

# Community Forestry Benefits Customary Landowners:

Case study on Madang Province Papua New Guinea

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## The Rights and Resources Initiative

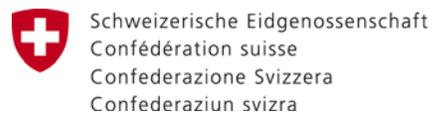
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## Abstract

In 1997 the Madang Forest Resource Owners Association (MFROA) was formed. In 1998 the ecoforestry program of the Foundation for People and Community Development (FPCD) Inc. started working with members of MFROA in Madang Province following a request of the MFROA members through their interim board of directors.

Since then nearly 10,000 hectares of customary land has been secured under ecoforestry, 25 clans have forest management plans, a total of 60 m<sup>3</sup> of timber exported under eco-label, K90,000 (USD30,000) earned directly by landowners, and MFROA membership has grown from 35 in 1997 to 170 in 2005.

Madang program has gained both national and international recognition and popularity since FPCD facilitated a number of visits from within PNG and abroad to MFROA project areas. Visitors came as far away as Ghana in Africa to see the MFROA experience.

FPCD facilitated the development of national Forest Stewardship Council's (FSC) standards for forest management and now applies them in forest management set-ups of landowners. In 2005 FPCD and MFROA was able to utilize the group certification scheme called Indigenous Community Forestry (ICF). Scientific Certification System (SCS), a US-based independent certifier, has been contracted to do a pre-evaluation and final evaluation.

Presently, training manuals are being compiled to assist FPCD trainers to deliver forest management, sawmilling, forest nurseries and timber business training courses effectively to landowners.

FPCD developed a Community Forestry Approach (CFA) whereby there are three phases: 1. Community/project entry phase, 2. Implementation (ecoforestry operation), and 3. Exit phase. In this approach FPCD must exit from MFROA projects within a reasonable time frame and move to other provinces in PNG to give full autonomy to MFROA.

A key lesson learnt by FPCD is that ecoforestry is a process. Unlike industrial logging, which can yield cash benefits in the short run, benefits of ecoforestry are more sustainable, but will be reaped only after hard work and commitment. Government backing in providing appropriate policy and regulatory support, subsidies, technical and business management training, start-up capital, and donor funding support are needed for a success and sustainability of Community Forestry Enterprises (CFE) in PNG. These types of services are lacking in PNG and only a few NGO organizations are set up to deliver them.

## Acronyms

AusAID	Australian Agency for International Development
CBO	Community-base Organisation
CFA	Community Forestry Approach
CFE	Community forest enterprise
Community Forestry	See definitions (section 2.1)
Ecoforestry	See definitions (section 2.1)
EU-EFP	European Union funded Ecoforestry Programme
FMA	Forest Management Agreement
FOB	Free on Board
FPCD	Foundation for People and Community Development Inc.
FSC	Forest Stewardship Council
HCVF	High Conservation Value Forest toolkit
ICF	Indigenous Community Forestry
IPA	Investment Promotion Authority
ITTO	International Tropical Timber Organisation
IUCN	World Conservation Union
K	Kina, PNG currency. K1.00 is equivalent to USD3.00
METCorp	Madang Eco-Timber Corporation Limited
MFROA	Madang Forest Resource Owners Association Inc.
NEC	National Executive Council
PNG	Papua New Guinea
PNGFA	Papua New Guinea Forest Authority
RST	Rough sawn timber
SCS	Scientific Certification Scheme
TA	Timber Authority
Target Group	Recipients of NGO support services
TFTC	Timber and Forestry Training College
TRP	Timber Rights Purchase
VDT	Village Development Trust Inc.
WWF	Worldwide Fund for Nature

## Country Background

### Overview of Forestry in Papua New Guinea

Papua New Guinea has a landmass of 461,690 square kilometers, and a population of approximately 5.2 million. Ninety seven percent of land is customarily owned by indigenous people.

There are over 800 different languages and cultural groupings.

Over 80% of the land in Papua New Guinea is forested, with forest types ranging from swamp forest in the lowlands to tropical moss forests. The highest mountain in PNG is Mt Wilhelm peaking at 4,500 meters above sea level (asl). Thirty three million hectares are closed canopy forest of which 15 million hectares are rich in timber species and considered accessible for development (National Forest Policy 1991). Approximately 6.0 million hectares have been acquired for forest resource development. A nationwide forest resource inventory is long overdue to update this data on forest resources of the country.

Most large-scale logging concessions are handled by overseas logging companies, which generally do not have proper environmental plans and frequently have no regard for traditional cultural and social values. This has raised national and international concerns. Production is oriented towards round log export with little processing done domestically.

Approximately 500 million kina (USD 166 million) were earned from export logs and processed woods (sawn timber and wood chip) annually (Post Courier 2005). The main markets for PNG logs and wood products are China (68%), Japan (20%), Korea (8%) and others (4%) (ITTO MIS 2004).

Government estimates for suitable annual cut levels are estimated to be more than 4 million m<sup>3</sup> and it is almost universally recognized that present logging greatly exceeds sustainable levels. Moreover, logging practices leave much to be desired: excessive road building is common, and extraction methods rarely make allowances for re-growth. Furthermore, replanting is almost never carried out.

The financial returns that filter through from large-scale commercial extraction to local forest landowners are low. Under the current system, irrespective of the free on board (FOB) price of round export logs (K220/m<sup>3</sup>), landowners only receive K25/m<sup>3</sup>.

Against this background of large-scale commercial logging local landowners are striving to develop an alternative industry based on locally controlled, sustainable, low-impact harvesting of forest resources. In order to both achieve environmental conservation and generate revenue for local communities small-scale sawmills are increasingly viewed as effective means to reach these goals. Since portable sawmills can be locally owned, they offer local employment, locally produced products, and, in that they keep revenue circulating within the community, the mills can bolster local community development (FPCD 2005c).

A nationwide survey on portable sawmills conducted by FPCD in 1993 discovered that there were:

- Over 2,000 portable sawmills,
- No support services,
- No forest management plans,
- No controls and these were left to their own devices.

In the past few years, many villagers have purchased portable mills in order to harvest their own resources. However, most sawmill enterprises operate in isolation, and owners lack the necessary skills to manage their operations effectively. Unless a concrete, business-oriented

support infrastructure can be developed, it is unlikely that villagers' efforts will yield any significant results or will be any less environmentally damaging.

## **Status and Potential of Ecoforestry**

The development of an ecoforestry (community forestry) industry through small village-based operations) is important to Papua New Guinea for numerous reasons:

- Control of the forests and their management thereby remains in the hands of local Papua New Guinean landowners,
- Small-scale sawmilling is far more ecologically sound than large scale logging techniques, for it involves bringing the mill itself to the forest, then felling and sawing trees onsite following good forest management practice with minimal forest disturbance, and no need for logging roads. Moreover, since no large-scale machinery is used, the environmental damage caused by carbon emissions is minimized,
- With adequate training, communities can manage their forest resources sustainably, without hindering hunting and other traditional practices,
- Sustainable development of rural resources is one of the few opportunities for income generation for many rural communities,
- Boosting rural employment will encourage villagers to remain in their home areas, and thus decrease urban drift,
- Development of a professionally operated portable sawmill industry will enhance PNG's local processing capabilities, and will keep revenues within the country,
- Landowners will receive higher returns for their resources. Whereas financial returns to landowners from logging concessions currently average K10 – K25 (US\$3.00 - US\$7.5) per cubic meter. Sawn timber produced by resource owners could fetch up to K500 (US\$150) per cubic meter at domestic market and up to K1500 (US\$450) per cubic meter at overseas market,
- Indirect benefits from timber sales include improvements in standards of living and housing.

The fact that the development of an alternative forestry industry, based on portable sawmills, has *not* achieved significant results to date is attributable to a number of factors. These were identified in the nationwide survey of portable sawmills carried out by FPCD in collaboration with the PNG Forest Authority (PNG FA) in 1993. A similar study conducted by two academics (Gowae and Hasagama) in 2003 confirmed these findings. The major findings were:

- There is presently no control on the purchase and operation of portable mills, and the PNGFA lacks the resources to support the mills with extension services,
- Mills, whether owned by communities or individuals, are usually run independently, frequently in isolated rural areas. Given production levels averaging 2.9 cubic meters per week, individual mills have difficulty in meeting market requirements. This is compounded by timber often being of low quality as a result of poor technical practices,
- A small number of organizations including FPCD, Village Development Trust (VDT), the Timber and Forestry Training College (TFTC), EU-funded PNG Ecoforestry Programme (EU-EFP), and a few other small agencies are the only providers of training in timber business and sustainable forest management. Without further support training, many mill owners will continue to harvest without forest management plans and with little knowledge of acceptable cutting rates,
- Operators lack training and technical support to cope with breakdowns, which has resulted in frequent interruptions in operations and a loss of income.
- Due to a lack of funding and organizational weakness, there is no infrastructure to enable operators to process their timber further or to find markets (domestic or international) for their products,
- Traditional uses of the forest receive greater encouragement and there is concern that cultural sites be protected.

## Forest tenure and access laws, policies and regulations

Ninety seven percent of land in PNG is owned by customary landowners. The government of PNG owns only 2 percent and the remaining is privately owned.

With regard to forest resources, the government and or companies wanting to develop the forest resources liaise with landowners, then enter into agreements for development activity on the land. In the case of large scale logging the government acquires rights of landowners under the Timber Rights Purchase agreement (TRP) or Forest Management Agreement (FMA). The government then sells this right to the logging company for logging through a public tender process.

