# Community-based forest enterprises in tropical forest countries: status and potential

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| | |
|---|---|
| ACOFOP | Association of Forest Communities of the Petén (Guatemala) |
| AGROFORT | Agroforestry Association of Tumupasa (Bolivia) |
| ASL | Local Social Association (Bolivia) |
| CAAM | Council of Extractivist Associations of Manicoré |
| CAFT | Tri-National Cooperative Agroforestry Association (*Administratif de la Coopérative Agroforestière de la Tri-Nationale*, Cameroon) |
| CAR | Autonomous Regional Corporations (*Corporaciones Autónomas Regionales*, Colombia) |
| CATIE | Central America Institute of Research and Technology |
| CBFM | Community-based forest management |
| CCMSS | Mexican Community Sustainable Silviculture Council |
| CDM | Clean Development Mechanism |
| CFC | Community forest committee (the Gambia) |
| CFE | Community forestry enterprise |
| CFM/FUG | Community forest management/forest users' group (Nepal) |
| CIG | Common interest group |
| COATLAHL | Cooperative of Honduran Forest Producers of the Atlantic Coast |
| CORNARE | Corporación Autónoma Regional del Rionegro-Nare (Colombia) |
| EMPA | Materials Science and Technology (Switzerland) |
| FAO | Food & Agriculture Organization of the United Nations |
| FMP | Forest management plan |
| FORESCOM | Forest Community Company of Forest Services (Empresa Forestal Comunitaria de Servicios del Bosque) |
| FPCD | Foundation for People and Community Development (PNG) |
| FUG | Forest user group (Nepal) |
| HCVF | High conservation value forest |
| IBENS | Brazil Institute for Education on Sustainable Enterprises |
| ILO | International Labour Organization |
| ITTO | International Tropical Timber Organization |
| LKS | Lesser-known specis |
| MA&D | Market Analysis and Development Methodology (FAO) |
| MASBOSQUES | Corporation for Forest Sustainable Management (Colombia) |
| MFROA | Madang Forest Resource Landowners Association |
| NGO | Non governmental organization |
| NPPFRDC | Ngan Panansalan Pagsabangan Forest Resources Development Cooperative (Philippines) |
| NWFP | Non-wood forest product |
| PNG | Papua New Guinea |
| PROFOR | A multi-donor trust fund program housed at the World Bank |
| RECOFTC | Regional Community Forestry Training Center for Asia and the Pacific |
| SFM | Sustainable forest management |
| SINA | National Environmental System (*Sistema Nacional Ambiental*, Colombia) |
| SME | Small and medium-sized enterprise |
| WCMC | World Conservation Monitoring Centre |
| WRI | World Resources Institute |

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## EXECUTIVE SUMMARY

Small and medium-sized enterprises (SMEs), including those owned by communities, are widely known to comprise the bulk of forest industry globally. Approximately 30 million of the 47 million permanent jobs in the forest industry are found in informal, small enterprises, most of which have fewer than 20 employees (Poschen 2001). While statistics for the forest sector are generally not complete for tropical producer countries, surveys of specific countries and regions and information from other sources confirm that SMEs are the main component of forest industry in these countries as well (FAO 2005, WRI et al. 2005). They make up 96% of all enterprises in Brazil and 20% of GDP and the bulk of Brazilian forest sector operations (May et al. 2003). They comprise 95% of all forestry enterprise activity in India (Saigal and Bose 2003) accounting for 500,000 jobs of which only 150,000 are in the formal sector. FAO estimates that the contribution of forestry to employment is more than double that generally given in global statistics when the small-scale, community and informal sectors are included. This is not only a developing country phenomenon; SMEs and smallholders provide more than 50% of the wood harvested in the European Union countries and the United States, and generate a majority of the employment in processing and contracting (UNECE/FAO 2000).

Like all forest enterprises, community forestry enterprises (CFEs) have a mixed record, with numerous cases of successes as well as failures. As the experience in developed countries attest, SMEs can emerge and flourish where the tenure and policy frameworks allow them to exist legally and compete fairly with large-scale enterprises. Unfortunately, only a few tropical countries have had favourable conditions in place for a sufficiently long time to enable their development or viability. This study identifies some shared trends for the emergence and development of CFEs in a range of different tropical countries that indicate a high level of promise overall.

### General findings

**1. Community-based forest management and related enterprises have expanded dramatically in developing countries with the recognition of historic tenure rights and the transfer of responsibilities to local levels.** CFEs are a growing type of SME. Communities in the ITTO tropical timber producer countries have long been important players in the forest sector – as owners of natural and planted forests, as collectors and consumers of a large variety of timber and non-timber species, as agriculturalists, agroforesters and livestock managers in forested landscapes, as managers of forests for cultural or sacred values and social uses, and as enterprise managers producing timber and non-wood forest products (NWFPs) for commercial markets. CFEs have expanded as a component of the forest products and services industry in a number of countries and regions, including Mexico, Guatemala, Honduras, Bolivia, Nepal, India and China. There is growing evidence from around the world that when policy and tenure constraints are lifted, there is a rapid response in both the number of CFEs and their contribution to employment and local income.

**2. Community forest management has unique advantages for the rural economy and forest conservation yet faces serious challenges for growth.** CFEs generate unique benefits and returns. They tend to have a longer time horizon for resource management, both

for generating employment and for conserving the multiple values of the forests that support their livelihoods, and have specific social and cultural value. Their potential has not been realized in many countries due to a lack of clear tenure rights and adverse policy and regulatory environments. Policies and subsidy schemes have generally been designed with large, formal industry in mind; regulatory frameworks in many countries disadvantage CFEs and greatly reduce their potential profitability. Outmoded regulatory frameworks impose slow and costly permit processes and artificial business models. Bureaucratic processes can also be slow and difficult or costly to navigate. Internal challenges, local social inequities, limited technical and business skills, quality and scale of production, and potential internal conflicts all require strong social/governance processes and horizontal learning as well as appropriate access to market and other information and technical knowledge.

**Specific findings**

**Specific finding 1: CFEs generate a range of goods and services that are not created by individual enterprises or private industry**. The cases studied and the broader literature reviewed demonstrate that CFEs tend to invest more in the local economy than their private-sector equivalents, fostering social cohesion and longer-term equity and making greater social investment. CFE organizational structures can be advantageous in the marketplace. They are flexible, able to switch among different blends of products. They can also be self-exploiting when necessary, absorbing labour costs in difficult stages of operation or transition. CFEs often apply traditional knowledge to their operations, create innovative approaches, and find new ways to increase employment and diversify income strategies.

**Specific finding 2: CFEs can be very profitable**. Case study examples had returns of 10-50% from their timber and non-wood forest product activities. More mature CFEs have invested in diversification of economic activities, making greater use of their forest resource, managing risk and creating new sources of employment and community skills. Rising prices for hardwoods and other natural forest species and selected NWFPs and increasing consumption of natural medicinal products, traditional foods and crafts all favour CFE economies. Markets for water services or carbon can be lucrative and growing additions to their enterprise returns.

**Specific finding 3: CFEs are important conservation agents in forests of high biodiversity.** In forest-rich areas, CFEs have been positive forces for biodiversity conservation, including CFE investment that leads to significant reductions in forest fires. As they mature, CFEs have tended to diversify looking for ways of making better use of the forest resource, generating greater employment, minimizing their costs relative to returns, and generating income for investment in conservation. Some are also providers of goods and services in the new markets for ecosystem services and the rapidly expanding markets for recreational or eco-tourism.

**Specific finding 4: Internal constraints and market barriers can limit CFE emergence and growth.** CFE development is constrained by important internal barriers, including: internal social conflicts, mismanagement of resources and income by individuals, lack of organizational and business skills, lack of technical skills, deforestation pressures from agriculturalists in the community, and unwillingness to adapt practices to market demands.

These can result in limited growth or failure of a CFE, but can be balanced by the positive dynamics that CFEs bring to an enterprise—greater sense of ownership and commitment, a long-term commitment to their social group and resource base, and an ability to draw upon local social and cultural practices for innovation and problem-solving. Where there has been long-term accompaniment from outsiders that is respectful of social and cultural dynamics, internal constraints can be solved more effectively, particularly when there are real investments in building the professional and administrative skills of the CFE members themselves. CFE success is also challenged by barriers to robust markets: communities tend to lack access to roads and energy infrastructure, and find it hard to get formal credit or finance. Small-scale production (imposed artificially by some community-forestry schemes) limits all but very high-value markets As newcomers they are perceived as very risky for investment.

**Specific finding 5: Regulatory and policy barriers can be a major constraint for CFE emergence and growth.** Insecure tenure and use rights and political instability limit CFE emergence, even in countries that have changed their legislative framework to foster participation. Organizational models or forest areas mandated for CFEs can conflict with local custom and predisposition or be inconsistent with demographic and biophysical realities and livelihood strategies. Tax systems at the point of extraction ignore the significant non-financial benefits created by CFEs and lose potential revenues higher up in the value chain. Relative to other actors in the sector, too little funding has been provided directly to CFEs and their associations, starving them of skills and knowledge. (Excessive bureaucratic procedures result in high transaction costs for CFEs.

**Specific Finding 6: The scope for CFEs to increase in importance and development contribution is huge in the tropical timber-producing countries.** Millions of people and billions of dollars. While some countries have begun to reduce constraints, there is a much greater potential to support the formation and growth of CFEs. Only a fraction of CFEs has been empowered to formally engage in commercial enterprises in countries that have recently modified their policies and legislation.

**Key recommendations for producer countries to support formation and growth of CFEs**

- Reduce or modify regulations, including tax mechanisms, that impede the formation of CFEs or make CFEs uncompetitive
- Secure tenure and access to forest resources, including authority to make key decisions
- Enable community stakeholders to be part of the policy dialogues that affect their right to own, use and trade forest products and services
- Increase community participation in developing the rules for emerging markets for ecosystem services and socially responsible wood and non-wood production
- Build the capacity of the decentralized authorities legally responsible for overseeing CFEs
- Build the capacity of CFEs and their associations and improve the supply of market information, technical assistance and appropriate finance
- Reorient business and technical service delivery to recognize the integrated nature of CFEs and raise the quality and coverage of service provision in technical and market approaches

**Key recommendations for the International Tropical Timber Council**

- Support analyses of CFE tenure, forest management, enterprise structure and potential role in the marketplace
- Privilege projects that support CFEs
- Promote exchanges among CFEs to transfer lessons and inform policy-makers
- Establish a new financial instrument to directly support CFEs and their associations
- Host an international conference to disseminate findings

# INTRODUCTION

## Small and medium-sized enterprises

Small and medium-sized enterprises (SMEs) are widely known to comprise the bulk of forest industry in the forest-rich countries. Forest-based SMEs include enterprises with one or more of the following characteristics: a business operation aimed at making a profit from forest-linked activity, employing 10–100 full-time employees, or with an annual turnover of US$10,000–US$30 million, or with an annual roundwood consumption of 3,000–20,000 $m^3$ (Mayers 2006). Other definitions also encompass micro-enterprises, which generally employ only one or two individuals and tend to exist outside the formal economy. In formal employment statistics, 30 million of the 47 million permanent jobs in the forest industry are found in enterprises of less than 20 employees (Poschen 2001). These figures are even more dramatic when the informal sector is taken into account; it is estimated that there are some 140 million individuals working in informal forestry microenterprises around the world (Mayers 2006).

Data for forest sector SMEs in tropical producer countries is generally not extensive. However, surveys of specific countries and regions and anecdotal evidence confirm that SMEs are the main employers for domestically and internationally traded wood products (FAO 2005, WRI et al. 2005). A recent estimate suggests that forest-based SMEs may account for more than 80% of all forestry enterprises in many developing countries (Mayers 2006). For instance, SMEs make up 96% of all enterprises in Brazil and 20% of GDP and the bulk of Brazilian forest sector operations (91.8% industry, 96.76% commercial, and 97.26% services) (May et al. 2003). They comprise 95% of all forestry enterprise activity in India: 98% of sawmills, 87% of plywood factories, and 94% of paper mills (Saigal and Bose 2003). In Uganda, it is estimated that there 511,530 forest-based SMEs, with the vast majority belonging to the microenterprise category (Auren and Krassowska, 2003). Statistics from European Union countries and the United States are equally dramatic: SMEs harvest more than 50% of the timber and wood supply in both regions (Butterfield et al. 2005). In the United States, SMEs currently contribute over 37.4% of the total employment in the solid wood products processing sector (US Census Bureau 2007). In the EU, it is estimated that 90% of forestry-related firms employ fewer than 20 workers (Hazely 2000) and that "they constitute the heart of innovation, wealth generation and new employment in the economy". (Liikanen 2002). Notably, the importance of SMEs in both these regions is on the rise as larger-scale commodity producers increasingly migrate to the southern hemisphere.

SME forest product processing and trade is one of the three largest categories of non-farm, rural activity in several Food and Agriculture Organization (FAO) studies (Spears 2004) and it has been estimated that over US$130 billion of gross value-added is contributed annually by such enterprises (Macqueen 2004). The International Labor Organization (ILO) estimates that the contribution of forestry to employment is likely triple that in global statistics and FAO concludes that forestry makes up 6% of the GDP in 23 African countries, or double that officially reported (Lebedys 2004; ILO 2003). Millions of SMEs also exist in the construction and building sector, as wood artisans, fuelwood and charcoal suppliers and traders, and in the furniture industry. They are important providers of ecosystem services and increasingly provide tourism services.

SMEs are found across industries and market segments, and evolving market and production dynamics are creating new opportunities for them in both developing and developed economies. This includes natural forest producers in high-quality hardwood and other timber markets where raw material is increasingly scarce, new markets for carbon and/or biodiversity offsets or water flow and quality services, and even high-volume, low-value commodity goods where competition is fierce. Some examples of forest-based SMEs include:

1) suppliers of raw material, mainly of commodity and appearance-grade wood and also non-wood forest products (NWFPs), both low and higher value;
2) vertically integrated processors of products, as mill owners or artisans;
3) managers of mixed enterprises in their own natural forests, including both forest industry activities and other services, such as tourism;
4) participants in markets for services—either payment schemes for watershed or carbon and/or biodiversity offsets or ecotourism and biodiversity payments;
5) contractors to companies for services with their own forest resources on the side;
6) formal or informal associations of small producers manufacturing common goods; or
7) SMEs with their own agroforests, like furniture or wood carving artisans who sell collectively.

On the one hand, the scale of SME participation in the forest sector is huge. Compared to the larger-scale and more formal enterprises, however, income per labour input and productivity are much lower in the large countries studied, including Brazil and South Africa (Macqueen 2004). In addition, in the commodity wood sector, much of the SME sector is found along parts of the value chain most subject to downward price pressure as competition increases (Lewis et al. 2004; Macqueen 2004). A study of SMEs in South Africa found that, despite conscious support from government to foster enterprises in the pulp and paper and sawnwood industry for raw material supply and transport, most were high-risk and earning very marginal incomes and were under tremendous pressure within the value chain to reduce costs and charge less for their services (Lewis et al. 2004).

## Definition of CFEs

**For the purposes of this analysis, community-based forest enterprises (CFEs) are forest industries managed by indigenous and other local communities for livelihoods and profit and are engaged in the production, processing and trade of timber and wood products and commercial NWFPs, and may participate in markets for environmental services (Clay 2002).** Most, but not all CFEs, fit the definition of an SME, either because of the number of employees or because of capital investment. Some sophisticated, vertical-processing CFEs may have more employees and capital than allowed in the definition of an SME adopted in this study, but they may still marry the economic goals of their enterprise with social and environmental goals of the community. Some differentiated CFEs actually function like an association of SMEs or CFEs, where subgroups of actors within the community enterprise take responsibility for specific activities within the general governance structure of the community.

CFEs are an increasingly significant player in the domestic and global marketplace in tropical timber-producing countries. Where CFEs have been favored by social conditions, markets, and policy and regulatory frameworks, including tenure regimes, they have a track record of successful forest management, supply a wide range of raw materials and end products to domestic and export markets, in some cases in partnership with the formal processing industry. They also contribute to the general economic status and well-being of the community through employment generation and investments in social goods and services, natural resource conservation and cultural assets (Barry et al. 2003; Bray and Klepeis 2005; WRI et al. 2005; Jenkins 2004; Scherr, Kaimowitz et al. 2004).

A small but significant number of CFEs have now reached a stage of age and maturity to yield important lessons of experience for other communities seeking to directly manage their forest as a successful enterprise. These examples are highly profitable, both financially and in the multi-dimensional benefits they provide to community members, the global environmental community, and the national and rural economies. There are a smaller group of CFEs that participate in payment schemes or markets for ecosystem services, either separately or as part of their overall forest management and enterprise strategy. In areas of high biodiversity, including in and around public protected areas, a number of donors and government programs have promoted CFEs based on timber, NWFPs and ecosystem services, including tourism, either on public lands by transferring communal administrative rights or on community and/or private lands.

The track record of CFEs has been mixed, often due to the uneven policy and regulatory frameworks within which they evolve. Few countries apart from Mexico and Guatemala have provided a consistent framework for CFE emergence and growth. Internal social conflicts and inherent limitations of scale and product quality have also acted to prevent CFEs from emerging in many communities or have checked their growth.

What is striking in the countries with enabling frameworks is the large number of CFEs that have entered and stayed in the market. Some of these enterprises have been fostered by donor, government or non-governmental entities, in some cases with these entities acting as the organizational umbrella for participation by multiple villages or multiple groups of producers. Where social capital or existing collective organization is limited, these 'umbrella' models have provided organizational support, transferred skills for market and production analysis, eased the completion of formal legal or bureaucratic procedures, and fostered attention to issues of inclusion and equity. What is still limited are examples of enterprise support that help CFEs to link to other SMEs within the value chain to create alternative market and processing linkages, as has been recommended by May et al. (2003) for Brazil and Auren and Krasowska (2004) for Uganda.

## Changing context for CFEs

Rapid transitions taking place in the forest industry are transforming the roles and relationships between large enterprises and SMEs. Most private enterprises are corporate bodies or individuals who may or may not be the owners of the forest resource that supplies their raw material. The conservation of forest resources or guaranteeing a sustainable supply from a particular forest area may not be priorities. The recent major changes taking place in

the forest ownership and conservation structure in many countries are propelling a different type of forest enterprise, one collectively owned and managed by communities that both generates income for its members and provides valuable social and conservation outcomes (Zarin et al. 2004; Salazar 2005).

The link between forest markets and livelihoods has become a topic of increasing attention (Hudson 2005). It is commonly recognized that forests are a mainstay of a large number of the world's poor and that 1.6 billion people living in and near forests use forests for subsistence products and water regeneration and quality and for generating a substantial portion of their cash income (WRI et al. 2005; Bojo and Reddy 2003; CIFOR 2005; Arnold and Ruiz Perez 1998). Rough estimates of the forest-dependent poor include Indigenous peoples in natural forest areas, rural people living on the forest margins, smallholders practicing agroforestry or managing remnant forests, artisans/employees in informal enterprises (Calibre and SCC 2000; Krishnaswamy and Hanson 1999; Scherr, Kaimowitz et al. 2004), and new settlers, particularly migrants coming to the agricultural frontier in search of new opportunity or political refuge.

It is also known that most of the participation of these low-income forest producers has been in low-value, low-return markets with high risk and that only a subset of wood and non-wood forest products generates significant livelihoods for large numbers of producers. There are constraints on output, profit and productivity. In some segments, there are only limited opportunities to change this picture, particularly with the consolidation of 50% of the timber trade in vertically integrated pulp, paper and commodity wood and wood substitute markets. In other segments, given a configuration of social impetus, enabling conditions, effective technical support and information, community-based natural resource management experiences have been transformed into effective CFEs.

This report reviews the experience of CFEs in ITTO producer countries, drawing lessons from Latin America, Africa, and Asia and the Pacific (see Annex I for a list of ITTO member countries[1]). . It also identifies and analyzes the internal and external constraints to CFE success, particularly policy, tenure and regulatory barriers and market structures and makes recommendations for future intervention that can enable their emergence and growth. The experiences of 20 enterprises are portrayed through case studies (see Table 1) prepared by a range of specialists using a common methodological approach. This case-study information has been analyzed in light of a wealth of secondary literature that has appeared over the past decade on new market trends in the forest sector, SMEs, community-based forest management, community-company partnerships, NWFPs, and markets for ecosystem services.

## Objectives and scope of the review

The analysis concentrates on CFEs in which rural people collectively manage the production, processing and/or trade of forest goods and services in forests – natural, planted or mixed agroforestry – over which they have rights and access. The analysis complements the extensive studies that have been done by the International Institute for Environment and

[1] China and Nepal are consumer members of ITTO but are included in this study because of their developing-country status. Neither the Gambia nor Tanzania is an ITTO member, but case studies from those countries are included because of the limited availability of case studies in ITTO African member countries and because they add regional data that could be useful for ITTO member countries

Development and others on pSMEs in the forest sector (Macqueen 2004), and on smallholder agroforestry or tree plantations on private lands, including the outgrower schemes for timber and sawnwood production which are increasing in importance in India, South Africa, China, Kenya or Brazil (May et al. 2003; Lewis et al. 2004; Bose and Saigal 2004; Xu et al. 2004). It also complements the compilation of examples of company-community arrangements involving large company timber concessions, which involve communities as labourers or contractors of products and services, or in complementary income-generating activities (Mayers and Vermeulen 2002; Anyonge et al. 2002; Vidal 2005; Bose and Saigal 2004).

This study surveys enterprises in both the formal and informal forest sectors, including those that participate in payment schemes and markets for environmental services (carbon sequestration, water generation and quality, landscape and recreation values, tourism services, biodiversity, etc. Some of the payment-scheme case studies involve the collaboration of communities with intermediary institutions that provide technical assistance, assistance in marketing and access to finance and training.

The case studies provide insights into the competitive potential of CFEs in a changing domestic and global marketplace and their ability to market or otherwise gain value from the multi-dimensional returns from their enterprises, including the social and environmental goods and services generated. There are many examples of community-based forest management, such as the Joint Forest Management experience in India, forest users groups in Nepal, indigenous lands and territories in Philippines, Amazon countries, and village forests and community-administered or co-managed forests in sub-Saharan Africa. There are many fewer cases of CFEs in these countries and elsewhere, in large part because the tenure and regulatory conditions have not been in place for these to emerge or thrive. Thus, while there were 1500 CFEs to select from in Mexico, ranging from highly sophisticated successes to conflictive, inefficient harvesters, we found only one Nepali community milling operation because government has not approved any others.

This study surveyed a very large sample of CFEs in Mexico, carefully selected a range of experienced (successful) enterprises across states, and compared these to CFEs in other regions and countries. We found too few enabling environments in the producer countries to enable a useful analysis of success versus failure. Given that SMEs have high failure rates in any given sector in developed countries, it is to be expected that many CFEs in developing countries will also fail.

In only in a few forest-rich countries have conditions been created that enable a significant number of CFEs to emerge and fail or succeed, either by securing forest tenure and access rights for communities or by favourable policy and regulatory frameworks that provide CFEs with affordable entry into the marketplace. Ironically, it is countries like India and Nepal, with the largest numbers of organizations of people around forests (99,000 village communities in India and hundreds of self-organized villages as well and more than 20,000 user groups in Nepal) where use restrictions have been greatest, handover confined to degraded lands, and CFE experience the least.

The tenure, market, and governance situation is changing quite rapidly, and CFEs could garner a much greater share of the marketplace over the next decade or two, with wide-ranging benefits to the economy, rural people, and to forests.

**Table 1: Summary of 20 CFE case studies**

| Region | Country | Case study | Organizational model | Type of production |
|---|---|---|---|---|
| Latin America | Guatemala | Arbol Verde | Producer association | Timber, NWFP, Tourism |
| | Guatemala | Carmelita | Cooperative | Timber, NWFP, Tourism |
| | Mexico | Santa Catarina Ixtepeji | Indigenous | Timber, Ecotourism, NWFP |
| | Mexico | El Balcón | Ejido (Settlers) | Timber, Wood Products, Cactus |
| | Mexico | Sociedad Maya | Union of Settler Communities | Timber, Handicrafts |
| | Colombia | San Nicolás Forests | Smallholders | Carbon Credit Markets |
| | Honduras | COATLAHL | Cooperative | Timber, Wood Products |
| | Bolivia | AGROFORT | Indigenous Smallholders | Timber |
| | Brazil | Manicoré | Village based sub-regional association under regional assoc. | NWFP |
| | Brazil | Mamirauá | Village-based groups and Association | Timber |
| Africa | Cameroon | Ngola-Achip | Village-based | Timber |
| | Cameroon | CAFT | Village-based | Timber, Cacao, NWFP |
| | Gambia | Coastal Dev. Region | Mixed Village and Smallholders | Timber, Honey, Fibers, Fuel |
| | Tanzania | Amani Butterfly Group, Eastern Usambaras | Village-based with Cooperative Society | Butterfly farming in village forests |
| Asia and Pacific | Nepal | Bel Juice Extract | Community Based Company | Foodstuffs, medicinal |
| | Nepal | Chaubas-Bhumlu Sawmill | Community forest management forest user group | Timber |
| | Philippines | NPPFRDC | CBFM People's Organization | Timber |
| | India | Pongamia-CDM | Village groups | Ecosystem Services |
| | China | Pingshang Bamboo Group | Smallholders | Bamboo |
| | Papua New Guinea | Madang sawmills | Indigenous Community. | Timber |

NWFP=Non-wood forest product; CDM= Clean Development Mechanism
NPPFRDC=Ngan Panansalan Pagsabangan Forest Resources Development Cooperative

## Organization of the report

Chapter I provides the market and social and political context within which market demand and political conditions shape the opportunities for CFEs. Chapter II presents an overview of the case studies, including descriptions of organizational structure, economy of the enterprise, social and environmental benefits, and the obstacles and constraints for CFE emergence and growth. Chapter III analyses the the case–study findings and identifies the internal and external barriers and constraints. Chapter IV summarizes lessons learned and makes recommendations for the future. Boxes appear throughout the text to highlight aspects of various case studies. The ITTO member countries are listed in Annex I and the terms of reference for the study and the casestudy methodology are Annex 2. Annexes 3 and 4 summarize the results of field surveys of Mexico CFEs and globally on markets for ecosystem services. Annex 5 provides summaries of each case study as PowerPoint summaries. Annexes 3-5 are not reproduced here but are available on the web at www.itto.or.jp.

## CHAPTER I: MARKET AND SOCIO-POLITICAL CONTEXT

Changes in tenure, global and domestic markets, and corporate responsibility and governance have changed the context within which CFEs operate. Community forest ownership has more than doubled in the last decade, with much of this increase in the tropical countries, and with indications that it is likely to double again in a similar time period (White and Martin 2002). Population growth in developing countries has fuelled growth in the domestic consumption of a myriad of timber and non-wood forest products, while consumers in developed countries have broadened their use of forest products, particularly as a result of immigration from developing countries (Scherr et al. 2004; WRI et al. 2005; Xu et al. 2004). New markets for ecosystem services have emerged in parallel to a greater corporate responsibility for positive environmental and social outcomes (Scherr, White et al. 2004; Rosa et al. 2003; Scherr et al. 2002). On the governance side, some tropical countries have decentralized authority and responsibility to local levels, empowering communities and opening access to market chains (Scherr et al. 2002). Though important transitions are underway, decentralization initiatives have often been more rhetorical than real, as numerous studies are beginning to document (Ribot and Larson 2005). In this first section of the chapter we look at the major changes that are taking place in wood trade and in industry, including new company agreements for raw materials, non-wood forest product (NWFP) markets, and emerging new markets for ecosystem services. In the second section, we review the social and political context in tropical countries.

### Changes in the wood trade and industry

The structure of the global wood trade and industry is changing, marked by a perceptible shift in favour of intensive plantation forests over natural forests, concentration and consolidation of the paper and pulp industry, dominance of transnational companies in industrial roundwood processing and international forest trade, and declining or stable prices of most forest raw materials and products. At the same time, a growing domestic demand in developing countries (at times to meet re-export demand for finished products) is fuelling the growth of smallholder and community-managed forestry, plantations and enterprises. While the global forest trade is dominated by large multinational companies, most employment in forest industries – 80% or more in many countries – is provided by SMEs.

FAO (2003) estimated global forest trade to be in the order of US$145 billion,of which US$8 billion is tropical timber trade (Auren and Krasowska 2004). PROFOR (2005) estimated it to be $130 billion, of which $19 billion is NWFPs. The domestic consumption of many timber, wood-based fuel and NWFPs consumed or traded domestically (eg fuelwood and poles for subsistence construction and use, local fibres and foodstuffs, famine or emergency supplies) is many orders of magnitude higher; in India, fuelwood alone is estimated to be over-harvested by an amount of 130 million $m^3$ per annum above the sustainable supply from regular sources (PROFOR 2005) and locally consumed thatch grass for roofing in Mexico's Yucatan Peninsula exceeds US$137 million per year in local market values (WRI et al. 2005). Increasing domestic consumption in the population-dense tropical countries is creating a new trend in world trade. China has increased its forest product imports from $6.4 billion in 1997 to $13 billion in 2004, 70% of the wood supply coming from neighbouring Southeast Asian tropical countries and

Russia (Xu et al. 2005). India is likely to follow China in greatly increasing both internal consumption and imports (ibid.).

The economics of large-scale global trade in industrial roundwood products have begun to favor intensive production in sites strategically situated for trade, and planted areas are expanding quickly – especially in the Southern hemisphere – creating an unrelenting downward pressure on product prices (Bull et al. 2005). Such plantations often differ considerably from natural forests in structure and species composition, especially the highly diverse humid tropical forests. Industrial forest plantations now account for some 22% of industrially used forests and 34% of industrial production. More than a fifth of the world's wood is already produced from forests with average annual yields above 7 cubic meters per hectare, compared to the average yield of natural forests of 2 $m^3$ per hectare. In the tropics, 18 million hectares of plantations were established between 1990 and 2000 (FAO 2000), although some have also been abandoned due to poor performance.

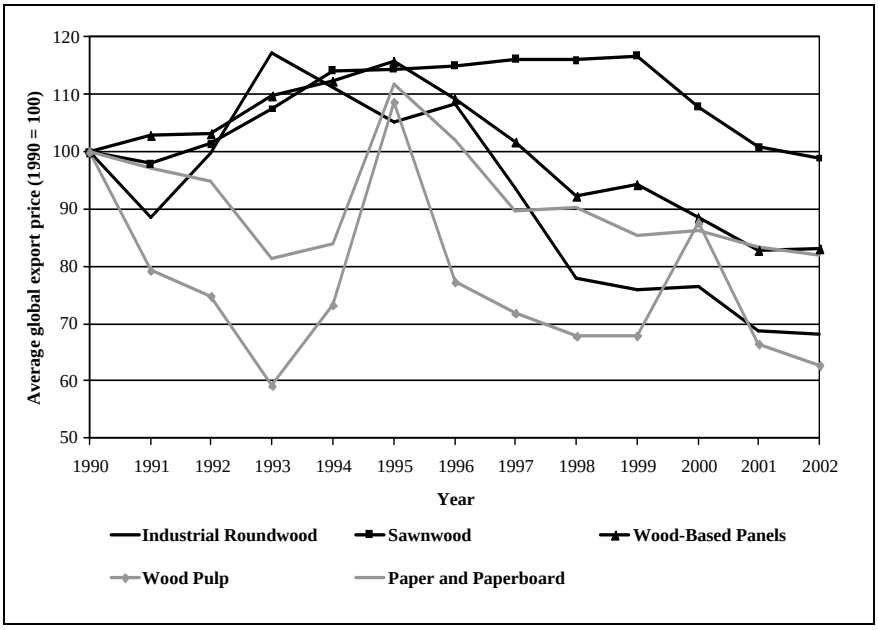
In some countries, industrial plantations out-compete local, small-scale producers in major export, industrial and urban markets because of efficiencies of scale. But, elsewhere, their competitive advantage is artificial due to subsidies for plantation establishment (Bull et al. 2005). While small-forest producers in developing countries presently play a small role in this new segment of wood trade, their involvement is increasing rapidly as contract producers for mills face raw material scarcity (Mayers and Vermeulen 2002).

