare appropriate legislation texts and put in place and/or reinforce institutions dealing with the sustainable management of mangrove ecosystem around the Douala/Edéa Wildlife Reserve, during the period ending in 2035;

- The improvement of the living conditions of community groups, involved in the implementation of income-generating activities (IGA) proposed by the project, as they had got an increase of 40% (in average) of their income. For women, IGAs had been, among others, the following: poultry farming, gardening production, nursery for the production of forest seedlings, while men had mainly been dealing with honey production and fish-breeding; and
- The creation and establishment of two community forests will contribute to the improvement of the living conditions of the community groups of Dibeng and Bessombè. This would be also be the case for the community group of Mossé, after the approval of their community forest convention.

V. Lessons Learnt and sustainability

The main lessons learned during the implementation of this project, for the management of mangroves and watersheds in the coastal area of the Douala/Edéa Wildlife Reserve, in Cameroon, can be summarized as follows: (1) The implementation of this project contributed to understand the labour division between women (poultry farming, gardening production, nursery for the production of forest seedlings) and men (fish-breeding and honey production); and (2) The involvement of key relevant stakeholders, including the ministry of forestry and fauna of Cameroon, has contributed to the elaboration of a strategic master plan for the management of the mangroves and watersheds in the coastal area of the Douala/Edéa Wildlife.

The main project outcomes could be sustained through the main following aspects: (1) Legal and institutional sustainability: the master plan, which had been elaborated with the involvement of key relevant stakeholders will be subject to ownership process by them. The ministry of forestry and fauna of Cameroon will use the findings and recommendations of the master plan, as guidance for the preparation of appropriate legislation texts needed for the management of the mangroves and watersheds in the coastal area of the Douala/Edéa Wildlife; and (2) Socio-economic sustainability: local communities in the project target area had been trained to be more active and effective in the implementation of income-generating activities and also for the management of the established community forests, for the enhancement of their livelihood.

VI. Concluding Remarks

As the ITTO Secretariat had received the Project Completion Report, Final Technical Report (Master Plan), and Final Financial Audit Report, the Project PD 492/007 Rev.3 (F) will be reported as completed, after the implementation of the follow-up/recommendations of the Division of Operations related to the review of the final financial audit report. Copies of the Completion Report and Final Technical Report are available, upon request, either from Executing Agency or from the Secretariat.

(11) PD 564/09 Rev.1 (F) — Production of an Educational Book Series on Mangroves for Sustainable Management and Utilization of Mangrove Ecosystems (Japan)

Budget and Funding Sources:

Total Budget:			US$	226,072
ITTO Budget:			US$	149,904
Government of Japan:	US$	149,904		
ISME:			US$	76,168

Implementing Agency: International Society for Mangrove Ecosystems (ISME)

Period of Approval: Spring 2010

Starting Date and Duration: January 2012 / 15 months

I. Introduction

Three mangrove educational books were published and distributed under this small project. The books were *Introduction to Mangrove Ecosystems* by Barry Clough, *Structure and Function of Mangrove Forests* by J.E. Ong and W.K. Gong, and *Useful Products from Mangrove Plants* by S. Baba, H.T. Chan and S. Aksornkoae. The trilogy represents the beginning of a planned ISME Mangrove Educational Book Series.

The books were aimed at increasing public awareness of the environmental, ecological and socio-economic functions of mangrove ecosystems, and at providing the necessary information for development of appropriate policies and/or management plans for sustainable management and utilization of mangrove forests. Available in hard-copies and as e-books, the books will also serve as useful references for students.

All outcome indicators of the specific objectives were realized and the project was completed on schedule (March 2013). The budget was adequate to meet all the expenditures, with the exception of printing and shipment costs, which were under-budgeted. ISME procured approximately $4,000 of additional funds to cover these costs, as reflected in the revised Total and ISME budget figures above.

II. Project objectives

The development objective of this project was to strengthen the capacity of central and local governments as well as forest management units to develop appropriate policies and/or management plans for sustainable management and utilization of mangrove forests. Impact indicators included the use of these authoritative books as references in the development of mangrove policy statements and management plans to reduce over-exploitation and unsustainable development of mangrove forests.

Specific objectives of this project were to increase public awareness of the environmental, ecological and socio-economic functions of mangrove ecosystems for activities to conserve and restore mangroves. Outcome indicators were the publication and distribution of the books in English; successful completion of the workshop for target users; and uploading of the e-books onto ISME's GLOMIS website, making the information available to all stakeholder groups.