In case of small operations, the company can liaise direct with the landowners. If the production is more than 5,000m<sup>3</sup> per year the company and landowner must get a timber authority (TA) from the provincial forestry office (Forestry Act 1993). However, if the volume per year is less than 5,000m<sup>3</sup> is entirely up to the control of the landowner.

National forest policy does not cover small scale forestry industry and it does not support community forestry in any meaningful way, especially in dealing with natural forest management, timber processing and marketing. Very recently the Ecoforestry Policy has been drafted by National Forest Service and some key stakeholders in PNG but has not reached the National Executive Council (NEC) for endorsement.

International Tropical Timber Organisation (ITTO) has done several studies and has also developed sustainable forest management guidelines but PNG has hardly applied these guidelines. The AusAID (Australian Agency for International Development) has also funded and assisted in the development of a PNG Logging Code of Practice (PNG LCOP) to help improve management of natural forests in PNG, but the logging industry (dominated by foreign companies) has never fully implemented these guidelines.

FPCD and other NGOs are supporting the FSC standards for sustainable forest management. Standards specific for PNG has been developed since 1996 and only recently been endorsed by FSC international Board with conditions. The PNG FSC working group is working to address these conditions. Small to medium scale forest-based enterprises working with NGOs and EU-EFP are using these National standards.

## Types of production systems

In Papua New Guinea there are two main forest management systems. The clear-felling system is applied mainly in plantation management, whereby all trees are clear cut and the site replanted. For example, the Bulolo/Wau Pine project (in Morobe Province) specializes in growing and selling indigenous pine trees (Hoop and Klinki) for plywood production and the Jant Chip production in Madang Province grows *Acacia Mangium* and *Eucalyptus Deglupta* for chip production.

The second type of management system is the selection system applied under natural forest management. This is applied by both large-scale logging companies and small-scale sawmill operators. In this selection system only selected trees of a diameter above 50 cm are harvested.

Small woodlot and agroforestry systems have not developed at a full scale yet in PNG. However, there has been some studies and trials conducted and there is need for more of such systems due to a growing demand for fuel wood and garden land stabilization in many villages in PNG. However, the government has not yet realized the urgency for need of this system.

Ecoforestry is currently considered the best system because it considers social, economic and environmental needs and can be applied at diverse scale levels (PNGEFF 2005). However,

the support from government in developing policy support is lacking. It is apparent that currently only landowners, NGOs and EU-EFP are promoting ecoforestry. FPCD and members of the PNG Ecoforestry Forum (PNGEFF) are forerunners in promoting and advising on ecoforestry services to forest resource owners in PNG.

## **Status of reforms**

In 1989 the Barnett enquiry carried out leading to a series of reforms in the forest sector. The Barnett enquiry was an independent enquiry into the forestry sector of PNG which revealed malpractices and corruption in the management of PNG forestry resource and led to major changes in PNG, including the establishment of the Papua New Guinea Forest Authority (PNGFA), creation of a National Forest Board, a provincial Forest Management Committee, elaboration of a National Forest Plan and a Forest Management Agreement.

Forestry reforms in PNG do not necessarily reflect the needs of the landowners and are often seen as favoring the foreign logging companies who do not care about the landowner needs, or the sustainability of PNG's forestry resources, but only money. This has been proven in the recent amendments to the PNG Forestry Act of 2005. The amendment to the Forestry Act is likely to get the sector back to what was before the Barnett enquiries. NGO and landowners' views the new Forestry Amendment Act 2005 has implications on increased political control, give new right to foreign logging companies, take away landowner rights, and would promote unsustainable logging.

The Forestry Act of 1991 referred to as the New Forestry Act came about as a result of the Barnett inquiry as well. Justice Barnett's report revealed that a lot of forestry laws were being broken, involving powerful politicians doing business with foreign companies. The people in the rural communities were the losers in these deals, while foreign companies made huge profits. The report led to a realization of the need to make changes in the laws that governed the forest industry.

The Forestry Act of 1991 is a set of rules that clearly defines how the country's forest resources should be managed. It deals mainly with companies involved in big logging operations. This Act created a new government structure, known as the PNGFA that would look into the harvesting of forest resources. The PNGFA is directed by the National Forest Board, which is made up of government representatives, industry representatives, and non-government organizations. The Board's main purpose is to ensure that the work of PNGFA is in the best interest of the people and the environment.

The New Forestry Act replaced three previous pieces of legislation – the Forestry (Private Dealings) Act of 1971, the Forestry Act of 1973 and the Forestry Industries Council Act of 1979. The new Act had 10 parts and 142 separate sections, many of which clearly corresponded with specific policies or strategies listed in the National Forest Policy.

Forestry (Private Dealings) Act of 1971 (repealed in 1992) allowed customary landowners to sell timber harvesting rights directly to a contractor under the terms of a 'dealings agreement'; allows contractors to operate without a timber permit' with minimal government supervision; areas subject to this kind of agreement were known as Local Forest Areas (LFAs).

Forestry Act (Amalgamated) of 1973 (repealed 1992) provided for the State to acquire timber harvesting rights from customary land owners under a standard Timber Rights Purchase (TRP) Agreement, and then grants timber permit to an operator of its own choosing with conditions imposed by the government without reference to the customary owners

In the New Forestry Act, provincial forestry officers were reintegrated into a unified National Forest Service under the control of the NFB. A Provincial Forest Management Committee was created to handle various planning and advisory powers at the provincial level. The PNGFA Operations Branch has included regional offices, which are responsible for operations in respective provinces.

## Overview of the Case Study

### Terminology

In Papua New Guinea the terms 'ecoforestry' and 'community forestry' are often used synonymously. Ecoforestry has the connotation of long-term ecological sustainability and economically viable alternative to conventional forestry. It encourages multiple forest use thus preserving social and environmental values. See PNGEFF website [www.ecoforestry.org.pg](http://www.ecoforestry.org.pg). Community forestry places more emphasis on community participation and benefits to local forest landowners.

### General Description of Madang Province

Madang is situated on the northern coast of Papua New Guinea and has a land area 28,732 square kilometers. The fertile coastal region contrasts with the inland areas, where the Adelbert and Finisterre Ranges comprise some of the most rugged mountains in Papua New Guinea. The highest peaks rise to 4300m asl. Madang's forests are richly diverse, though much of the forested area is inaccessible due to the ruggedness of the terrain. 2.8 million hectares of the province's land area is covered by forest, which 880,000 hectares (30%) have been identified as having potential for timber harvesting.

Madang province is divided into 6 districts including Madang, Bogia, Rai Coast, Ramu, Sumkar, and Usino Bundi. Average annual rainfall varies from 2000mm to 4000mm.

The province's population of 290,000 predominantly resides in rural areas. There are 60 different languages and cultural groups within Madang Province, and Melanesian Pidgin is the main mode of communication between groups. The provincial capital is the town of Madang, which is relying increasingly on business, revenues, and jobs derived from commercial logging enterprises within the province. The Provincial Government is based in Madang town (population 29,000) and administers most government functions.

The islands of Manam, Karkar, and Bagbag have very high population densities ranging from 100 to 600 persons per square kilometer (pers./km<sup>2</sup>). The lowland mainland has moderate densities while the rural interiors of the mainland are low densities ranging from 1-20 pers/km<sup>2</sup>. The mainland interiors are also very low income (0-20 kina/pers./year) (Hanson *et. al* (2001)). These rural marginal communities are the main target communities of FPCD. These areas are about 4 hours to 1 day travel to main service centers and due to inaccessibility the forests are still intact.

Most of the lowland and coastal area forests have been logged or are allocated for industrial logging. The remaining forest resources in Madang Province are the inaccessible interiors. The development of a timber industry in Madang Province has largely followed a pattern common in the rest of PNG, in that thus far, it has been oriented towards round log export with little investment in downstream processing.

There are 5 large logging concessions currently in existence in Madang Province, covering an area of 215,000 hectares, producing logs for export and managed by overseas companies. In addition, a large-scale woodchip and pulp mill operates in Madang town. The Madang Provincial Government has identified a further 665,000 hectares of forest with potential for further logging concessions (source: Provincial Forest Plan for Madang Province 1996-1999), but no commitment has been obtained from loggers to manage these at a sustainable level.

In 1997, a number of local landowners asked FPCD for assistance in improving their existing sawmill operations and established new enterprises. FPCD initially established a training program to spread awareness of ecoforestry, business, and sawmill operation skills; however, it is evident that, in order to render effective assistance to landowners in Madang, this

program needs to be significantly expanded. So far about 170 landowning groups have demonstrated their interest in developing their own forestry enterprises.

These groups have come together to form Madang Forest Resource Owners Association Inc (MFROA). FPCD is now working with these groups (who are members of MFROA) to build their capacity.