Most industrial-scale plantations are owned and established by multinational companies and are vertically integrated with processing facilities to cut costs and capture profits from all stages of the value chain, increasing concentration and efficiency (Brown 2000). Concentration also reflects the increasing scale and capital costs of industrial pulp processing. In the 1970s, the top 20 companies processed about 20% of industrial roundwood; in 1997, the top ten companies produced 20% of the total and the top 100 companies processed 50% of industrial roundwood. The rise of giant retailing firms such as Home Depot and IKEA increases the importance of guaranteeing large-volume and reliable flows of wood of consistent quality. About 50% of trade in timber and wood products is concentrated in the pulp and paper and industrial commodity wood sectors. And while the export price of paperboard and sawn wood has been stable over the past few decades, the price of industrial roundwood for pulp, paper and wood-based panels declined by almost 25% between 1998 and 2002 (Figure 1). According to Leslie (2002), prices of lower- grade wood, especially, will decline or at best remain stable as plantation wood comes into the market.

In general, these trends work against the interests of low-income producers in developing countries. In most developing countries, the forest industry is characterized by small and medium-sized, low-efficiency firms who are struggling to confront the challenges of international price competition, with inadequate scale efficiencies, financing, technology and management. In some markets, local wood producers are forced to compete with low-cost, high-volume producers from around the world. However, there are also concurrent trends which work in favor of low-income producers, notably the growing importance of domestic markets. In most developing regions, the vast majority of wood-based production (more than 95%) is destined for domestic markets in the form of fuelwood and charcoal, industrial roundwood, and pulp and paper products (Scherr et al. 2004). This trend is expected to continue as domestic producers find competitive advantage in lower transportation costs and

higher degrees of supply flexibility (Scherr et al, 2004) and the already sizable wood markets in Brazil, Russia, India and China grow as their construction markets continue to expand. By concentrating on domestic markets, SMEs are well positioned to capitalize on this trend: "proximity to the customer can enable them to turn the apparent disadvantage of their small size and ties to a locality into positive assets, through customizing, just-in-time delivery and after-sales service." (Poschen 2001).

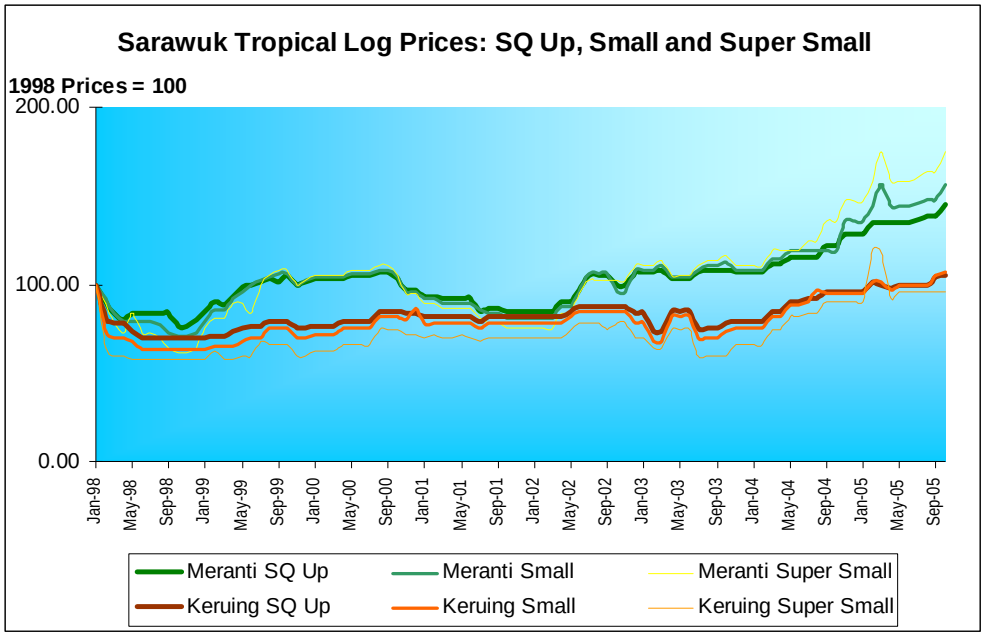
**Figure 1: Recent trends in global forest products export prices**




Created with data from: FAOSTAT 2004

The commodity wood sector has become increasingly linked to a supply of timber from plantations, in many cases from smallholder forestry in private lands or from private trees grown in the agricultural margins (Leslie 2002). In contrast to price declines in the plantation sector, there is a growing scarcity in the supply of high-quality, appearance-grade wood, particularly hardwoods (See Figure 2). Most hardwoods come from natural forests. It is here and in the large domestic markets for locally available construction wood, small-scale woodcrafts, carpentry and furniture-making that CFEs have a natural advantage as managers of either natural forests or successional and agroforests.

**Figure 2: Trends in tropical hardwood log prices (comparison of six types from Sarwak)**



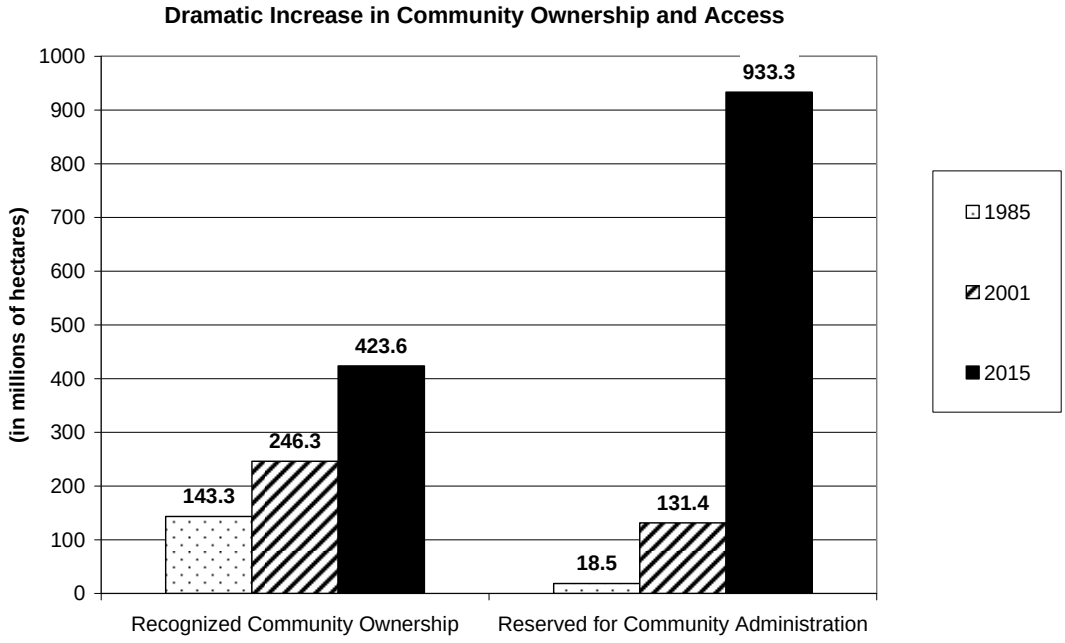

Created with data from: ITTO 2005

## Changes in the social and political context

**The second major change in the context in which CFEs operate is social and political.** A key part of this is forest tenure. The historical dominance of public ownership in which state forests and state protected areas were established is starting to diminish. Social movements by indigenous peoples and other forest dependent peoples, combined with policy decisions to decentralize and devolve forest management responsibility have had dramatic outcomes. Fifteen years ago, only 7% of the world's forests were officially owned by communities, or owned by the state but administered by communities. Now, 11% are community-owned or community-administered worldwide (Figure 4), rising to 22% in developing countries.

Some countries, such as China or India, have recognized rights or transferred responsibilities to a significant extent—12–17 million hectares of publicly-owned forests are under joint or community management in India and 90 million hectares under collective ownership in China. Community-owned or -administered forest areas in developing countries are conservatively expected to at least double by 2015 to 700–800 million hectares of the total 3.6 billion hectares of forest. According to the projections of the World Resources Institute, World Bank and others, 50% of the world's forests will be community-owned or community-administered by 2050 (WRI et al. 2005).

**Figure 3: Historic and predicted change in community forest ownership and administration**




Source: White and Martin 2002..

With increasing recognition of Indigenous and other community land rights, the amount of forest actively conserved by communities has been expanding. According to a recent study (Molnar et al. 2004) identifying community-conserved forest landscapes outside the limits of public protected areas in Africa, Asia, Latin America and North America, community-conserved forest areas aggregate to a conservative initial estimate of 370 million hectares, including forest lands, forests in agriculture and forest mosaics, and agroforests. This is nearly as large as the 479 million hectares of forests estimated by FAO (2001) to lie within public protected areas in 2000 (Table 2). The predicted changes to 2015 projected in the last column of each bar chart assumes that the rate of tenure recognition and reservation for community administration documented for the period 1985 -2001 will continue in the period 2001 - 2015. Rights and Resources Initiative is in the process of updating the trends for a new, 5-year update analysis to be completed in 2008.

**Table 2: Community forest conservation compared to public forest protection**

| Region | Community-conserved area[a] ('000 ha) | Forest Area in 2000[b](FAO/WCMC) ('000 ha) | Public Protected Areas under forest[b] ('000 ha) | Percentage of forest community-Conserved | Percentage of forest in public pro-tected areas |
|---|---|---|---|---|---|
| Africa | 33 | 650 | 76.0 | 5.7 | 11.7 |
| Asia | 156 | 548 | 50.0 | 28.5 | 9.1 |
| South America* | 155 | 886 | 168.0 | 17.5 | 19.0 |
| Mexico/Central America | 26 | 60 | 12.0 | 30.0 | 12.0 |
| Global | 370 | 3,869 | 479 | 9.7 | 12.4 |

Sources: a. Molnar et al. 2005)
b. FAO 2001; data on Mexico/Central America extrapolated from data for North America

Communities in Latin America, Asia and Africa invest considerable amounts of money and in-kind resources in their conserved areas, amounts comparable with those contributed by international donors and national governments Table 3 below compares estimated community investment in conservation based on the 370 million hectares of community-conserved areas with the investment provided globally by governments, official development assistance and foundations.

| Table 3. The contribution of communities to conservation finance<br>Government support to protecte areas systems | Overseas development assistanc (ODA) and foundation support | Community investment |
|---|---|---|
| **STABLE**<br>US$3 billion per year globally<br>US$1000–3000/ha in developed countries vs<br>US$12–200/ha lesser developed countries | **IN DECLINE**<br>US$1.3 billion a year ODA (1/3)<br>US$200 million a year others | **GROWING**<br>Can be US$1.5–2.5 billion per year at a minimum |

Source: Molnar, Scherr, and Khare 2004.
Note: Community investment is based on data from communities on average annual expenditure and in-kind labour allocated to fire control, guarding, biological monitoring and habitat restoration.

In parallel to the dramatic shift in forest tenure, there has been a corresponding political transition toward decentralizing government responsibilities to local governments. In some countries, this includes recognizing the authority of traditional, customary governance structures at the community level and their responsibility for administrative functions like conservation and forest or watershed resource management. Decentralization has taken many forms, and, as for tenure recognition or transfer, has often not been sufficiently implemented. Tenure rights do not always encompass use or access rights over more valuable forest products or their commercialization. Decentralization to local levels has not always included

the elimination of countervailing laws or regulations that concentrate power and decisions. Nor has decentralization of responsibilities necessarily been accompanied by a transfer of the financial or fiscal resources, or capacity-building and training necessary to undertake those responsibilities adequately.

The Colombia, Mexico and Bolivia cases show dramatic changes due to decentralization. Colombia is one of the most decentralized countries in Latin America: 40% of total public expenditure is managed locally (by municipalities). The management of forests is part of the National Environmental System (SINA), which was established by Law 99 in 1993 and consists of 33 autonomous regional corporations (CARs). These corporations are responsible for the management and administration of all natural resources in the area of their jurisdiction, including the granting of concessions, permissions and authorizations for forest harvesting. CARs are the main instance for supporting local initiatives for sustainable forest management.

Where the tenure shift has been genuine, not only on paper, and accompanied by lifting of controls and decentralization of decision-making and administration there has been a significant increase in CFEs. Mexico and Bolivia have dismantled state control over the marketing of forest products and rules of association for harvesting and marketing and reassigned responsibilities for approval processes to local government levels, to which communities and CFEs can have more direct access. The authority of Mexican *ejidos* and communities over zoning and forest management decisions has been recognized. In Bolivia, municipalities are empowered to oversee natural resource decisions within their jurisdiction and to issue environmental permits. As a result of forest sector reform there, the number of hectares managed by CFEs (indigenous communities and local social associations) has gone from none in 1999 to 1.1 million in 2005with 30,000 $m^3$ of timber extracted, harvesting from smallholder management units increased from 50,000 $m^3$ to 250,000 $m^3$ in the same period. In Mexico, 1200 *ejidos* or communities had management plans and approvals for forest harvesting by 2000, and now there are more than 2000. This shift has occurred in both countries with relatively minimal outside investment.

## Increasing company-community agreements in the marketplace

Company agreements with low-income producers are a rapidly growing phenomenon and an emerging trend in the marketplace, largely in response to the growing scarcity of blocks of land for plantations. Most agreements have been between companies and sets of individual producers, some of them with cooperatives and a smaller subset with CFEs. A global study by IIED looked at 57 partnerships, mainly for supplying raw materials to processing industries. Agreements included simple purchase contracts, as well as contracts to supply everything from venture and working capital, technical assistance and inputs, and equipment rental or purchase (Mayers and Vermeulen 2002). A study in South Afria (Lewis et al. 2004) identified 18,000 smallholders engaged in company agreements for plantation outgrowing and at least another 5,000 smallholders who financed their own commercial plantations and harvest with no relationship with companies or formal finance.

A study comparing trends in Brazil and Mexico found these kinds of agreements in both outgrower schemes and, to a growing extent, in established community forest enterprises in the Amazon and throughout Mexico. In Mexico, relationships have been more limited due to historical mistrust between industry and communities over earlier government-mandated

concessions in community lands, but some companies have developed close relationships for raw material purchase and technical assistance. In Brazil, all of the 75 companies with plantations or dependent on plantation wood had agreements and were expanding the share of outgrower raw material. Companies were interested in a wide range of options, the main constraint being the limited legal tools available for structuring different agreements. The lack of recognition of informal logging in much of the Amazon has made it difficult to legally engage in sustainable arrangements (Vidal 2005).

Donors and governments have tried to promote associations of smallholders to improve the delivery of technical services, build economies of scale in program and subsidy support, and foster related local development. In contrast, private companies find it easier to negotiate with individual outgrowers than with communities because of the complex social dynamics. Yet studies of existing schemes with outgrowers indicate that these smallholder producers participate best when they have adequate capacity and bargaining power, or where companies set up targeted supply centres for high-quality nursery stock and technical assistance (Mayers and Vermeulen 2002). While still a limited subset, formal relationships between companies and CFEs are likely to expand in scale given attention to social dynamics and equity for both parties.

## Non-wood forest products

The preceding section provides some dimensions of trade in non-wood forest products but hides the fact that NWFPs make up the largest share of the market in volume, variety, aggregate income generated, and trade value. Statistics are very misleading, however, as few product sales reach national or international accounting. For example, the Forest Resource Assessment compiled by FAO for 2005 presents an aggregate value for Mexican NWFPs which is no more than the local market value of annual use of palm thatch in the Yucatan peninsula, ignoring fibres, mushrooms, resin, ornamental palm and other products. In India, the collection and utilization of NWFPs account for about 2 million person-years, and nearly 400 million people living in and around forests depend on NWFPs for sustenance and supplemental income. Data from India estimate 18 million women engage in commercial fuel wood headloading (Khare et al. 2000), most of them illegally. NWFPs provide as much as 50% of income to about 30% of the rural population in India, with 38% of forest-related exports employing 18 million people (FAO 2005a; Lebedys 2004).

Forest dependence is even greater in Africa (Scherr et al. 2004). Two-thirds of Africa's 600 million people rely directly or indirectly on forests for their livelihoods, including food security. Forest related activities account for 10% of the GDP in at least 19 African countries, and more than 10% of national trade in ten others (CIFOR, 2005). Data sets are very poor. An analysis of Tanzanian official figures on charcoal, which are unreliable, indicate that between the years 1995 to 2002 the forest sector contributed on average only 3.3% to national GDP. However, recent estimates that include the current value of the illegal use of forest products such as logs and charcoal indicate that the forest sector's annual contribution to national GDP is probably in the range of 10–15%. In 2002, the charcoal industry alone is estimated to have utilized 21.2 million $m^3$ of wood, equivalent to 624,500 ha of woodland, providing 43.7 million bags of charcoal to 6.8 million mostly urban consumers. The annual net value of this charcoal trade was US$4.8 million (Scurrah-Ehrhart and Blomley 2006).

**Box 1: Bamboo in China**

China has 4.6 M ha of bamboo, both natural and planted forests, concentrated in Fujian, Hunan, Jiangxi and Zhejiang in addition to 3 M ha of mixed, mountain stands (Lobovikov 2003). In contrast to the timber sector which is constrained by the log-harvesting quota, the logging ban, high rates of taxation, tenure insecurity, and transport restrictions, the bamboo sector is growing quickly.

In Anji County in Zhejiang Province, the growth of the bamboo sector has been dramatic. In the mid 1970's, 96 percent of the bamboo was shipped elsewhere through a state cooperative monopoly. Local entrepreneurs produced the other 4 percent, generating $670,000 and employing 460 workers. By 1998, the country imported bamboo for 1,182 processing enterprises, employing 18,914 employees and grossing $105 M. During this period bamboo farmers increased only from 111,000 to 123,000. Ninety percent of bamboo processing is done by small and medium-scale rural enterprises, supplied almost exclusively from collectively-owned forests.

Source: West and Aldridge 2006

The market potential of NWFPs varies quite widely, depending on the type of product and its niche. The portion of the pharmaceutical industry that uses forest products is valued at US$37 billion (Laird and ten Kate 2002). Estimates of the direct international trade in non-wood forest products include US$7 billion (Scherr et al. 2002) and $19 billion (FAO 2005), with domestic trade and consumption many orders of magnitude higher. NWFP markets and livelihood opportunities are dynamic. Some communities have greatly increased revenues by finding more lucrative market access or by shifting production to more promising products (medicinal plant gathering in Nepal, honey collection in Gambia, Mexican mushroom cultivation, brazil nut collection in Brazil and Bolivia, and wood carving in India, Mexico, Zimbabwe and Uganda).

Many of the CFEs studied also included NWFPs as one of several productive strategies within the forest enterprise. The intensity of operations is modified along with demand and availability. Plantations in the tropics include complex and varied agroforestry systems such as the bamboo, rattan and rubber production systems that have proved popular among smallholders and villages who face regulatory and legal barriers to manage natural hardwood species (Peluso 2003). Bamboo is a major source of smallholder income in Malaysia, Indonesia and China from both bamboo plantations and, to a smaller extent, natural bamboo forests (Ruiz-Perez 2004).

The real returns from NWFPs are poorly reflected, even in recent more careful global estimates, because of the poor collection of statistical data for the informal sector, the extensive and elastic subsistence use of these products, and the fact that many products are not visible in GDP calculations even as exports. One cooking herb popular in West African cooking generates $ US 220 million of trade in Europe and the United States and US$20 million to the exporting country of Ghana. Rattan has a global trade value of more than $5 billion and bamboo is substituting for wood as well as developing its own markets, and reaching a trade value of more than double the official value for rattan (FAO 2005b). There are 4.6 million hectares of pure and plantation bamboo forests in China.

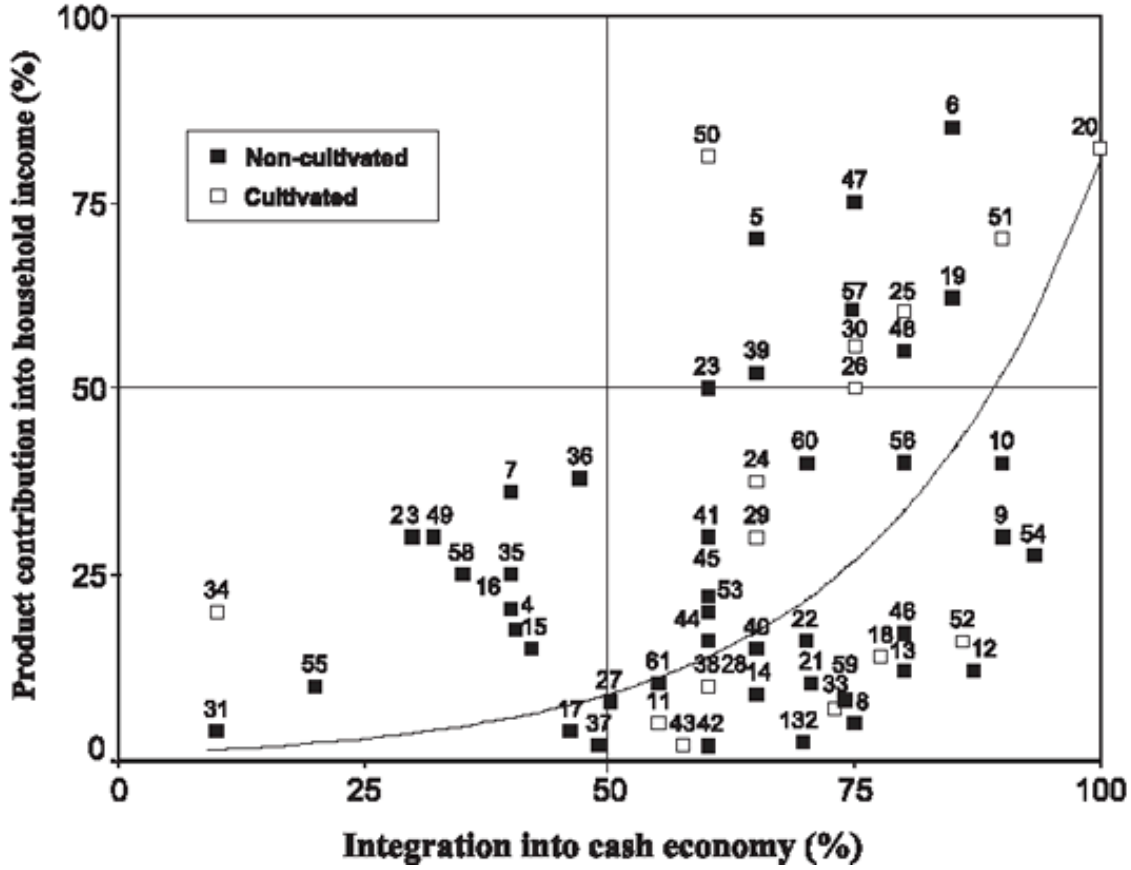
Employment estimates in the NWFP sectors are extremely complicated because of the multiple income streams of most collectors and traders of NWFPs and because of the large, undocumented domestic collection and trade (Lewis et al. 2004). The carving industry in Jodhpur, India generates at least US $ 200 million annually in revenues, employing 85,000 people (Chatterjee et al. 2005). In Bali, Indonesia, 24,000 carvers work in 6,000 enterprises generating US$ 100 million in export revenues (Campbell et al. 2005). Kenya employs 60,000 full time carvers with export sales value of over US$ 20 million (Choge et al. 2005).

**Box 2: Beekeeping in Africa as a significant NWFP enterprise**

The case of Gambia highlights the importance of NWFPs as a basis of community-based natural resource management income streams. Through appropriate interventions, attempts have been made to improve the production and value of honey in a number of countries in Africa. In Kenya, Zambia, and Tanzania, adaptive hive technology was introduced to replace destructive and less efficient traditional hives made from bark. Promotion of wood box hives with removable slats in southern Africa, while respecting indigenous knowledge, ownership and decision-making in the process, has fostered major income gain. Programs in Malawi, Zambia, Zimbabwe and Mozambique have increased yields from 6 to 40 kg per ha per year. One Malawi club increased honey sales fivefold in 5 years and in the Bondolfi area of Zimbabwe 71 percent of the region's households derive an income 20 times the national standard.

Source: Nel and Illgner 2004

**Figure 4: Relationship between household integration in the cash economy and NWFP contribution to total household income**




*Note*: Numbered points correspond to individual cases. A secondary classification based on whether or not a product is actively cultivated yielded more detail
Source: Ruiz-Perez 2004; Belcher et al. 2005; Kusters et al. 2004

A large study by Kusters et al. (2004) assessed the role of NWFPs in 62 case studies across Asia, Latin America and Africa. Looking at these studies in aggregate, the most obvious conclusion is that there is a limited subset of high-value, commercial NWFPs, relative to the thousands collected and sold by rural people. Another finding from this study not explicitly shown in Figure 5 is that NWFPs are more sustainable at high levels of extraction when they can be cultivated or managed intensively.

Important NWFP production in successional forests supplements income from perennial crops in upland or tropical agricultural systems, e.g. rubber-durian fruit in Borneo (Peluso 2003). For these and some traditional natural forest products, local knowledge has generated sound and practical criteria for the ecological management of off-takes, such as for exudants or açai fruits in the Amazon basin (Shanley 2005).

While many options and alternatives exist for the commercial extraction of NWFPs, Belcher et al. (2005) argue that it is not a straightforward proposition for improving the livelihoods of the

rural poor. Successful commercialization occurs in tandem with other social and economic activities. For example, recent studies in Mexico and Bolivia (Marshall et al. 2006) have documented that more secure tenure is correlated with improvements in the management of NWFPs, that commercialization of the NWFP does not restrict its accessibility to the poor in the wild, that women are seldom the only ones involved in NWFP markets but take more responsibility for processing and cultivating, and that most markets are informal because of the lack of legal treatment of NWFP collection and commercialization.

## Emerging markets for ecosystem services

Recent studies indicate there has been a widespread emergence of markets and payment schemes for forest ecosystem services – such as watershed protection, biodiversity protection and carbon sequestration. At the global level, these activities are nascent and still limited in scope and scale: 'Most of the activity to test such schemes to date has been in developed countries where biophysical science tends to be stronger and legal frameworks and institutions exist that permit the development of more sophisticated markets' (Scherr et al. 2004). Instruments that rely on formal contracts and contract enforcement require a well-functioning legal system and mechanisms to assess and address liability in cases of non-performance are required. For example, communities entering watershed service and carbon markets in Guatemala found investors were only interested when they could offer three times the area which ideally should have been able to provide the level of services expected through the investment (Scherr, White et al. 2004). Few governments have solid legal or regulatory frameworks, an exception being the government of New South Wales, Australia.

The many different types of market and payment schemes can be organized into four categories: (1) public payments to private forest owners to maintain or enhance ecosystem services; (2) open trading under a regulatory cap or floor; (3) self-organized private deals; and (4) the eco-labelling of forest or farm products – an indirect form of payment for ecosystem services. There are numerous examples of each type of market in both developing and developed countries. Landell-Mills and Porras (2002) identified more than 200 examples of payments for ecosystem services, many under voluntary schemes. For instance, in the State of Paraná in Brazil, municipalities that take action either on their own or in cooperation with private landowners to protect watersheds are rewarded with the proceeds of an ecological tax that has been enacted to finance such activities (Rosa et al. 2003).

Watershed protection services – such as flow regulation, water quality, water supply and habitat protection – are well recognized and are indeed a primary motivation for establishing many national parks in forest areas. Some 30% of the world's largest cities depend on forest areas for their water (Scherr et al. 2004). In most cases, markets for watershed services are limited to situations where the downstream beneficiaries (such as hydroelectric power generators, irrigators, municipal water systems and industry) are directly and significantly impacted by upstream land-use.

Although limited in number, payment schemes exist that offer sufficient incentives to maintain forest cover and can make a significant contribution to local incomes as well. Landholders in critical watershed areas in Costa Rica have been paid between US$30 and US$50 per hectare of land per year. In Mexico, similar levels of payment are also planned (Khare 2005). Annual government payments for ecosystem protection in the US range from US$25 to US$125 per

hectare (Rosa et al. 2003). The development of markets and payments for ecosystem system services in an equitable manner that is inclusive of potential community participation will depend on a number of enabling conditions. Currently, deals are heavily skewed towards developed economies, strong governance systems, and providers who can supply services at a large scale and at controlled levels of risk. Information flows to communities are quite poor in most countries and regions, and markets for services such as water flow and quality or protection of biodiversity, where tenure rights are clear, have tended to develop more favourably for communities than have carbon markets – but see Box 3 for an example of the role carbon sequestration and carbon dioxide offsets can play.

Interest from corporate investors and consumers in socially and environmentally positive products and production processes is beginning to redefine where investment is directed. It supports the creation of new markets for sustainably produced products and ecosystem services provides potential branding opportunities for SME and CFE products for their social and cultural values. Examples of this include the finished furniture products produced by COATLAHL (Honduras) for the European market, bottled water produced by S.C. Ixtepeji in Mexico, organic certified brazil nuts (with and without aflatoxins) in Manicoré, Brazil, and low impact, community-produced timber from the Brazilian Mamirauá reserve.

**Box 3: Biodiesel from *Pongamia pinnata* and carbon credits in rural India**

Chalbardi is a village of twelve families, four hours' walk from the nearest road in the Adiliabad district of Andhra Pradesh, India. In April 2001, the village obtained a 7.5 kVA generator fuelled using biodiesel produced by the village. The citizens of Chalbardi collect the seeds of *Pongamia pinnata*, which is found in the nearby forests. The seeds are then pressed into oil and used directly in the diesel generators. Using 5-6 liters of pongamia oil, Chalbardi can generate 10-12 kW of electricity for 3-4 hours each evening to light each home. In March of 2003, Chalbardi sold 900 tons of CO2 emission-reduction credits from the project to a European carbon trading firm, 500ppm. Chalbardi received Rs. 200,000 for the sale of the credits, which they partially re-invested in new *Pongamia* saplings. Modelling themselves after Chalbardi's success, four neighbouring villages recently planted 100,000 *Pongamia* trees around agricultural fields with the aim of producing *Pongamia* oilseeds.

Also in Adilabad, the village of Powerguda planted 4500 *Pongamia* trees in 2002 along the edges of their agricultural fields to produce oilseeds. The villagers collect and process the seeds, and they produce enough *Pongamia* oil to power their generator and sell excess to local transport companies as a fuel additive for diesel buses. In October 2003, the group sold 147 tonnes of CO2 emissions credits to the World Bank for US$645, investing the money in a *Pongamia* nursery and purchasing 10,000 additional saplings.

In 2002, a report by Community Forestry International concluded that the heavily forest-dependent communities in Adilabad District would be good candidates for CDM investments in reforestation and afforestation projects. The degraded teak and dry deciduous forest species in the region regenerate vigorously with relatively low-intensity silviculture, and above-ground carbon sequestration rates for degraded teak sites and 5–7 metric tonnes of carbon per hectare per year. The report and these successful pilot projects suggest that CDM projects could provide a long-term source of funding for rural Indian communities interested in forest restoration, with potential for credits from both CO2 emissions-reductions and carbon sequestration projects.

Sources: D'Silva et al. 2004; Poffenberger 2002

## CHAPTER II: OVERVIEW OF THE STUDIES

### Selection of case studies

The case studies were selected to reflect the size of the forest resource in the different ITTO producer country regions (Asia, Africa, and Latin America), the extent of experience with successful CFEs in each region, the range of forest products and services marketed by the enterprises (timber, non-wood, and ecosystem services), and the potential for CFE growth and expansion. Case study authors were asked to select enterprises that had been in operation for 3–20+ years; the limited time of operation of most enterprises is related to the recentness of tenure recognition and transfer of forest management responsibility in many of ITTO producer countries. The sample was biased towards successful enterprises, given the limited number of countries and regions with a history of enabling environments for the emergence of CFEs. The survey methodology is described in Annex II and the case studies summarized in Table 1.

Heaviest weight was given to the experience of Latin America (10 cases in 6 countries), given the size of the forest estate in the continent and the longer history of community tenure recognition there. Asia and Pacific island states were given next preference (6 cases in 5 countries), again for the size of the region, the relative maturity of enterprises and the range of products and services involved. African cases (4 in 3 countries) presented a more recent experience of policy reform and enterprise emergence, with fewer cases of vertical integration. Following the methodology of *A New Agenda* (Scherr, White and Kaimowitz 2004), cases included products and services from all commercial market segments and special niches—commodity wood for domestic consumption, high-value wood, certified wood, processed wood products, non-wood forest products, payments for ecosystem services, and mixed enterprises producing for two or three types of markets. Those more mature and either vertically integrated or raw material producer CFEs tended toward diversification to mixed enterprises, resource permitting, to maximize employment in community and diversify the segments of the population (women, youth) employed.