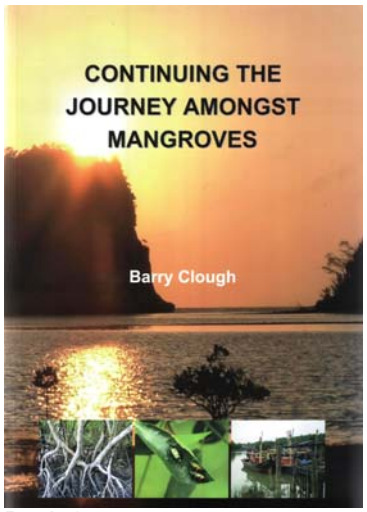
III. Project achievements and outputs

All three educational books focus on the environmental, ecological, and socio-economic importance of mangrove ecosystems. Written by mangrove experts and communicated in a language that is understandable, mangrove managers will find these books to be useful references for drawing up management plans for sustainable management, conservation and utilization of mangrove forests. The books will also be of interest to NGOs and NPOs, including education and research institutions. The private sector interested in exploring the commercial potential of existing and new product development from mangroves may also find the book on mangrove products particularly interesting.

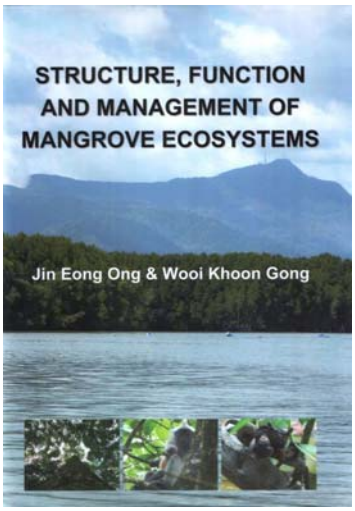
Overall, the realized performance of the project tallied with the planned performance. All outcome indicators of the specific objectives were realized. They included:

- Publishing and distributing three mangrove educational books
- Holding a workshop for target users
- Uploading the e-books onto the GLOMIS website

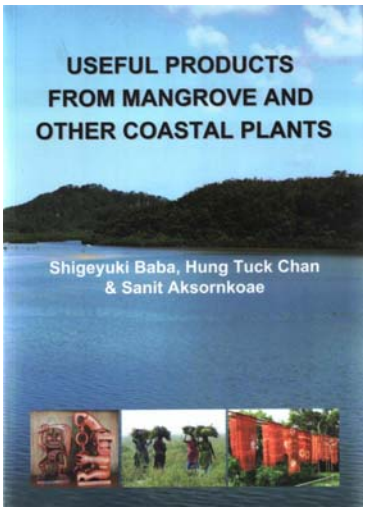
The project was completed on schedule. The books were printed by City Reprographic Services in Kuala Lumpur, Malaysia, and copies were sent to ISME in Okinawa and ITTO in Yokohama. The trilogy was written and published in commemoration of Prof. Shigeyuki Baba (Executive Director of ISME), who retired from the University of the Ryukyus in March 2013 but continues to volunteer as ISME's Executive Secretary.



Book 1



Book 2



Book 3

The books were launched in March 2013 in Sabah, Malaysia. The launching ceremony started with the signing of books by authors and key officials from ISME and ITTO. In attendance were Datuk Sam Mannan (Director of Sabah Forest Department), Prof. Sanit Aksornkoae (ISME President), Prof. Shigeyuki Baba (ISME Executive Director) and Dr. Steve Johnson (Project Manager from ITTO).

IV. Outcomes and impacts

Signed copies of the books were presented to dignitaries/organizations including Princess Maha Sirindhorn of Thailand; Ministry of Foreign Affairs, Japan; Executive Director of ITTO; Honourable Chief Minister of Sabah; and Datuk Sam Mannan (Director of the Sabah Forestry Department). The book signing and launching ceremony was followed by an ISME-ITTO seminar for target users. The event was publicized by Borneo Post and See Hua Daily Newspaper, two local newspapers in Sabah.

Concurrently, PDF copies of the three e-books have been uploaded onto the ISME and GLOMIS websites. The books are currently indexed in Google Scholar. Interested readers including those from developing countries are able to download the books free of charge.

V. Lessons learnt and sustainability

ISME reports that this was probably one of the most efficient projects it has implemented. All activities were carried out and project outputs were produced on schedule with minimal problems encountered. The books are of high quality, meeting international standards.

The budget was adequate to meet all the expenditures, with the exception of printing and shipment costs, which were under-budgeted. Nevertheless, ISME procured additional funds from University of the Ryukyus and some private companies in Japan to cover the cost of publishing the books. Prof. Baba (Executive Director of ISME) himself made a kind contribution to help cover these extra costs totaling about $4,000.

Sustainability of the project outputs are ensured with the availability of the e-books from the ISME and GLOMIS websites, which are currently indexed in Google Scholar. Production of French and Spanish versions of the books is envisaged as the next phase of the project, pending availability of funds.