## **Overview of this study**

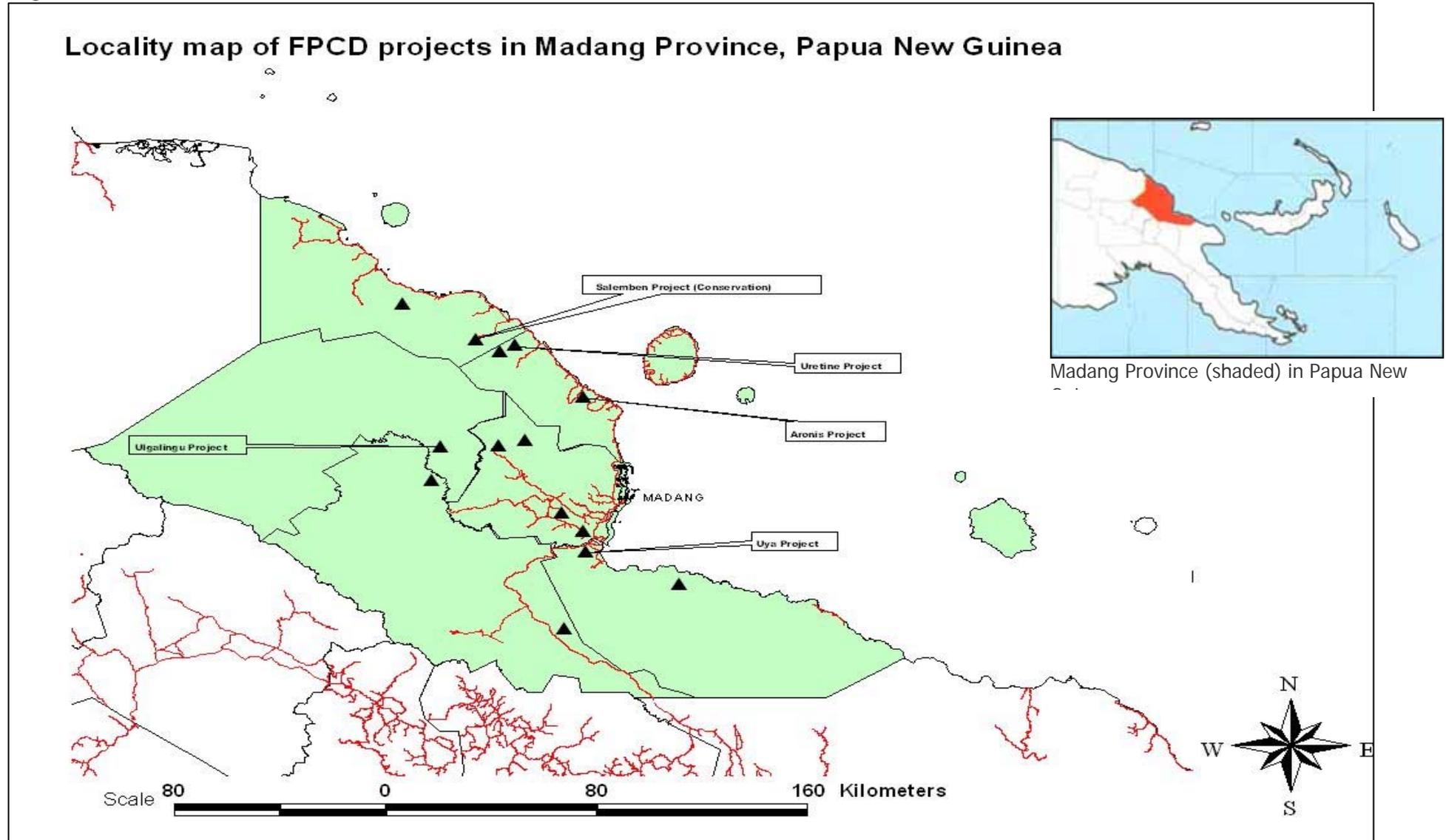
Madang province has a long history of large-scale industrial logging. The community forestry model used by FPCD in Madang and described in Sections 3, 4, 5 and 9 is different than the conventional industrial model. In the FPCD model the local landowners are mobilized (join an association incorporated under PNG laws), trained (in forest management, sawmilling, and business management), harvest, mill and sell their own forest products. This model uses FSC principles and criteria for sustainable forest management. Hence it is more environmentally, economically and socially positive for forest and local people.

The study focuses on the experience of FPCD in Madang Province since 1998. FPCD started in Madang in 1998 when a group of landowners in Madang requested FPCD's assistance to develop their own forest enterprise through small scale portable sawmilling. FPCD then began the process by mobilizing and registering the group under the PNG Investment Promotion Authority (PNGIPA). Since then FPCD has been delivering training in sustainable forest management, small scale sawmilling, timber business and good governance to members of the association.

The objective of this study is to promote the community-based forest management by sharing this experience with the hope that other NGOs, CBOs and government organizations may learn from the experiences.

The case study province (Madang Province) is located on the Northern Coast of PNG mainland. It is approximately 1 hour flight from Port Moresby (the country's capital. See locality map.

Figure 1:



## Type of Forest and Community

### Local forest management

All the accessible forest areas on easily accessible terrain have been allocated or logged out by large-scale logging companies. What are left for ecoforestry are small forest areas in the logged areas and the mountainous areas where there is no road access. There are a few members of MFROA whose forest areas are accessible by road and these are the members whom FPCD and MFROA intend to develop as models for other members.

One of MFROA's responsibilities is to ensure roads are constructed into its members' areas that are currently inaccessible. It lacks, however, the capacity to do so at the moment. The possibility exists to contract bulldozers to build roads into these areas, using the timber felled by the bulldozers to pay the costs of the contract. In some member areas old logging roads are maintained by members and they continue to use these roads (eg. Ugalingu Forest Management Project, Keki Conservation Project and Malas Forest Management project).

In one of the projects water buffaloes are used to transport timber to the main road for trucks to pick up. The FPCD's 4-wheel drive truck uses this buffalo track to conduct field work in the project area. This technology is being encouraged among members of MFROA because it is both cheap and environmentally friendly.

FPCD delivers forest management training based on principles and criteria for sustainable forest management taken from FSC standards to members of MFROA in Madang Province.

### Attitude of communities and problems

Landowners are becoming more aware of the environmental impact of logging, alternative development options, and the true market value of forest resources through open media in Papua New Guinea, and development programs. Land owners are increasingly aware and have seen the limited short term financial benefits of large scale logging versus the long term environmental and social impact.

Landowner interest in pursuing alternatives to logging is evident in that members of the MFROA are choosing to limit or stop logging on their customary land in the belief that there are more financially profitable and environmentally less destructive alternatives. Some members are choosing to produce timber themselves using chainsaw or portable sawmills, or hire other small scale sawmillers to mill timber on their land, or wait for financial assistance to purchase milling equipment. There are only a few landowners in Madang currently practicing ecoforestry through assistance from development organizations. Many other landowners are watching to see the results of ecoforestry from these producers.

To date members of MFROA have exported eco-timber to New Zealand 4 times since 2001. They are presently milling timber in forest management areas guided by PNG FSC standards for sustainable forest management and intend to continue supplying the New Zealand market. The eco-friendly market in New Zealand is organized by Greenpeace International. The latest export timber was the best quality timber ever exported from PNG. This was a result of FPCD's sawmilling training programme. FPCD has 3 sawmills which it makes available to members after training allowing them to mill their own timber for export and eventually save enough money buy their own mill. They are encouraged to buy their own sawmill, preferably railmills because they are cheaper and easier to operate.

Despite a successful programme, problems of road access, a lack of sawmill and a lack of MFROA capacity continues to impede efforts. Many of MFROA members' forests that have been surveyed do not have road access into their forests and so timber cannot be milled and transported to the market. Furthermore, many of the members whose forests have been

surveyed do not have their own sawmills. A portable mill cost about K60, 000 (USD 20,000). Villagers cannot afford this amount and FPCD must look for other means to help them purchase their own mills. FPCD's training sawmills cannot serve all of the members at once and this causes delays in meeting market demand. Banks do not give loans for sawmilling businesses in PNG. FPCD intends to purchase sawmills and provide them to members whose forests have been surveyed and allocated for ecoforestry on loan basis. When the money is repaid, the same money will be given to other members. In this way FPCD and MFROA could solve this problem.

## Constraints

Despite the success of ecoforestry in Madang, there are constraints to sustaining these successes and to further progress of the industry. The experience of FPCD shows that the major constraints to sustaining the success of the community-based ecoforestry industry in Madang are:

- Road access to forest resources is one of the most important constraints in community forestry in PNG,
- FPCD currently owns only 3 operating portable sawmills in good condition – available for cutting Rough Sawn Timber (RST). Other portable mills, all of which are in a poor mechanical state, are owned by individual resource owners. In Madang conditions 1 mill can cut up to 2.5 m<sup>3</sup> per day,
- Only a few of the current members of MFROA have had their set-ups completed, and as a result are able to commence producing eco-timber. Delays in preparing harvesting and management plan limit economic gain to local communities, since production on a reasonable scale is simply not taking place,
- Although market demand exists for timber is available, a viable market for eco-timber and FSC certified timber has yet to be fully developed and it has not been possible to add value down-stream by finishing the timber and/or secondary products, like manufacturing furniture.
- Currently timber is prepared through air-drying method and the disadvantage of this method is that it can take up to more than five times Kiln-Drying and more defects such as warping occur. The larger buyers in the market therefore much prefer Kiln-Dried Timber, and would pay a correspondingly higher price for it,
- Some forest owners understandably, indicate they wished to seek an alternative to the FPCD/MFROA approach on the basis that they were frustrated with the apparent lack of progress in obtaining their mills. Should such a drift away from FPCD/MFROA occur, there would seem little justification for the continued existence of MFROA in the field of ecoforestry.

FPCD and MFROA are jointly looking for ways to overcome these constraints to ensure success of ecoforestry in Madang and this success can be duplicated to other province in PNG. See Section 8.



**Plate 1.** FPCD vehicle transporting staff to project site, December 2005. This is the type of roads into MFROA member's project site in Madang. This road was build for water buffaloes (bullocks) to transport timber to the main road.