### Origin and maturity of the CFEs studied

More than the type of product or market into which CFEs were commercializing their products, the review found that the age of the enterprises and its relative maturity determined many of the characteristics of the enterprise and its participation in the marketplace. The cases fall into three overall categories in terms of their relative maturity and experience. Mexico, Honduras and Guatemala provide examples of relatively advanced enterprises that have had a number of years of operation as a CFE and that have made strategic choices to adapt their original enterprise structure and its role in the community to changing perceptions of opportunities and in response to lessons learned. Nepal has had a tradition of community forest management for decades and a legal framework recognizing the management rights and tenure of forest user communities since the early 1970s. It is only in the past decade, however, that commercial rights to extractive timber activities have been granted, and only in the past 5–6 years that NWFP enterprises such as the Bel fruit enterprise in the case studies have emerged.

The Philippines has also recognized rights to ancestral domains of indigenous groups for several decades but only recently provided the legal approval for formal logging enterprises by CFEs. Legislative changes in the Brazilian and Spanish-speaking Amazon have created substantial recognition and demarcation of forest lands and territories under indigenous domain and opened the possibility of concessions to producer groups and communities for extractive concessions or reserves. However, regulatory procedures for the legal approval of management and extraction in the region have been quite recent and CFEs are mostly limited to experiments with extractive and indigenous reserves in Acre state in Brazil and some buffer areas of key protected areas in the Spanish-speaking Amazon. In Africa, the process of tenure recognition and the transfer of management responsibilities to villages and ethnic peoples has also been recent. Extractive and management authority in West, Central and South Africa is still limited compared to the rights of communities in Latin America and parts of Asia and the Pacific. The cases for Africa demonstrate great potential, and governments are prepared to grant rights to a substantial number of villages or very large aggregate areas. Like the case of Joint Forest Management (JFM) committees in India, African village, community or co-managed forest managers are querying whether they only manage forests on behalf of the government or if they are the legal right holders, and what their decision-making authority might be. Community enterprises in Africa are established with limits on the areas that can be under their management, are subject to slow bureaucratic processes of transfer, have uncertain access to state forests where they have traditional uses, and sometimes following very strictly predetermined enterprise governance models not well aligned with their own systems of social governance.

## Organizational types

CFEs include both indigenous and traditional communities and cooperatives with heterogeneous members (Table 4). Some CFEs are constituted as an association of communities or collective groups, and some are independent enterprises associated with other CFEs for collective activities around marketing, the provision of technical services, forest monitoring and the processing of end products. Some base their business organizational structure on traditional structures and value systems, while others have established independent management structures that are only loosely related to local governance structures. The Mexican cases are somewhat unique in that communities and *ejidos* were left to develop their own organizational structures as long as they produced a legal forest management plan. Some of these, like the Sociedad Sur, have privatized responsibilities for logging to smaller groups of producers, who become very familiar with the stands they manage and are more committed to overall forest protection in these stands.

The Guatemalan communities include long-term residents of the lowland Petén as well as communities of settlers who have adapted to diverse membership and very different family characteristics. Bolivian and Brazilian groups have organized in response to legal frameworks created by the community concession or extractive reserve models and by the recognition of indigenous territories (AGROFORT, Mamirauá). Groups in these countries have also organized to reap the benefits of joint commercialization (Manicoré). Bolivia is interesting in that the local social association (ASL) was originally created under the farmer group concession model of CFEs established as an option in the Bolivian forest law of 1999. When the larger indigenous community, of which the ASL was a part, received recognition of their

indigenous land rights to what is legally an indigenous territory of origin, the ASL was given new legal status as an indigenous forest enterprise under the indigenous territory's jurisdiction. There are a number of examples of second-tier associations or federations that either emerged as part of the internal organizational process of the productive groups or communities or that were promoted or even mandated by support agencies or non-governmental organizations (NGOs). In the case of the Gambia, two federations have emerged (JATIFIF timber and fuel wood federation in the Western River Division and Forest Kambeng Kafo in the Central River Division), formed by a constituency of interest groups to channel collective power and strengths with the aim of improving alliances with wholesalers and millers and increasing the efficiency of the enterprise. In this case, the use of a strong enterprise and market planning tool enabled a learning process which led these interest groups to associate with each other and to influence the market chain.

In Guatemala, the Association of Forest Communities of Petén (ACOFOP), of which Árbol Verde and Carmelita are members, was instrumental in the struggle for concession rights for forest communities, working on collective bargaining, capacity building, market support, fundraising, and organizational development. As part of the phase-out strategy of a USAID-funded project, a cooperative structure formed for grouping production and expanding secondary transformation of sawnwood originating from eleven CFE concessions (FORESCOM). FORESCOM was formally established in 2003 and has since successfully in established a market outlet for three lesser-known species (LKS), negotiating lucrative prices for certified mahogany, and obtaining finance from the Guatemalan government to establish a processing plant for secondary wood transformation to meet more lucrative, certified wood export markets.

In Mexico, Sociedad Sur is a union of regional community *ejidos*. Manicoré, Brazil has a Council of Extractivist Associations of Manicoré (CAAM) composed of three sub-regional councils (which in turn are composed of 27 associations) and one separate association that represents three communities.

The forest enterprises in the case studies from Nepal, Cameroon, Gambia and the Philippines operate according to structures that are dictated by national policies and forest legislation and have been adapted to varying degrees to local reality and experience. Donors or guiding NGOs have played a strong role in some cases in encouraging the association of a group of villages or forest management groups or in dictating optimal participation by different classes, castes, genders or age groups (eg Ngola-Achip in Cameroon). In the case of CAFT in Cameroon, a series of workshops coordinated by a local NGO resulted in a unanimous agreement by nine village communities that forming a local cooperative would best meet their needs for community forest management. In 2001, the nine communities formed CAFT as an agroforestry cooperative that would qualify to acquire community forest according to federal laws, and by January 2004 the communities legally acquired nine community forests in Ngoyla.

**Box 4: Processing for profits: sustainable extraction of brazil nuts**

In 2001, the Brazilian Institute of Education on Sustainable Enterprises (IBENS), an NGO, was invited by timber company Gethal Amazonas in 2001 to assess the potential to develop an income generating project with surrounding communities as part of its social commitments under FSC certification. What began as a certification prerequisite evolved into a thriving community-based business linking hundreds of families across Amazon forests and rivers.

Around 40,000 people live in the municipality of Manicoré under various tenure arrangements including extractive reserves, leased lands, agrarian settlements and public lands. Gethal Amazonas issued access rights to their forestlands for communities to harvest brazil nuts. In collaboration with the Federal University of Amazonas, the project developed a process to reduce levels of aflatoxin in brazil nuts, a fungus that grows under high humidity. The process allows communities to reduce aflatoxin levels and, as a result, their brazil nuts are also organic certified.

In less than five years, the number of families participating in the community enterprise grew from 7 to 625 spread through 27 communities. Brazil nuts now come from various lands outside Gethal Amazonas, totaling an area of 388,197 hectares. Communities formed associations which in turn joined sub-regional councils under CAAM, the Council of the Agroextractive Associations of Manicoré. All production is taken to CAAM's headquarters to be sold under one label. Equipped with better production and business management skills, higher volumes and better-quality nuts, producers have been able to bypass local middlemen and get their product outside the state for more than 5 times the local selling price.

While still struggling and somewhat dependent on the support of partner organizations, CAAM is emerging as a strong enterprise force. This year (2006), they will form a cooperative to obtain credit and issue fiscal receipts. The project has created social, environmental and economic benefits, bringing additional income, greater valorization of the production as a conservation mechanism and alternative to resource exploitation, and stronger social organization.

Source: Martin 2006

**Table 4: Organizational types for case-study CFEs**

| Country | Case study | Year of formation | Legal/governance arrangement | Business model |
|---|---|---|---|---|
| Mexico | Santa Catarina Ixtepeji | 1985, independence from union in 1993 and communal statute from 1994 | Indigenous *ejido* (communal forest land reform block) formerly part of Union of ejidos; traditional authorities | Enterprise governed by *ejido* authorities who appoint managers. Rotation of CFE managers leads to lag time, but also creates sensitivity to work challenges |
| Mexico | Sociedad Sur (SPFEQR) | 1986 | Union of *ejidos* (indigenous Maya) but individual *ejidos* divided into smaller producer sets | *Ejido* authorities with independent workgroups by land-parcels; strong role of community assembly in decisions |
| Mexico | El Balcón | 1985 | Community forest (land reform block) under non-indigenous *ejido* structure | Had partnership with international timber processor, but no longer; had hired international manager but replaced with community member |
| Guatemala | Carmelita | 1998 (formal est., 1996 origins) | Cooperative with government-recognized forest concession; member of ACOFOP | First-tier CFE with a local manager and processing facilities for primary wood transformation; member of FORESCOM producer group with processing facilities for secondary wood transformation |
| Guatemala | Arbol Verde | 1998 (formal est., 1992 origins) | Civil-society association with government-recognized forest concession; member of ACOFOP | First-tier CFE with a local manager and processing facilities for primary wood transformation; member of FORESCOM with processing facilities for secondary wood transformation. |
| Honduras | COATLAHL | 1977 | Cooperative with sub-producer groups given usufruct by government | Cooperative structure of groups legitimated by each involved municipality |
| Colombia | San Nicolás | 1998: corporation created; 2001: program identified around MES/PES | Corporation MASBOSQUES, a public-private partnership (PPP) involving municipalities and 17,000 small farmers in 23 groups in a watershed catchment | Corporation of government, local farmers and associations and private sector, co-investors with managers and shareholders in hydroelectric valley |
| Brazil | Manicoré | 2001 | Community/village association under umbrella of CAAM. Harvesting in extractive reserves; timber company owns land and grants community access. Leased and community-recognized land in process of legalization. | CAAM buys from individual brazil nut producers, limited partnership with Gethal Amazonas timber company in the past – key for enterprise startup |
| Brazil | Mamirauá | 2000 | Community associations under umbrella of biosphere reserve coordination with parcelled forest areas | Individual community workgroups as subset of community advised by technical NGO in reserve |
| Bolivia | AGROFORT | 2000 | Group of producers within the area of an | Cooperative structure under Bolivian law of |

| | | | | |
|---|---|---|---|---|
| | | | Indigenous territory; initial association with appropriate permissions from indigenous authority, later transition to an indigenous forest management group with appropriate management rights | LSAs; later cooperative organized as an indigenous forest management organization |
| Cameroon | Ngola-Achip | 1992/1998 | 4 villages, families of Balogbo, Pa'a and Bamouh of Ngola-Achip with rights to <5,000 hectares of forest | Committee of four villages make decisions on forest management, allocation of funds and contracts with commercial harvesters; cooperative structure |
| Cameroon | CAFT | 2001 CAFT created, 2004 9 CAFT communities receive 9 community forests | Cooperative development association composed of representatives of each of the nine village communities that constitute CAFT | Incipient. Each community with a community forest linked to CAFT by contract – communities produce raw materials, CAFT handles collection, processing and marketing |
| Gambia | Bulanjor Village | 1992 | This is one of many villages managing community forest. In this case, smallholders within a village have organized for forest harvesting and processing | Cooperative groups assigned village forests through government community forestry model |
| Tanzania | Amani Butterly Group, Tanga Region | 2003 | Smallholders in villages around reserve area | Cooperative management structure with NGO support |
| Nepal | Chaubas-Bhumlu Sawmill | 1996 | Consortium of four forest user groups (a total of 293 households) with start-up financing and technical assistance from donor project | Sawmill management committee (four each from four forest user groups, one manager and four forest-user-group chairpersons/elected officers). Project continued to provide technical assistance until the end of 2005 |
| Nepal | Bel Juice Enterprise | 2003 | Ten forest user groups, 60 identified poor households from ten groups separately and six private entrepreneurs registered as companies. Technical backstopping from a development NGO for two years | Pro-poor company with community shareholders and private investors. Forest user groups buy shares, with NGOs supporting poorer households in their purchases. Private-sector shareholders as well, who also provide specialized marketing services |
| China | Pingshang Bamboo Group, Guizhou Province | 2004 | Collective enterprise in village forests | Management Committee; 1 government representative |
| India | Andhra Pradesh | 2001 | Village forest protection committees and women's self-help groups are the main instruments of CFEs | Women's groups federated at village, district and state levels; district-level federations often arrange investment funds for enterprises. Groups maintain mandatory savings accounts, leverage savings to obtain more credit |

| | | | | |
|---|---|---|---|---|
| Philippines | Ngan Panansalan Pagsabangan Forest, Compostela, Compostela Valley | 1996 | Former commercial timber concession area given as community forest management unit to Mansaka-Mandaya tribe of 1051 households; Cooperative (NPPFRDC) created to comply with government laws | Harvesting and mill run by professionals (mostly former employees of the logging company that operated concession previously), policies by the Cooperative's General Assembly and Board of Directors with Mandaya-Mansaka tribal group representation |
| Papua New Guinea | Madang | 1996 | Indigenous/clan groups and village-based landowner's association with NGO support; households work individually but market through enterprise | Association and business advisors from NGO run enterprise with members of community and business advisors as shareholders |

**Box 5: The case of AGROFORT: government regulation and Indigenous forestry associations in Bolivia**

In the 1990s, the Bolivian government enacted comprehensive policy reform which privatized state enterprises, decentralized regulation to local government entities, and introduced new land policy and environmental laws. In a series of laws and amendments, local grassroots organizations received legal recognition and a constitutional amendment recognized indigenous land ownership. Most importantly, the 1996 forest law granted domestic user rights over renewable natural resources to all farmers or communities that hold forests as individual or collective property. The law grants commercial exploitation rights as long as it is done in compliance with regulations on sustainable forest management, and allows the formation of ASLs whereby local people (including former illegal timber traders) can legally obtain access to forest concessions for managed, sustainable extraction.

In the Tumupasa region of Bolivia in 1997, a group of three friends involved in timber extraction decided to organize themselves and other local workers and neighbors as an ASL in order to gain forest concessions for legal timber extraction under the new forest law. They formed the Agro-Forestry Association of Tumupasa (AGROFORT), which today is one of the most successful and well-functioning indigenous forest management associations in Bolivia. AGROFORT accounts for 7 percent of all legally extracted timber sold in the province.

From the very beginning AGROFORT members were beset with legal, regulatory and logistical obstacles. AGROFORT members waited for three years after applying for ASL status, only to be informed that they could not receive ASL concessions because their forests are located in an officially designated indigenous territory and indigenous groups have exclusive user rights in such areas. Most of the AGROFORT members are of Tacana origin, so AGROFORT began consulting with the indigenous organization that holds legal claim to the lands and was eventually assigned a forest management area as an indigenous group. Finally, by 2002, AGROFORT was able to begin operations with an approved forest management plan.

Along with these regulatory obstacles, AGROFORT has struggled with infrastructure and supply-chain limitations. Unable to obtain the capital necessary to purchase equipment for independent extraction and processing, AGROFORT had to contract other companies to extract felled timber and a nearby sawmill to process the logs. Both relationships were troubled by lack of appropriate equipment and skills and contract breaches, resulting in delayed timber extraction and waste. In the past two years, re-organization of management structures within AGROFORT and the formation of a better relationship with a new timber extraction company has brightened the future for the enterprise. The group's leadership is an outstanding example of self-regulation and initiative in innovating new designs for group management and business structure. Through their self-initiated reforms, AGROFORT's timber extraction has more than doubled in the past two years, soaring from 2,366 $m^3$ in 2002 to 5,628 $m^3$ in 2004. Timber extraction and sales are expected to increase further as new relationships deepen and the enterprise continues to learn from past experience.

Source: Benneker 2006

## Internal constraints related to organizational structure and social dynamics

A number of internal constraints related to the community or collective enterprise structure were documented in the case studies (Table 5). These include internal social conflicts, mismanagement of resources and income by individuals, lack of organizational and business skills, and an unwillingness to adapt practices to market demands. The more sophisticated and mature enterprises have grown beyond some of these constraints but have encountered

others arising from their greater sophistication and new opportunities. CFEs face tensions over assigning employment opportunities, the degree to which activities will be targeted to marginal or poorer members of the society, management decisions related to low knowledge and skill levels, limited negotiating power vis-à-vis outside government, donor or NGO advisers, the capture of benefits by elites, loss of professional knowledge in CFEs that rotate leadership positions to increase community involvement in the enterprise, and limited knowledge of marketing opportunities or strategies.

In the case of Sociedad Sur in Mexico, government forest management plan requirements contradict the internal work group arrangements designed to reduce conflicts, since "scientific" rotations would exclude parcels for many years that work groups rely on for regular income. Conflicts have arisen in Cameroon because the governance structure options established in law can run counter to local institutional dynamics or be co-opted by elites. By law, communities can organize as cooperatives, associations, common interest groups (CIGs) or businesses, each of which has different status vis-à-vis taxes or capitalization. Government officials have discouraged the more popular CIGs which involve the community as a whole because they perceive these as informal and confusing; on the other hand, the association or cooperative model can lead to elite capture (elders register a small set of friends as the association) or complexity (cooperatives require complex procedures or documentation). The cooperative organization in Ngola-Achip was promoted by an NGO advisor and currently faces challenges from elite villagers.

Some case-study CFEs are members of larger associations for marketing or group processing. In Guatemala, eleven out of a total of 16 first-tier CFEs (twelve community concessions and four cooperatives or municipal *ejidos*) have joined a cooperative group of producers, FORESCOM. This new regional structure for secondary wood transformation, group marketing and enterprise investment can become an interesting business model for addressing scale and capacity but also a source of conflict. The potential lies in a clear division of labour between CFEs engaged in primary wood transformation and commercialization of precious woods (mahogany, tropical cedar) and second-tier associations and cooperatives in charge of the secondary transformation of precious woods, primary and secondary transformation of LKS, and the commercialization of the derived products. Actual and potential conflicts lie in the competition between CFEs and second-tier cooperatives, in particular in terms of employment generation and benefit sharing; these conflicts result in a lack of planning security for FORESCOM, when first-tier CFEs are reluctant to commit certain volumes of wood for processing and marketing by FORESCOM (Stoian and Rodas 2006a, 2006b).

In remote forest areas where community concession arrangements are more recent, such as AGROFORT in Bolivia, the Madang Forest Resource Owners Association (MFROA) in Papua New Guinea, and producer groups sawing timber in most states of the Brazilian Amazon, CFEs are constrained by the lack of basic commercial services such as transporters to carry sawn wood, businesses selling parts or servicing equipment, and intermediaries able to broker with exporters. This puts considerable strain on these CFEs at start-up to bear the additional costs and to take responsibility for a wider range of roles than they are technically prepared to handle. Once operations reach scale and as more CFEs emerge in these regions, these business services are likely to become available in response to increased demand. Initially, CFEs can be highly dependent on donors or NGOs to initially provide some of

these services on a pilot project basis. Or, as in the case of AGROFORT, they may be forced to find their own solutions to the lack of services.

In frontier areas where forests are rich, strong short-term incentives may be needed to change traditional short-term perspectives on economic returns. In frontier Amazon forests, settlers will sign timber contracts for short-term cash, even recognizing the loss of long-term NWFP income. In Papua New Guinea, NGO advisors have struggled to find sufficiently high market prices for incipient sawmillers, such as the MFROA, to encourage incipient enterprise members to look beyond lucrative short-term logging contracts. Unless there is a minimum short-term return, it is impossible to foment a long-term enterprise (van Helden and Schneeman 2000).

**Box 6: Effective stakeholder participation and sustainable forest management in San Nicolás, Colombia**

The San Nicolás valleys are the main watersheds for two hydropower dams, which together generate more than 30% of Colombia's electricity. The management and natural resources of the region are administrated by the Corporación Autónoma Regional del Rionegro-Nare (CORNARE). CORNARE began the San Nicolás project in 1998 to comply with new regulations to encourage forest conservation, The main goals were to create a participatory forest management plan and to create an institution to facilitate plan implementation and trade of products and services in the covered ecosystems, including carbon sequestration.

The project faced daunting challenges including the lack of an economic valuation of the forests, competion for land from cattle ranching, farming and illegal drug cultivation, and the general instability for rural communities threatened by violent conflict in the region. In response, the project partners created a strong institutional structure for the program, including a Regional Forum that facilitated more than 170 meetings with the community, industry partners and municipalities. Together the community partners created a 25-year forest management plan that includes provisions for plantations, agroforestry and silviculture systems, conservation and restoration activities, and activities eligible for the CDM mechanism of the Kyoto Protocol. The project also created the corporation MASBOSQUES, a public-private partnership to implement the management plan and facilitate the commercialization of products and services.

MASBOSQUES was established in September 2003. The corporation is directed by a General Assembly with representation from all 23 member groups. The MASBOSQUES portfolio includes activities in technical and social areas along with promoting and facilitating the trade of timber and non-timber forest products in national and international markets. Benefits from the project and its activities include improved conservation and biodiversity, reforestation, implementation of forest management practices, protection of soils, restoration of watershed areas, and improved supply of timber and forest products. Additional social returns include empowerment of local communities, creation of public-private partnerships, capacity-building for local community members, higher average local incomes, and improved food security.

The success of the San Nicolás Valleys project is partly due to the efficient mobilization of resources and participation from a wide range of national and international actors, facilitated by the high-value and high-profile nature of the area. Multi-lateral participation, effective institutional structure and frequent communication were also keys to the project's success.

Source: Robledo and Tobón 2006

**Table 5: Internal constraints to CFE success**

| Country | Case Study | Internal Constraints |
|---|---|---|
| Mexico | Santa Catarina Ixtepeji | Rotation of CFE managers leads to lag time but also creates sensitivity |
| Mexico | Sociedad Sur (SPFEQR) | *Ejido* conflicts led to work group subdividing second-tier organization; lack of financing for planning and technical assistance |
| Mexico | El Balcón | Unemployment in rainy season; need to diversify employment and gender |
| Guatemala | Carmelita | Limited technical and managerial capacities; blend between social organization and enterprise; changes in board of directors led to discontinued development processes; employment effect limited to a relatively small number of members |
| Guatemala | Arbol Verde | Limited technical and managerial capacities; blend between social organization and enterprise; unclear investment policy; changes in board of directors; limited employment among members |
| Honduras | COATLAHL | Competition from illegal logging; limited training opportunities |
| Colombia | San Nicolás | Expansion of armed conflict with influx of outsiders into the catchment; risk of continued commitment of public corporation; could be an issue in lower-priority watersheds without infrastructure |
| Brazil | Manicoré | Internal differences regarding future direction of association and whether to become a cooperative or not. Internal political rivalries and strong dependence on leadership (both internal and from timber company) |
| Brazil | Mamirauá | High illiteracy; lack of trained managers; flood patterns not guaranteed annually to transport logs downstream |
| Bolivia | AGROFORT | Lack of skills and organization; limited access to capital and negotiating power |
| Cameroon | Ngola-Achip | Lack of knowledge of rights and options; conflicts over division of profits; steep learning curve in organization; elite urban capture and control |
| Gambia | Bulanjor Village | Low skills level, poor planning; economies of scale require collaboration between villages |
| Tanzania | Amani Butterly Group, Tanga Region | Training of new members; increasing farm productivity for raising pupae; dependent on NGO for technical assistance, funds and guidance |
| Nepal | Chaubas-Bhumlu Sawmill | Developing sense of ownership; involving poorer members; government versus insurgents; quality and quantity scale |
| Nepal | Bel Juice Enterprise | Lack of skills and business capacity; complex company structure is hard to make participatory; raised expectations create risk of over-reaching market |
| China | Pingshang Bamboo Group, Guizhou Province | Limited labour force to expand operations; distance from market |
| India | Andhra Pradesh | Poor information on markets since biofuels is a new sector; absence of linkages between private industry and CFEs |
| Philippines | Ngan Panansalan Pagsabangan Forest | Dependence on CBTE for livelihood makes community vulnerable to government rules/certification requirements; process distorts community process of growth |
| Papua New Guinea | Madang | Poor negotiating skills with buyers; limited investment capital for sawmilling; lack of capacity; distance to export markets |

## Economy of the CFE: participation of CFEs in the various market segments

*Timber and wood markets*. Fourteen of the 20 case studies produce timber or processed wood. Seven produce timber and wood products exclusively as their commercial activity and two are actively planning to diversify. Table 6 summarizes the economics of these 14 enterprises by region and market segment. There is wide variation in the kinds of market segments accessible to the CFEs. The highly integrated CFEs in Mexico and Guatemala have access to both high-value appearance grade wood markets, commodity wood markets for construction material, and graded markets for pine. CFEs in the more remote tropical areas – PNG, Brazil, and Bolivia – can only make logging financially viable if they process high-value timber. Fuelwood is an important part of some CFEs as a by-product of graded lumber, as a parallel enterprise, or, in some cases, as an enterprise in its own right.

**Table 6: Case studies by region and market segment**

| Market segment | Africa | Asia | Latin America | Pacific islands |
|---|---|---|---|---|
| Timber and commodity wood | Central River District, Gambia<br>CAFT, Cameroon | Chaubas-Bhumlu Sawmill, Nepal<br>NPPFRDC, Phil. | El Balcón*, MX<br>Ixtepeji*, MX<br>Carmelita, GUA<br>AGROFORT, Bolivia*<br>Mamirauá, Brazil | |
| High value, appearance grade wood, furniture | Ngola-Achip, Cameroon | | Arbol Verde, GUA*<br>Carmelita, GUA<br>Sociedad Sur, MX | Madang, PNG* |
| Non-wood forest products | Central River District, Gambia<br>Amani Butterfly Group, Tanzania<br>CAFT, Cameroon | Adilabad, India<br>Tamakoshi, Nepal<br>Pingshang Group, China | Manicoré, Brazil<br>Arbol Verde, GUA<br>Carmelita, GUA<br>Ixtepeji, MX | |
| Ecosystem Services | | Adilabad, India | San Nicolás, Colombia | |

* processing industry included in enterprise activities
# processing capacity planned

*NWFP examples*. Ten case-study CFEs produce non-wood forest products commercially, some in addition to their timber operations. These include mushroom collection and dried mushroom cultivation in Mexico, water bottling in Mexico, palm shoots, honey, cacao and fruits in Gambia and Cameroon, ornamental palms in Guatemala, botanical and medicinal plants and fibres in Mexico and Guatemala, and ecosystem service credits and carbon credits in Colombia. Those that produce commercial non-wood forest products exclusively are in Nepal, with *bel* juice and *bel* juice extract as a health food, India, with managed forests and reforestation plantations of *Pongamia* oilseed trees for energy generation and soaps, China, with bamboo for culms and chopstick manufacture, Brazil, with organic brazil nut production in Manicoré, and Tanzania, with butterfly farming.

In Nepal, ten forest user groups have collectively established a *bel* fruit juice extraction operation in partnership with private investors from the community and are commercializing the high anti-oxidant fruit juice in the Katmandu market for high returns. In the Gambia, some groups produce only honey. In Brazil and other parts of the Amazon, a growing

number of associations of settlers have been granted extractive reserve concessions that enable them to more effectively manage NWFPs in areas of high biodiversity and to improve incomes and biodiversity. The brazil-nut extraction operation in Manicoré, Brazil is a perfect example. Some of these same extractive reserves are now introducing timber as an additional product but making this mixed system sustainable so distant from markets remains challenging and there are few successful examples. Mamirauá and Cameroonian associations are considering diversification to NWFPs. In China, chopstick manufacture has proved an attractive enterprise for a Miao village in a specialty niche with high demand, and one with less competition than in the larger, industrial bamboo sector. All of these products have good market potential and are relatively high value, particularly when processed (dry mushrooms, juice). Some, like mushroom and palms require connections with exporters who buy from collection points and ensure refrigerated transport to market.

**Box 7: Amani butterflies – Tanzania**

The Amani Butterfly Enterprise (ABE), located in the East Usambara Mountains in highland forests, is one of the few cases of participatory forest management in Tanzania. ABE has been breeding and exporting dry butterfly specimens and butterfly pupae to live butterfly exhibits in the UK, Europe and North America since December 2003. It also conducts conservation, social development and training activities among local communities. In 2005 the company made US$45,000 in sales, up from US$20,000 in 2004, and has a potential annual income as high as US$100,000, partly due to the large market and limited competition. Proceeds from sales are divided as follows: 7% goes to a Community Development Fund, 28% is used for ABE management salaries and running costs and 65% is paid back to farmers, giving them an average 15% increase in household income.

ABE is an exemplary CFE because it simultaneously addresses, in a sustainable way, several local issues: promotion of forest conservation, particularly in biodiversity 'hotspots'; gender conflicts; underemployment; communal development; the desire of farmers to produce as individuals rather than in a group; and the need for more successful models of CFEs in Africa. The enterprise manages all stages of production and sales, receiving administrative, training, technological and start-up assistance from a national NGO called the Tanzania Forest Conservation Group (TFCG) and outside donations; it has the support of local authorities.

The impact of the enterprise on the natural environment is minimal and occurs mainly when farming is first initiated. After the first six months, farmers breed their own butterflies and spend far less time in nearby forests. By providing viable alternative sources of income, the enterprise has reduced reliance on illegal timber extraction and chameleon poaching. Simultaneous to ABE farming activities and administrative processes, environmental education and awareness-raising is conducted among tourists, ABE staff and local schools and villagers.

In order to expand this enterprise and the number of villages benefited and forest lands conserved, ABE requires financial and technical support primarily for the start-up stages of the expansion. With limited support, ABE has developed greatly and has the potential to continue growing.

Source: Scurrah-Ehrhart and Blomley 2006.

Box 8: *Bel* fruit juice in Nepal

In parts of Nepal, community members and members of forest user groups are collaborating in an enterprise venture to make and sell juice from the fruits of the *Bel* tree. The enterprise involves all members in all stages of juice production, from the harvest and collection of the fruit, to the juice production, bottling and labeling. The enterprise is supported by a special forest user group fund but also by substantial investment from private investors. In 2005, total production was 24,451 bottles of *Bel* Fruit Juice, with an expected profit of NRs 632,739.

The *Bel* Juice Enterprise is a company of ten forest user groups managing 714 hectares of forested lands and employing 142 people including 62 women. The project is rejuvenating degraded forests and creating a successful market for NWFPs. The *Bel* fruit is readily available from the forests managed by the FUGs, and the juice in high market demand. Emphasis on non-wood forest products has also encouraged the protection from timber extraction activities of species with non-wood value; regeneration of fruit tree species like the *Bel* tree was three times higher in 2004 than it was in 2000.

Continuing prospects for the *Bel* Fruit juice enterprise are quite good. Demand for the juice is increasing in the area and reputation is growing; consumption of Coca-Cola in local communities is being replaced by *Bel* Juice. There are also good market prospects for other types of fruit juice, which the enterprise is investigating for future trials and possible expansion.

Source: Paudel 2006.

**Box 9: Medicinal plants in Himachal Pradesh, India**

The Pangi Valley is a remote high-altitude area in the Chamba district in northwest Himachal Pradesh. Most of the residents in the region subsist on single-season cash cropping, animal herding, road-building and, most recently, the collection and sale of medicinal plants and herbs from the region's forests.

More than 86 percent of residents surveyed in the Pangi Valley collected some herbs from the forest during the collecting season of mid-June to mid-October. In most villages, income from medicinal herbs is between 10 and 20 percent of total cash income per household. Generally, those who engage in the most medicinal herb collection are individuals with fewer opportunities for income, less land available for cultivation, and fewer local labour opportunities.

Since the collection of medicinal plants for sale did not begin until the 1970s, medicinal herb extraction for sale is not specified in forest settlement agreements. The Forestry Department requires a seasonal permit (Rs. 1) to extract medicinal plants for sale, but enforcement is selective and none of 58 collectors interviewed had an extraction permit. Permits are also required for the transport and export of forest medicinal products.

This case contrasts with the situation in far-western Nepal, also in the Himalayas, where multi-donor support for a market and technical network organization and Nepali forest user groups led to better markets for essential oils and medicinals, investment in an NWFP paper-processing enterprise, and better resource extraction and management.

Sources: Agarwal and Prasanna 2005; Subedi 2002

## Economy and profitability

Table 7 provides data on the production, sales, employment and profitability of the case-study CFEs. Some of the more mature enterprises have reached a high level of vertical integration and diversification. The most advanced communities in Mexico and Honduras produce export-quality sawn timber of multiple grades, finished products for ornamental or construction finishing, furniture, and fine crafts. They have also branched into commercialization of non-wood forest products at scale, targeting urban markets, and begun ecotourism enterprises and formal or voluntary agreements based on the provision of ecosystem services, the least developed of their market segments. A number of the cases document important issues related to balancing multiple goals and objectives without losing control of the enterprise or the marketplace.