VI. Concluding remarks

This small project met all its objectives on schedule with no major constraints encountered. Overall, the project implementation was smooth, and its high output to input ratio reflected its efficiency and productivity. The devotion of time and effort by the Project Coordinator, Administrative and Finance Officer and Technical Experts as authors of the books significantly contributed to the smooth implementation of the project. Comments and suggestions on the draft chapters of the books provided by the Executive Committee of ISME, which functioned as the Project Technical Committee, were critical during the initial phase of the project. Inputs from the ITTO Project Manager contributed to the editing, design, layout, printing and distribution of the books, to the successful launching of the books, and to the workshop for target users

(12) PD 583/10 Rev.1 (F) Restoring Sub-Humid Ecosystems in Southern Peru through Reforestation with *Caesalpinea spinosa*

Budget and Funding Sources:

Total Budget:		US$	308,711
ITTO Budget:		US$	149,796
Government of Japan:	US$ 149,796		
APAIC		US$	158,915

Implementing Agency: APAIC – ASOCIACION PRO DESARROLLO AGROINDUSTRIAL DE CAMANA

Period of Approval: ITTC Session XLVI, November 2010, Yokohama, Japan

Starting Date and Duration: October 2011 / 24 months

I Introduction

The Council approved the project at its Forty-fifth Session in November 2009 and full financing for its implementation was pledged during its forty-sixth Session in November 2010. The final agreement regulating the implementation of the project was duly signed in April 2011. The first installment of funds was transferred at the end of September 2011, after the submission, by the Executing Agency, of an inception report, a detailed work plan, a request for the no-objection of the project's key personnel and a notification that implementation is about to begin, and the approval of the aforementioned by the Secretariat. The second installment was executed in June 2012 and the third one in November 2012. The last tranche of funds was transferred in April 2013, immediately after the members of the project's technical committee verified in the field the adequate implementation of the activities, and assessed the project's many impacts to date and it's sustainability in the long term after project completion by the beneficiaries themselves. The project was successfully completed as originally scheduled.

II. Project Objective

Deforestation and climate change are currently increasing in the Peruvian coastal region, which over the last few decades has led to total degradation or even the disappearance of special ecosystems that were previously important sources of biodiversity and goods and services for the local population in areas where extreme climate and soil conditions make restoration difficult through conventional methods.

This small project aimed to ensure the rehabilitation of arid or degraded lands in the Peruvian Coastal Region so as to generate reforestation opportunities with a view to improving the environment and the living conditions of the local rural population. It expected to implement a forest production system in a highly degraded micro coastal region using fast-growing, high commercial value forest species of high carbon sequestration and soil improvement efficiency for the benefit of the Province of Camaná, Department of Arequipa, Southern Peru, while simultaneously contributing to the mitigation of climate change effects. More specifically, the project sought to promote the development of a critical mass area of cultivated land (100 ha, with 20 families) that will serve as a catalyst for the growing of 1,000 hectares in the next 10 years. This will not only restore climatic conditions in the "lomas" area, re-vegetating the coastal sub-humid tropical ecosystem of the region, but will also generate CO_2 storing biomass, employment and sufficient economic resources to support approximately 250 families.

III. Project Achievements and Outputs

The Project was reported as completed in August 2013. In accordance with the project document, planned activities were carried out during the project's lifespan and its achievements can be summarized by major outputs as follows:

Output 1: 100 ha of Tara (Caesalpinea spinosa) plantations on barren lands under drip irrigation systems established, including the installation of 3 artesian wells.

- A total of 61 ha have been planted with Tara and another 14 ha with Olive trees. In addition, another 6,500 linear meters of windbreaks have been planted with Tamarugo, Casuarina and

tamarix. More trees could not be planted due to the existence of serious constraints as regards the supply of irrigation water due apparent conflicts and bureaucratic impasses with the local branch of the National water Authority;

- 3 water wells have been drilled but are not fully operational due to aforementioned reason. Currently the irrigation water is being supplied by a tanker truck belonging to the EA. The EA continues to pressure the local, regional and central governments and expects these to provide a long-lasting solution shortly;
- Specific technical assistance was provided to the beneficiaries, via specialized workshops or visits by experts, and by direct interventions such as fertilization and plague control fumigation, pruning, irrigation water control, etc.; and
- Periodic monitoring of the plantations was carried out, measuring such variables as plant stress and mortality, plant height, crown form, stem inclination, radicular development, flowering and fructification periods and intensities.

Output 2: 50 families directly benefitting from plantation production after 24 months and feasibility study for the establishment of 1,000 ha over the next 10 years.