## Availability of Forest Resources

The FPCD ecoforestry program works with members of MFROA who are committed or are willing to commit areas of their customary land to ecoforestry. The current MFROA members own land of approximately 10,000 hectares, of which an average of 80% is expected to be used for ecoforestry. FPCD has completed surveys and forest management plans for 20 members covering nearly 10,000 hectares, with 500,000 m<sup>3</sup> of log volume available under sustainable forest management practices.

The results from the completed surveys show an average commercial sustainable stocking of 100 cubic meters log volume per ha. The estimated sustainable commercial log volume from the 10,000 ha of land designated for ecoforestry by MFROA members is estimated to be 250,000m<sup>3</sup>, calculated conservatively at half the stocking density of completed surveys.

Many of the easily accessible low land forests have been logged or are already under forestry concession areas. Some smaller areas of lowland forest remain, which are close to the main roads, and larger forest areas in more remote areas contain commercial scale volumes of in-demand market tree species. Some forest owners indicate they are keeping their trees standing while waiting for access to higher value markets. Due to the Government moratorium from 2000 on new logging concessions, continuing land disputes, an increased awareness of the impact of unsustainable logging, and depletion of the easily accessible forest areas, there has been a little slow down in the volume of timber being harvested. This increases demand for new concessions, and, with less supply of valuable species, increases competition among different users in the remaining forests.

## Potential Threats to the MFROA model

**Danger of not perceiving returns over the short term.** Landowner interest in small scale timber production does not guarantee a long term commitment to adopting ecoforestry practices. Failure to show results in the short-term will result in landowners losing interest in ecoforestry. There needs to be balance between establishing a sustainable process and economic return. Landowners' commitment to ecoforestry will come through working with landowners to demonstrate the combined environmental and economic benefits of ecoforestry.

**Pressure to engage in illegal logging operations.** The landowners members report that there are increasing occurrences of logging companies and other business people offering incentives to small sawmillers to mill illegally. Examples of incentives given were payments in the form of gifts, and "free" loan of a sawmill under an agreement to share milled timber. Either under influence or on their own decision based on traditional beliefs around land ownership some sawmillers are milling in logging concession areas, in areas under land dispute, and in protected areas such as buffer zones and custom sites. It is common knowledge that some small scale sawmilling is happening without timber licenses and does not conform to the Papua New Guinea Logging Code of Practice.

**A separate organizational structure is needed for business operations.** Some members are showing concern that there have been years of talking but no solid progress or plan by MFROA or its members to move these ideas forward. In PNG, Associations are not permitted to operate as for-profit business ventures, so any of the proposed ventures would need to be separate and distinct business arms of MFROA.



**Plate 2.** Awareness on Ecoforestry and sustainable community development conducted by FPCD in MFROA member communities are important. Good awareness helps landowners to make informed decisions proper management of their forestry resources.

## Enterprise Organisation, Management and Governance

FPCD through its Ecoforestry program provides technical and advisory support to MFROA and its members in Madang Province. The support provided by FPCD include forest resource assessment survey, forest management and land use planning, forest management training, sawmilling training, timber business training and good governance training. FPCD also assists in organizing and establishing markets for MFROA and its members.

FPCD and MFROA are two separate independently registered organizations who have separate board of directors. However, MFROA is a community-based organization established with FPCD's assistance to serve the interest of its members who are forest resource owners of Madang Province. FPCD's task is to build capacity of MFROA and its members then let MFROA run its own affairs (Baput 2005). See Section 9. FPCD has assigned fulltime officer to assist MFROA and its members. MFROA has been allocated an office space in FPCD rented office building. Details of MFROA/FPCD relations are outlined in section 4.1 and 4.2.

### Target Communities: MFROA and its members

The MFROA and its members are the target groups for FPCD support services. MFROA was setup in 1997. MFROA now has over 170 land owning members and interest from 5 potential new members each month. MFROA members have indicated their interest in adopting ecoforestry, provided that ecoforestry results in better immediate and long-term financial returns. Some members are pursuing conservation of forest resources through non-timber uses such as eco-tourism.

MFROA members indicate they joined the association to: (i) get access to better market prices; ii) get loans for purchasing portable sawmills; (iii) lease or receive free of charge a sawmill to use in order to raise funds to purchase their own mill; (iv) get working capital; (v) learn about cutting timber sustainably; (vi) get assistance in building roads, or (vi) gain access to a truck to transport timber.

MFROA members have been talking for the past few years about setting up a business venture to market timber to overseas customers. Providing services such as a mobile saw mechanic, a spare parts shop, timber transport, portable sawmill rental, and financing options have been proposed. Members expect there to be sufficient profit from a commission on timber exports. However, it is difficult without funding and government support.

A formal membership application process has been introduced where the board is now responsible for approving each membership application. This application process includes feasibility survey, paying a membership fee, and board approval.

FPCD has completed land surveys on more than 25 of the members land with help from forestry students and landowners. FPCD staff has completed Forest Management Plans for these surveyed areas. The completion of a forest survey for one member provided the backing the member needed to purchase a portable sawmill from a local supplier.

MFROA has grown to 170 members from the initial 35. The organization, registered under the IPA by virtue of the Association Incorporated Act, develops its own forest-based enterprise through sustainable forest management practice. Its marketing arm, the Madang Eco-Timber Corporation (METCorp) Limited is an accredited exporter of timber products. So far 5 members of MFROA has exported 60m<sup>3</sup> of sawn timber in four separate shipments to New Zealand under eco-timber label and are working towards Forest Stewardship Council (FSC) certification. The export has earned K90,000 total income directly to the landowners.

### **Support from FPCD as an NGO partner**

FPCD is a national Non Governmental Organisation which has been involved in integrated community development since 1965. FPCD is governed by a 7 member board of trustees, comprising 3 females and 4 males. The board meets at least 4 times a year. FPCD is managed by a management team headed by Mr. Yati A. Bun as Executive Director. FPCD traces its early beginnings to 1965 and the International Foundation for the Peoples of the South Pacific, whose development initiatives are spread across the Pacific region (FPCD 2004).

To facilitate a needs-focused service delivery to Papua New Guineans, FPCD was officially registered under PNG Investment Promotion Authority (PNGIPA) in February 1993. Since its inception FPCD has extended assistance to less-developed communities through diverse program activities including health, literacy and education, environment, research, livelihood and emergency services.

In response to a global environmental concern, FPCD streamlined its organizational thrust by building up its ecoforestry program as an alternative to unsustainable forest utilization mostly perpetuated by foreign logging companies. Applying an area-focused, integrated approach, FPCD seeks to assist its target communities, the forest resource owners, in gaining long-term benefits from their traditionally-owned lands while essentially securing the future of the next generation.

Its new program focus is geared towards strengthening MFROA FPCD has secured approximately 10,000 hectares of forest under sustainable forest management and is working towards achieving FSC certification in some of these areas. FPCD is a member of International FSC and PNG Ecoforestry Forum and works with many local NGOs and community-based organizations to promote conservation and sustainable community development objectives.

MFROA and its members receive training and technical support from FPCD and produce and sell timber. Hence, MFROA has through METCorp Ltd has exported a total of 60m<sup>3</sup> of timber under ecolabel.

FPCD provides support in forest inventory surveys, forest management training, timber harvesting, marketing (domestic and export) and utilization, timber business training, small-scale sawmilling training, forest management and harvesting planning, awareness and advocacy on sustainable forest management, and integrated community development services to forest resource owners in PNG.

FPCD carries out its forestry activities under PNG FSC's principle and criteria for sustainable forest management. With the above mission, objectives and services, FPCD will continue to support forest resource to develop and sustainably manage their own forest resources to improve the quality of their life while protecting their natural environment.



**Plate 3.** Timber stacked and loaded onto container ready for export to New Zealand.

## Economics of the Enterprise

Across the South Pacific there is increasing interest from governments, non-governmental organizations, and aid donors in sustainable forest management. Over the past ten years there has been a range of NGO-led ecoforestry programs helping indigenous landowners pursue alternatives to large scale logging of forests.

More recently these programs have been incorporating marketing of forest products, particularly eco-timber, to generate a source of income for landowners who choose to practice sustainable forest management. Organizations are seeing that resource owners must be fair and informed participants in all phases of resource use from the tree through to the market in order to maximize the benefit and keep control over resource use with the traditional resource owners.

This progression into marketing while a natural next step can be difficult for organizations who enter this area blindly without an understanding of all that is involved in business development, marketing, and business management. There are many cases of failed producer marketing groups and cooperatives throughout the Pacific. Some of the causes of these failures are lack of initial business planning, heavy reliance on a few committed people, dependency on donor subsidies and project staff, no evaluation of the long term viability of the business, internal member conflicts over differences in expectations of services and profit, financial mismanagement, fluctuations in world market commodity prices, and lack of priority on developing markets.

FPCD has assisted members of the MFROA to export rough sawn timber to buyers in New Zealand. There were three buyers identified in New Zealand. However, producers cannot meet the demand because of lack of sawmills and road access. Because of a limited supply of timber only one overseas buyer's order is supplied.

From the experience so far, it could appear that any new marketing initiatives are doomed to a certain failure. But FPCD and MFROA are using this past experience to find solutions and now approach marketing as a core activity in their development projects. This includes hiring staff with marketing and community business development experience, seeking support from small business agencies, bringing together producers under common goals, and linking with groups supporting access to markets. For the past three years this approach has been working in the Solomon Islands, and a recent report has concluded that small scale eco-timber production is proving to be economically beneficial and operational in Papua New Guinea also.