Some communities diversify for the same reasons as private-sector companies --to take advantage of additional market opportunities and increase returns from a given capital and resource base, including human capital, to expand into a related niche, or to invest profits. Other communities producing timber tend to diversify to address inherent problems of inequitable employment opportunities, to reduce their dependence on timber, which is a capital-intensive industry. Channelling more of their capital into lower-risk, less capital-intensive operations creates employment for other segments of the community, such as women and youth, may be more compatible with conservation goals, and can capitalize on an integrated resource management strategy to reach fair-trade or organic certified markets or to secure payments for ecosystem services they generate. In rural areas with high out-migration, diversification is also an attempt to create jobs for migrating youth and attract the next generation into the enterprise.

Certainly there are high levels of inefficiency in many of the CFE case studies related to a lack of infrastructure and small scale of production, limited control over quality to sell higher on the value chain or supplying buyers sensitive to the timing and regularity of supply. Maximizing profitability and employment has been a challenge for CFEs, particularly when other values are in play (maximizing social returns from the enterprise, keeping cultural ownership of the enterprise by limiting roles of outsiders as managers or advisors, ensuring benefits do not lead to wide disparities in household income). The older enterprises have lived through various decision-making challenges that are somewhat site and circumstance specific. A parallel study of markets for CFE timber has found that CFEs face serious competition from imported plantation wood, even in niches where they have a natural competitive advantage from their natural stocks. This problem, while not an unsolvable, requires commitment, organization and a conscious strategy for addressing it.

Some enterprises generate revenues in excess of US$ 2,000,000 per annum with profits of 30% or more, as is the case with El Balcón and Sociedad Sur in Mexico. Arbol Verde and Carmelita, the Guatemalan CFEs studies, are two of 22 members of ACOFOP, a political support association instrumental in fighting for community concessions in the 1990s. They have benefited from associated status as part of ACOFOP and membership in a donor-instigated marketing collective called FORESCOM set up to attract a wider set of buyers of certified and lesser-known species' wood products and to scale up processing. Rainforest Alliance is supporting FORESCOM by linking it to potential buyers of certified wood. In 2005, the communities received orders for more than 1.5 million board feet of certified wood, worth $3 million, including milled lumber, floor boards, decking and various construction components (McNab and Fajardo 2005).

**Table 7: Economics of case-study CFEs**

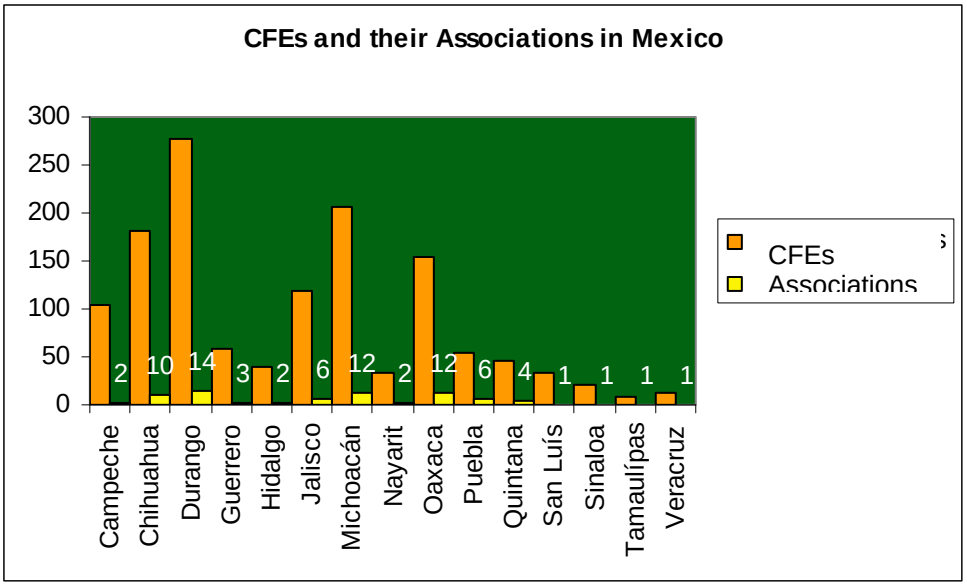
| Country | Case Study | Forest Area | Products | Volume of production | Annual[?] sales | Employment | Profitability |
|---|---|---|---|---|---|---|---|
| Mexico | Santa Catarina Ixtepeji | 21,058 ha, of which 80% under forest use | Timber, tourism, bottled water, mushrooms, trout farming | Total production: 12,825 $m^3$ pine 5,057 $m^3$ oak 7,717 $m^3$ processed; 77% sawnwood; 2% roundwood; 20% secondary roundwood | 1,581 ha conserved for watershed protection; registered in national forest fund program with $47,400 for 5 years | 120 permanent jobs; 180 seasonal jobs | Profits hampered by tax system; taxed on timber they own already unless enterprise separates from community governance and "buys" its timber as recorded expense |
| Mexico | Sociedad Sur (SPFEQR) | 271,104 ha | Timber, eco-tourism, artisan groups | Total production: 28,923 $m^3$ | $2,000,000; fluctuating returns on mahogany and limited market for LKS | 1,918 ejidatarios involved | Variable among the workgroups; shared profits limit ability of full enterprise to invest in new equipment |
| Mexico | El Balcón | 15,000 ha, of which 11,000 ha logged | Timber, sawn wood, mescal/cactus | Total production: 24,000 $m^3$ | $3,600,000 | 120 plus 180 seasonal jobs | 23% profit (17% reinvested in firm) |
| Guatemala | Carmelita | 53,798 ha concession with 20,000 ha timber production (since 2003); 33,798 ha NWFP production | Timber, sawn wood, NWFP ornamental palm (Chamaedorea), allspice, chicle; starting ecotourism in El Mirador | Annual production: 800-1500 $m^3$ on 300-500 ha | 2001-04: sawmilling with rented equipment Since 2004: own processing plant Certified mahogany sold at $1,781/$m^3$ in 2006, LKS sold in domestic or Mexican markets | Employs 50-60 people in timber (seasonal), 60-80 in NWFP (seasonal), 25 in sawmilling (primary speciesmahogany, tropical cedar) | Certified mahogany sales, LKS sales in Mexican and national markets – growing international demand for LKS; NWFP good complementary income |
| Guatemala | Árbol Verde | 64,973 ha concession with 33,079 ha production forest | Timber, sawn wood, and tourism | Annual production: 800-1500 $m^3$ on 1000-1500 ha | Certified mahogany sold at $1,760 $m^3$ in 2006, LKS sold in domestic and Mexican markets | Employs 30 people in timber (seasonal), 5-10 in sawmilling (precious woods and LKS), 19 in administration, forest management, guards, tourism | Certified mahogany sales, LKS sales increasing with growing international demand, NWFP good complementary income |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Honduras | COATLAHL | 10,000 ha, of which 5,100 ha productive forest | Timber, sawn wood, furniture | 5,000 $m^3$ (1975)<br>700-1,000 $m^3$ (2004) | US$48,000 from sale of finished goods; paid US$30,000 to member groups for logs | 6 permanent employees in the sawmill | 8% sawn wood and 21% finished products |
| Colombia | San Nicolás | 40,000 ha of forest conservation and 32,000 ha. of multiple use | Agroforestry, perennial cropping, plantations, fruit orchards and mixed cropping, carbon, watershed protection | Projected carbon production: 750,000 tonnes at the end of the 40-year period, with drops in year 21 when harvesting of timber intensifies | N/A | Individual smallholder families and farmer cooperatives employed more full-time | depends on cropping system, whether profitable |
| Brazil | Manicoré | 388,197 ha divided into 18 harvesting areas | Organic certified brazil nuts with shells and shelled; sold in bulk (plans to shrink-wrap) | 2004-05 production: 128,418 kg | The association pays at least R10 upfront. Association then finds buyers and pays extra sale price to producer. Average price: R$7.77/can (12.5 kg) | 773 Community members participate as producers (no paid positions in the association) | 2005 harvest: producers earned at least R$49,675. Volatile sasonal market. Families earned US$475 on average from brazil nut sales |
| Brazil | Mamirauá | 260,000 ha divided into 4,200 ha lots | Timber, with hopes to expand to sawnwood, NWFP | 2004 production: 905 $m^3$<br>2003 production: 8,507 $m^3$ (logs) | 2000–04: R$68,768 | No new jobs but more security and legality of activities | Divided between participants |
| Bolivia | Agroforestry Association of Tumapasa (AGROFORT) | 7,707 ha | Timber, thinking of diversifying to palm oil and wild cacao sales | 6546 $m^3$ over 2 years allotted; only 68% extracted | 16 cooperative members received US$186 per month for 6 months of the year | 16 members employed year-round | US$4,400 in 2004<br>US$9,500 in 2003<br>US$5,700 in 2002<br>US$1,000 in 2001 |
| Cameroon | Ngola-Achip | 4,200 ha | Roundwood, thinking of diversifying to NWFPs as well | Unknown; community subcontracts logging to private operators | US$0.80 per $m^3$ | 72 mill employees; unknown number of harvesting employees | Unknown; costs are born by contractors, not the community |
| Gambia | 26 villages in Western, | 3,309 ha | Mixed products (11); Honey and | Honey 2004: 121 litres honey, 18 jars body | Bulanjor group Honey: US$155 | 72 groups in 26 communities | Bulanjor: 15%<br>Central River District |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Lower and Central River divisions 26,000 families | | body cream (>50%); Timber, fuel; Rhun palm products | cream; Timber: 30 truckloads in Central River District Fuelwood: 10 truckloads in Central River District | Timber: US$31,323<br><br>Fuelwood: US$5,020 | (average size: 22 members) Bulanjor 15 people; Jamorai Timber and Fuelwood Federation 2004 (JATIFF) | timber profit: US$24,000 Central River District fuel profit: 41,502 JATIFIF: 65% profit |
| Tanzania | Amani Butterfly Group, Tanga Region | 8,380 ha | Butterflies (larval stage) | 27 butterfly species to 16 buyers in 2005; 250-300 pupae every 2-3 weeks per supplier | US$20,000 in 2004 (13 buyers), US$44,968 in 2005 (16 buyers); On average US$1.50–1.75 per pupae (depending on species) | 350 members (butterfly farmers) | Average annual income per farmer: US$90; Potential for US$67/month for individual farmers during periods of high production |
| Nepal | Chaubas-Bhumlu Sawmill, Kavre Dist. | 297 ha | Timber, planks | 10,000 cu ft round timber; 5000 cu ft sawn timber | $12,000 on average per annum generated | 293 families in FUGs 6000 person days/year | 50% return but small cut volume |
| Nepal | *Bel* Juice, Tamakoshi enterprise | 714 ha | *Bel* juice bottled for local consumption | 24,451 bottles of juice | $8,800 in net returns; sales of $ 20,000 | 142 people out of 1200 families in 10 FUGs. | 40% ($0.35 per bottle) |
| India | Adilabad Districti, Andhra Pradesh | At least 1 million *Pongamia* trees planted on degraded land | Oilseed converted into biodiesel; carbon credits | Over 2,800 tonnes of $CO_2$, oilcake for fertilizer, lighting in 6 villages | Carbon sales worth US$14,000 in verified emissions reductions from 35 villages | 4-5 persons per village | 36% return on plantation gains in employment and income; 25% increase in cotton yield from use of oilcake |
| Philippines | Ngan Panansalan Pagsabangan | 14,800 ha | Timber, sawn wood | 8,609 $m^3$ sold in 7 years-to 2004; another 5,000 $m^3$ per year at capacity+ plantations | US$125,000 remitted in forest charges; hardwood values US$ 350+per $m^3$ | 90% members employed; 10% non-members, shifts of 21 workers x 2/day | 2004: US$12,300 2003: loss 2002: US$7,500 2000: US$36,641 |
| Papua New Guinea | Madang | 10,000 ha of natural forest | Timber, eco-tourism, eaglewood | Potential for production is more than 10,000 $m^3$ per year but less than 1,000 $m^3$ milled per year | $30,150 in last year's timber sales | 20 members of MFROA currently; 25 total with surveys, 170 interested in whole association | Shared, therefore difficult to determine |

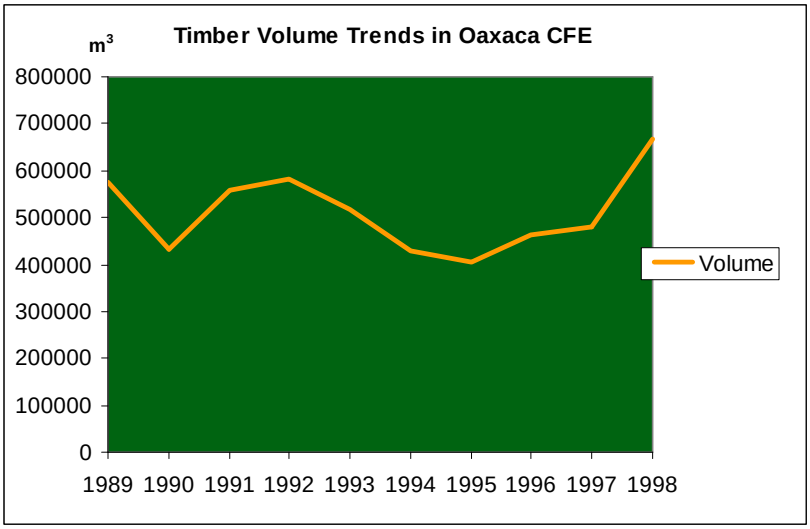
Mexico CFEs (Figure 6) have emerged quite organically in response to policy reforms made in the 1980s which returned harvesting rights to communities. While the initial response of a transfer of lumbering operations from industry to communities was a decline in overall timber production, the new enterprises regained productivity relatively quickly, despite pursuing more conservative cutting regimes. In fact, some operations surpassed previous production levels, as data from Oaxaca state in Mexico demonstrate (Figure 7). Production is in some cases community-specific, while in some geographic regions there has been a tendency for several communities to associate to gain working capital and economies of scale. In Guatemala, CFE members of FORESCOM are ambivalent about collective marketing and continue to sell wood and non-wood products in parallel and to invest in their own milling capacity to keep their options open. Varied forest size and quality and varied levels of social cohesion complicate multi-CFE collaboration. In Mexico, CFEs located south of Sociedad Sur in the Quintana Roo lowlands had an arrangement like that of FORESCOM in the 1990s but split up because of the varying capacity of individual CFEs. Mexican experience has been mixed in forming second-tier associations. Where these thrive, CFEs can reduce certification and technical service costs, group capital and group market share.

**Figure 5: Emergence of Mexican community enterprises and associations by state since the 1985 reforms**




Source: Wilshusen 2006

**Figure 6: Timber volume trends in Oaxaca, Mexico**




Source: Antinori and Bray 2005

The Mexican experience also yields interesting comparative data on profitability and vertical integration. The profitability of the enterprise is not always linked to processing sophistication and finishing. Roundwood-producing CFEs in temperate and tropical forests can generate a higher percentage of profits than vertically integrated CFEs in Mexico, but limited employment (Antinori and Bray 2005) (see Annex 2 for a field survey of experiences in Mexico). Some case-study CFEs are on the margin of profitability and barely break even after paying the costs of inputs and labour. The profitability of COATLAHL, for example, has fluctuated greatly over the cooperative's 30-year history, depending on the enabling environment created by government, its own internal business decisions on purchasing arrangements with member work groups, and marketing and milling strategies.

Generally, milling fewer board feet with a targeted market has proved more competitive in a tropical hardwood operation than producing large amounts of sawnwood for undifferentiated buyers. This is related to the stiff competition from cheap, illegally logged wood in the domestic marketplace and to the common problem faced by a number of enterprises in the tropical forests, that the market for LKS is limited. In Brazil, 70% of the wood produced is from one species (*Hura crepitans*) because of market preferences. Producers in Quintana Roo and Cameroon face similar issues. Diversification is a preferred strategy for a number of enterprises, to both create more employment and reduce risk, at the very least until markets for a wider range of timber species are available. The Bolivian, Cameroonian, Guatemalan, Mexican and Papua New Guinean case studies all seek greater diversification, in part because investments in non-timber activities tend to be less capital-demanding and financing sources continue to be limited. Very few of the case studies present data on the depreciation of equipment and machinery, but this is a common problem in Mexico, as enterprises fail to account for depreciation and struggle for cash flow when a key vehicle or piece of machinery falls apart. One achievement of the government-sponsored technical assistance project in Mexico, PROCYMAF, has been to attract agricultural credit lenders to communities to lend money for new transport or harvesting equipment.

*Role of outside support to good market analyses for product development.* Market analyses conducted with support of NGOs and external donors working with government forest departments have identified important opportunities for CFEs in Nepal and in the Gambia. In the Gambia, support was provided by FAO to a wide set of communities with forest management rights to analyze their current consumption and commercialization strategies and develop better or new markets for forest products. The result was a diverse set of income opportunities in the region where the methodology of Market Analysis and Development (MA&D) was applied (Lecup and Nicholson 2004, 2000; FAO 2005a). Timber, which was the product that many CFEs initially planned to exploit was found to be less lucrative than other products in specific cases, such as honey. In one community in the Central River District, plans to sell fuelwood were abandoned in favour of a mill for sawnwood, supported by German donor and technical assistance, when a participatory analysis indicated a three-fold return compared to fuelwood because of the greater scarcity of local supplies of sawnwood in nearby markets. Table 9 shows the range of communities in the area of analysis and Table 10 shows the activities of and returns from the emergent enterprises. Rhum palm and kembo posts had a strong indirect economic impact on the communities, as these substituted for over-harvested alternatives that were no longer available in sufficient supply for local building needs (Thoma and Camara 2005).

Mamiraua's Sustainable Development Institute (MISD), the regional corporation in Colombia, MASBOSQUES, the TFCG in Tanzania, the regional development program in Andra Pradesh, and the Everest Development Gateway Corporation working with the Nepal Tamakoshi enterprise have all provided important enterprise and market analysis support to the enterprises. For the carbon credit and water payment scheme examples, a support organization provided technical assistance for measuring and monitoring the ecosystem services created.

Many of the CFEs have benefited from outside technical and financial support from government and NGOs, and from donor-assisted funding. Where this support has been directive, however, it has limited the emergence or growth of the CFEs. The community concessions in Petén, Guatemala are an interesting example of this. Because of the high conservation value of the lowland forests, a large number of donors, government and NGO programs operated in the Petén before and during the emergence of the community concessions. Community organization was not effective, however, until an internal process of mobilization and consolidation took place within the communities. Those models of support that emerged as instrumental were from those NGOs who had been the most flexible in providing guidance and services, and built their assistance in recognition of the local knowledge of both settlers and long-term residents of the resource base and its productive options (Sundberg 1998). The concessions themselves also drew upon the rich experience of Mexico, looking at the diversity of organizational types in the *ejido*s to the north and paying attention to the lessons and pitfalls in their development (Pacheco et al. 2004; Rosa et al. 2003).

The case of Petén, Guatemala is quite interesting because of the role of the second-tier community advocacy association, ACOFOP, which emerged as a leading force and support mechanism in the political struggle to create the concession rights. ACOFOP has not only provided political and organizational support but also a community-based mechanism for

backstopping services. For example, the USAID-funded government program BIOFOR worked with agricultural credit banks to create lines of microfinance for individual community concessions, with technical assistance and guarantees from ACOFOP (Spantigati and Springfors 2005; Chemonics International 2003). The microfinance model was so favourable that the share of forest concession lending made up 50% of the total portfolio of one of the two institutions, Bancafé, in 2003 and 2004 (Spantigati and Springfors 2005). This contrasts with cases like Mamirauá, where the NGO providing technical assistance in the Mamirauá Biosphere Reserve, MISD, developed a very comprehensive forest management support program, and the Amani Butterfly enterprise in the Eastern Usambaras, Tanzania which emerged with support from the donor-funded Tanzania Forest Conservation Group and has still to become financially and organizationally independent.

### Box 10: Market analysis and development in community forests of the Gambia

Today, 43% of the surface area of the Gambia, about 460,000 ha, is forested. In the early 1990s, the Gambian Forestry Department recognized that central control was not working to prevent rampant deforestation. Shifting away from a top-down approach to forest management, the government created a policy to encourage participatory forest management and the formation of Joint Forest Management programs. Today there are 264 community forest committees (CFCs) in the Gambia, controlling 22,100 ha of the nation's forested lands, and another 24 JFM initiatives proposed which would involve an additional 240 communities.

Twenty-two of Gambia's CFCs are developing their markets and managing their forests using the Market Analysis and Development methodology through a joint project of the Gambian government and FAO. The Market Analysis and Development (MA&D) program is a three-phase program that trains and empowers community members to identify and develop successful forest enterprises and to manage them independently. MA&D enables communities to link forest management and conservation activities directly to income-generating opportunities and, in the Gambian case, it has also encouraged the substantial diversification of marketable forest products. The program emphasizes sustainable institutional development for the community enterprises and extensive networking between businesses and local organizations. In the Gambia, 22 CFCs have used MA&D methodology to develop 72 community enterprises.

Some of the communities now involved in successful enterprises have been entitled to commercialize community forest products since 1992, but were hesitant to do anything other than protect their forests prior to the MA&D training, or were repeatedly cheated by middle-men or Forestry Department staff. The communities produce eleven products from their forests, including fuelwood, logs and timber, honey, palm handicrafts, Netto fruits, oil-palm fruits and nursery seedlings. Fuelwood and timber are among the most promising products for successful enterprises, but so is honey, and none of the community enterprises solely produce fuelwood or timber. All community enterprises in the MA&D model produce at least one commercial non-timber forest product along with their timber production and a number of them also produce NTFPs like rope, fibres, fruits, tubers and herbs for domestic consumption. Through program-sponsored artisan workshops, community members have learned skills to craft new products from their forests, especially beds, sofas and chairs that are then sold to local eco-tourism lodges and hotels in the coastal tourism area.

Gambian community enterprises are making use of forest species that are valuable for more than just their timber. For example, the Rhun palm has largely disappeared from Gambian forests because of over-exploitation for its valuable trunk timber. But the Rhun palm is also valuable for its durable and termite-resistant stem used in many construction projects; its leaves are used for thatching, fencing, and wickerwork, and its edible nuts and palm hearts are an important part of rural diets. For the 18 beekeeping and honey-producing enterprises, beekeeping is expected to account for 15% of their total yearly profits.

Source: Thoma and Camara 2005

**Table 8: History of enterprise creation in Gambia**

| Village | Date CFMA awarded | Selected products for enterprise development | No. of independent groups | No. of members in independent groups | Date enterprise development plan established |
|---|---|---|---|---|---|
| Kafuta | Feb. 2000 | Fuelwood, logs/timber | 2 | 10 | Sep. 2002 |
| Tumani Tenda | Feb. 2000 | Eco-tourism, honey, Netto | 3 | 13 | Nov. 2002 |
| Buram, Bulanjorr, Kanuma | Jan/Feb. 2000 | Fuelwood, logs/timber, honey, palm oil | 11 | 132 | Oct/Nov. 2002 |
| Jakoi Sibirik, Nyangit, Tampoto, Batelling | Dec. 1999 | Fuelwood, logs/timber, honey, palm oil, forest walks | 11 | 57 | Oct. 2002 |
| Batending, Kandonk, Somita, Ndemban | Dec. 1999 | Fuelwood, logs/timber | 4 | 72 | Oct. 2002 |
| Brefet | Dec. 1992 | Eco-tourism, honey | 2 | 10 | Sep. 2002 |
| Bessi, Brefet Ndemban, | Dec. 1992 | Fuelwood, logs/timber | 2 | 18 | Oct. 2002 |
| Jassobo | Mar. 2000 | Logs/timber, honey | 2 | 15 | Jul. 2004 |
| Nema, Bambako | Nov. 2002 | Honey, tree nursery | 2 | 10 | Jun. 2004 |
| Manduar | Mar. 2003 | Fuelwood, honey, Kembo posts | 3 | 12 | Jul. 2004 |
| Bureng | Dec. 2001 | Honey, Handicrafts, Rhun palm splits | 3 | 26 | Jun. 2004 |
| Korup | Aug. 2002 | Fuelwood, logs/timber, honey, handicrafts, Rhun palm splits | 5 | 18 | Jul. 2004 |
| Dobo, Boraba | Apr. 2000 | Fuelwood, logs/timber, honey, handicrafts, Rhun palm splits | 9 | 37 | summer 2004 |
| Kunting,Bustaan | Apr. 2000 | Logs/timber, honey, handicrafts, Rhun palm splits | 8 | 24 | summer 2004 |
| Tabanani, Dobo | Apr.-Jul. 2000 | Fuelwood, logs/timber, honey, handicrafts, Rhun palm splits | 10 | 35 | summer 2004 |
| **Total** | | | **72** | **489** | |

*Note: This table shows the enterprises where logs and timber are a significant product. Other villages were much more reliant on non-timber forest products for their enterprise.
Source: Thoma and Camara 2005.

**Table 9: Production and sales projections for Gambia Central River District 2005**

| Division | Product | Unit | Quantity | Gross income | Production & marketing | Taxes, NFF & royalties | Net profit |
|---|---|---|---|---|---|---|---|
| CRD | Logs/timber | truckload | 30 | 31,271 | 3,154 | 4,691 | 23,427 |
| | Firewood | truckload | 10 | 5,007 | 2,744 | 801 | 1,461 |
| | Honey | liters | 1180 | 2,176 | 273 | 324 | 1,579 |
| | Handicrafts | piece | 154 | 1,243 | 558 | 232 | 453 |
| | Palm splits | piece | 1990 | 3,692 | 1,076 | 623 | 1,993 |
| **Total CRD** | | | | **43,389** | **7,806** | **6,671** | **28,913** |
| **Total** | | | | **92,703** | **18,868** | **92,703** | **18,868** |

*Note:* The Central River Division is only one of three geographic divisions in the Gambia, and the division where logs and timber are the most economically significant.
Source: Thoma and Camara 2005

In the short period of the operation of the CFEs producing honey as their main forest product, the Central River District region has become the producer of 20% of the total honey supply in Gambia (Thoma and Camara 2005).

The potential profitability of the CFE in India is quite significant, when the membership of women in self-help groups, the area of managed plantation and restored forest areas, and the number of village forest management groups are taken into acount. Andhra Pradesh, the state where the Adilabad tribal district is located, is a leader in forming and developing women's self-help groups. Half of India's self-help groups are found there. These groups take on roles in their communities as contractors, natural resource managers, and primary sources of capital. In 2003, the 500,000 self-help groups had a membership of 5 million women and assets worth Rs. 11,195 million or $238 million (D'Silva et al. 2004). If these funds are properly leveraged with local financial institutions, these groups could have access to a line of credit worth US$1 billion. In addition, 6,271 forest protection committees protect 1.5 million hectares of forest assets worth an estimated $US5 billion in timber and non-timber values (D'Silva 2006).

## Social and environmental benefits of CFEs

All CFEs studied invest in important social infrastructure and create environmental and social benefits for their members and neighbouring communities (Table 11). It is difficult to separate the economic returns and profitability of the enterprise from the social benefit stream in some instances, since one of the social benefits valued by CFE members is employment generation. Profits from the CFE can be reinvested in the existing enterprise, used to purchase social goods separate from enterprise activities, or invested in new economic enterprises that generate additional employment. There are also a set of intangible social benefits that is extremely important to the community development.

Direct benefits include: investment in schools, school buildings, scholarship funds, health and pension funds, emergency services, micro-credit funds, employment through new activities, training and specific skills' building, access to subsistence products from the forest as a result of better management, and investment in road infrastructure. Indirect (or intangible) social benefits include the improved self-esteem of CFE members, improved credit rating of families seeking credit outside the community, social capital formation in the community, political prestige and leverage in the local and provincial government structures and access to loans and donor support.

Environmental benefits include reduced clearing at the agricultural frontier and less deforestation, access to better water supplies, reduction of risk of damage from disasters, improved biodiversity and integrity of the forest resource, and, in Nepal at least, agricultural productivity increases as a result of improved natural pest balance where forests have regenerated. In some cases, detailed evaluations of environmental impacts have been carried out as part of donor-funded programs or preparation exercises. In Guatemala, studies have demonstrated that the CFEs in the region have invested more than $150,000 of their own funds in fire protection and control, protected biodiversity conservation more effectively than in the narrow biological corridors between their concessions that were retained as national biological protected areas, and complied with the environmental criteria in the

certification of nearly 500,000 hectares of CFEs (Gomez and Mendez 2004; Cortave and ACOFOP 2004).

The CFE case studies are potentially very positive environmental actors in tropical forests. For example,many seek to develop market linkages and production lines for LKS and which increases their concern for the long-term biodiversity and ecological health of their forests. Sociedad Sur in Mexico, MFROA in Madang, PNG, and the various extractive reserves in Brazil have all focused on developing product lines with LKS.

The control of illegal logging is another benefit of the CFEs. In Cameroon, the CFM initiative has sensitized villager forest managers to the illegal logging issue. Villagers are part of an independent village monitoring committee on illegal logging in forest concessions and community forestry in and around the Dja Biosphere Reserve. This community is also very important because it contributes to the nation's strategy to implement the African Forest Law Enforcement and Governance Ministerial Declaration and Cameroon's bilateral negotiations with the European Commission on forest law enforcement, governance and traded by local and indigenous communities (Angu Angu 2006).

**Box 11: Chopstick production by the PingShang Bamboo Group**

Prior to the formation of the PingShang Bamboo Group (PBG), most chopstick production in Guizhou Province was conducted by single family units linked to single, wholesale buyers. The community had a rudimentary system that produced only basic unfinished chopsticks, irregularly collected and transported to wholesale buyers regardless of market price. In July 2004, the community formed the PBG to enable local community members to analyze production possibilities and make more informed decisions about production, market demand and the sale of their products. As an enterprise composed of more than 70 local families, PBG is the largest coordinated producer of chopsticks in Chishui County.

PBG began producing packaged chopsticks ready for use by consumers, instead of the unfinished bulk product they once produced. The producers' group is involved in all aspects of the production chain including forest management, harvesting, production, packaging, marketing and delivery. The long-standing PingShang village committee, an entity separate from PBG, manages the bamboo stands and access to forest products, while the PBG producer's group manages production, marketing and sales. PBG works with managers from the nature reserve to increase qualitative and quantitative understanding of bamboo resources, including sustainability, regeneration, culm quality and soil conditions.

There is tremendous regional, national and global demand for chopsticks, and though PBG is the largest producer of chopsticks in the region, it contributes less than one percent of China's production of packaged, table-ready chopsticks. Given the great market demand, there is room for considerable expansion of PBG chopstick production. Since the establishment of PBG, finished chopsticks sell for roughly 18 US cents more per pair. Greater volumes of chopsticks produced by PBG and higher prices for finished chopsticks are directly responsible for increased average annual household income, which means reduced poverty and food security, improved school attendance, and women's health.