- 35 families have registered and committed themselves to the establishment of Tara plantations;
- Several field trips were organized with the participation of regional staff of the Ministry of Agriculture, AGRORURAL, Municipality of Camaná and APAIC Members to demonstrate techniques for seedling production, site preparation, drip irrigation, fertilization and pruning;
- Technical assistance was periodically provided, and a seminar on Tara plantation establishment was organized in February 2012 in Camana, with the participation of government officials and institutions and to the benefit of all the local population; and
- A feasibility study was partially developed for a rehabilitation and reforestation program using *Caesalpinea spinosa* in an area of 1,000 ha within the CDM framework. However, unforseen complications arose in finalizing it due to the fact that appropriate production estimates could not be established in the project's short time frame, particularly as regards the fructification periods and initial pod production volumes of the Tara trees and its biomass and carbon sequestration potential. In this light, the project instead decided to formulate a small project proposal for the elaboration of Tara Plantation Guidelines, which strives to resolve the aforementioned difficulties by providing a longer timeframe and proper gathering of plantation establishment and production variables. Furthermore, this small project PD 724/13 Rev. 1 (F) has been commended for financing under the Autumn 2013 Project Cycle through the electronic approval, and is currently awaiting for the resources in order to be implemented.

Output 3: Feasibility study for the development of an industrial Tara processing plant and carbon market model for non-timber forest products (fruits and seeds) and biomass under arid climate conditions.

- A feasibility study was also partially developed for the development of an industrial Tara processing plant and a carbon market model for non-timber forest products (fruits and seeds) and biomass under arid climate conditions based on a rehabilitation and reforestation program using *Caesalpinea spinosa* in an area of 1,000 ha, as unforeseen complications arose in finalizing it due to the fact that proper production estimates could not be established in the project's short time frame. Instead, a pre-project proposal entitled "Pre-feasibility study: development of the tara *(Caesalpinea spinosa)* production chain in the semi-arid southern coastal region of Peru" was elaborated for submission to the Common Fund for Commodities (CFC) via ITTO. In addition, another related Pre-project proposal PPD 161/12 Rev.1 (I) was also submitted and is currently pending finance.

IV. Outcomes and Impacts

The project has produced several tangible outputs, as follows:

1. Technical Report on the Establishment of Tara Plantations on Degraded Lands in the Southern coastal region of Peru;
2. Technical Report on the Accrual of Socio-Economic Benefits via the Products Harvested from Tara Plantations by the Rural Families
3. Technical Report on the Elaboration of a Pre-Feasibility Study: Development of the Tara (*Caesalpinea spinosa)* Production Chain in the Semi-arid Southern Coastal Region of Peru.

Moreover, the impacts attained by the project have been very significant, and has transcended the boundaries of the province of Camana. Several institutions and renowned people have recognized the importance of the project as an alternative for the rehabilitation of degraded and fallow lands in the semiarid regions along the southern coast of Peru, and have manifested their interest in following up and replicating the activities in other parts of the country. The ecosystem that has developed after the establishment of Tara plantations is of enormous importance from an environmental standpoint, as the spontaneous appearance of other plants, insects and animals demonstrates that such interventions may potentially enhance or refurbish the original ecological landscape of these currently degraded systems. In addition, while it is still too early to demonstrate the conventional economic (monetary) benefits of the Tara plantations because the trees have not reached biological maturity, the economic impact on the value of uncultivated land has been huge, since the land prior to the project had no market value whatsoever, and is now highly prized, its value having increased 10 fold in two years.

V. Lessons Learnt and sustainability

As regards lessons learnt, the existence of serious constraints concerning the supply of irrigation water, due apparent conflicts and bureaucratic impasses, created an unforeseen additional cost in the maintenance of the plantations, as water needed to be transported to the site. The Executing Agency together with the Ministry of Agriculture must immediately seek a permanent solution as regards the access to well water by the beneficiaries, in order to substantially reduce production costs and facilitate the further expansion of the plantation establishment activities.

The sustainability of the project activities is assured by the very interest of the beneficiaries in continuing with the management and production activities of the plantations, as they have already invested heavily in the plantations using their own funds. As such, the continued interest and dedication in plantation maintenance and further extension of planted areas by the beneficiary stakeholders can be expected. In addition, both the Forestry General Directorate of the Ministry of Agriculture and the government-sponsored program AGRORURAL are keen to promote this type of experience and have even expressed their support in providing additional resources in order to consolidate this experience.

VI. Concluding Remarks

Overall, the project has significantly contributed towards the rehabilitation of arid and degraded lands on the coastal area of Camana, Peru, by generating new reforestation opportunities that have improved the environment and the living conditions of the local rural population. It also represented a true economic, ecological and social revolution that broke the paradigm that reforestation could only take place in the humid areas of the Peruvian Rainforest (Selva) and Highlands (Sierra) Regions.

As the ITTO Secretariat has received the Project Completion Report, several technical reports and the Final Financial Audit, this project can be reported as completed. Copies of the Completion Report and some other technical documents and maps are available either upon written request from the Secretariat or can be downloaded shortly in digital format from ITTO's website at: http://www.itto.int

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