Marketing of eco-timber is viable in some areas of PNG and the Solomon Islands offer some models that may be appropriate to the local situation in Madang.

## Market prices

The local price for timber paid to small sawmillers depends on the location of sale, the buyer, the experience of the sawmiller, species, and previous commitments or debt to the seller.

The preferred local buyer identified by MFROA members pay a consistent price and treat sawmillers fairly. They pay K700 per cubic meter (m<sup>3</sup>) for 1<sup>st</sup> grade Kwila, and K350 to 650 for other species. The price offered by other buyers apparently fluctuates according to the above conditions from K300 to K600. Some buyers travel to villages to purchase timber. The local price for 2<sup>nd</sup> grade timber is around K400 per m<sup>3</sup>.

Species Price Summary by market (in Kina per m<sup>3</sup> of green rough sawn, ex-Madang):

	milling site	Madang	New Zealand and Australia
Kwila	700	750	1400
Other species	350	400	
Rosewood	600	650	1200
Taun	650	700	1200

## Overview of local economy

The town of Madang is a growing regional centre. The economy is growing based on forestry, tourism, and light industry<sup>1</sup>. Many of the businesses are foreign owned and managed by expatriate staff. The service and industry sectors provide employment for the growing numbers of young people moving away from villages to urban centers.

As usual in periods of economic growth the wealth usually accrues to those with education, business skills, financial capital, and access to resources and information. This type of growth places rural people at a disadvantage even though they hold customary and legal rights over the resources that are widely recognized as fuelling the PNG economy. Rural landowners do not see this economic growth extending to or benefiting the rural areas outside of Madang where people still live semi-subsistence lifestyles.

There is increasing emphasis from national and provincial governments on encouraging rural based development. The rising prices for basic supplies and services impacts rural areas through increased cost of basic food supplies, health, school fees, transport, and supplies for local businesses such as small scale timber production. This trend places greater pressure on local resource owners to secure sources of income that keep pace with inflation.

## Challenges for Efficient Enterprise Operation

### Maintenance and Spare parts

There are many sawmills around Madang that are no longer working due to a lack of maintenance, no owner capital to purchase needed parts, or no local expertise to complete needed repairs.

There are no local suppliers of spare parts for portable sawmills like Peterson sawmill brand - sawmillers must order parts from overseas with delays of several months before parts reach Madang. Recently a sawmill dealer (Farmset Ltd) has set-up office in Madang town and is distributing Lucasmil sawmills and Husqvarna chainsaws, a popular brand of portable sawmills in PNG and Australia.

<sup>1</sup> No quantitative evaluation of the economic growth of the region and by sector was possible during this study.

Another supplier, Narapela Wei Ltd is based in Lae (5 hours drive from Madang). Narapela Wei supplies Ecosaw brand. Sometimes the service is slow.

**Plate 4.** FPCD officer and landowners conducting maintenance on one of the mills. FPCD provides sawmilling training which covers operations and maintenance of chainsaws and sawmills.



### Limited sources of capital and funding

The only sources of capital for small scale sawmilling businesses in Madang are the Agricultural Bank or private capital lenders. As in other Pacific countries, commercial banks have poor track records with sawmill loans, and are reluctant to extend loans without 100% collateral backing.

Small sawmillers take loans from private capital lenders in return for a share of the cut timber or exclusive rights of the lender to purchase all timber.

Without information on current timber market prices, and inability to make financial calculations to determine the true cost of the credit terms the small sawmiller is under the control of the credit source.

### Limited Road Access to Forests

There is a lot more work and cost required these days to access the more remote forest areas and extract timber. The lack of roading in rural areas means that many forest areas are inaccessible to small sawmillers. Only logging companies with sufficient capital are able to invest up-front to develop roads to reach these areas. Small scale sawmillers are restricted to working in areas where timber can be carried by hand to the nearest existing truck accessible road. These unmaintained rural roads become inaccessible during the frequent rainy periods. Small sawmillers are forced to shut down operations and can be left with milled timber in the forest that cannot be transported to the market.

Access is thus a real problem which needs to be addressed by FPCD and MFROA. A local solution is available and that is the use of water buffaloes, which are found in the Madang area and could be harnessed to do the work of moving cut timber from the forest to a pick-up point. Use of water buffaloes is a solution which is being encouraged. Many communities in lowland Madang use this mode of transporting their cargoes. In one of MFROA member project buffaloes are used in transporting timber from forest to main road for pick up.

### Constraints in the Local Market

Small sawmillers have restricted access and ability to deal equitably in the local market due to:

- Physical distance from the tree to the market
- Lack of working capital (for example, to pay for transporting timber to higher value markets where the price difference exceeds the cost of transport)

- Previous commitments to sell all timber exclusively to their source of capital (for example, under the terms of a loan for purchase or lease of a sawmill)
- Lack of skills to grade and tally timber to verify buyer claims of timber grades and volumes
- Small volumes of a range of species
- Knowledge of available market outlets and current fair market prices
- Need to sell timber quickly to cover operating costs and loan repayments, where often the working capital comes from short term loans from relatives or members in the community
- No methods of communication between producer and customer

Local timber customers mostly purchase their timber from established timber yards. Timber yards source the timber from their own logging concessions, direct from sawmilling sites through pre-arrangements with sawmill operators, or at the yard gate from small sawmillers.

There is an on-going strong demand from local buyers for the well known species. This is in large part due to timber buyers purchasing timber locally and then exporting it at double the purchase price to overseas customers.

There are many smaller scale companies exporting smaller volumes of rough sawn timber from small sawmillers. Many of these companies are owned by expatriates in partnership with some nationals. Most of them are buying timber from unsustainable sources. There are regular exports of mainly round logs from Madang to Asia, and sawn timber of the more common species to Pacific regional markets.

The experience from other ecoforestry projects in PNG and Solomon Islands shows that marketing of eco-timber from small scale sawmilling is possible with support, and customers are willing to work with the delays and low production volumes of small scale timber production. However customers are only willing to work with professionally run export groups able to supply consistent quality timber on a scheduled basis.

### **Limited Markets for Lesser Known Species**

Small sawmillers are not milling the lesser known species due to a lack of demand, and no information or experience identifying and milling these other species.

Ecoforestry programs can use local landowner knowledge to identify uses for the lesser known species, develop experience milling and seasoning these species, and promote within the market.

### **High Operating Costs and few sawmill purchase options**

Most small sawmillers are currently not milling timber. The problems of operating a small scale sawmilling business come from a low local market price, lack of business management skills, lack of capital, and inexperience operating portable sawmills.

Most sawmillers do not keep track of their operating and capital costs but have found that at the current local market prices they cannot cover their cost of operation, parts, and still keep a reserve to pay for supplies for the next milling. New sawmill businesses often neglect to consider the cost of depreciation and maintenance on their equipment, evidence in the number of broken down sawmills in the area.

The following estimates on operating and capital costs were gathered from interviews with the MFROA members and FPCD staff. The estimated operating expenses range (from low to high) reflect the differences in operating costs depending on factors such as the efficiency of operation, the maintenance of machine, and species being milled.

Assuming 50% recovery per cubic meter round log the operation cost range between K245 to K375 (Hoath 2000).

	<i>Low</i>	<i>High</i>
Fuel, oil	25	35
Milling labour	70	100
Extraction to road	30	60
Parts, supplies, maintenance	60	80
Transport to market	60	100
	<i>K245</i>	<i>K375</i>

There are 3 main sawmill financing ecoforestry:

- **Option 1: financing through commercial loan**

Assuming that small business loan rate of 15% (with monthly payments over 4 years), fixed term deposit rate of 5%, use of a portable sawmill (with replacement value of K60,000), sawmill depreciated fully over a useful life of 4 years, milling of 150m<sup>3</sup> sawn timber per year (600 m<sup>3</sup> sawn timber over 4 year life of saw) debt can be paid in 4 years producing 106m<sup>3</sup> for repayment of the loan.

The difficulty with this option is that commercial banks in PNG would not give loan to village based ecoforestry.

- **Option 2: financing through savings**

The true capital cost of financing a sawmill purchase through savings over its useful life includes the foregone return on investment on alternative uses of the savings, and the depreciation reserve accumulated in order to replace the sawmill after its useful life.

Although there are discrepancies in these data, it can be estimated that in 4 years 85m<sup>3</sup> of timber can be used to purchase new sawmill at depreciation 65m<sup>3</sup>, savings for mill purchase 20m<sup>3</sup>.

	<i>Per m3 sawn timber</i>
Depreciation (over 4 year useful life of sawmill)	65
Opportunity cost of allocating savings to sawmill purchase (at 5% rate on K60,000 investment over 4 years)	20
	<i>85</i>

Village based eco-enterprises who attend timber business training courses organized by FPCD and have opened a bank account and are strict with their finance management can use this option.

- **Option # 3: Lease-purchase arrangement**

Some community forestry organizations (e.g. Aitape Archdiocese in Sandaun Province) have done this. A sawmill is purchased and given to the forest owners and they repay over an agreed period of time. In this arrangement a memorandum of agreement is signed between forest owner and the organization.

### Viability of small scale sawmilling

Using the above operating and capital cost estimates the calculations below show the profitability of operating a portable sawmill with local sales, export sales, and a comparison with revenue from logging royalty. With export sales it is assumed that half of the species are in-demand in the export market.