Source: West and Aldridge 2006

**Table 10: Social and environmental benefits**

| Country | Case Study | Social Benefits | Environmental benefits | Spin-offs/issues |
|---|---|---|---|---|
| Mexico | Santa Catarina Ixtepeji | Pensions, social infrastructure, scholarships | High-conservation-value forest (HCVF) preserved, areas set aside; agricultural frontier checked; fire control institutionalized | Access to markets that value certified wood; access to environmental services markets |
| Mexico | SociedadSur | Political clout, lend vehicles for personal use, capture development grants, roads, social infrastructure, pensions | HCVF preserved, areas set aside; agricultural frontier checked; fire control institutionalized | Project model copied in countries such as Ecuador and Guatemala |
| Mexico | El Balcón | Pensions, social infrastructure, scholarships, 2005: 82percent reinvested in forest and enterprise, 18percent social goods | HCVF preserved, areas set aside; agricultural frontier checked; fire control institutionalized | Have cancelled contractual relationships with US buyer (Westwood) for delays in payments; community member trained as professional manager of CFE |
| Guatemala | Carmelita | Social capital, employment, self-esteem, networking, tenure security, social infrastructure, political capital alone and with ACOFOP associated | HCVF preserved relative to other protected areas, own set-asides; agricultural frontier checked; fire control institutionalized | Diversification of activities to generate greater income from xate, chicle, black pepper and spices; exploring eco-tourism options; ssociation with FORESCOM for marketing of certified LKS |
| Guatemala | Árbol Verde | Social capital, employment, self-esteem, tenure security, diversification of income streams, social infrastructure. | HCVF preserved relative to other protected areas, own set-asides; ag frontier checked; fire control institutionalized | Hotel and restaurant initiative, community carpentry, association with FORESCOM for marketing of certified LKS |
| Honduras | COATLAHL | Organizational maturity of producer groups with spin-off effects on other activities and initiatives; political voice; greater tenure security | HCVF preserved, areas set aside; ag frontier checked; fire control institutionalized | COATHLAHL produces finished products; buys only part of AMI (see box 14) production; export market in certified Europe niche |
| Colombia | San Nicolás | Empowerment of local communities; creation of public-private partnerships; improvement of local capacities, family income and food security | Recuperate productive potential of land and soil in region; protect water flow and quality in hydropower and water generation watershed; create tradable carbon credits ; improved land practice knowledge | Diversification of tradable credits is part of the program; emergence of associations and new structures for civil society, private and public interaction; creating new sources of employment and income generation |

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|---|---|---|---|---|
| Brazil | Mamirauá | Creation of a social fund to cover costs of medical service, but most benefits are at the level of individuals | Illegal logging virtually eliminated in the area | Communities block timber extraction by external actors |
| Brazil | Manicoré | Inter/intra community organization where none existed. Increased self-esteem and valorization of brazil nut activity. Increased knowledge of business practices | Organic processes removing aflatoxin from supply; access to FSC through timber company partner; decreased slash and burn through environmental education; increased forest management knowledge | Organic certification process with new market opportunities, both domestic and international. National producer group of community brazil nut producers emerging. |
| Bolivia | AGROFORT | Self esteem, family credit rating improved | Check agricultural frontier, institute integrated management, | With better organization and skills, plan to invest in their own sawing and transport operation to cut costs; plan to add cacao and palm fruit oil |
| Cameroon | Ngola-Achip | Built 72 new houses in community with zinc roofing purchased from outside | Fire controls in areas of slash and burn; checked deforestation, wildlife management | Better internal organization and conflict resolution with youth and elders/elites, new investment strategies for profits, better marketing strategies, lobbying for reforms |
| Cameroon | CAFT | Employment – estimated generation of 200 jobs in the Ngoyla region; employment and skills' development in a range of skill areas: cutting, carpentry, artists, dyers, herbalists, management, marketing | Professionalized and mainstreamed local natural resource management practices based on indigenous knowledge; formalized decision-making processes that incorporate conservation and biodiversity concerns | Financial incomes from timber sales will augment and finance traditional local agriculture; plans to reinvest revenues from CAFT timber sales in housing, water and sanitation, electricity, health and education |
| Tanzania | Amani Butterfly Group, Tanga Region | Producer associations gain business and accounting skills; improved productivity of farms in the region; more employment; improved organizational and advocacy strength | Pressure on reserve declined, increased biodiversity in agroforested areas; local community acting as nature advocates | Close to reaching goal of US$50,000 in sales per annum with hopes of making the group independent of donors and NGO support system |
| Gambia | Bulanjor village | Employment, income, infrastructure | Fewer forest fires, community-monitored sustainability | Produce already 20% of total country honey supply in 5 years so will quickly reach scale within domestic market |
| China | Pingshang Bamboo Group | Employment, skills building, income | Conservation of bamboo forest at low cost to nation; long-term | Improvements in quality and quantity will yield much higher returns as |

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|---|---|---|---|---|
| | | | social organization for management | market demand for product is strong |
| Nepal | Chaubas-Bhumlu sawmill | Fuelwood and NWFP to community; social infrastructure, training, schooling, | Community vested interested in sustainable practices | Danger from Maoist conflict and political backtracking; lobby to reform VAT and sales taxes on products, accountability of DFO office, further develop business organization with equity |
| Nepal | Tamakoshi Bel Juice | Regenerated forests with fruit NWFP and natural pesticide effect on crops; social confidence, better governance of forest user group; drink bel not coca-cola | Reforestation; regeneration of fruit species; decrease in pestilence epidemics | Continue to build entrepreneurial skills, balance social and business goals, cost cutting on sample testing |
| India | Adilabad District, Andhra Pradesh | Improved incomes and employment; reduction in carbon emissions from the use of biofuel in village machinery | Reduction of use in chemical fertilizers, reduction in carbon emissions from the use of biofuel in village machinery | Carbon credits for restoration of degraded forests; *Pongamia* becomes the basis for a new oil economy for the rural poor |
| Philippines | Ngan Panansalan Pagsabangan Forest | employment, income, infrastructure | four forest guards employed to prevent illegal entry and extraction (one guard per 3,700 ha) | Weak institutional support; intermittent RUP suspensions |
| Papua New Guinea | Madang | Community infrastructure development | Sustainable forest management in enterprise area | Program is taking an integrated approach to community development with forestry as the main tool |

## Participation of CFEs in the forest certification process

Donors and certifier bodies have undertaken have been significant initiatives to include CFEs in the forest certification markets. At a global level, the major do-it-yourself (DIY) retailers and buyers concerned with the responsible purchasing of high-value wood from sustainable sources have created a strong demand for certified wood products in the international marketplace – one that has not yet been met with available supply. An issue has been the higher participation by producers in developed and temperate countries and the greater share of certified wood from planted rather than managed natural forests. At present, 50% of the forests in Western Europe and North America are certified for sustainable forest management and account for over 96% of the world's certified forest. Europe and North America have a strong incentive to certify to capture socially responsible markets, given the continued downward pressure on prices of commodity wood and pulp from more efficient suppliers.

A number of the communities in the case studies are certified, either as a condition of their access to forest exploitation or in response to a perceived opportunity to improve market access and market reputation. NPPFRDC in the Philippines and Árbol Verde and Carmelita in Guatemala certified as a mandatory condition of good management, but also hoped for an improved market share. In 2004 FORESCOM initiated a group certification process under the FSC resource manager scheme with participation from six CFEs (not including Carmelita, which re-certified individually in 2005). El Balcón has developed an agreement with a North American certified timber buyer, Westwood, although it has recently stopped selling to this buyer because the company concerned did not pay in a timely manner.

Mexico has the most experience in the certification of CFEs. At least 26 CFEs in Mexico have been certified to FSC standards (Anta Fonseca 2006) with coverage of 587,143 hectares (Alatorre 2003). Santa Catarina Ixtepeji in Mexico was certified with support from an NGO and government funds but is still not getting the expecting premium on their wood sales. COATLAHL, the cooperative in Honduras, is certified. This has been advantageous for accessing the certified market in Europe, but the FSC forest management certificate covers a much smaller number of associations than were initially part of the cooperative and acts as a kind of barrier of entry to newcomers.

The Mexican and Guatemalan CFEs have had some positive benefits from the improved forest and enterprise management, although the Guatemalan communities are still expected to afford the cost of separate evaluation requirements of both the government agencies and of their donor funders, despite holding a valid certificate (Chemonics International 2003). NPPFRDC has not found certification to be either affordable or particularly advantageous thus far. The Madang communities in Papua New Guinea recognize the much higher prices that their hardwood will fetch in Australian retail markets with an ecotimber label and are working with support from the Foundation for People and Community Development (FPCD) and ITTO to develop a certified supply chain. Governments can play an important enabling role by ensuring regulations are supportive of certification processes, but if certification becomes a form of conditionality to CFE development it could stifle growth and also direct scarce public resources to a small number of CFEs at the cost of the majority (Segura 2004).

For the majority of emerging CFEs, the main barriers to success are much more important to resolve and, for most, the likely buyers are not interested in certified forest products, particularly those in domestic market chains. Were additional funds made available to these CFEs, it is questionable that they would prioritize investment in certification over more pressing priorities, particularly as their failure to remain in business is a greater present threat to the resource than less than optimal SFM practices. The debate is strong even in Mexico, where the government is exploring a national standard that will enable more CFEs to participate and where many communities have not been able to improve their profits or market share through certification.

**Box 12: The experience of an industrial-scale sawmill enterprise: El Balcón**

El Balcón is an *ejido* in the state of Guerrero in the highly diverse temperate forests of southern Mexico. This 25,000-hectare *ejido* of 750 inhabitants has one of the most advanced FSC-certified, sawnwood operations of all CFEs in Mexico, producing first-grade, dried pine lumber from its natural forests and surrounding communities along with roundwood logs and fuelwood. Its forests have received good management prizes on a number of occasions and are renowned for their pine and oak forest biodiversity, more than 4000 hectares of protected forest area, and endemic wildlife. The enterprise employs more than 120 people in its milling operation and offers another 180 temporary jobs for timber harvesting and management. Workers are covered by health and accident insurance and proceeds from the enterprise sales are also allocated to worker pensions, community emergency funds and a number of social projects, including roads, water supply, community buildings, scholarship funds and higher study grants.

El Balcón evolved in a zone characterized historically by violent social conflict related to control of the area by powerful elites, rapacious timber exploitation, and land tenure conflicts. The residents of El Balcón colonized the area in the 1930s as part of a wave of immigration into lands that were large estates of mainly absentee landlords. In the 1960s, the population radicalized in opposition to local elites and large timber concessionaires and government created a forest parastatal to reduce conflict. *Ejido* unions emerged in response to this, and conflict increased again in the 1980s with the rise of the drug trade. The CFE emerged in 1975 as a contractor to the parastatal. In 1985, El Balcón developed a new forest management plan and in 1987 installed a sawmill in the town of Tecpan, hiring a foreign mill manager in 1989 to run it. In 1997 the mill burnt to the ground and was replaced with a world-class mill. By 2002, an *ejido* member became the CFE manager. Until recently, El Balcón sold most of its wood to an FSC-certified US company, Westwood. In 2005, the ejido had a profit of US$3.6 million after taxes – 82% of which was reinvested in the CFE, including environmental investments, and 18% in social goods and services.

Source: Garibay Orozco 2006

## CHAPTER III: ANALYSIS OF THE CASE STUDIES, ISSUES FOR MOVING FORWARD

### Factors in the successful emergence of CFEs

A number of the case studies talk about a "unique combination of advantages". This is consistent with the literature review, which indicates that different products and product mixes require different scales and structures of operation and that market and policy conditions differ considerably from one geographic region to another, but a number of conditions and configurations of conditions are often present in successful initiatives. These include:

- secure land tenure (Mexico, Guatemala, Honduras, Bolivia)
- strong community and/or producer organizations (Mexico, Guatemala, Nepal, Papua New Guinea)
- commercial value of the forest product (all)
- market accessibility (Nepal)
- political support and political and social stability (Bolivia, Mexico, Guatemala)
- strong existing social organization or external capacity-building support that developed a shared vision of the enterprise (Gambia, Mamirauá, Nepal, PNG)
- enabling regulatory frameworks (China)
- appropriate access to technical support, market information and financing (Gambia)

Many of the cases have been supported by government or donor funding and technical assistance. At the same time, in almost all of the cases, community members have provided a substantial start-up contribution in the form of free labour, a willingness to wait for deferred returns, and reinvestment of profits into the building of the enterprise. According to Richards (1991), the relative success of community forestry in Quintana Roo, one of the most effective models of tropical forest management in the world, stemmed from a "unique combination of advantages" including secure land tenure, strong producer organizations, high commercial value of forest products, ease of extraction, market accessibility, political support, low demographic pressures and political and social stability.

### Competitive advantages of the CFE model

On the positive side, CFEs have some key potential competitive advantages in the marketplace. Increasingly, they have recognized tenure rights over significant forest and agroforested lands. Often they have proximity to and knowledge of local markets, the flexibility to supply small and fresher quantities to local traders, and lower opportunity costs for land and labour. Because they integrate resource management decisions into the overall livelihood and well-being strategies of the community or village, CFEs value the complementary benefits of the enterprise, which can potentially lead to lower prices, through resident owner managers in some examples, a focus on sustainability of management systems rather than boom-and-bust scenarios, and in-built incentives for local monitoring and forest protection. CFEs also have the ability to brand in specialized markets as "social producers" (Scherr et al. 2004).

CFEs have advantages that employment in a private-sector enterprise does not bring, including political empowerment of the community and its own authorities, which leads to multiplier effects in other development activities. It can be an impetus, as for the case studies in Mexico, Colombia, Brazil and Guatemala, to address issues of encroachment of the agricultural frontier, either from outside pressure or within the communities themselves. Case studies note self-esteem-building and cultural stability, all enabling conditions for further development and problem-solving. Communities in Mexico have certified their forests even when economic returns were not higher, both to secure communal tenure in a privatizing society and – related to self-esteem – to demonstrate their sustainable management to conservation movements.

CFEs provide a very different model of development for the rural areas in which the cases are situated. In a number of the cases, the enterprise structure has incorporated the social and cultural values of the community participants, modifying a strict financial or economic approach with management for long-term biodiversity, ceremonial, recreational and subsistence values, the maximization of local employment opportunities, and attention to the wealth distribution balance for community social well-being. The search for the long-term stability of the business enterprise and a balance with social and environmental goals provides the main impetus for sophisticated CFEs to diversify forest management and productive activities to encompass a larger number of end-products and services and to include different groups within the community(s) as beneficiaries and participants. Local knowledge is another important defining characteristic of success that sets CFEs apart. A number of case studies include examples of innovation that have resulted from the particular local knowledge and experience of CFE members, a valuable resource that cannot be replicated easily in individual SMEs or private-sector industry.

## Competitive disadvantages

CFEs can face serious obstacles for competing in both domestic and international markets. These are related to: (1) remoteness of many of their communities and lack of infrastructure to reach the marketplace; (2) a lack of the business organizational skills and social dynamics needed by a profit-making enterprise; (3) the small scale of operations, if their independence is to be preserved, limiting their competitiveness where large-scale producers participate (pulp, paper, commodity wood) or where wood substitution holds down prices and demand; and (4) the relatively high cost of production of wood and non-wood products given their multiple objectives and the maximization of environmental services in natural forests and reforested areas. Some of these limitations can be mitigated by appropriate training, information exchange, technical outreach and a levelling of the playing field through adjustments in government subsidies and regulation. Others are inherent to the CFE and determine the kinds of markets and market segments in which CFEs can fail or thrive.

Internal obstacles—conflicts among local stakeholders, limited management and business skills, lack of political power to advance their agenda with policy-makers, and elite capture--are common constraints. The horizontal sharing of experiences between CFEs, good technical assistance, and development of collaborative relationships with the private sector are all strategies that have been used to address these obstacles (Scherr et al. 2004).

**Box 13: Sawmilling by MFROA in Papua New Guinea**

The low returns to customary forest landowners in Papua New Guinea from industrial concessions, and the lack of alternative employment opportunities in rural areas has encouraged 50 landowner groups in Madang province to form an association of sawmilling groups with support from an NGO, FPCD. Recognizing the potential to export sawn timber with an ecolabel to Australia and New Zealand, members of the MFROA have been investing in portable sawmills since 1998 with technical support from FPCD. The aim is to create a set of viable forest enterprises that maximize local employment and income and pursue sustainable forest management in areas that otherwise would be designated for industrial-scale concessions. The potential returns are enormous. Sawn timber produced by resource owners could fetch up to US$ 150 per m3 domestically and US$450 internationally. The current area in Madang covered by the scheme is 10,000 hectares but local communities could potential manage more than 800,000 ha.

There are many challenges. Limited business and technical skills, lack of financial resources or credit to finance forest management plans and cutting plans, a lack of business providers who can repair or supply parts for portable mills and other equipment, limited numbers of buyers interested in the small scale of production, and the lack of savings for replacement of outdated equipment all hinder progress. Transport problems are being addressed through the use of buffalo and the Association is exploring appropriate technology solutions such as log transport by air balloon. It faces a future legal challenge related to plans to cooperatively process and market timber, as its status as an association does not allow it to operate for profit.

The FPCD is the main source of technical support to MFROA and other similar groups. It has learned the importance of promoting self-reliance among CFEs in management decisions, skills building and financial planning, given the uncertainties of donor financing and the need to develop long-term relationships with private-sector buyers and service providers. Other landowners are watching the experience closely to see if this is a business model to follow.

Source: Bun and Baput 2006.

Successful strategies used in the case studies have included:

- maintaining second-tier and community-level organizations to reach larger scales and group technical services (Guatemala, Mexico);
- developing an efficient CFE administration that is consistent with social and cultural values and interests;
- networking with similar CFEs to learn from parallel experiences regarding options for sound social and business organization types and possible solutions to common problems;
- generating enough capital or savings to replace equipment, invest in higher productivity, or diversify to multiple products and productive activities;
- accessing market information for learning how to better respond to a buyer with the quality and quantity needed; and
- developing a political base and alliances to lobby for needed reforms and finance.

### Box 14: Cooperative timber enterprise in the tropical north coast forests of Honduras

COATLAHL is a unique cooperative east of the commercial port of San Pedro Sula on the north coast of Honduras. It was promoted in the 1970s as part of a large number of social forest enterprises as a means in this region of organizing a disparate set of farm families who had settled illegally in the tropical forests to practice agriculture in a frontier environment. Groups or associations of farm producers (called AMIs or integrated management associations) were organized around manual logging and hand-sawing operations to extra-high-value cedar and mahogany from the forests as a legal way of creating incentives to contain agricultural expansion, conserve the forest resource and generate local incomes. COATLAHL was a processing and marketing cooperative for these groups, of which there were 25 (700 members in total) in the initial years of organization, reduced to seven now (105 members). Initially, COATLAHL milled all of the wood produced by the AMIs, nearly going bankrupt in the process, particularly as cedar and mahogany became scarcer. Currently, COATLAHL only purchases a portion of the wood, and the rest is sold in the open market. This is the outcome of a difficult process during which inefficiency, combined with unstable government policies, competition from illegal logging and slow procedures for approving permits, led AMI members to turn to illegal logging and leave COATLAHL. The cooperative and its members have been certified since 1990 (one of the first CFEs to do so in the world) and have recently recertified under the reorganization of the cooperative to purchase only high-quality certified raw material, preferentially transform wood of lesser known species, and sell to a small number of high-value markets. The strategy that has been used to rethink the business model in the past few years is:
:
re-certification with a new business plan and focused on the original supplier groups;
identifying specialized market niches where certified products obtain a premium;
focusing on producing using lesser known species to add value to forest resource through more balanced forest extraction and management;
better sources of financing;
More attention to the full productive chain and elimination of unncessary costs or inefficiencies.
Monitoring the chain of custody for certification purposes.

In 1992, the country's forest and agricultural legislation was modified to eliminate industrial concessions and ensure the rights of private forest landholders, but it limited the scale of community concessions (of which only a limited number remained) exempt from public timber auctions to operations of 1000 m3 per year. This has, in turn, limited the expansion of COATLAHL as it is not profitable to purchase auctioned timber. COATLAHL produces high-quality sawnwood and, more recently, specialty wood for the certified European market. Some AMIs also produce rustic furniture from sawn by-products.

Source: del Gatto et al. 2006

## Obstacles and barriers to CFEs

**Table 12 summarizes the obstacles and constraints that have hindered the development of the case-study CFEs.**

***Market-related***

In many cases, participation by the poor in forest markets is constrained by underlying market weaknesses: physical isolation, the low commercial value of forests, high transport costs, or highly fragmented markets with high transaction costs. With the increasing consolidation of forest companies, large-scale buyers can manipulate the market to the disadvantage of weaker suppliers, and large vertically-integrated producers can set up un-scalable barriers to new entrants in the market.

A number of market barriers must be overcome for CFEs to be successful. Efforts are needed to reduce forest market monopoly buyer and seller control and to diversify the pool of market intermediaries. For example, the use of "tied" credit deals that oblige local producers to sell to individual private traders often consolidates control and market power in the hands of the buyer. Local producers harvesting in public forests should be free to sell to any buyer and should not be restricted to selling to a forest agency monopoly. Agencies should not be allowed to sell the right to collect NWFPs from public forests. Minimal volume rules for bidding on forest concessions or purchase should be lowered or dropped, as should minimum area limits for participation in forest development and conservation projects. National trade policies commonly disadvantage community forest producers. For example, Indonesian policy-makers earlier imposed high export taxes on both sawn timber and logs to promote domestic wood processing, harming millions of rubber farmers who sell rubberwood (ASB 2001).

To level the playing field for low-income local producers, discriminatory tax, fee, royalty, and subsidy systems often need to be reformed. Forest and other agencies can devise alternative revenue strategies that streamline collection costs, are more equitable, and do not disrupt economic activity (Landell-Mills and Ford 1999). In forest revenue structures, it is important not to front-load permits; more money may be raised by back-end taxation, as is done in most other economic sectors, which would be fairer to local and low-income producers. Stumpage fees for wood from public forests should be set to reflect real values so that such wood does not out-compete wood from privately owned forests. Subsidies for forest plantations should also be designed in a non-discriminatory fashion. Comprehensive reforms to encourage local participation in forest product markets are under way in a few countries, such as Bolivia (Box 4). Reform has been made easier by the fact that many governments have developed lucrative alternative sources of revenue, such as wholesale and retail market taxes.

Market barriers documented in the case studies include:

- lack of minimum infrastructure for the transport of products to market (Bolivia, Papua New Guinea, Mexico, Cameroon, Nepal);
- lack of credibility with investors or buyers, leading to expensive intermediation;

- limited ability of emerging enterprises to meet demand for quality and quantity of products (Papua New Guinea, China);
- limited markets for the broader range of timber species in tropical landscapes, including LKS (Sociedad Maya, Guatemela, Bolivia, Brazil);
- lack of financing for forestry planning and technical support (Cameroon);
- frequent changes in supply, lowering prices cyclically or permanently; and
- changing buyer demands.

**Box 15: Internal constraints on community forestry in Cameroon**

The Association of Balagbo, Pa'a and Bamouh Families of Ngola-Achip is a confederation of four villages in eastern Cameroon. The Association has rights to 4200 ha. of community forest, and the organization is governed by a select group of villagers in the Association Bureau or Governing Board. Nominally, all villages and individuals have equal access to the forests under the Association's constitution, and the Cameroonian government has made significant progress in decentralizing forest management to local actors through a series of forest policy reforms. However, significant obstacles to continuing growth and CFE success exist, largely due to internal conflict and constraints on CFE operations.

The most significant problem with the new regulatory structures implemented by Cameroon's forest policy reforms is that the new structures do not capitalize on existing traditional leadership roles in the village (ie village chief, village elders.) The new regulations cause a distortion of traditional institutions and relationships within the villages, and create a new village elite among the managers of the lucrative community forestry concessions. Though the bureau members in charge of the Association are officially elected, they cannot make decisions that go against the wishes of the village elites. When the bureau tries to make decisions that do not suit the interests and aspirations of the elite managers, the elites exercise their power and influence with the government to stall and block decisions or revoke concessions and permits for the community as a whole. Internal conflicts in the past have resulted in a suspension of community forest status for six months – a devastating situation for the community.

The villages also suffer from internal conflicts between generations; the youth in the community are bitter about the elders usurping control and then poorly managing the community forest and forest concessions. The primary forest product in these villages is timber, but the communities lack the necessary technical infrastructure to carry out harvesting themselves, so they contract with outside companies. This further removal from independent community management also leads to corruption within community governance and financial mis-management. Though vast, these problems are not insurmountable, and these internal conflicts could be addressed with careful and appropriate governance mechanisms within the Association.

Source: Angu Angu 2006; Subedi 2002

**Table 11: Obstacles to and constraints on CFE development**

| Country | Case study | Market barriers | Internal barriers | Regulatory barriers |
|---|---|---|---|---|
| Mexico | Santa Catarina Ixtepeji | Lack of markets for certified products | Rotation of CFE managers leads to lag time in new learning curve, but also creates sensitivity | Complex forest management planning rules |
| Mexico | Sociedad Sur | Small market for LKS; changing market standards for mahogany; competition from mahogany substitutes | *Ejido* conflicts have led to subdivision in work groups, reducing collective investment and returns | Expensive cost of forest management plans; tax filing rules for SMEs; lack of recognition of subdivisions of work groups |
| Mexico | El Balcón | Seasonal products | Unemployment in the rainy season | Complex FMP rules |
| Guatemala | Carmelita | Limited markets for LKS; high certification cost unless group-certified | Limited technical, managerial capacity, change in cooperative board slows processes, limited quality controls, employment generated for only some members | Concession period not secure past 25 years, private lands have only usufruct rights, certification can be an impractical burden, national protected-area authority has discretionary powers vis-à-vis community |
| Guatemala | Arbol Verde | Same as above | Same as above | Same as above |
| Honduras | COATLAHL | Limited market for LKS; | Competition from illegal logging; incipient settler organizations.; limited training opportunities | Limited area assigned to AMIs; instability policies; complex forest management planning rules |
| Colombia | San Nicolás | High cost of transactions relative to other possible actors | N/A | No local voice in the CDM and other schemes |
| Brazil | Mamirauá | Transport costs, vulnerability to floods, damaged roads | High illiteracy rates, lack of management skills | Complex forest management plan, inadequate legislation |
| Brazil | Manicoré | Seasonal demand, high transportation costs, wholesale buyers monopolize markets | Power disputes, distance between association members limits communication, concentrated decision-making process (fewer participants) | Multiple required permits are difficult to obtain and require complicated bureaucratic maneuvering through different offices throughout the state, process is poorly explained and information is inaccessible |
| Bolivia | AGROFORT | Transport costs and competition from illegal logging | Lack of skills, poor access to capital, limited negotiating skills | Ill-suited forest management plan process; ban of chainsaws favors illegal logging |

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| Cameroon | Ngola-Achip | Transport costs are high and access is difficult and there is a limited labour market; limited buyers to remote area | Lack of knowledge of rights and options; poor negotiating skills; steep learning curve in organization | Inefficient bureaucracy and legislative support; artificial criteria in law for size and structure of CFE |
| Gambia | Bulanjor Village | Transport costs; poor market access | Poor planning skills | Complex FMP plan |
| Tanzania | Amani Butterfly Group, Tanga Region | Highly seasonal demand (northern hemisphere summer), rapid transport is critical and sensitive, security | Difficulty in achieving managerial self-sufficiency (relationship with NGO), potentially risky transition to independence, lack of business skills, internal gender/power conflicts | Delays in legal authorization of village and community forestry reserves; access to private and public reserves regulated by almost exclusively informal agreements |
| China | PingShang Bamboo Group, Guizhou Province | Limited access to wider (non-local) markets | Poor location of processing machinery, bottlenecks in production (finishing machines under-utilized), informal membership structure | Ambiguous land and resource rights, uncertain ownership results in unmanaged resources, daunting bureaucracy |
| Nepal | Chaubas-Bhumlu Sawmill | Irregular supply, small market for finished goods, heavy tax burden | Elite capture | 1999 Environment Day decree forbade green tree felling; government trying to regain control of forest user group resources |
| Nepal | Bel Juice Enterprise | Bureaucratic hurdles imposed by government during transportation; competition from large companies | Lack of long-term business planning; low entrepreneurial knowledge | Business permits difficult to obtain; bureaucracy encourages bribery |
| India | Adilabad District, Andhra Pradesh | Transport cost, poor transportation infrastructure | Lack of market information; lack of credit and knowledge to obtain financing; lack of business experience | Joint forest management does not provide assured long-term rights to communities |
| Philippines | Ngan Panansalan Pagsabangan Forest | Unstable supply leads to erratic sales | Limited alternative sources of livelihood | Lengthy certification process; lack of government policy support |
| Papa New Guinea | Madang | Transport and access | Conflicts over the division of profits | Lack of government policy support |

***Policy and regulatory factors***

CFEs often operate in an inherently contradictory context. On the one hand, governments in many tropical producer countries have invested considerable resources in supporting local participation in forest management as part of a more rights-based approach to the sector and a trend towards decentralized government responsibilities, including those for natural resource management. Programs and funds have been invested in promoting and supporting CFEs and forest laws and regulations have been adjusted to foster local participation in forest management and enterprise. On the other hand, the forest sector continues to be one of the most regulated sectors, with an historical carry-over of regulations geared to a different scale of operation than CFEs and to a different set of behaviours requiring controls or disincentives. All of the case studies document the struggle by the CFEs to develop their enterprises in a context of incomplete policy reforms and/or inappropriate or counterproductive regulations.

Governments widely subsidize or provide privileged access to large-scale producers and processors, establish market rules that especially burden small-scale producers, set price policies that under-value the forest resource, establish official buyer monopolies, create artificial incentives for outside actors to clear local forests, and set excessive taxes and forest agency service charges.

Apart from Mexico and Bolivia, where the forest legislation clearly recognizes the authority of indigenous communities, *ejido* collectives and producer associations over decisions regarding the nature of the enterprise and the organizing principles to be applied to its administration and decision-making, in most CFE cases, governance rules are imposing administration or forest management decision-making to foster "good practice", regardless of whether these rules are practical. For example, cases include predetermining the structure of the governing body for managing the forest (forest user groups in Nepal, CFCs in the Gambia), mandating membership in decision-making committees (women and marginal ethnic populations to be included), and imposing government officials into community structure (forest department as technical secretary of Joint Forest Management committees in India), rather than fostering learning or genuine co-management.

Markets for ecosystem services pose special challenges for policy makers and regulators. Markets that have evolved voluntarily or in response to international conventions have concentrated transactions in wealthier countries and where there is more stable governance. Scale is important, as is risk. CFEs have been advantaged for ecosystem services that only they can supply (water flow and quality in specific catchments or high-priority biodiversity on their lands) or as an extension of their existing activities. Government policies therefore need to ensure forest tenancy and safeguard tenure and resource access rights so that markets are rewards for services, not new claims on the resource base. Since markets favour communities with strong institutional structures, there is further reason for regulators to ensure they are not mandating set types of organizational structures that in fact are not socially compatible or resilient through their development over time.

**Box 16: External constraints on community forestry: policy and market regulation obstacles in the Philippines**

The Ngan Panansalan Pagsabangan Forest Resources Development Cooperative (NPPFRDC) of Compostela Valley is a community forestry initiative based on natural forests and tree plantations in the Philippines. With 324 members and control over 14,800 ha, the NPPFRDC has had community forestry status since 1996. There are 1051 households dependent on the cooperative, which engages in both timber harvesting and lumber processing. The NPPFRDC is a pioneer for the forest certification it received through SmartWood in 2000. However, the enterprise has suffered significant setbacks due to high transaction costs for certification and permits, and restrictive forest policy.

Though a progressive concept, in practice timber certification has been an additional cost to CFEs like NPPFRDC that ultimately does not produce adequate dividends to merit the extra expenditure. Most importantly, the enterprise does not have access to markets for certified wood. Further, there is a lack of supporting policy and institutional structure on the regulatory side to warrant the additional investment of time and resources necessary for certification.

NPPFRDC has also encountered regulatory obstacles produced by the Philippine government's policy on forest enterprises. The cooperative must pay high transaction costs for permits and regulatory requirements and also a relatively high rate of tax on forest activities to the government, which amounted to PhP 7M between 1997 and 2004. The national coordination of required Resource Use Plans has restricted enterprise progress and negatively affected community welfare and forest rehabilitation activities. NPFFRDC must operate under an unstable and restrictive forest policy that tends to micromanage community enterprises while providing only weak institutional support. In the Philippines environment, where alternative sources of livelihoods are scarce, CFEs like NPFFRDC suffer decreased economic returns and organizational pressures from these policies. The future success or failure of CFEs in the Philippines depends on the creation of a more stable policy environment. Necessary policy reform would include more responsible decentralization that returns ultimate resource and decision-making rights to communities, improved institutional support systems for community enterprises, and an institutionalized certification process consistent with national regulatory requirements for community forestry.

Source: Pulhin and Ramirez 2006

### Enabling conditions

A number of issues are common to almost all the case studies, including those seeking ecosystem service payments or market schemes.

Tenure security and access to products:

- the importance of secure tenure rights over land and forest products (Mexico, Colombia);
- negative impacts of changing policies or incomplete tenure reforms (Honduras, Cameroon, Gambia); and
- artificial limits on CFE access to forest area or allowable cut which undermines viability or future expansion of the CFE (Cameroon, Honduras).

Policy and regulatory frameworks:

- negative impact of unfavorable taxation and regulatory frameworks for production and marketing (Philippines);

- risk of imposing artificial or overly demanding rules for management plans, monitoring or organizational structure to CFE forests (Cameroon, Nepal, Tanzania);
- the high transaction costs attached to specific regulations, particularly on marketing, and the likelihood of regulations fostering corruption (Nepal, Honduras);
- the high cost of forest management plans and/or onerous procedures for their submission and approval (Bolivia, Nepal and Philippines);
- the high cost and delays of transactions for permits and other bureaucratic requirements (Nepal); and
- limited market information and technical and business services for CFEs in general.