*Assuming:*

- sawn timber graded into 50% 1<sup>st</sup> grade, 50% 2<sup>nd</sup> grade
- local sales of 1<sup>st</sup> grade at K600 and 2<sup>nd</sup> grade at K300, average sales price of K475
- average export sales price of 1<sup>st</sup> grade at US\$450 with 15% commission to cover export fees, for an average producer revenue of K1020 per m<sup>3</sup>
- landowner logging royalty of K10/m<sup>3</sup> round log, equivalent to K20/m<sup>3</sup> sawn timber with sawmilling at 50% recovery per m<sup>3</sup> round log.

At the current local market prices and full operating costs small scale is at best marginally viable. With access to export markets small scale sawmilling becomes economically viable.

The current minimum cutting rate per sawmill per working area can be conservatively represented as follows: 3m<sup>3</sup>/day X 10 days/month X 10 months cutting available/year = 300m<sup>3</sup>/year/saw. Should the number of saws be increased to 10, the total cut in one year across the MFROA areas only will be: 300m<sup>3</sup> X 10 = 3,000m<sup>3</sup>.

Ignoring the increased value likely to be achieved with kiln-drying, fine finishing, furniture manufacture and effective marketing, at the current US Dollar rate each cubic meter of RST is worth USD450 on world markets : 3,000m<sup>3</sup> X USD450 = USD1,350,000 X 3(exchange rate) = K4,050,000.

It appears reasonable to say that conceptually all these 10 areas are on the one owners hectares and that there are 95 owners' lots to be cut, and thus the gross income yield in the MFROA program, over a number of years given capacity restraints, will therefore total: K 4,050,000 X 95 = K 384,750,000

Such a sum, which has been earned from just 5 percent of the volume available for harvesting, will build a very large number of schools and health centers, probably well beyond the requirements of the Madang area. There will thus be plenty of funds available for community needs.

Based on the probability that there are some 10 potential areas where such a program could be implemented, the financial yield for the nation as a whole, in terms of gross income from low-intensity village-based ecoforestry alone, could be K 384,750,000

Given an economic multiplier of something of the order of X 50 to account for the high-value industries spawned from the new wealth of villagers such as tourism, related sports, and the ability to exploit oil and natural gas at a modest level without recourse to external funding, the gross income now lifts to:  
K 384,750,000 X 5 = K 1,923,750,000.

PNG's budget is K 5 Billion including external aid and probably 50% of this is spent on Education, Health and Social Security. Why does the government not turn to village economies to assist? The new village wealth will go a long way towards meeting a significant portion of this burden, whilst the government retains the task of regulating standards in these fields. Effectively the building and staffing of Education, Health and Social Security programs will be privatized, thus relieving the government the need to "earn K 2 Billion per year from logging "(Dr Bob Danaya, Western Province Governor, quoted in a Post Courier article 2005).

## Technical and financial support

FPCD's donors provide funds for FPCD to deliver technical support in forest survey, forest management plan, and technical skill training. Some of these funders are EED (Evangelischer Entwicklungsdienst), ICCO (Inter-Church Organization for Development Corporation) and IUCN (World Conservation Union). FPCD does not offer financial assistance to target groups.

MFROA does not have funding for its own office and timber yard yet. FPCD and MFROA will apply for funding for the timber yard and office and to build MFROA's capacity. FPCD will continue to house MFROA while seeking funding in the first 3 years. FPCD will provide technical backing and endorse MFROA funding applications. MFROA has obtained small grants from Global Green Grant Fund for two minor projects.

MFROA has set-up its business arm Madang Eco-Timber Corporation Ltd (METCorp). Members of MFROA own and manage the forest resources through their existing clan systems. They then sell their forest produce through METCorp Ltd. METCorp manages marketing and collects some percentage as commission. This money goes back to fund MFROA meetings venues and organise marketing and transport.

### **Specialty Markets (Eco-labeling and FSC certification)**

Currently timbers from FPCD target communities are sold under eco-timber label. This is a stepping stone towards certification. FPCD and MFROA use the national FSC forest management standards.

FPCD's target groups have not yet achieved FSC certified timber production. Potential buyers have been identified and FPCD and MFROA have started a FSC certification process.



**Plate 5.** FPCD has ecolabel brand hammer that places the eco label on timber produced under Ecoforestry regulations.



**Plate 6.** Timber graded and stored near milling site at Awane Project in Madang Province, December 2005.

Although cost-benefits analysis of running a fully FSC certified community forestry enterprise has not been determined in PNG, partly subsidized FCS certification and eco-timber in PNG indicate higher income and social and environmental benefits. Financial incomes earned by MFROA members who have exported eco-timber through a subsidized arrangement were three times higher than domestic market. At domestic PNG market there is no difference in price of certified and non-certified timber.

To ensure transparency and accountability MFROA members who mill timber under FPCD/MFROA arrangement sign an agreement in order to gain access and use the markets and services arranged by FPCD.

MFROA as an incorporated association has set up its business arm, METCorp Ltd, to run timber yard, which is to collect and sell timber and other forest products from members. The yard has not yet been established but once it is set up it will do values adding including furniture manufacturing, cabinet making, and other joinery work. This would include kiln-drying. At present MFROA has not purchased any kiln-drying facility as it is not yet required.

Present government is supporting export driven economic recovery. Thus there is zero tax on exports by PNG industries. In PNG small scale forestry businesses are restricted to PNG citizens. However, the government's support for large scale foreign owned logging companies is a threat to CFE development in PNG.

There are illegal small scale sawmill operators in PNG who are liaising directly with landowners and cheating landowners of their benefits. Some of these operators use landowners as their business partners.

## Environmental Benefits, Conservation values, Impact on Biodiversity

### Preserving environmental values and minimizing impact on biodiversity

The forest management systems employed by FPCD and partners (MFROA, Forcert and EU-EFP) employ the FSC standards for sustainable forest management which covers social returns, infrastructure, subsistence products, culture, professional training and skills building.

FPCD and MFROA as implementers of 'ecoforestry' focus on the ecoforestry agenda "to balance environmental, social and economic values and benefits to forest resource owners". Hence, FPCD uses the FSC standards for sustainable forest management as a tool to achieve this agenda. The FSC standard has 10 principles and each principle has criteria and verifier which take into account needs of landowners, and social, environmental and economic values of forests. These principles are:

- 1. Compliance with laws and FSC principles,
- 2. Tenure and use rights and responsibilities,
- 3. Indigenous peoples' rights,
- 4. Community relations and workers' rights,
- 5. Benefits from the forest,
- 6. Environmental impact,
- 7. Management plan,
- 8. Monitoring and Assessment,
- 9. Maintenance of High Conservation value forests,
- 10. Plantations.

Currently WWF (PNG) is facilitating development of High Conservation Value Forest (HCVF) toolkit for PNG. A sub-committee under national FSC working group has been formed. This committee is developing the HCVF toolkit. The toolkit is to complement the FSC standards and described under principle 9.

Forest management and forest products certification are done by independent certifiers using the FSC standards developed specifically for PNG to ensure forests are properly managed and the needs of landowners, the social values, economic values and environmental values are not compromised.

Currently Forcert Ltd is the only accredited certifier in PNG. Forcert is a non-profit company set-up by coalition of ecoforestry organisations in PNG to provide forest management and forest products certification services to its members' projects. Since then Forcert has certified a small number of timber yards and forest management areas mainly privately owned small scale enterprises in lowland PNG.

Although FPCD supports Forcert's group certification scheme FPCD is developing its own certification scheme called Indigenous Community Forestry (ICF) group certification. The ICF

uses the PNG national FSC standards in the clan-based forest management set-ups in Madang Province. FPCD has conducted a preliminary evaluation scoping study and is preparing to conduct a final scoping survey to acquire FSC certification. The USA-based Scientific Certification Systems (SCS) has been contracted to carry out the evaluations.

### Development aspects

High earnings from this project are not the property of the individual traditional landowner although an expectation that this is so may, from the outset, plague the project's success. It will be important to establish straight away that, in each case, for each clan area, moneys earned from forestry will be placed in their own special trust fund. FPCD staff acting directly on "pay-day" each month could give the bank a list of the trusts that are to receive funds, and the amount of such funds. At the same time each owner will be given a "pay-slip" indicating how much money has been paid into the clan's trust fund. This is one way in which the independence of FPCD will be an advantage.

Each trust fund will be administered by about 6 trustees 3 at least of whom should be women. This will help towards balance in decision-making and, to a degree at least ensure there is a longer-term vision that has in mind the future of their children.

The forms of structure and the training that will go into making the trust system work constitute an excellent task for FPCD staff. The small business training currently performed by FPCD staff should incorporate a unit on the administration of trusts.

When it is decided by the trustees that a school or health care centre is to be built preference will normally go to selecting local building staff. This will, over time, create a pool of skills that will encourage more and more economic and creative activity. The role of the trust will be to accelerate this development and indeed to fund it where deemed suitable. In that there might be a temptation to corruption of the trust system an annual election of trustees and a maximum term of only four years might be a useful deterrent, besides allowing for an injection of "new blood" into the administration. To encourage the taking up of the trustee positions a 'meeting-fee' could perhaps be paid each time a trustee attends a meeting.

## Intersection with Government Regulations and Policies

The *National Forest Policy* is guided by the Fourth Goal of the National Constitution, which has been described as PNG's own charter for sustainable development. The two main policy objectives are:

- management and protection of the nation's forest resources as a renewable natural asset,
- utilization of the nation's forest resources to achieve economic growth, employment creation, greater Papua New Guinean participation in industry and increased viable onshore processing.