Consistency of development policy in other sectors:

- direct and indirect subsidies to industrial-scale operations that undermine price structure (ie road-building, planting subsidies, or tax breaks);
- the need for regulations that acknowledge the multiple stream of products and services and therefore very different economic and financial parameters of a successful community enterprise and the need to avoid taxes or rules that limit profitability in the value chain, future earnings or additional benefit creation (Mexico, India); and
- rules of association or governance that hinder the operation of the CFE either established in forest-sector policy or in rules for SMEs (Gambia, Cameroon, Mexico).

**Box 17: Mamirauá Community Timber Enterprise in the Várzea flood region of the Amazon**

A successful CFE intervention in the Brazilian Amazon is the Mamirauá Community Timber Enterprise, which have been promoted over a long period of time with the assistance of the Mamirauá Sustainable Development Institute. While Mamirauá is an area of high biodiversity and a complex ecology around the annual forest flood cycle, the area has long been under pressure from illegal and unsustainable logging activities. The inhabitants of local settlements have extracted timber from the flooded forests traditionally but in a precarious cycle, in which buyers extended food, goods and credit in advance of the harvesting season to local loggers but paid very marginal prices for the timber in return. Learning from a long, mixed experience of intervention in the region, the MISD was able to implement a highly participatory process of engagement with the local settlements and, based on a participatory and low impact forest management planning methodology, organized the loggers into production groups by settlement, parcelling lots for sustainable logging by group. MISD assisted the logging groups with financing so that they would have the cash flow needed to negotiate better prices with traders and share knowledge about the market options.

Over the past decade, the settlement-based enterprises have organized into a series of associations to comply with legal requirements for harvesting, each association harvesting within an area of about 4000 ha with a maximum of 5 trees per ha, including the raft trees for floating the logs downstream. Associations have developed strong internal rules and management regulations, are learning careful accounting, and are adapting management plans according to their local knowledge and new techniques.

Source: Pires 2006

## CHAPTER IV: LESSONS LEARNED AND RECOMMENDATIONS

### Lessons learned

This study has identified a changing political and market context within which CFEs are emerging and maturing, with far-reaching implications for the shape of the forest sector in ITTO tropical member countries. The structure of market demand has changed with growing trade in wood and non-wood products and ecosystem services. Demand has increased dramatically in the emerging economies with rising domestic consumption, and a new set of goods and services has gained market share domestically as well as due to changing taste in international markets. The larger processing industry is relying increasingly on plantations to supply raw material for wood and non-wood products. Natural forest managers and SMEs face increasing competition from plantations and wood-substitute products.

Tenure over the forest estate is shifting dramatically as well, with a large portion of tropical forests already under indigenous and/or community tenure or in transition. The non-wood forest products market is poorly understood. It is known to be huge and diverse, and many products have limited commercial potential as a significant source of income. Statistics are available for only a small subset of non-traditional wood products and NWFPs—perhaps 6,000 of the 30,000 or more harvested commercially in the ITTO producer countries—and are not collected consistently across countries. Markets for ecosystem services are proliferating, with a myriad set of arrangements for watershed and water services and biodiversity and new arrangements for carbon sequestration trading, posing both threats and opportunities. The rules are still being formulated, and how these markets are defined will have a major impact on the role of CFEs within them. In principle, markets for ecosystem services could be good mechanisms for capturing some of the non-economic or less tangible values of CFEs in terms of environmental goods and services and social well-being. CFEs have emerged as important and potentially major players within the forest marketplace. Many of the case studies document the emergence of CFEs as an outcome of support for community-based natural resource management (Nepal, India, Philippines, Mexico, Guatemala, Honduras, China). None of the examples existed prior to the 1980s, and most of the examples from Africa and Asia are quite recent (2000 onward). This is due to the recentness of policy reforms that provided communities and collective groups with access to forest trade and rights to engage directly in value-added processing activities. The potential scope of CFEs building simply on the potential documented in the case material is huge, as indicated in Table 13.

The potential exists, therefore, for a significant number of community forest enterprises to emerge and grow in the tropical, timber-producing countries where forest dependence and SMEs are a significant part of the forest economy. In fact, the situation is quite complex. In some countries, extensive experience exists of CFEs; in others, policy and regulatory environments have placed major barriers against their emergence. This makes it very difficult to assess the comparative or competitive advantage of CFEs and other private sector or joint arrangements. It is also difficult to separate problems of incipient enterprises and inherent problems that will limit CFE success. While the elasticity of markets and the

competitive edge of CFEs are certainly issues in all three types of enterprises—wood, non-wood and ecosystem service providers—there is evidence of an adaptability and creative innovation among existing CFEs that allow them to respond to new market challenges and options. CFEs can find it hard to compete in an undifferentiated market segment for commodity wood,, but there are clearly many niches with plenty of room to expand. Flexible CFEs exploring multiple products and markets can find many ways to succeed, even if large numbers of CFEs emerge under favourable policy and enabling conditions. Private-sector partnerships with CFEs will depend on secure tenure and use rights. CFEs would also have much greater chance to explore their comparative advantage were policies around plantation subsidies and infrastructure investments modified to recognize the potential of CFEs, rather than concentrated on large-scale commercial activity.

Where positive support for market information, technical training, business and organizational capacity building, horizontal exchange, and financing to fill gaps has been provided, a number of CFEs gained efficiency. Where this support was projectized, or provided without addressing underlying tenure and regulatory barriers, the picture was less positive.

**Table 12: Potential area for CFE emergence and growth in the case-study regions**

| Country Case Study | Case-study area (ha) | Key mechanism(s) | Area of Similar Forest Resources/ Ownership Transition (ha) |
|---|---|---|---|
| Colombia: San Nicolás Forests | 20,000 | Peace Accords; Hydropower watershed basin | 400,000 |
| Mexico: El Balcón, Ixepeji, Sociedad Sur | 100,000 | *Ejidos*/communities with FMPs | 14,000,000 |
| Central America (Honduras, Guatemala) | 500,000 | Social forestry or community concessions | 3,000,000 |
| Amazon region (Brazil, Bolivia) | 100,000 | Indigenous territories, associations or extractive reserves | 30,000,000 |
| Nepal | 3,000 | Forest user groups | 1,000,000 |
| India (Andhra Pradesh) | 700,00 | Joint forest management, community forestry/agroforestry | 20,000,000 |
| West/Central Africa (Cameroon, Gambia) | 53,000 | Village forests | 4,200,000 |
| East Africa (Tanzania) | 2000 | Village forest reserves and joint forest management | 3,342,000 |
| China (Guizhou Province) | 300 | Village bamboo forests | 4,000,000 |
| Philippines (NPPFRDC) | 10,000 | Community-based forest management areas | 1,570,000 |
| Papua New Guinea (MFROA) | 10,000 | Customary lands | 1,000,000 |
| TOTAL | 799,300 | | 82,512,000 |

Table 12 shows only part of the real potential, given the limited scope of the case studies. Only a fraction of those villages in the case study countries have been empowered to formally assume management responsibilities and/or to engage in commercial enterprises. In the cases of Gambia and Cameroon, for instance, 170,000 hectares (1995) and 4 million hectares (1995) have respectively been categorized as community forests, yet merely 13,000 ha in Gambia and 40,000 ha in Cameroon have government-approved handover plans enabling legal forest utilization. Ghana is engaged in a similar process. In Nepal and India, community-based forest management and joint forest management have been established in 1.4 million hectares and 18 million hectares respectively, yet support for establishing value-added enterprises in the form of legal permits, technical assistance or access to finance has been much more limited and recent. In terms of ecosystem service markets, those communities with a long social history, such as in South Asia, have a comparative advantage for buyers and may be perceived as a less risky organizational option.

Certainly, the success of existing or new CFEs is not guaranteed. As in Mexico, Nepal, Central America, Papua New Guinea and the Amazon, many CFEs will be unable to garner the needed internal social organization, develop the capacity to deliver quantity, quality or variety to the marketplace, or create the needed alliances with other CFEs or private-sector companies to establish a competitive niche or develop an appropriate business model. But experience indicates that many others will find a niche successfully.

Some of the important lessons learned from the case studies include:

- starting a CFE requires a strong commitment from CFE members to weather long processes of approvals, production and marketing problems and the social pains of organizational growth;
- illegal logging undermines price structures for forest products and acts as a disincentive for members to remain part of a "legal" organization. At the same time, it can be an important training ground for members who thereby learned about the wood and non-wood business and developed technical expertise;
- governments, policy and regulatory frameworks can be a major barrier to CFE emergence and growth, particularly when designed for industrial-scale operations or a small number of elites;
- international and non-governmental sector support for CFE development have been key in some cases to create political space for innovation and to weather instability in government policies towards SMEs and CFEs (Honduras, Philippines, Guatemala, Papua New Guinea);
- too much control by government or donor supporters can stifle capacity building in CFEs and limit their innovations and market adaptations;
- creative support institutions can foster self-sustaining, participatory enterprises while providing important information for technical and market decisions, and new product development;
- CFEs can generate a wide range of goods and services and in parallel contribute to diversification, assist rural livelihoods, foster biodiversity conservation, invest in social infrastructure, and support social and cultural well-being;
- as CFEs mature they tend to diversify to multiple income streams to create more employment and returns, and to address social issues that are hard to tackle early on;
- inclusion is a complex goal, and CFEs have mixed records on incorporating women and the very poor. However, many of the case studies fostered inclusivity as CFEs matured;
- sharing experiences among CFEs with similar product mixes and organizational types can be key to finding solutions to problems or identifying opportunities. This is particularly important for ecosystem services; and
- taxation at the point of extraction and some value-added taxes are counter-productive, reducing the overall economic returns at higher points in the value chain.

## Recommendations for enabling CFE emergence and growth

CFEs are extremely diverse, depending on the type and size of resource that they manage, the relationship of the enterprise to the economy of the region and to the community or communities, the range and type of forest products and market segment participation, and the individual history or cultural characteristics of the community(s) and enterprise. Organizational structure and types of decision-making and conflict resolution vary as well, depending on the economic, political or social importance of the CFE to the community members. Changes in market opportunities and in policies have a strong influence on these characteristics. Government, civil-society or private-sector support can be instrumental in the emergence or development of a viable and more equitable CFE or these interventions can distort and stifle a CFE's development. There are not two or three models of success,

and CFEs are dynamic, changing characteristics and structure over time. Success is not guaranteed, nor can it be reliably predicted by comparing CFEs in early stages of growth.

What is clear in the analysis of existing CFEs and the opportunities in the countries and forests where they have emerged is that enabling conditions—both internal community dynamics and external policies, regulations and available support—are very important in stifling or nurturing these business models. Second, a long time horizon and flexibility is necessary. The successful, long-standing CFEs presented in the case studies have emerged through a long organizational process, often weathering sizable shifts in market opportunities and demands and in policy and regulatory environments. Recent changes in the marketplace, both in domestic demand, new international niches, and burgeoning markets for ecosystem services provide new dynamics, but simultaneously expand the options for CFEs to improve their income streams while managing their resources for conservation and multiple goals.

**Some roles for producer country governments:**

- **Create enabling conditions for CFE growth at national and regional level**
- **Reduce regulatory barriers**
- **Secure tenure and use rights**
- **Promote business and technical support services**
- **Support CFE networking and market information**

The key recommendations of the analysis are that countries that have identified the potential for CFEs to manage important forest and agroforestry resources and participate in domestic and international markets for products and services should continue to create an enabling environment. Checks and balances need to be carefully selected in light of experience in country, in light of experience of CFEs in other ITTO producer countries, and in light of changing dynamics of the CFEs and marketplace. In most cases, this analysis has found more barriers than support, more restrictions on the size of the resource and the uses to which it can be put than too much lenience, and more imposition of models and structures than nurturing of internal processes of growth of the CFEs themselves. There is a tremendous potential to share lessons and knowledge among CFEs and a tremendous knowledge gap that many of the case studies document, even in countries and regions where a number of support programs are in place. Box XX shows some key ways for producer-country governments to nurture CFE development.

The potential is huge. But CFEs will need the space and time to find their niche. And support services that are sensitive to their unique needs and potential and which support their own associations for horizontal learning, market savvy and political voice.

The key recommendations overall are for governments and donors to foster a positive environment for CFEs by:

- reducing barriers for the creation and operation of CFEs in terms of secure tenure or access to forest resources, an appropriate level of regulation, flexibility in rules and incentive structures, elimination or reduction of taxation at lower levels in the productive and value chains, avoiding indirect subsidies to large-scale producers at the cost of SME competitiveness, and reduce costly processes and procedures, particularly delays in approvals;
- providing better information to CFEs on their market opportunities and the lessons of experience, financing exchanges of experience among CFEs, supporting their networks, improving the flow of market intelligence, and providing technical assistance for technical, organizational and business skills;
- supporting proposals by CFEs and their associations with direct finance, fostering an enterprise plan of development based on local analysis and processes and avoiding the creation of external business structures that are not appropriate to local conditions or cultural values;
- recognizing the broader goals and benefits of CFEs in serving economic, environmental and social and cultural objectives, and ensuring that economic analyses of the forest sector internalize these multiple benefit streams; and
- fostering clear rules of the game for company-community agreements, particularly a legal basis for agreements/contracts and a stable policy environment.

Activities that member governments could finance and support include:

- internal networking of CFEs horizontally and regionally;
- market analyses which identifies opportunities which can be disseminated to emerging CFEs;
- analyses of enabling regulatory frameworks and existing barriers to shape reform agendas;
- capitalization of growing CFEs and related technical assistance;
- business skills development and training, including opportunities for CFEs to visit private industry and SME operations of relevance;
- enhanced and more consistent participation of CFEs and their members in rule – setting for emerging markets (carbon, watershed services, ecotourism and biodiversity and certification). Some of the CFEs generate very positive conservation benefits in areas of high-conservation-value forests. In some cases, conservation is as effective as neighbouring protected areas.

Actions for the International Tropical Timber Council:

- support analyses of CFE tenure, forest management, enterprise structure, and potential role in the marketplace;
- privilege projects that support CFEs;
- promote exchanges among CFEs to transfer lessons and inform policy-makers;
- establish a new financial instrument to directly support CFEs and their associations; and
- host an international conference to disseminate findings.

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## ANNEX 1: TERMS OF REFERENCE AND METHODOLOGY

### CONSULTANCY ON ITTO STUDY AND INTERNATIONAL CONFERENCE ON FORESTS AND FOREST INDUSTRIES MANAGED BY INDIGENOUS AND OTHER LOCAL COMMUNITIES

### TERMS OF REFERENCE

1. Implement a study to review experiences of community-based forest industries in tropical countries. The study will:

(i) Report on the status of community-based forest industries in support of sustainable forest management in ITTO producer countries through reviewing relevant literature, including ITTO projects in this area;

(ii) Identify twenty communities experienced with community-based forest industries in ITTO producer countries and invite papers describing their experiences in developing community-based forest industries in one or more of the following areas: i) the production of timber and timber products; ii) production of non-timber forest products; and iii) forest environmental services;

(iii) Conduct field surveys of the development of community-based forest industries focusing on the production of timber and timber products as well as non-wood forest products such as bamboo and rattan) in selected ITTO producer countries;

(iv) Analyze and report on:

- Factors in the success of community-based forest industry development in the production of timber and timber products in selected ITTO producer countries.
- Common constraints to community-based forest industry development, in the production of timber and timber products and other products such as rattan and bamboo, in selected ITTO producer countries.
- Lessons that could be learned from other sectors with successful community-based industry development.

(v) Recommend strategies that ITTO could adopt to assist producer countries in promoting community-based forest industry development to support the sustainability of the tropical forest sector, including community-based forest management programmes;

(vi) Prepare and present for the consideration of the Committee on Forest Industry a preliminary report at its Thirty-sixth session (June 2005) and a final report at its Thirty-seventh session (November 2005); and

(vii) The final study report should take into consideration comments of the Committee and compile invited papers. A written report along with a print-ready CD-ROM shall be submitted.

2. Taking into account the results of (1) above and any other relevant information and data available, prepare a summary report (20-30 pages) on forests and forest industries managed by indigenous and other local communities, with emphasis on:

(i) Extent of community-managed forest and community forest industries, the range of forest/forest industry ownership arrangements and the socio-economic importance of community forest enterprises; and

(ii) Identification and assessment of policies, measures and other conditions promoting or constraining development of community-managed forests and community forest industries, with particular attention to land tenure, policy and other regulatory barriers/incentives to management and trade and their relationship to illegal logging and illegal trade.

3. Develop a methodology for simple case studies and reporting on forest and forest industries managed by local and indigenous communities. The methodology should enable the studies to cover basic information on the forests/enterprises, their operations and reasons for success or lack of development. A model format for a five-minute Power Point presentation for showcasing a community-based forest/forest industry should be developed.

# METHODOLOGY FOR SIMPLE CASE STUDIES OF COMMUNITY-BASED FOREST ENTERPRISES

## Introduction

There has been an increasing recognition by ITTO producer countries of the role of forests in supporting livelihoods, rural incomes, and its potential to reduce poverty. There are major shifts underway in policy thinking in the tropical, forested countries on the face of the forest industry and the models that are best suited to maximize SFM, meet consumption needs, and realize economic returns in the marketplace through forest product and service trade. In particular, small-scale enterprise makes up the majority of the forest industry and employment, and changing tenure and regulatory frameworks are providing these enterprises a more level playing field in the marketplace.

Specific goals of the ITTA renegotiated in January 2006 include:

> (a) Promoting better understanding of the contribution of non-timber forest products and environmental services to the sustainable management of tropical forests with the aim of enhancing the capacity of members to develop strategies to strengthen such contributions in the context of sustainable forest management, and cooperating with relevant institutions and processes to this end; and
>
> (b) Encouraging members to recognize the role of forest-dependent indigenous and local communities in achieving sustainable forest management and develop strategies to enhance the capacity of these communities to sustainably manage tropical timber producing forests;

Community-based forest enterprises have emerged as effective economic and multi-valued models of wood and non-wood forest production, but only over the last few decades, and in limited numbers because the bulk of the forest estate continued to be officially owned and controlled by the State. The presence of tenure and regulatory restrictions make it difficult for community forest enterprises to emerge or operate legally – two factors that challenge the study and understanding of CFEs, their comparative niche, their success or failure, or to identify the opportunities or barriers for their emergence and growth. Key questions for tropical producer countries are the ability of these enterprises to supply significant quantities of raw and processed material to the forest products industries and to efficiently supply forest services, including tourism, water flow and quality, or other ecosystem or global services.

## Rationale and Design of This Scoping Study

This scoping study has applied a methodology to analyze the emerging community-based forest enterprises so that enterprises can be compared across regions and countries and so that the benefits, returns, and limitations of these enterprises can be understood in the multi-dimensional context of their social, environmental and economic returns. Studies have shown that CFEs are different from private firms. "CFEs have unusual institutional features that force a reconsideration of theories of the firm, unique management tensions, varieties of

possible institutional arrangements governing stocks, and flows of the natural resource, and may have special importance in delivering economic equity, and environmental protection" (Antinori and Bray, 2005).

The scoping study has therefore analyzed CFEs along a range of dimensions—economic, environmental, institutional, and social/cultural—and attempted to capture benefit streams and economic returns which encompass the multiple dimensions, goals, and activities of specific CFEs. It has analyzed both internal and external limitations, and analyzed best practices to identify lessons learned for policy, tenure and regulatory reform and to design appropriate technical and business support. It has also analyzed the horizontal linkages among CFEs and with private industry, as well as vertical linkages in second and third tier organizations or within a production or marketing chain.

The universe of enterprises included the scoping study are formal or informal enterprises of groups of producers at the level of a community or group of communities or a community-based organization which owns or administers the forest resource upon which their enterprise is based. Economic activities of the enterprise can include production, processing and/or marketing of timber, wood, or non-wood forest products or ecosystem services. The universe has excluded farm forestry, government or private industry outgrower schemes on agricultural lands, and household-based or cooperative forest enterprises by individuals or communities with no ownership or management of forest resources.

Scoping of secondary literature included a review of recent literature of international and national and sub-national research institutions, building on information gathered by Forest Trends and partners on making markets work for low-income producers, global trends in markets and payments for ecosystem services, global trends in community conservation, and global trends in timber supply and demand. Literature from extended research projects on timber and non-timber forest products commercialization and trade (e.g. ITTO, IIED, CIFOR, IUCN, FAO, ICRAF) was reviewed, along with literature on community conservation, adaptive co-management, integrated conservation and development projects, and community forestry (e.g. IUCN, CIFOR, WRI, Winrock, RECOFTC).

**Case Study Selection Criteria**

Case studies were selected from Latin America, Asia, and Africa to present a range of possible models for successful CFEs. The sample was heavily weighted to Latin America, where tenure and policy reforms have created conditions for the emergence of a significant number of CFEs, and included examples from Asia and Africa. Given the limited tenure transfers thus far in Africa in the ITTO Tropical Producer countries, two of the three case studies included non-ITTO producers countries (Gambia and Tanzania), one by FAO of enterprises emerging from the Market Analysis and Development methodology and the other highlighting the limitations that community forestry reforms have had in fostering a climate for CFE emergence and growth, in contradiction to assumptions in the CFM literature. Joint forest management in India and Africa was not sampled, as the government does not transfer responsibility or administrative control to the communities concerned to enable enterprises to emerge.

This scoping study adopted the following criteria and would recommend its use in the future.

1. Privilege selection of enterprises with a minimum of 5-10 years experience with production, processing, and or marketing.
2. Based in an ITTO producer country in Africa, Asia and the island states or Latin America, or be an enterprise model with a high degree of relevance for CFE's or policy in those countries.
3. Sample to include a range of tenure arrangements in the forest:
    a. full ownership, including ancestral domain,
    b. joint forest management with local, regional or national government
    c. co-management arrangements in areas of high biodiversity (reserves)
    d. customary tenure arrangements with usufruct rights
    e. private lands managed through cooperative arrangements, in some cases customary authorities.
4. Sample to include a range of ethnically homogenous, distinct minorities as well as complex, hierarchical and multi-ethnic communities and associations
5. Sample to include raw material producers as well as vertical integration to processing, grading, and trading of timber, wood and non-wood products
6. Case should have secondary data available on economic and financial dimensions of the enterprise, social cultural dimensions and relationships between enterprise and ecosystem management and valuation.

**Data collection and analysis**

The data collected for each case covered the basic information on forest enterprises, their operations and reasons for success or lack of development. The information collected from each case follows. This format was also used for organization of the five minute Power Point presentation.

1. Economic and financial data on enterprise operations
    - production volumes, and cost structure
    - profitability and risk management
    - market participation and buyer-seller relationships
    - employment generation and skills
    - enterprise vertical or horizontal integration
    - enterprise diversification and new markets –links to agriculture
    - creative use of technology to solve scale, documentation or distance problems
2. Relationship to subsistence, livelihoods, local economy
3. Skills and knowledge building
4. Impact on environment and ecosystem services and values and resource base
5. Impact on cultural and social dimensions, political capital formation
6. Market participation, competitive advantage, niche markets
7. Barriers and constraints
    - internal and biophysical
    - policy-within and outside the sector
    - regulatory-procedures and application of regulations

    - market-monopsonies
8. Challenges for the future
    - Competitive advantage in marketplace and for forest conservation
    - Policy and regulatory enabling environment
    - Lessons for growth with equity
    - Intergenerational succession planning; risk management
    - Asset creation and diversification

**METHODOLOGY FOR SIMPLE CASE STUDIES OF COMMUNITY-BASED FOREST ENTERPRISES (CFES) AND REPORTING ON FOREST AND FOREST INDUSTRIES MANAGED BY LOCAL AND INDIGENOUS COMMUNITIES**

## Template for Reporting Simple Case Studies

I. **Selection Criteria:**

Recommended future criteria for selecting case studies

a. Privilege selection of enterprises with a minimum of 5-10 years experience with production, processing and/or marketing
b. Based in an ITTO-producer country in Africa, Asia and the island states or Latin America, or be an enterprise model with a high degree of relevance for CFEs or policy in those countries
c. Include a range of tenure arrangements in the forest, including:
    i. Full ownership, including ancestral domain
    ii. Joint forest management (JFM) with local, regional or national government
    iii. Co-management arrangements in areas of high biodiversity (reserves)
    iv. Customary tenure arrangements with usufruct rights
    v. Private lands managed through cooperative arrangements, in some cases customary authorities
d. Include a range of community enterprise structures, including:
    i. Community forestry enterprises
    ii. Community-company partnerships
    iii. Outgrower schemes with a collective dimension
e. Include a range of ethnically homogenous, distinct minorities as well as complex, hierarchical and multi-ethnic communities and associations
f. Include raw material producers as well as vertical integration to processing, grading and trading o timber, wood and non-wood products
g. Cases should have secondary data available on economic and financial dimensions of the enterprise, social-cultural dimensions, and relationships between enterprise and ecosystem management and valuation.

**II. Data Collection & Analysis**

Data collection for each case should cover basic information on forest enterprises, their operations, and reasons for success or lack of development. Data should also be summarized in a five-minute Power Point presentation.

a. Provide economic and financial data on enterprise operation:
    i. Production volumes
    ii. Cost structures
    iii. Profitability and risk management
    iv. Market participation and buyer-seller relationships
    v. Employment generation and skills
    vi. Enterprise vertical or horizontal integration
    vii. Enterprise diversification and new markets – links to agriculture
    viii. Creative use of technology to solve scale, documentation or distance problems

b. Relationship to subsistence, livelihoods and local economy
c. Skills and knowledge building
d. Impact on environment and ecosystem services and values and resource base
e. Impact on cultural and social dimensions, political capital formation
f. Market participation, competitive advantage, niche markets
g. Barriers and constraints : internal and biophysical, policy – within and outside the sector, regulatory procedures and application of regulations, market monopsonies
h. Challenges for the future:
    i. Competitive advantage in marketplace and for forest conservation
    ii. Policy and regulatory enabling environment
    iii. Lessons for growth with equity
    iv. Intergenerational succession planning: risk management
    v. Asset creation and diversification

**General Information**
How long has the enterprise been in existence? How much experience do enterprise members have in production, processing, and/or marketing?

Where is this enterprise based? Why does the location or enterprise model merit particular attention?

What are the forest tenure arrangements for the local people and enterprise members involved in this case study?

Classify the community enterprise structure. (Community Forest Enterprise, Community-Company Partnership, Outgrower Scheme with a Collective Dimension)

Explain the community type and structure of the community involved in this case study.

What form of forest industry do community members and local peoples in this case study engage in?

Is secondary data available on:

economic and financial dimensions of the enterprise?

social and cultural dimensions of the enterprise?

relationships between the enterprise and ecosystem management and valuation?

**Data Collection & Analysis**
<u>Economic and financial data on enterprise operation</u>
What are production volumes for the enterprise?

Explain cost structures.

Explain profitability of the enterprise and how the enterprise members approach risk management.

How does the enterprise engage in market participation? Characterize buyer-seller relationships.

How does the enterprise generate employment in the community? How does involvement in the enterprise or forest industry develop skill-sets for community members?

Is the enterprise organized around primary collection or extraction and sale or vertically-integrated with value-added processing?

Does the enterprise diversify existing forest industry activities and open local enterprise to new markets?

How does the enterprise or community make creative use of technology or traditional knowledge or practice to solve scale, documentation or distance problems?

Other enterprise data and analysis

What relationships are there between the enterprise and local subsistence, local livelihoods, cultural values, and the local economy?

Explain skills and knowledge building that result from enterprise involvement. How does this relate to traditional knowledge?

Explain enterprise impact on the environment, ecosystem services, ecosystem values, and the local resource base. Mention any available data documenting impacts on forest quality, ecosystem health, or biodiversity.

Explain enterprise impact on cultural and social dimensions and political capital formation.

Explain aspects of enterprise market involvement: market participation, competitive advantage, and niche markets.

Explain barriers and constraints to success, including but not limited to:
internal and biophysical constraints, policy constraints within the forest sector, general national, regional or local government imposed policy restraints, inappropriate or cost-heavy regulatory procedures, inequitable or misapplication of regulations, and market monopsonies.

Reflect on challenges for the future, including but not limited to: competitive advantage in the marketplace, competitive advantage for forest conservation, policy and regulatory enabling environment, lessons for growth with equity, intergenerational succession planning and risk management, asset creation and diversification.

# ANNEX 2: FIELD SURVEY OF COMMUNITY FORESTRY OPERATIONS IN MEXICO, WITH OAXACA DATA

**Extracted from survey report by Camille Antinori and case study by Peter Wilhusen**

**September 2005**

## Introduction

This annex presents detailed production statistics on community organizations with commercial timber operations in Oaxaca within a national context. The annex also provides country background on the forest resource, tenure and legal framework, community forest management, and national data on market participation and production, It then presents an unusually complete set of case data from one of the most active community forestry states, Oaxaca, in that context. Mexico provides an important sample for analyzing trends and potential of community forestry enterprises (CFEs) given the large number of community enterprises, their diversity, and long history. The data was collected in the 1998-1999 period as the basis for a dissertation research project on the contract relationships and industrial organization of these operations. The same author has been involved in a comprehensive review of the status of community forestry in Mexico, drawing upon this and other databases. The degree of vertical integration is used as the organizing principle, one that is convenient in Mexico to categorize the communities in terms of point along the production chain. Oaxaca data includes basic resources and geographic location of the communities under study, production levels, asset ownership, financing opportunities, and contracting relationships.

## Country Background

In Mexico, the structure of land tenure and resource use rights essentially obligates a community-based approach given that agrarian reform land grants—ejidos and indigenous communities—occupy approximately one-half of national territory (INEGI and Mexico 1988.). The term "ejido" refers to both the physical location (geographical dimension) and the community of beneficiaries or holders of rights (institutional dimension). These beneficiaries or ejidatarios enjoy usufruct resource use rights and are widely recognized as the de facto property owners although natural resources on ejido lands such as forests or minerals belong to the state. Most ejidos are divided into collective use lands (forests, pastures) and individually cultivated arable lands or plots (parcelas).(Wilshusen 2005)

Forests and associated vegetation types cover almost 142 million hectares in Mexico or about 72 percent of the nation's territory. Approximately 41 percent of this total land cover corresponds to arid and semi-arid ecosystems such as scrublands, deserts and grasslands while another 21.5 percent comprises temperate forests. Mexico's tropical forests, including evergreen, semi-evergreen and deciduous associations, total 26.4 million hectares (18.6 percent). The evergreen and semi-evergreen forest types cover 5.8 million hectares, primarily in the states of Campeche, Quintana Roo, Chiapas, and Oaxaca. Tropical deciduous types spread across 10.9 million hectares of coastal plains along the Pacific coast, the Isthmus of Tehuantepec and the northern part of the Yucatán Peninsula. Another 9.7 million hectares of mangrove, palm, savanna, and gallery forests appear primarily in coastal areas as well as on the Yucatán Peninsula (SARH 1994).

The 1994 National Forest Inventory counted 21 million hectares of closed canopy forests (37 percent of the total area) as having commercial potential with one third (7 million ha.) under active management, yielding an average of 7.4 million cubic meters of wood products between 1990 and 1999.1 In terms of standing volume, just over 65 percent constituted coniferous and broadleaf temperate forests while close to 35 percent corresponded to evergreen and deciduous tropical forests. Over 80 percent of all wood harvested consisted of pine from states such as Chihuahua, Durango, and Michoacán (SEMARNAT 2000; SARH 1994). Estimates suggest that average annual productivity per hectare for Mexican commercial forests stands at 1.3 m3, which is 3.5 times and 2.3 times less than averages reported for the U.S. and Canada respectively(Segura 1997)

**Forest Production and Forest Values**

The estimated gross value of all wood products was 3.7 billion pesos (US$ 408 million) in 1998 and 4.3 billion pesos (US$ 476 million) in 1999 (SEMARNAP 1999, SEMARNAT 2000).(SEMARNAT 2000, 1999) The potential and real values of non-timber forest products, non-consumptive uses such as ecotourism, and environmental services like watershed protection and carbon sequestration have received only limited attention in forest policy circles. Studies by the World Bank and others from the mid 1990s conservatively estimated that Mexico's forests could be worth approximately US$ 4 billion annually (Adger et al. 1995, World Bank 1995).