Secondary policy objectives are:

- the collection of information and advancement of knowledge relating to the utilization and maintenance of Papua New Guinea's forest resources through forest research,
- increased acquisition and dissemination of skills, knowledge and information in forestry through education and training,
- effective strategies, including administrative and legal machinery, to manage the forest resource, and incorporating national, provincial and local interests.

The National Forestry Policy is divided into five parts: **a.** Forest Management; **b.** Forest Industry; **c.** Forest Research; **d.** Forestry Training and Education; **e.** Forestry Organization and Administration. The forestry Department (PNGFA) functions under these divisions.

The Papua New Guinea government has shown positive moves towards supporting sustainable resource use. In early year 2000 the Government placed a moratorium on new logging concessions pending a review of the industry. The logging code of practice should

result in more sustainable logging practices if and when the code is implemented by logging contractors and sawmillers on the ground.

The government recognizing there is a role for small scale sawmilling in the forestry sector, and is actively involving groups such as the PNG Ecoforestry Forum in policy discussions. However, with change in government terms the support is doubtful. For example the recent policy amendments has removed NGOs and Provincial Forest Management Committees on the forestry board and given more power to the forest minister.

There are three steps which the landowners must be aware of in relation to land disputes. When there is dispute people can firstly go to the Land Mediators. If they are not satisfied with the agreement, they may appeal to the Local Land Court to determine and resolve the dispute. However, if there is still not satisfaction then they may appeal to the Provincial Land Court for hearing the appeals. The Land Dispute Settlement Act basically outlines procedures and method on how Land related dispute can be solved in a peaceful and legally recognized manner, whilst taking into account customary elements of resolving land disputes.

*PNG law requires that any organization wishing to harvest more than 5,000m<sup>3</sup> of timber per year must secure a Timber Authority (TA) from the PNGFA.*

The Forestry Act (1993) establishes the National Forest Plan that must be followed when a logging company wants to harvest the forest. This document has three parts: National Forestry Development Guidelines; National Forest Development Program; and Annual Statement of Allowable Cut.

To apply for a timber authority, applicants are registered under the Forestry Act as Forest Industry Participant. If they are a foreign enterprise, they must have Investment Promotions Authority (IPA) approval to operate the project. The applicants can then operate under a forest management agreement (FMA) or Timber Authority (TA).

A *Forest Management Agreement (FMA)* is an agreement between the PNG FA and the land owners group (established under the Land Groups Incorporation Act), which grants the latter authority to own timbers on customary lands and grant permits to cut the forests. For the FMA to be valid, at least 70 percent of the landowners must sign together with the Forest Authority. The FMA document, a replacement of the Timber Rights Purchase agreement (TRP) under the old Forestry Act, lists down the benefits and amount of money that the landowning group will get, a map of the forest area, how much timber will be cut, and how long it will take to cut the timber.

*Timber permits* are given to large-scale logging companies that the government thinks are capable to cut the forest based on the standards set in the National Forest Plan. There are other conditions that the logging company needs to adhere to, like paying the landowners' benefits. If conditions are not followed the permit can be revoked.

A *Timber Authority (TA)* is another type of permit for timber harvesting which is only granted for areas outside the FMA. It is issued by the Forest Minister upon the recommendation of the Provincial Forest Management Committee and duly consented by the National Forest Board. It can only be granted for four specific purposes: **a.** TA 01 (harvesting of timber less than 5,000m<sup>3</sup> annually for domestic processing only) **b.** TA 02 (harvesting of timber for road-line clearance) **c.** TA 03 (harvesting of timber for clearing in preparation for agricultural or other land use) **d.** TA 04 (harvesting of forest produce other than timber)

## Ways Forward and Opportunities

Some 40 of the 170 members of MFROA will not be able to qualify to have their FMPs and set-ups prepared because their timber assets are in too remote an area for adequate access by motor vehicle. Roadways are either non-existent, impossible to use due to topography, not capable of use by vehicles, poorly maintained, or subject to dispute among neighboring clans. Should it be possible to resolve these problems, a larger number of members will be in a position to take advantage of the services of FPCD, thereby gaining an income from ecoforestry and bringing about a corresponding increase in the income of, and level of services available. Clearly more appropriate technologies are needed if these enterprises are to be competitive such as the adapted use of water buffalo as is being piloted effectively in a number of cases.

## Changes Needed in Enabling Environment

97% of total landmass of PNG is owned by indigenous groups and as such government of PNG must recognise and empower these communities to make best use of their own land to make our living. These require that government of PNG (through its established institutions such universities, research institutes, forestry and agriculture departments, and provincial and Local level government offices) to:

- Recognise and develop policies that encourage community forestry development and the landowner participation at all levels of resource management decisions,
- Adopt a best forest management approach/system such as that of FPCD,
- Work more closely with NGOs and community groups,
- Transfer research information to community and industry,
- Put in place financing systems for community-based eco-enterprises.

## Challenges for future or continued success

There are a number of challenges to small-scale community-based ecoforestry. The Madang experience of FPCD and MFROA has encountered these as major challenges:

- The approach taken is time consuming and community may lose interest,
- Lack of landowners' commitment to Ecoforestry,
- Start-up costs are often too high and need to be subsidised initially,
- Capital intensive.

However, the benefits of ecoforestry are far more than the challenges. In ecoforestry:

- resource owners gain ownership and control – they make their own decisions and not controlled by others,
- skills and technology is transferred to resource owners
- direct benefits to resource owners,
- other forest benefits like cultural, social, biodiversity and environmental values are not compromised for the other,
- the resource supply is not exhausted too soon but preserved for future generation.

Realising the above challenges and benefits FPCD and MFROA in Madang are working on solving issues that hinder the success of the ecoforestry and improving the benefits to forest resource owners.

## Potential to expand or replicate the experience

### FPCD/MFROA Relationship

FPCD and MFROA share the common goal of supporting the indigenous forest resource owners to protect their natural environment and develop and manage the forest resources in an environmentally, economically, and socially beneficial way. Main program focus for FPCD

is Ecoforestry. Environment, Education awareness, healthy lifestyle, and income generation leading to self reliance and sustainable livelihoods are complementary programs. Under its mission *“To support Papua New Guineans to develop and manage their own forest resources towards environmental, economic and social benefits”*, FPCD has identified 3 overall objectives (FPCD 2005b):

- to train forest resource owners to manage and develop their own forest resources
- to establish models of good forestry practices in forest management areas and forest nurseries, and establish markets for forest products,
- to promote good forestry practices at national, regional and international levels.

Under these objectives, the key activities are: forest resources assessment, forest management planning, research in non-timber forest products use and marketing, forest management training, sawmilling training, timber business training, and forest products marketing, and establishment and capacity building of target groups including good governance training.

After all, FPCD hopes to bring the forest resource owners to a level where they can make informed decisions about the management of their customary land and forest resources.

FPCD assisted MFROA to register as an incorporated association under PNG Investment Promotion Authority (IPA) of PNG. MFROA has a business arm registered with the registrar of companies under IPA. The business arm has obtained an export license to export timber and non-timber forest products and has secured a forestry license, a Forest Industry Participant Certificate from PNGFA, to conduct any forestry activities in PNG. MFROA has a constitution and a fulltime board which meets every quarter. However, MFROA does not have its own office facilities, a fulltime staff or any source of funding.

This is a problem and needs to be moved to another part of the sections on threats and/or constraints. Although 5 members have actively participated in the projects and are beginning to take ownership, the general attitude of MFROA members towards the programs and projects is that they are depending on FPCD to do everything for them. This is opposed to FPCD’s principle to encourage resource owner participation. FPCD under its new program focus and strategy will use community action and participation process to empower and encourage participation in projects where at least 5 model projects will be established.

MFROA is registered as an incorporated association under the Investment Promotion Authority of PNG and as such MFROA is expected to run its own affairs with initial support from FPCD. Hence, FPCD will need some funds to help MFROA begin the process of taking over responsibilities. This would include funding for fulltime staff, office establishment, and some minor administrative costs.

**The Handover process.** FPCD has been working for sometime to strengthen the autonomy of MFROA and now realizes that it is difficult and the timing is not right to handover every activity to MFROA at once. FPCD recognizes the inexperience of MFROA and will not handover everything all at once but will identify and prioritize activities to be handed over to start the process of granting MFROA greater autonomy. FPCD plans to:

- Assist MFROA to employ one MFROA staff until MFROA secures its own funding. The main task of this person will be to secure funding for MFROA and build MFROA’s organizational capacity and prepare MFROA for autonomy.
- Allocate an office space in the FPCD rented building, i.e. MFROA will not pay rent and bills until it has its own funding.
- Start to eventually handover the timber marketing function to MFROA when MFROA has secured funding and fulltime staff. FPCD will continue to run other activities including forest surveys, forest management planning, harvesting plans, forest certification, forestry training, integrated community development activities, advocacy and research and development.

## Ecoforestry Model

When project established under ecoforestry has been successful then FPCD will exit to allow resource owners to take full ownership and become self-reliant. FPCD's philosophy is that people's capacity should be built first then exit depending on the indicators of success (e.g. landowners exporting timber direct overseas from their own forests that have been certified under national FSC standards).

FPCD believes in resource owner participation, where skills and technology could be transferred to them to manage their own forest resources and supports the 5 National Goals of Papua New Guinea, which are integral human development, equality and participation, national sovereignty and self-reliance, natural resources and environment, and the preservation of PNG ways.