The forestry sector contributes only a small percentage of Mexico's gross domestic product (GDP), which is dominated by oil production, tourism, services, and manufacturing. Throughout the 1990s, forestry—including both wood products and pulp and paper—held steady at between 1.2 and 1.4 percent of total gross national production. The sector presented a negative trade balance of almost 4.5 to 1 in 1998 due in large part to heavy reliance on imported pulp and paper. Mexico imported US$ 1.2 billion of cellulose products and exported only US$ 100 million over the course of that year (SEMARNAP 1999). Despite its small contribution to national GDP, the forestry sector represents a significant portion of rural economies in states like Durango, Chihuahua, Oaxaca, and Quintana Roo among others.

For temperate forests, the states of Durango and Chihuahua lead production, each with 25 percent of total pine cut in 1998. Michoacán follows with 15 percent while Oaxaca and Jalisco each harvested 9 percent of total pine. For tropical forests, Quintana Roo harvests more than a third of all mahogany and cedar in Mexico annually (33 percent in 1998), followed by Veracruz (20 percent), Tabasco (17 percent) and Campeche (10 percent) (SEMARNAP 1999)

In both temperate and tropical regions several community forestry enterprises have sought to enhance market competitiveness by certifying their timber management operations with

[1] Total forestry production for 1999, for example, included lumber (73.4 percent), pulp and paper (14.8 percent), paneling (4.1 percent) and other products such as postwood, firewood and charcoal (7.7 percent). During the decade from 1990-1999 total production dipped from 8.2 million cubic meters in 1990 to 6.3 million in 1995. Output has steadily increased since then with 8.3 and 8.5 million cubic meters in 1998 and 1999 respectively (SEMARNAT 2000).

the Forest Stewardship Council (FSC). As of May 2005, the FSC had certified 35 forestry operations in Mexico including twenty-nine *ejidos,* one community forestry association (UZACHI in Oaxaca), and 5 private enterprises for a total area of 617,676 hectares (FSC 2005)
.

**Forest Processing Industry and Production Efficiency.** Mexico's forestry sector realizes only a small percentage of the potential annual harvest in part because of its relatively small and inefficient processing industries (especially compared to the U.S. and Canada). As of 1997, there were a total of 3,497 secondary processing installations nationwide including 2,058 sawmills (mostly small-scale), 48 veneer and plywood factories, and 7 paper mills (SEMARNAT 2000). Most of these are located in the states of Michoacán, Durango and Chihuahua. According to production figures for that same year, Mexico's forest industry was only processing 60 percent of wood products relative to total installed capacity (sawmills at 56 percent and paper mills at 74 percent respectively). By one estimate, the average production capacity of Mexican sawmills is less that one fifth of an average medium-sized mill in Canada or the United States (Segura and Gerardo 1997).

## National Policy Environment

**Land and Resource Tenure.** Collectively held land grants known as *ejidos* form the foundation of community forestry in Mexico. An *ejido* is a uniquely Mexican form of communal land tenure that covers large portions of the rural landscape in many states (including Quintana Roo).[2] The *ejido* classification was the principal vehicle of agrarian reform that came out of the Mexican revolution (1910-20). Other forms of land tenure in Mexico include private property, national lands, and indigenous communal lands. While the *ejido* continues to form the "fabric" of rural regions in most Mexican states, a series of institutional reforms completed in 1992 changed core elements of agrarian law that pertain directly to community forestry.

**Institutional Reforms of 1992.** Beginning in the late 1980s, President Carlos Salinas de Gotari (1988-94) instituted fundamental constitutional and policy changes that transformed the agrarian sector. In addition to privatizing numerous state-owned corporations, the Salinas administration passed constitutional amendments and legislative revisions ending agrarian reform and changing the status of collectively held land grants (*ejidos*). The 1992 reforms changed the Agrarian Code such that *ejido* lands could be converted to private parcels and sold, rented, or used as collateral on the open market. Article 27 also stipulated that corporations could not own land in Mexico. The changes to the Constitution reversed this, allowing private enterprises—including foreign controlled interests—to own land and establish commercial partnerships with *ejidos* (Cornelius and Myhre 1998; Taylor 2000).

A subtle but important change to the Agrarian Code allowed for the creation of independent producer groups within an *ejido*, separate from the communal governance structure (see Articles 108-111). This became an important issue in some states, including the case study

[2] According to INEGI (1988), Mexico's rural landscape includes some 28,058 *ejidos* and indigenous communities. Collective property (*propiedad social*) comprises two forms: *ejidos* and *comunidades agrarias*. The latter form refers to indigenous communities. The two tenure designations are the same in most respects except inheritance of land-use rights. *Ejido* members (*ejidatarios*) must designate an heir while all men born and residing in indigenous communities enjoy resource access and use rights.

state of Quintana Roo, where the most prominent forestry *ejidos* experienced the formation of semi-autonomous sub-groups dedicated to harvesting, post-production, and sale of timber (discussed below). As a result, *ejido* authorities did not directly administer community forestry enterprises as in the past although forest commons continued to be managed under the same long-term management plan. Mexico's Forest Law was also reformulated in 1992 to generate economic growth including most notably promotion of private plantations, commercial partnerships between *ejidos* and private sector enterprises (including foreign corporations), privatization of forestry technical services and deregulation of harvesting, transport, and sale of wood products. Substantial revisions were made to the law in 1996-97, including a strengthened regulatory framework to combat illegal logging, clearer parameters for technical service providers, and increased financial support for producers.

Initially, public expenditures on plantations far surpassed support for natural forest management although outlays favored the latter under national programs PRODEPLAN, PROCYMAF and PRODEFOR started in 1999 (Table 3).

**Table 3: Public Expenditures for PRODEPLAN and PRODEFOR, 1997-2000**

| Program | Amount (million pesos) | | | |
|---|---|---|---|---|
| | 1997 | 1998 | 1999 | 2000[a] |
| PRODEPLAN | 141.0 | --[b] | 185.0 | 137.0 |
| PRODEFOR | 23.3 | 61.6 | 210.5[c] | 241.7 |
| *Total* | *164.3* | *61.6* | *395.5* | *378.7* |

Source: (SEMARNAP 2000); US$1 = +/- 10 pesos

[a] projected amounts.

[b] no public auction was held although payments for existing projects were made.

[c] assumes total payment of approved projects for that year (first installments had been made on two-thirds when report was issued).

**Community Forestry Enterprises in Mexico**

Since the early 1980s, when community forestry began to consolidate in regions throughout Mexico, a number of moderately successful enterprises have emerged, including those managed by several *ejidos* in Quintana Roo. The majority of communities with collectively managed forests still do not produce or sell wood products. A series of studies carried out in mid 1993 for the World Bank's *Forest Sector Review* (published in 1995) offers the most comprehensive assessment of community forestry nationally. These reports classified forest communities based on indicators such as degree of industrialization or organizational and management capacity. In terms of degree of industrialization, for example, (Madrid and Sergio 1993) estimated that, of the 7,200 *ejidos* and indigenous communities with forest resources, 5,100 (70.8 percent) were not involved in production, 1,000 (13.9 percent) sold their standing volume to sub-contractors, and only 150 (2.1 percent) had industrial production capacity. Regarding organizational and management capacity, the same report presented a survey of 1,348 forest communities and found that only four percent featured high organizational and management capacity. The assessment estimated that 27.5 percent of the communities had low capacity while 68.5 percent were classified as marginal (Madrid and Sergio 1993) see Table 4 for an explanation of these categories).

**Table 4: Classification of Forest Communities by Organizational and Management Capacity**

| State | # of Associations[a] | # of Communities[b] | Community Capacity[c] | | |
|---|---|---|---|---|---|
| | | | Type "A" (High) | Type "B" (Low) | Type "C" (Marginal) |
| Campeche | 2 | 105 | 0 | 7 | 98 |
| Chihuahua | 10 | 182 | 1 | 29 | 152 |
| Durango | 14 | 277 | 31 | 138 | 108 |
| Guerrero | 3 | 58 | 0 | 27 | 31 |
| Hidalgo | 2 | 39 | 0 | 0 | 39 |
| Jalisco | 6 | 118 | 0 | 27 | 91 |
| Michoacán | 12 | 206 | 3 | 27 | 176 |
| Nayarit | 2 | 33 | 0 | 0 | 33 |
| Oaxaca | 12 | 155 | 5 | 34 | 116 |
| Puebla | 6 | 55 | 4 | 41 | 10 |
| Quintana Roo | 4 | 45 | 4 | 33 | 8 |
| San Luís Potosí | 1 | 33 | 0 | 0 | 33 |
| Sinaloa | 1 | 21 | 0 | 0 | 21 |
| Tamaulípas | 1 | 8 | 0 | 0 | 8 |
| Veracruz | 1 | 13 | 5 | 8 | 0 |
| *Total* | *77* | *1,348* | *53* | *371* | *924* |

Source: Madrid (1993)

[a] Includes *ejido* unions, associations and other second tier organizations that represent and provide forestry technical services for communities. During the 1980s, the Mexican Forest Service created a special designation that included many of these associations as legal providers of technical services: "Conservation and Forest Development Units" (*Unidades de Conservación y Desarrollo Forestal* or UCODEFOs). The designation became obsolete once forestry technical services were privatized under the 1992 Forest Law.

[b] The number of forest communities includes only those linked to one of the associations.

[c] Type "A" communities have high organizational and management capacity and thus maintain or increase the standing volume and quality of their forest resources. Type "B" communities have low organizational and management capacity. They are able to maintain a logging operation with difficulties but not sustain standing volumes and forest quality over the long-term. Type "C" communities feature little or no organizational and management capacity. Internal dynamics are characterized by intense, often protracted, conflict as well as corruption. As a result they are unable to maintain a viable logging operation and often sell their standing volume to subcontractors. Their forest resources experience significant degradation. For a complete description of these classifications including indicators, see Madrid (1993).

Numerous factors contribute to the low productive, organizational and management capacity of most forest communities. Referring again to Madrid (1993), these included (1) inefficient technology and high operational costs, (2) low organizational capacity, (3) boundary disputes, (4) conflictive state-community relations, (5) degradation of forest resources, (6) deficient technical services, (7) lack of trained personnel, and (8) low product marketing capacity. Related assessments add to this list by pointing to limited access to credit and internal division into independent sub-groups as important challenges (Merino 1997).

**What is Community Forestry?**

The term has been applied relatively loosely to management systems with a large local presence and participation. For this study, the term community forestry can apply to a much sharper sense of the term, as Mexico has created a constitutional basis for what are a community and the membership and rules of meetings, voting and various civic offices associated with its agrarian policy, as a direct result of the Mexican Revolution of 1917. Both *ejidos* and *comunidades* are official communities under Mexican Law. A General Assembly consisting of each official member of the community has one vote, elects key offices like the Commissar for Public Goods (CBC, following the Spanish acronym), who oversees forest activity, and a Vigilance officer, who oversees territorial boundaries and oversees the CBC. All property is held by the community under a usufructory status from the state. Many communities have forest land. Some communities have forest land but where only individuals access the forest for their own use in a non-proprietary manner. Research on these communities is virtually non-existent.

Antinori and Bray (2005) offer a definition with slightly less emphasis on the exact role and role and capacity vis a vis the market for local forestry activities but also with a perspective on a community's place in economic development:

> [W]e venture a definition of a CFE as form of enterprise based on collective ownership or secured access to a forest resource by a community, with forms of enterprise governance derived from local community traditions, where tensions between direct "democratic" community control and hierarchical management structure are present, and which typically have multivariate objective functions with "profits" as only one of several goals. A CFE may be distinguished from traditional concepts of the firm by the unusual features of collective ownership, usually birth, and a common property natural resource but exhibit similar tensions of cooperative firms in determining the optimal balance of decision management and control between members and managers. As an economic development strategy, CFEs may be regarded as either a variant of corporate private property ("the community as entrepreneurial firm," (Antinori et al. 2000) or a "third way" between private and public sector production (Boyce and Shelley 2003)

**Oaxaca Field Survey**

Oaxaca is a state in southern Mexico with a large number of indigenous communities and indigenous and mixed ejidos with forest resources. Municipalities are quite small in rural Oaxaca, creating a political framework in which communities have considerable voice and autonomy.

A field survey was carried out in 1998-99, interviewing representatives of 44 community forestry operations in 7 of the 8 regions of Oaxaca, including the coastal belt, la Cañada, Sierra Norte and Sierra Sur. These represented mostly pine-oak forests, where pine was the commercial species, and the tropical species of the Isthmus and partly in the Costa. The following data refers to survey data collected from this set of communities. The chi-squared across regions is statistically significant, meaning that some regions, like the Sierra Norte and Sierra Sur have a significantly and systematically higher proportion of vertically integrated

enterprises. The reasons for this are in explored in detail in Antinori (2000) and Antinori and Rausser (2002). Econometric analysis in these studies suggests that historical experiences with the parastatal companies, or companies holding long term leases from the government for access to community forest lands, eventually motivated communities against the parastatal leases, and thus claiming more ownership over the production processes. In addition, having a sizeable amount of forest hectares and experience in the basic tasks of production (logging, milling) also increase the probability of a community integrating forward.

**Table 1. Oaxacan Regions of Study, by Vertical Integration Level**

| | Stumpage | Roundwood | Lumber | Secondary Products | Total |
|---|---|---|---|---|---|
| | (16) | (13) | (8) | (7) | |
| Cañada | 1 | 0 | 0 | 0 | 1 |
| Costa | 5 | 0 | 0 | 0 | 5 |
| Istmus | 0 | 2 | 1 | 0 | 3 |
| Mixteca | 4 | 0 | 0 | 0 | 4 |
| Sierra Norte | 1 | 4 | 4 | 5 | 14 |
| Sierra Sur | 4 | 4 | 2 | 1 | 11 |
| Valles Centrales | 1 | 3 | 1 | 1 | 6 |
| Total | 16 | 13 | 8 | 7 | 44 |

Chi-2 (18)= 30.42, Pr = 0.03

## Land Use

The management plans provided information on land use classifications for the entire community. Not all management plans denoted urban and agricultural areas, but of those that do, stumpage communities have the smallest average urban area, followed by the lumber communities, then roundwood and finished products groups. The stumpage communities are more agriculturally oriented, with a larger average agricultural land area despite smaller overall size of territory. The finished product enterprises have more land dedicated to reforestation efforts and tourist purposes than the others, while the lumber group has the largest average number of hectares under natural regeneration and below productive potential.

**Table 2. Land Classification By Type (Hectares)**

| | Mean | S.E. | percent Total Area |
|---|---|---|---|
| Total area | | | |
| Stumpage | 7952 | 1555 | |
| Roundwood | 48916 (14659 w/o outlier) | 33604 (4789 w/o outlier) | |
| Lumber | 15263 | 4745 | |
| Secondary products | 16713 | 4266 | |
| Forested area | | | |
| Stumpage | 2403 | 482 | 40 |
| Roundwood | 12208 (4922 w/o outlier) | 7168 (1204 w/o outlier) | 46 |
| Lumber | 7467 | 2126 | 54 |
| Secondary products | 11047 | 2827 | 83 |
| Harvestable forest area | | | |
| Stumpage | 1182 | 263 | 22 |
| Roundwood | 7667 (1994 w/o outlier) | 5528 (402 w/o outlier) | 24 |
| Lumber | 4195 | 1062 | 32 |
| Secondary products | 6138 | 1714 | 43 |
| Non-harvestable forest area | | | |
| Stumpage | 288 | 74 | 7 |
| Roundwood | 1588 | 724 | 12 |
| Lumber | 2148 | 1047 | 12 |
| Secondary products | 1458 | 662 | 14 |
| Protected area | | | |
| Stumpage | 627 | 314 | 7 |
| Roundwood | 3672 | 2103 | 14 |
| Lumber | 1247 | 650 | 10 |
| Secondary products | 3074 | 1879 | 21 |
| Reforestation area | | | |
| Stumpage | 1.88 | 1.84 | 0.02 |
| Roundwood | 17.85 | 6.57 | 0.32 |
| Lumber | 18.38 | 5.79 | 0.20 |
| Secondary products | 92.57 | 54.92 | 1.00 |
| Regeneration | | | |
| Stumpage | 261 | 249 | 3 |
| Roundwood | 209 | 135 | 2 |
| Lumber | 582 | 530 | 4 |
| Secondary products | 271 | 197 | 2 |
| Tourism zones | | | |
| Stumpage | 0 | 0 | 0 |
| Roundwood | 7.92 | 7.46 | 0.10 |
| Lumber | 4.88 | 4.61 | 0.02 |
| Secondary products | 16.14 | 13.77 | 0.40 |
| Urban zones | | | |
| Stumpage | 24.09 | 9.22 | 0.50 |
| Roundwood | 87.36 | 33.37 | 1 |
| Lumber | 60.36 | 20.90 | 1 |
| Secondary products | 126 | 45.61 | 1 |

**Production Data**

Pine is the main commercial species of Oaxaca, comprising over 90 percent of volume produced. The bulk of production is destined for sawmills (about 80 percent) with most of the remainder going for pulp One of the main consumers of pulp is the FAPATUX plant in Tuxtepec. It closed in 1993, causing the drop in production in 1994.
The large increase in 1997-98 during the time of the survey could possibly be due to the extensive fires in Oaxaca during that year and the subsequent increase in emergency sales.

**Table 3. Production, Oaxaca (m3 rollo)**

| | |
|---|---|
| 1989 | 573920 |
| 1990 | 432159 |
| 1991 | 559311 |
| 1992 | 582635 |
| 1993 | 516993 |
| 1994 | 430060 |
| 1995 | 405324 |
| 1996 | 463510 |
| 1997 | 478426 |
| 1998 | 667321 |

Source: Subsecretary of Forest and Selva-Wildlife, 1994; Anuario Estadistico del Estado de Oaxaca, 1996, 1997; Estadisticas del Sector Forestal, SEMARNAP, August 1999.

The average volumes of pine produced in the last harvest season before the survey (Table 4) show a large jump in the secondary products category, with this category making up almost half the total production. While pine is by the far the bulk of the harvest, one roundwood community produced cedar while one roundwood and one lumber community produced common tropical species.

**Table 4. Production Statistics for Sample Communities, m3 RTA**

| | **Species** | **N** | **Total** | **Mean** | **Standard Deviation** | **Min** | **Max** |
|---|---|---|---|---|---|---|---|
| *Vertical Integration Level* | | | | | | | |
| Stumpage | Pine | 16 | 45,080 | 2817 | 2864 | 0 | 12,571 |
| Roundwood | Pine | 11 | 52,413 | 4765 | 2796 | 800 | 8000 |
| | Cedar | 1 | 3143 | -- | -- | -- | -- |
| | Common Tropicals | 1 | 7480 | -- | -- | -- | -- |
| Lumber | Pine | 6 | 29,009 | 4835 | 4904 | 1000 | 11,383 |
| | Common Tropicals | 1 | 2639 | -- | -- | -- | -- |
| Lumber and secondary products | Pine | 7 | 111,221 | 15889 | 17,904 | 1731 | 50,000 |
| **Grand Total** | **All** | | **250,985** | **5837** | **8642** | **0** | **50,000** |

Using SEMARNAT's permit files, the actual volume harvested against the authorized volume for pine in the 1996-1997 cycle is a little less than half. Indeed, many of the communities' authorities indicated that their harvest was less than 100percent of the authorized level during their last harvest season (which may not have been 1996-1997). Of the communities that sell pine, the average percentage of the authorized volume cut is the

lowest for the roundwood communities, although no strong pattern (in the sense of statistical significance) across types emerges (Table 5). Where actual harvest is less than authorization level, the maximum cut was 88percent, so that communities either cut the full amount allowable under the law or fell short by a percentage greater than 10percent. Follow-up questions revealed that the onset of the rainy season was the reason most often cited, although this may mask other factors, such as lack of organization to complete the harvest in time.

**Table 5. Percentage of Authorized Volume Extracted**

| Vertical Integration Level | **Range** | **Average** |
|---|---|---|
| Stumpage, n=16 | 28-100 | 73percent |
| Roundwood, n=11 | 35-100 | 67percent |
| Lumber, n=8 | 23-100 | 70percent |
| Secondary Products, n=7 | 61-100 | 88percent |

All the stumpage communities reported that their clients were sawmills owners who would convert the timber into lumber, except for two communities where the timber was to go to a plywood fabrication. These last two communities received higher than average prices for the stumpage category as a whole. Roundwood communities reporting prices had the highest variation in prices than the other groups selling roundwood, and their minimum price overlapped considerably with the stumpage group sales price for first class timber.

**Table 6. Stumpage and roundwood prices 1998-1999**

| *Price per m3 for logs sold (first class)* | **N** | **Mean** | **SD** | **Min** | **Max** |
|---|---|---|---|---|---|
| Stumpage | 15 | 172 | 75 | 40 | 275 |
| Roundwood | 7 | 419 | 123 | 150 | 520 |
| Lumber | 4 | 498 | 61 | 440 | 550 |
| Lumber and secondary products | 4 | 523 | 26 | 500 | 550 |
| Price per m3 for logs sold (second class) | | | | | |
| Stumpage | 12 | 112 | 68 | 25 | 210 |
| Roundwood | 2 | 250 | 42 | 220 | 280 |
| Lumber | 1 | 300 | . | 300 | 300 |
| Lumber and secondary products | 3 | 293 | 12 | 280 | 300 |
| Average price of lumber (per board foot) | | | | | |
| Lumber | 8 | 3.73 | 1.58 | .7 | 5.5 |
| Lumber and secondary products | 7 | 4.84 | .80 | 3.5 | 5.7 |

**Asset ownership**

Table 7 illustrates ownership and source of funds for acquisition for key equipment in the harvest and processing production cycle. Although communities up the line of vertical integration have ownership over resources and sell products of different steps, there is a great deal of subcontracting within activities. It is not necessary that a vertically integrated community selling lumber own all the transport trucks, for example.
Buyers provided trucks and cranes in all but the finished products communities. However, even the finished products communities relied on outside operators for both transport and crane operation. After chainsaws (data not shown), trucks are most often privately-owned.

All except the stumpage communities borrowed on credit. The buyer acted as a source of credit in all communities for cranes and in the finished products group for trucks. Since cranes tend to be owned by the communities rather than individuals, more cranes are funded in this way than trucks. Therefore, the production operations represent a web of various contracting relation ships where the community can control and manage the process depending on the difficulty of reliably contracting services. Trucking services, for example, may be easier to subcontract because the trucks are separate units easily broken out among owners.

Data on equipment prices was not always available because purchase occurred years before under a different administration or because the community authorities did not own the equipment. Therefore the following price data summarizes data from surveys as well as secondary sources. Chainsaw prices were very consistent, at 6000 pesos per chainsaw.

Trucks bought between 1970 and 1992 cost 25,000 to 30,000 pesos according to survey data. From 1992, trucks costs between 100,500 to 400,000 pesos from survey data. This jump in costs could reflect the devaluation in 1994. Many of these trucks may have been bought used. In 1998, the time of the survey, a local truck dealer quoted 399,850 pesos as the price of a new 12-ton truck. Estimates on cranes vary widely because the cranes are sometimes makeshift trucks that have been outfitted with a winch for dragging logs up from a downslope onto the logging road. Estimates from survey data ranged from 40,000 to 80,000 pesos for cranes acquired before 1993. For acquisitions after 1993, costs ranged from 150,000 to 250,000 pesos. Calls to local dealers revealed that a new crane could cost 3,560,000 to 3,895,000 pesos in 1998. The lumber communities tended to have newer cranes, since they integrated more recently.

Some communities had opened an office in Oaxaca and acquired computers to facilitate business. By increasing level of integration, more communities had separate offices (OFI) or used computers to manage operations.

Sawmills cost between 220,000 pesos to 3.5 million pesos to buy and install, depending on the age of equipment at installation date and capacity. Of the two sawmill groups, the secondary products communities operated their sawmills more efficiently, at least in terms of percent capacity utilized. Lumber communities operated at 47 percent installed capacity versus 60 percent installed capacity for secondary product communities, according to the survey responses. Most of the sawmills were in the community (UBIAS1=2) rather than in a city (UBIAS1=1). The second sawmills, where they existed, were also located in the community, usually next to the principal sawmill, perhaps built as a replacement. These sawmills were most often an hour from the logging roads where harvest takes place, although locations varied from 1 to 12 hours away.

Community funds financed the majority of sawmills. Lumber and finished product communities are distinguished in their access to funding in three ways: the lumber group more often received government funds to purchase and install sawmills, the secondary products group more often received credit, and the secondary products group negotiated deals between private companies or parastatals in the transition period between outside and community control of sawmill operations. Whereas 13 percent of the lumber communities

reported receiving government funding to help acquire a sawmill, no secondary product communities received government funds. Rather they had relied on agreements with outside companies or bank credit. Five of 15 sawmill communities had mills installed by 1986. At least two sawmills were installed originally by the parastatal and then transferred. Another community funded the purchase of its sawmill through a sale of logs left by a company with which it had a disagreement. Some sawmills were acquired with a mix of both community and non-community funds.

**Table 7. Capital Asset Ownership in Oaxacan CFEs (n=42)**

| | Trucks | | | | Cranes | | | | Sawmills | |
|---|---|---|---|---|---|---|---|---|---|---|
| | *Stumpage* | *Roundwood* | *Lumber* | *Finished Products* | *Stumpage* | *Roundwood* | *Lumber* | *Finished Products* | *Lumber* | *Finished Products* |
| | *n=15* | *n=13* | *n=8* | *n=7* | *N=15* | *n=11* | *n=7* | *n=7* | *n=8* | *n=7* |
| Average number used for harvest | 10 | 10 | 13 | 14 | 1.75 | 1.7 | 1.5 | 2.9 | | |
| Average owned by community | | | | | | | | | 1 | 1.3 |
| | | | | | | | | | | |
| Distribution of ownership | | | | | | | | | | |
| Community-owned | 1 | 8 | 6 | 7 | 0 | 6 | 7 | 7 | | |
| Total Individually-owned, comuneros | 4 | 7 | 7 | 4 | 1 | 3 | 0 | 0 | | |
| Total Individually-owned, non-comuneros | 11 | 9 | 2 | 4 | 0 | 0 | 0 | 1 | | |
| Buyer-owned | 7 | 1 | 1 | 0 | 14 | 4 | 1 | 0 | | |
| | | | | | | | | | | |
| Average year first bought, if community owns | 1993 | 1991 | 1989 | 1980 | 1994 | 1995 | 1991 | 1986 | 1993 | 1986 |
| | | | | | | | | | | |
| How bought first, if community or *comunero*-owned* | | | | | | | | | | |
| Community funds | 1 | 7 | 5 | 4 | 1** | 4 | 5 | 6 | 6 | 6 |
| Government assistance | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 1 | 0 |
| Bank credit | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| Agreement with private company | 0 | 0 | 0 | 2 | 1** | 4 | 1 | 1 | 1 | 4 |

* Numbers do not always add to sample totals due to multiple responses per community.
**Refers to acquisition by community members
From: Antinori and Bray 2005

Only the sawmill groups said that they currently held credit. All types said that buyers had helped with capital needs in the past, but this happened more often in the stumpage types (CUBR). The form of assistance was generally lending equipment or construction, with construction more common in the stumpage communities. All types said uniformly that their revenues from timber sales covered working capital needs, but when asked if the revenues allowed for commercial development of timber operations as they would like, the affirmative answers increased by type in frequency (CRDES).

**Table 8. Government Assistance in Last Five Years before Survey**

| | Stumpage | Round wood | Lumber | Secondary Products |
|---|---|---|---|---|
| *Received funds* (percent) | 31 percent | 69 percent | 38 percent | 71 percent |
| *Activity (Count)* | | | | |
| Reforestation | 0 | 1 | 1 | 4 |
| Tree nurseries | 0 | 4 | 2 | 2 |
| Temporary employment | 0 | 3 | 1 | 2 |
| Mushrooms | 0 | 0 | 1 | 1 |
| Plantations | 0 | 0 | 0 | 0 |
| Fauna | 0 | 0 | 0 | 0 |
| Equipment investment | 2 | 2 | 0 | 1 |
| Forest plans | 1 | 3 | 0 | 0 |
| Other | 2 | 5 | 0 | 0 |

**Table 9. Nongovernmental Assistance in Last Five Years before Survey**

| | Stumpage | Round wood | Lumber | Secondary Products |
|---|---|---|---|---|
| *Received funds* (percent) | 6 percent | 15 percent | 25 percent | 71 percent |
| *Activity (Count)* | | | | |
| Reforestation | 0 | 2 | 1 | 5 |
| Tree nurseries | 0 | 0 | 0 | 1 |
| Temporary employment | 0 | 0 | 0 | 0 |
| Mushrooms | 0 | 0 | 1 | 1 |
| Plantations | 0 | 0 | 0 | 0 |
| Fauna | 0 | 0 | 0 | 1 |
| Equipment investment | 0 | 0 | 0 | 0 |
| Forest plans | 0 | 2 | 0 | 2 |
| Other | 1 | 1 | 1 | 2 |

The more integrated communities had more kilometers of logging roads (BRE1). Many of these roads were built by parastatals or private companies. The percent of roads built by the parastatals is 7, 28, 61 and 60 percent (BRECO) as integration increases, and 82, 45, 11 and 3 percent (BREPRIV) by private firms for increasing levels of integration. This means that more than half the road network in the communal forests was built by the private or semi-private sector. Further, stumpage communities only funded 6 percent of the logging roads built. The lumber and finished products groups built 26 and 37 percent, respectively, on average of their current logging road infrastructure (BREPU), while outside private firms

built 82 percent on average in the stumpage communities and 40 percent in the roundwood communities. In absolute terms, communities have funded the construction of 2, 15, 13 and 33 kilometers of logging roads on average, in order of increasing integration.

The communities were asked if a sawmill had operated in their community or at a main entrance route to their community in the past and then was dismantled (ASCO). Of those responding affirmatively, the stumpage communities had the highest number (6), followed by the two groups of sawmill communities (3 each), then the roundwood communities (2). Private companies, which operated primarily in the stumpage communities had private sawmills near the communities but dismantled them as contracts expired, perhaps to avoid appropriation by the communities when the community forestry movement gathered speed. Without a government mandate to negotiate with communities, they relocated their operations off of communal land.

**Labor**

Looking at employment and wage data (Table 10), all community types filled a sizeable percentage of the workforce with local residents for logging. Only the most integrated communities have a workforce with broad enough skills and resources to also hire truckers mainly from the community. For the stumpage group, private harvesters often provide transportation service and rarely hired people from the community. The roundwood communities more often employed truckers from outside the community, but still less than 50 percent.

Both community enterprises and private firms paid loggers mainly on a per cubic meter basis. A few paid loggers per day, some as the only form of payment and others as a base pay in addition to the per unit fee. Sawmill communities paid higher salaries on a per unit basis. Truck drivers were paid either per trip, per day or per cubic meter.

The wood product group relies least on outside help in for tractor and crane operations and administrative help. For mill work, 63 percent of the secondary products communities hire outside workers compared to 11 percent of the lumber communities (not shown).

The interaction between the traditional civic aspects of community life and the more recent forestry operations arises again through the *tequio* duties. *Tequios* are groups of people who convene for one day or more, usually on weekends to accomplish tasks in the community, such as painting a school, repairing a road, or clearing brush from paths. The *tequios* are a source of labor for supporting forestry activities. All community members must put in a certain number of hours per year in *tequios* to stay current with his membership rights. Forestry operations make use of this system for projects other than the daily production process. The use of *tequios* in general is waning across Mexico in some places but remains stable in other places. Almost all observations held *tequios* throughout the year for forestry activities. The *tequio* lasts on average three days. Most communities have between one and five forestry *tequios* per year. The least integrated groups record the most per year, possibly indicating a greater reliance of stumpage communities on traditional forms of work to maintain the forest, while more integrated communities rely on paid timber workers.