Thus, FPCD has developed a *Community Forestry Approach* (CFA) that ensures participation of forest resource owners, whereby skills and technology transfer could occur whilst building the resource owners' capacity to manage their forest resources to enhance their livelihoods and preserve their natural resources for their children and their children's children (Baput 2005). The major steps to the CFA covers:

- Awareness on ecoforestry,
- Landowner commitment and mobilization,
- Landowner needs identification,
- Forest management training,
- Forest management operation (resource survey, planning, harvesting etc),
- Sawmilling training,
- Timber business training,
- Forest produce marketing and utilization,
- Forest certification,
- Monitoring and evaluation,
- Exit strategy.

These are summarized in the FPCD CFA diagram in Section 9. Detailed description of the approach is outlined in the manual "FPCD Community Forestry Approach" (Baput 2005).

Exit strategies are developed clearly stating steps to wrap-up before the projects phases out in a community or province. The strategies take into account four main strategies for sustainability: **a.** means to verify measurable outputs such as timber yard and timber processing unit, model projects such as forest management areas, model houses and forest nurseries, **b.** commitment by parties – MFROA and FPCD agree by way of signing an agreement that project is successful and should be independent of the parent organization (FPCD), **c.** peoples' capacity – local people trained are now implementing the skills they gained. For example they are running successful timber businesses, can do timber harvesting set-ups, and mill quality timber certified under PNG FSC standards, and **d.** Networking for success with government, banks, donor, NGOs and other agencies has been established.

## Lessons for similar initiatives or governments supporting CFEs

PNGFA as a statutory body must support ecoforestry and encourage community forestry enterprises (CFEs) by **a.** adapting a community-based forest management system that is cost effective, **b.** establish mechanisms for forest resource owners to access funds for starting capital, and **c.** train/educate forest resource owners to realise, appreciate and have a balanced view of the economic, social and environmental values of their forest resources so that one is not compromised for the other.

Government should **a.** formulate and implement and ecoforestry policy, **b.** support forest certification initiatives, and **c.** train and encourage forest resource owners' participation. Resource owners must be involved at all levels of decision making in resource management.

The Government's Forest Policy (1991) does not have concrete objectives on community forestry. Therefore the government should:

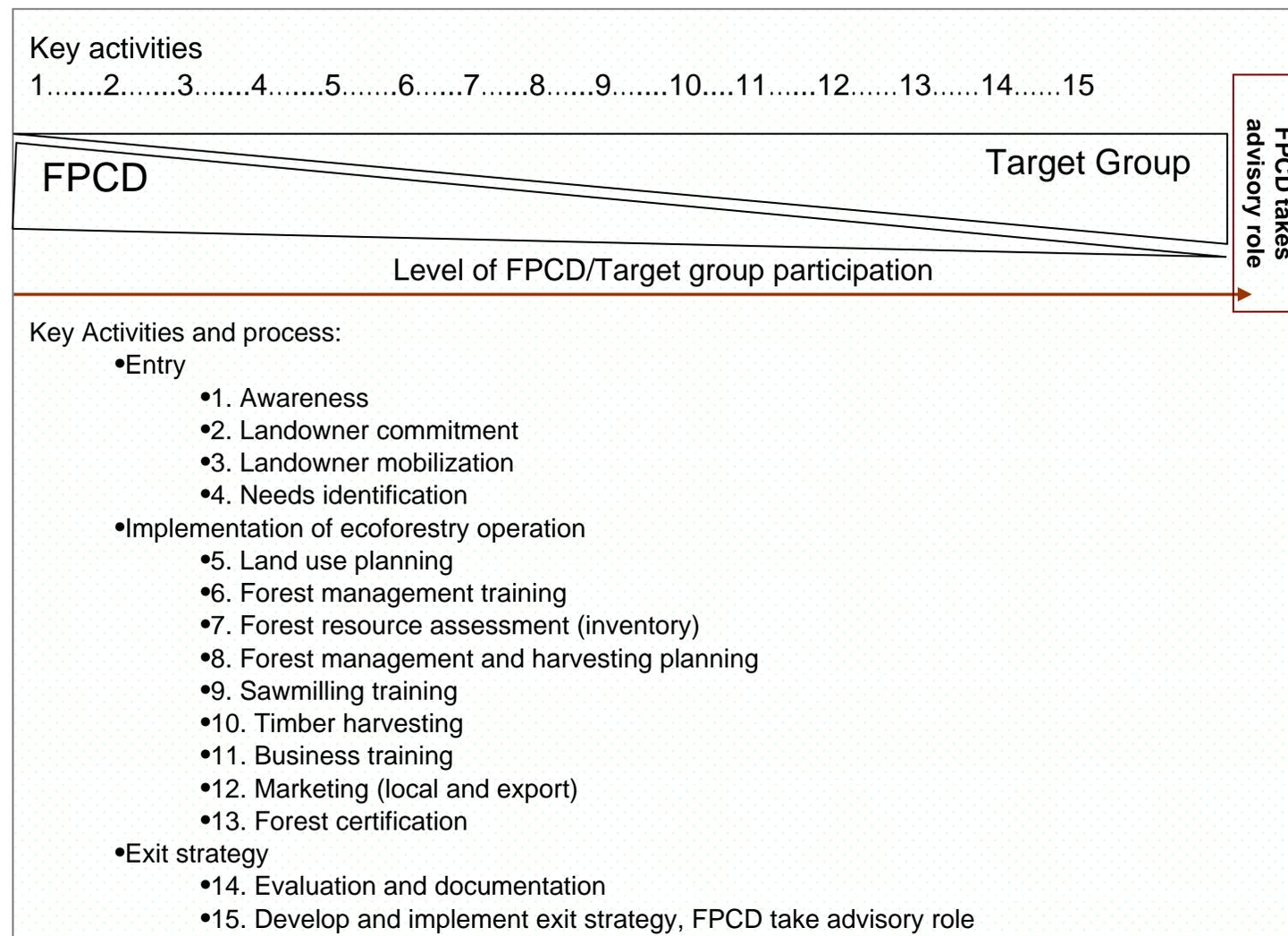
- Change laws and regulations including the forest policy to enable (and support) local management and development – current model undermines communities, sustainable forestry and sustainable development,
- Government should support communities to manage and develop their own forest,
- Provide financial support training and technical support for forest management,
- Explore appropriate technology for harvesting in more remote areas,
- Explore development of other products and markets,
- Explore central processing for collective enterprise.

Why ecoforestry is important and that the government should support ecoforestry in PNG (Chatterton et al 2000):

- Community forestry is controlled by customary landowners,
- Community forestry returns wealth to the community,
- Income from community forestry is under the control of the community according to its needs,
- Community forestry operation can be sustained for many years,
- Community forestry cause less damage to the forest,
- Community forestry provides opportunity for landowner to acquire self-confidence, skills and technology and become self reliant.

## Supporting Charts or Graphs

### FPCD's Approach in Ecoforestry in Madang Province, Papua New Guinea



## Bibliography

- Baput, B. (2003) Bush-fallow farming systems in Lihir Islands – prospects for change, a thesis submitted for the degree of master of forest science, University of Melbourne, Victoria, Australia.
- Baput, B. (2005), Community Forestry Approach version 1.2, unpub., Foundation for People and Community Development Inc., Madang, Papua New Guinea.
- Barnett, T (1989) Report of the Commission of Inquiry into Aspects of the Forest Industry: Final report, Papua New Guinea.
- Chatterton, P., Bun, Y., Eddowes, P., Hunt, C., and Whimp, K. (2000) A future for our forests: strategies for community-based forestry and conservation in Papua New Guinea, World Wide Fund for Nature, South Pacific Program, Suva, Fiji.
- Forestry (Amendment) Act (1993), Papua New Guinea Forest Authority, Papua New Guinea.
- FPCD Annual report (2004), Foundation for People and Community Development Inc. Port Moresby, Papua New Guinea.
- FPCD (2005a) Forest Management Training Course: a trainer's guide, draft, Foundation for People and Community Development Inc., Madang, Papua New Guinea.
- FPCD (2005b) Strategic planning meeting report, Foundation for People and Community Development Inc. Madang, Papua New Guinea.
- FPCD (2005c) Business plan, unpub., Foundation for People and Community Development Inc., Port Moresby, Papua New Guinea.
- Gowae, G. and Hassagama, M. (2003), Portable sawmilling survey report, technical doc., University of Technology, Lae, Papua New Guinea.
- Hanson, L.W, Allen, B.J, Bourke, R.M, and McCarthy, T.J (2001) Papua New Guinea Rural Development Handbook, Australian National University, Canberra, Australia.
- Hoath, R. (2000), Establishing and Eco-timber Marketing Program in Madang, Papua New Guinea, Feasibility Study report, Foundation for People and Community Development Inc., Madang Papua New Guinea.
- ITTO MIS (2004) Market Information system, International Tropical Timber Organisation.
- National Forest Policy (1991), Ministry of Forests, Papua New Guinea.
- PNGEFF (2005), [www.ecoforestry.org.pg](http://www.ecoforestry.org.pg), Papua New Guinea Ecoforestry Forum, Papua New Guinea.
- PNGFA/FSP (1994) Small Sawmill Survey report, Foundation for People and Community Development Inc., Port Moresby, Papua New Guinea
- Post Courier (June 2005), Number 1 daily, Papua New Guinea.
- Provincial Forest Plan for Madang Province (1996-1999), Papua New Guinea Forest Authority, Hohola, Port Moresby.
- Savage, T.J., Quigley, J.B., Trangmar, B., and MacAlpine, J.R. (1995), Resource Atlas of Madang Province, Papua New Guinea.