**Table 10. Labor and wages for last harvest season**

| | Obs. | Mean | SD | Min | Max |
|---|---|---|---|---|---|
| *Loggers* | | | | | |
| *Number hired* | | | | | |
| Stumpage | | 6 | | | |
| Roundwood | | 16 | | | |
| Lumber | | 17 | | | |
| Secondary products | | 18 | | | |
| *percent from community* | | | | | |
| Stumpage | | 76 percent | | | |
| Roundwood | | 100 percent | | | |
| Lumber | | 100 percent | | | |
| Secondary products | | 95 percent | | | |
| *Salaries by m3:* | | | | | |
| Stumpage | 13 | 16 | | | |
| Roundwood | 9 | 19 | | | |
| Lumber | 6 | 30 | | | |
| Secondary products | 6 | 30 | | | |
| *Drivers* | | | | | |
| *Number hired* | | | | | |
| Stumpage | | 10 | | | |
| Roundwood | | 9 | | | |
| Lumber | | 13 | | | |
| Secondary products | | 14 | | | |
| *percent from community* | | | | | |
| Stumpage | | 7 percent | | | |
| Roundwood | | 46 percent | | | |
| Lumber | | 69 percent | | | |
| Secondary products | | 91 percent | | | |
| *Driver salaries if paid by m3* | | | | | |
| Stumpage | 1 | 10.00 | . | 10 | 10 |
| Roundwood | 3 | 73.33 | 5.77 | 70 | 80 |
| Lumber | 4 | 32.45 | 14.11 | 13 | 46.8 |
| Secondary products | 3 | 30.00 | 5.00 | 25 | 35 |
| | | | | | |
| *Driver salaries if paid by trip* | | | | | |
| Stumpage | 6 | 151.17 | 47.92 | 100 | 217 |
| Roundwood | 5 | 152.80 | 41.73 | 109 | 220 |
| Lumber | 3 | 140.00 | 17.32 | 120 | 150 |
| Secondary products | 2 | 135.00 | 21.21 | 120 | 150 |

In about 1993-1994, Oaxaca experienced a negative population growth in 302 of its 570 municipalities. Even remote villages have linkages to cities in the United States where they claim pockets of neighborhoods solely from their village. However, most communities said that emigration was not an obstacle to developing forestry. Those that did say it was a problem said that the problem is recent. Consistent with their response for sources of income and greater labor demands, the wood products group by far reported more often that emigration was a problem in recruiting labor. The stumpage group had the next highest emigration ``problem." The stumpage populations may have less experience in forestry and

seek employment elsewhere while the secondary products group may have a problem if their operations are larger. Comparing these responses with the percent of registered *comuneros* working outside of Oaxaca state, the average for communities that said that emigration was a problem is 37 percent and for those that said it was not a problem, only 17 percent.

Most selection processes were by individual agreements with a worker (SELEC5). This usually meant that an announcement was made and the first person to respond had the job, or that individuals made their own agreements with the timber management team. The second most frequent response was a system of rotation of workers (SELEC2), followed by ``other'' (SELECO), and by agreement in the General Assembly (SELEC4).

**Contract Relationships**

Most clients are sawmills or intermediaries acting on behalf of sawmills. The stumpage communities have the fewest number of clients any one year because of the investment each client must make in the community to extract logs. The roundwood and lumber communities who extract their own logs have a larger number of clients. The secondary products communities consume more logs in their sawmill operations and is probably the reason they have fewer rollo clients. The secondary product category had the most business with pulpmill factories than other groups of communities, usually because of their prior relationship with FAPATUX which maintains a pulp factory in Tuxtepec.

Even though the sawmill communities sell lumber or secondary products, about half of them also sold logs on the market, sending the other half to their own sawmills (Table 13.) Table xx refers to stumpage or roundwood sales across all types of communities. Stumpage communities usually had only one client, since that client must commit to setting up extraction operations in the community throughout the harvest season.

To begin timber operations, buyers often had to construct logging roads and general transportation roads before harvest occurred. These investments are specific to the community and expose the buyer to contract complications. A point worth examining is that what is being traded is not so much timber for pesos, but access to the forest for development. Two communities had churches under construction and were waiting to harvest more to finish it. Almost all the funds had gone to build these churches. In addition, contractual agreements between the community and an outside roundwood buyer reflect a possible trade of timber for development services. In the stumpage communities, which have less infrastructure, the buyer more often built public works as part of the agreement to harvest in the community, such as electricity systems or churches. (A highly successful community in Michoacán attributes its creation of community jobs from a diversified forest enterprise to its history of resisting pressure to invest a large portion of profits in the church until the enterprise had matured.)

**Table 11. Client characteristics for stumpage or roundwood buyers in last harvest season**

| | Stumpage | Logs | Lumber | Secondary |
|---|---|---|---|---|
| | (16) | (13) | (7) | (6) |
| Average number of buyers in last year | 1.09 | 2.75* | 3.00 | 2.83 |
| Number communities reporting client types of: | | | | |
| Sawmills | 11 | 12 | 6 | 4 |
| Pulp/paper factories | 0 | 2 | 1 | 4 |
| Other | 3 | 5 | 2 | 2 |
| Location of clients: | | | | |
| Oaxaca City and Etla | 8 | 10 | 5 | 5 |
| Other Mexican states | 3 | 3 | 3 | 2 |
| Tuxtepec | 0 | 1 | 2 | 3 |
| Investment in community to harvest | 9 | 6 | 0 | 0 |
| Investment in public goods | 7 | 4 | 1 | 0 |

*leaving out one outlier who reported 26.

**Table 12. percent m3 rollo delivered to community sawmill**

| | N | Mean | SD | Min | Max |
|---|---|---|---|---|---|
| *Community group* | | | | | |
| Lumber | 7 | .51 | .27 | .17 | 1 |
| Lumber and secondary products | 7 | .57 | .25 | .36 | 1 |

Since transportation is a major cost item in timber harvesting, another service is log delivery. The buyers in the stumpage communities are responsible for felling and transporting logs. But almost all the communities that harvested their own timber also delivered timber to the receiving area (*patio*) of the client. Only one roundwood community left the logs at the site of the cut (*situo del corte*) for the buyer to load. One roundwood and one lumber community left timber in the logging road (*brecha*).

The hours necessary to haul logs from the logging road to the client are similar across communities, though with much larger variation in distance for stumpage and roundwood communities. We checked whether price varies by distance to the main client. But there is only a slight negative correlation, where prices are lower the farther away is the community from the buyer. The price is also negatively correlated with distance to the capital of Oaxaca.

The level of integration was the strongest predictor of price differences, with more integrated communities commanding higher prices for their timber. Longer harvesting history, correlated with level of integration, is also correlated with higher prices. But among the stumpage communities, longer harvesting history is correlated with receiving higher prices. A more definitive prediction of prices will take more detailed review of type of product and terms of contract, as well as distance to markets.

| *Hours of transport by truck from logging road to client location* | #obs | Mean | SD | Min | Max |
|---|---|---|---|---|---|
| Stumpage | 16 | 9.22 | 7.98 | 1 | 30 |
| Roundwood | 13 | 9.40 | 11.77 | 3.5 | 48 |
| Lumber | 6 | 6.67 | 2.94 | 4 | 12 |
| Lumber and secondary products | 5 | 8.20 | 2.28 | 6 | 12 |

Research explored variation in prices obtained according to how the community initially made contact with the community. This may be an important factor implicitly reflecting the community's access to information and familiarity with the market, which in turn can influence bargaining power and choice to accept the contract. This information is available for the stumpage and round wood communities. The table below revealed a statistically significant distinction between mode of initial contact and the type of community, where the roundwood communities are much more frequently seeking out potential buyers rather than being approached by buyers. The average prices received are also statistically different and lower for communities where the buyer made initial contact versus communities that sought out the buyer. However, with only one observation point in the stumpage community, it is difficult to assess whether the price variation is due to type of end product or initial contact mode. Within the group of roundwood communities alone, prices are not statistically different based on mode of initial contact, but the one stumpage community which initiated contact with buyer did receive a higher price on average than the other stumpage communities.

**Prices by mode of initial contact with buyer**

| *Initial contact* | Stumpage | Roundwood | Mean price (first class) (chi2 Prob=1percent) |
|---|---|---|---|
| Buyer | 14 | 6 | 232 |
| Other | 1 | 5 | 390 |

Pearson chi2(1) for mode of contact by group = 5.3786 Pr = 0.020

For the roundwood, lumber and secondary products categories, their plans were to renegotiate the contract with their current buyer the following year while the stumpage group most often said that they would seek new proposals. Also, more stumpage types said that they did not know what they would do next year, i.e. whether they would have a harvest, seek new bids or renegotiate with the same buyer. Only one roundwood community said that the contract would automatically renew.

A series of questions explored the level of uncertainty and strategies to cope with unforeseen events during the contract period. 20\percent of the communities said that a change in price occurred during the contract period, and all renegotiated the contract based on that change Five communities had a fire that damaged trees and led to renegotiation of the contract 16percent, of the communities renegotiated due to some other event, but no cross-group pattern existed. In addition, the management plans are frequently modified, not necessarily during the course of a contract period but during the term of the management plan or at the beginning of a new contract relationship. Seventy percent of the communities had had their

management plans modified, with the stumpage group reporting the greatest frequency of modification. Ninety-three of the percent of the stumpage communities had changed their management plans in the last five years mainly because the harvester could not extract the total volume specified in the contract, forcing modifications in harvest rotations.

The practice of advance payments in roundwood contracts covers all types of communities. A few roundwood and stumpage communities reported getting the entire amount of the sale paid in advance while most of the other stumpage communities tended to get a fixed payment, like a deposit, at the signing of the contract (with that deposit less than the total price of the sale). Other communities reporting that the advance was a percentage of the total sale said that they received anywhere from 15-50 percent of the sale in advance. Roundwood communities, who are more often tied to one buyer or one predicted source for selling their timber often receive advances further out in time before delivery or at contract signing. Roundwood and stumpage types had the longest history of accepting advances, perhaps because of the greater specificity required between buyer and seller in these contracts.

**Table 13. Advance payments**

| | Stumpage | Logs | Lumber | Secondary |
|---|---|---|---|---|
| **Roundwood** | (16) | (13) | (7) | (6) |
| *Paid in advance for roundwood contract:* | 9 | 10 | 4 | 4 |
| Pay a fixed quantity | 6 | 2 | 1 | 2 |
| Pay a percentage | 2 | 5 | 2 | 2 |
| 100percent paid in advance | 1 | 2 | 0 | 0 |
| *When paid advance:* | | | | |
| One week before first delivery | 1 | 2 | 1 | 2 |
| 2-3 weeks | 0 | 6 | 1 | 0 |
| 4-5 weeks | 2 | 0 | 0 | 0 |
| Upon contract signing | 6 | 2 | 0 | 1 |
| *How long use advances:* | | | | |
| Last 1-3 years | 3 | 4 | 0 | 2 |
| Last 4+ years | 6 | 5 | 3 | 2 |
| | | | | |

The contract clauses in written contracts specify more upfront investment by buyers in the less integrated communities (see Table 13). Stumpage community contracts more often detailed who would pay for labor (CLEM1), provisions for hiring within the community (CLEM2) and training of community employees/members (CLENT). All timber sales contracts specified prices, but the roundwood and sawmill communities relatively more often had clauses that allowed for the changes in price and volume ( Pr.=0.05$) of the timber during the term of the contract.

Some contracts anticipated changes in volume or prices. Communities in each category had variable price clauses or provisions specifying action in case the market price of timber changed (CLCPB). This approach was found in all groups without significant differences. However, in percentage terms, the stumpage communities most often had fixed price contracts. In contrast, the communities which harvested their own logs more often had clauses for volume (CLCVB) changes during the course of the contract (Chi square = 7.85$, Pr. = 0.05). This clause reduces renegotiation costs between the community and buyer, but

buyers in stumpage communities have little need for the clause since the buyer controls volume and investments necessary to begin operations. In the first case, the community has hold-up risk because of specific investments made to realize trade with the buyer who has made less specific investment. Private harvesters have less incentive to change volume midway through the harvest period because they risk losing specific investments made in the community to begin harvests.

Information on breaches of contract where the buyer failed to fulfill contractual obligations over the last five years occurred in all communities, although the stumpage group reported a slightly higher average of 1.13 times, with the lumber communities reporting the least average of 0.75 times in the last five years (NOCUM). Breaches of contract involved harvesters which cut beyond volume specified in the initial contract and went undetected, a harvester in a then-stumpage community which promised to train and employ people from the community to harvest timber but did not fulfill his salary obligations, and a harvester in a stumpage community which did not repair a road, claiming that the rain and equipment failure. If they had experienced disputes with contractors, the communities most often said that their primary course of action was to try to talk with the buyer to resolve the issue (MEDID, PROBME). The finished products communities as a group more often responded that they would seek public denunciation if the demand was not met, reflecting perhaps a greater sophistication in dealing in the marketplace.

**Diversification**

The frequency of community level diversification into nontimber production activities is the largest for finished products communities, followed by the roundwood group, and the stumpage and lumber groups (DIV). Among the five categories of ecotourism, public nurseries, water purification, mining and an ``other'' category, the finished products group had the widest range of activities on average. The relationship is nonlinear in that the lumber group had a lower range than the roundwood group. Further research is warranted to determine if this is a general pattern of transition where roundwood communities have greater economic forest activity than the stumpage groups and lumber groups.

Communities can allocate timber resources to promote community-level production activities, work group-level activities and individual-level activities, raising the question of when communities are more likely to diversify natural resource activities within the community. The table below suggests that at least more sales revenue leads to more diversification. In addition, the more vertically integrated are more likely to allocate timber proceeds to these community-level diversified activities and individual level entrepreneurial efforts.

Six, 16, 0, and 71 percent of communities by type allocated funds to other community-level forest activities, such as nurseries, ecotourism, and purified water.
Six, 0, 13, and 28 percent of communities by type contributed funds for work-group level activities (such as carpentry shops, firewood and charcoal cooperatives and grazing cooperatives. Tests for differences in allocating funds to individuals to encourage entrepreneurial ventures (INDIV), such as a chicken farm in one community, showed that more integrated communities gave to individuals more often.

**Table 14. Diversification in Oaxacan Communities (n=42)**

| | *Stumpage* | *Roundwood* | *Lumber* | *Secondary Products* |
|---|---|---|---|---|
| | *n=15* | *n=13* | *n=8* | *n=7* |
| **Community-level activities** | | | | |
| Nurseries | 0 | 0 | 0 | 3 |
| Ecotourism | 0 | 1 | 1 | 3 |
| Water bottling plant | 1 | 1 | 0 | 1 |
| Mines | 0 | 0 | 1 | 1 |
| Other | 1 | 2 | 0 | 3 |
| **Total number** | **2** | **4** | **2** | **11** |
| **Assistance given to these activities** Chi-2 Prob = .001 | 1 | 2 | 0 | 5 |
| **Assistance given to work groups or cooperatives at sub-community level for entrepreneurial activities Chi-2 Prob = .20** | 1 | 0 | 1 | 2 |
| **Assistance given to individual community members for entrepreneurial activities Chi-2 Prob = .02** | 5 | 1 | 1 | 5 |

**F**rom: Survey data (Antinori, 2000); Antinori and Bray (2005).

### Allocation of revenue

The possible official destinations of revenues are reinvestment in forestry operations, public services and disbursements to individual members of the community. The more vertically integrated communities invested in new equipment more often than those selling standing timber only (REIN). The finished products group invested in maintenance more regularly than the other types while the roundwood group tended to invest in logging roads.

All communities channel funds to social services (SSOC), with few exceptions. SSOQ distinguishes the level in absolute terms of money spent on social services, coded from 1-5. The degree of social giving does not follow a clear pattern across types, reflecting the general civic role of forestry production.

Communities decide on a year-to-year basis whether they will disburse profits to individuals. When they do, it is by equal shares among the community or work group members. Among those that disbursed profits in the form of dividends (*repartos*) to individuals, the stumpage communities have the largest average (REPQ), due to one stumpage community with two work groups which divided almost all of their profits among their group members. After stumpage types, the wood products group distributes the largest amount of dividends per *comunero*. In the opinion of one community member interviewed from a lumber community, the *repartos* do not need to be large to induce the desired effect of a community cooperating with rules of forestry. The *repartos* signal that the *comuneros* ``count for something to the community." In turn, the community receives their cooperation. In two communities, the funds were distributed in kind (*dispensas*) -- beans, rice, oil and other basic goods -- rather than in cash. One community member justified this approach because he said it avoided spending money on getting drunk. The *dispensas* are not reflected in the summary statistics. Roundwood communities disbursed the least, supporting the contention that they are in a process of capitalization.

**Table 15. Distribution of CFE Profits By Level of Integration to Public Goods, Profit-Sharing and Reinvestments in CFE (in 1998 pesos) (N=42)**

| | Percent allocating funds to public goods | S. E. | Obs |
|---|---|---|---|
| **Public Goods Investments** | | | |
| Stumpage | 88percent | .08 | 16 |
| Roundwood | 82percent | .12 | 11 |
| Lumber | 88percent | .12 | 8 |
| Secondary Products | 100percent | 0 | 6 |
| | | | |
| | Avg. amount of repartos (pesos), if given | | |
| Stumpage | 10194 | 9390 | 4 |
| Roundwood | 814 | 548 | 5 |
| Lumber | 2333 | 1155 | 3 |
| Secondary Products | 2250 | 2411 | 3 |
| **Reinvestment in ongoing operations** | # of communities | | |
| Stumpage | 6 | | |
| Roundwood | 10 | | |
| Lumber | 7 | | |
| Secondary Products | 7 | | |

From: Adapted from Antinori and Bray 2005

**Table 16. Of those which invest in public goods:**

| Amount invested: | | Percent of communities | SE | #Obsvns |
|---|---|---|---|---|
| <= 50,000 pesos | | | | |
| | Stumpage | .0625 | .061215 | 16 |
| | Roundwood | .2307692 | .1182055 | 13 |
| | Lumber | .375 | .1731421 | 8 |
| | Secondary Products | .1428571 | .1337891 | 7 |
| Between 50,000 y 100,000 | | | | |
| | Stumpage | .1875 | .0987062 | 16 |
| | Roundwood | .1538462 | .1012251 | 13 |
| | Lumber | 0 | 0 | 8 |
| | Secondary Products | 0 | 0 | 7 |
| Between 100,000 y 300,000 | | | | |
| | Stumpage | .4375 | .1254534 | 16 |
| | Roundwood | 0 | 0 | 13 |
| | Lumber | .125 | .1182786 | 8 |
| | Secondary Products | .4285714 | .1892063 | 7 |
| Between 300,000 y 500,000 | | | | |
| | Stumpage | .125 | .0836356 | 16 |
| | Roundwood | .0769231 | .0747597 | 13 |
| | Lumber | .125 | .1182786 | 8 |
| | Secondary Products | 0 | 0 | 7 |
| More than 500,000 | | | | |
| | Stumpage | 0 | 0 | 16 |
| | Roundwood | .0769231 | .0747597 | 13 |
| | Lumber | .125 | .1182786 | 8 |
| | Secondary Products | .2857143 | .172721 | 7 |

**Profitability of Community Forestry Operations**[3]

Data was collected on revenues and costs to evaluate whether community forestry operations are profitable and able to survive into the future. They were found to be profitable in the sample:
• Whether selling stumpage, logs, sawn wood, or more processed secondary products.
• Whether communities with small or large forests.

All the communities generated revenues which covered total labor and material costs, referred to by its financial term, gross profit margin. Despite the challenges that communities have in making collective decisions and gaining access to technical expertise, communities are able to compete with the private sector as ongoing enterprises and generate profits sustainably. Gross profit margins across groups are quite large, with the group selling sawn wood as an end product having the largest margin.

The table below depicts gross margins from 30 of the 44 communities with revenue and cost data, by level of vertical integration according to the most processed end-product sold by the community. In fact, 60 percent (18 of the 30) communities had margins above 30 percent. The variability is the largest for the stumpage communities, so they may be most at risk. This suggests that their particular contracting terms and production choices should be given attention. However, on average they are gaining financially, with the contractor usually bearing most of the production costs.

There are a number of other factors to consider as to their probable impact on profitability. First, how are communities accounting for costs? Accounting practices were not consistent across this sample. A principle concern is the treatment of depreciation. For whatever capital that a community owns, logging roads that it builds or a long term management plan, the services are valued and, therefore, charged to the balance sheet over the life of the asset, not just the year the asset was acquired. It was not always clear how the communities considered depreciation in the total cost figures, and these are not necessarily included in these numbers.

First, how are communities accounting for costs? Accounting practices were not consistent across this sample. A principle concern is the treatment of depreciation. For whatever capital that a community owns, logging roads that it builds or a long term management plan, the services are valued and, therefore, charged to the balance sheet over the life of the asset, not just the year the asset was acquired. It was not always clear how the communities considered depreciation in the total cost figures, and these are not necessarily included in these numbers.

To give an idea about how the communities would be affected by adding these costs, a study of 4 communities in Oaxaca was consulted (Merlet et al. 2003) that obtained more detailed accounting data. Averaging their depreciation costs equaled about 22 percent of the labor and materials costs for those communities. Applying this same calculation to the main study enabled estimation of depreciation by deducting it from the profit figures. In the bottom line

[3] The following section is based on a presentation given to announce the publication *Bosques Comunitarios de Mexico: Logros y Desafios* by the Comisión Nacional Forestal and Ford Foundation, Mexico City, March 12, 2004 and is also available in similar form in [Book chapter, CF of Mexico]

of the table, margins are still positive and fairly comfortable, except for the secondary products category, possibly because they are more capital intensive. It is also possible that the cost for those communities is overcounted in the calculations.

The study finds that on the whole, costs of depreciation by themselves would not prohibit profitability of community forestry enterprises (CFEs), although they should be included. Second, it is possible that administration and selling costs are underreported in communities. For example, in many communities, the Comisariado de Bienes Comunales o Ejidales acts a manager. Their labor costs may be compensated at a low rate or not at all. The research sought to include any direct payments to the CBC and Consejo de Vigilancia, both positions in the cargo system. Yet those direct costs do not reflect their total contribution at market rates and maybe this is why the costs are low.

Another subject is that their responsibilities involve more than forestry operations and deal with the community in general. Maybe it makes sense to contribute only a percentage of their payment to the CFE.

It also would serve to mention an indirect cost of administration and sales that could affect the capacity to survive in the market in the future. As in any firm, the CFEs need to provide a good service to the client. Some communities need to put more attention in on-time delivery, communication with the client, and responsibility to the client. The indirect cost of bad administration and sales can be high in the future.

Third, we need to ask about how the forest is managed, the management goals and planning horizon. Are CFEs cream skimming? Reforesting? Reinvesting back into the forest? Or just using the cheapest methods possible despite the damage to the forest? All these would explain low costs now but imply the absence of profits in the future.
But evidence shows that they are harvesting in a fairly sustainable manner. So this may not explain the margins. And 30 of 44 said that they were reinvesting funds back into forestry, like capital assets and road maintenance and management plans.

The communities' management goals affect outcomes. If conservation is a goal or they use longer rotations, this would lower revenues in any given year. The forest can generate environmental services that one can value for air and soil and water quality and carbon sequestration.

Therefore, a profit calculation for one year can be low while profit over the length of the planning horizon is high. For example, while the secondary products group has the lowest gross profit margin, their average financial returns in the long run could be higher than the other groups.

Another related aspect is to consider the opportunity costs over time. The value of the most valuable alternative is subtracted as a cost to give a final estimate of economic profit.

So what could be the opportunity costs for forestry production?
If an owner of forest land does not cut one year, he can cut the next year. An owner does not lose much if he does not cut one year or if he does not cut his total authorized level for one year.

They could clear the forest for agriculture or grazing, but these alternative uses can have a very low value, depending on various conditions such as soil and climate and market.
They could lease the land, which is what they are effectively doing through stumpage contracts. And maybe they can receive a higher return to capital. But this option involves more risks for the community in their relations with the contractor and there are generally more transaction costs in this form of harvesting the forest.

These are all complex issues. There is not a definite answer. The study finds that when these factors are all taken into account, community forest management will remain as a viable option for a number of communities.
A final consideration is allocation of the gross profits. Many CFEs invest in forms that have social impacts.

- 90 percent of the sample contributed to social services and public infrastructure
- They employ locally and provide training to the population
- They distribute sometimes a part of the profits to the community members
- Several diversify into non-timber forest products which diversifies employment and sources of income and alleviates pressure on the forest

One should consider how to treat these impacts in an accounting framework.
In sum, profitability is a key issue for the long-term stability of community forestry enterprises. The data from this research shows that they can be profitable and in some cases very profitable. Further research using consistent accounting practices will clarify the estimations.

They are functioning. They are important sources of employment and income for the communities. For questions of efficiency, productivity and competition, support through government programs for example in technical assistance, financing and training will allow them to function at a higher level.

**Average Revenue, Cost and Profit by Level of Integration (New Pesos)**

| End product sold (number of communities) | Stumpage (12) | Roundwood (8) | Sawnwood (5) | Finished Products (5) |
|---|---|---|---|---|
| (1) Sales Revenue | 573,549 | 1,688,274 | 3,020,021 | 9,578,861 |
| (2) Labor and Materials | 304,125 | 1,010,740 | 1,462,620 | 6,522,042 |
| (3) Gross Profit = (1)-(2) | 311,386 | 870,498 | 1,557,401 | 3,056,819 |
| Gross Margin (3)/(1) (standard deviation) | 39 % (.32) | 48 % (.22) | 54 % (.19) | 32 % (.13) |
| Margin assuming 22percent of (2) as depreciation cost | 26 % | 36 % | 44 % | 17 % |

Source: Survey data, Antinori (2000)

**Internal organization and decision making**

Most who said that there were differences, said that the differences caused a negative impact on forestry operations (Table 17). The most common negative impacts were no investment in developing the forestry operations or to integrate forward, and a suspension of harvest operations. During the course of the survey period, one community had shut down their sawmill operations until they could account for flows of funds. Both the least and the most had experienced suspension of harvest operations due to conflicts. None of the Chi Square statistics were significant at less than or equal to 10 percent level of significance across types of communities. Nor was any correlation coefficient greater than 0.4 absolute value between a negative impact and type of community. Therefore, existence and type of negative impact shows no correlation with level of vertical integration.

**Table 17. Impact of Differences (Number of Responses)**

| | Stumpage | Roundwood | Lumber | Secondary Products | Total |
|---|---|---|---|---|---|
| *Did any negative impact of differences occur?* | | | | | |
| Yes | 7 | 4 | 4 | 4 | 19 |
| No | 4 | 1 | 1 | 2 | 8 |
| *If so, describe:* | | | | | |
| Forest and harvest is badly managed | 0 | 1 | 0 | 1 | 2 |
| No investment for maintenance | 0 | 1 | 0 | 0 | 1 |
| Harvest operations suspended | 3 | 0 | 2 | 1 | 6 |
| Sawmill operations suspended | 0 | 0 | 2 | 1 | 3 |
| Delay in obtaining permit from SEMARNAP | 1 | 0 | 0 | 0 | 1 |
| Contraband harvesting | 0 | 1 | 1 | 0 | 2 |
| Do not cut full authorization | 2 | 0 | 0 | 0 | 2 |
| No investment to diversify or develop forestry operations | 0 | 2 | 2 | 1 | 5 |
| Authorities not named | 0 | 1 | 0 | 0 | 1 |
| Delay in the harvest | 1 | 0 | 0 | 0 | 1 |
| Other | 2 | 1 | 0 | 3 | 6 |

To summarize, conflicts in the less integrated communities are about perception and impact of harvesting which may prevent them from reaching a consensus on whether to integrate. Also, the less integrated tended to have parcelized forests. This suggests other factors than political infighting and *caciquismo* are at work. Individual incentives affecting personal gains and losses of community-level vertical integration are at stake. Both the less and more integrated communities have suspended operations due to conflict.

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# ANNEX 3: SURVEY OF CASES OF COMMUNITY PARTICIPATION IN MARKETS FOR ECOSYSTEM SERVICES

Carina Bracer

## Introduction

The Millennium Ecosystem Assessment defines ecosystem services as the various ecologically derived benefits that people obtain from ecosystems. Ecosystem Service programs and initiatives typically focus on provisioning services, such water or carbon sequestration; regulating services, such as water regulation; supporting services, such as soil formation and nutrient cycling; and to a lesser extent cultural services and other non-material benefits.

Over the last twenty years, the recognition that ecosystem maintenance provides services that are valuable to others has led to new mechanisms to compensate the land owners whose land management helps ensure those needed ecosystem services. These mechanisms are known broadly as Payment/Compensation/Markets for Environmental Services, signified here as PES. Limitations of government protection and regulatory approaches to conservation led to alternative mechanisms such as PES.

From an economic perspective, the basis for these programs is to formally establish ways to internalize the positive externalities or effects of land and ecosystem management and thus alter the incentives affecting land owners. If they get paid for maintaining an ecosystem healthy due to the positive ecosystem services it provides, they are more likely to see the benefit in conserving it. Buyers who recognize that good land management can provide them with better quality water services, carbon sequestration or biodiversity have the incentive to pay providers for it directly (instead of paying to remedy the poor quality water, for example).

PES initiatives often rely on the world's relatively poor landowners as sellers of ecosystem services since their land management affects ecosystem health. The spread of PES both geographically and in number makes it important to understand the social repercussions of the initiatives that exist to date, and try to ensure that future PES initiatives help address poverty and development, by designing them to incorporate the needs and interests of these low income resource owners.

This growth in PES activities also elicits important concerns and critiques, centered primarily on the threat of loss of rights to the resources that may result from PES contracts which are so designed. Some concerns about promoting PES revolve around the lack of trust and social capital between providers and users of services, and around initiating relatively complex economic structures and relationships between such parties (Wunder and Vargas 2005). The notion of commodifying nature and its services also raise concerns, while problems with finding the correct value of resources is an important source of contention. It is important that PES evolve as a reward for stewardship and not as a new claim for resources on behalf of buyers. This should be incorporated into the legal framework within which PES operates.

This Survey of Community-based Forest PES Projects begins by studying the evolution of PES in low income countries, followed by a characterization of the diversity of existing models for Community PES- including an analysis of 15 case studies of community based forest PES projects in Latin America, Africa and Asia. The main benefits, costs and barriers for community participation

in PES are then highlighted, followed by conclusions regarding lessons learned from assessments done to date.

**Brief History and Status of PES Initiatives**

PES historically arose in more developed countries, where "biophysical science tends to be stronger and legal frameworks and institutions exist that permit the development of more sophisticated markets" (Scherr, et al. 2004b). Examples are the large markets such as the US based Conservation Reserve Program or US based wetland mitigation banking (www.Ecosystemmarketplace.com). They developed where threat of ecosystem loss or impacts were apparent. PES activities in less developed countries are more recent and supply is driven by organizations or entities seeking funding for conservation of resources. Many early efforts in PES in less developed countries emerge from Community Based Natural Resource Management activities.

From this origin, PES has experienced large growth rates in recent decades. Recent reports from China's PES efforts indicate about US$5billion of government investment in a wide variety of environmental service scheme payments, while reports about the UN Framework Convention on Climate Change refer to a carbon market from land use reaching US$100 million for regulatory driven carbon forestry, and $15 million for voluntary carbon forestry credits.

The rise of the carbon market worldwide via the negotiations of the Kyoto Protocol Climate Change Treaty has already impacted the overall magnitude of PES to date. The carbon sequestered in biomass and forests could become part of the largest commodity market worldwide as carbon markets develop. Over 20percent of total annual carbon emissions arise from deforestation and other land use changes (Union of Concerned Scientists, 2005). Developments in the carbon market have altered the PES debate: because carbon grows anywhere and contributes to one common atmosphere, unlike other location-specific services such as watershed benefits or biodiversity benefits, a carbon project can be based anywhere. The carbon market allows for a stronger pro-poor focus, and thus for developing PES projects that are more cost effective. Equity debates played a large role in international climate change negotiations related to how to appropriately facilitate carbon solutions across the globe. Many issues in this still incipient market are unresolved, and meanwhile carbon based PES projects for voluntary markets have emerged all around the world.

**Varieties of PES Models**

Four categories of PES schemes are widely recognized:

- Public payment schemes represent the largest scale of PES experiences to date
- Open trading under a regulatory cap and floor where governments enforce actions or payments following damage to an ecosystem or ecosystem service
- Self-organized private deals
- Ecolabelling, an indirect form of PES

Models apply best under different circumstances, and situations need to be assessed to decide appropriate PES design and modifications to the above models. Very often, the structure of a PES deal blends aspects of different models, and thus does not fit clearly into one type of classification. For example, a variant of self organized private deals involves using a public entity to aggregate many small landholders who contract with a buyer together, which may be beneficial to communities with weak internal structures.

Table I below provides specific data on the cases and demonstrates some of the variety that exists in PES initiatives to date – ranging from US$5 billion dollar Chinese government PES programs, to very small local community initiatives; from paying for non-use of resources to promote ecosystem services, to mobilizing new investment in resource rich areas where ecosystem services can be developed; and from payments to individuals, to community-scale payments.

**Table I: PES Project Details**

| Project Name & Location | Community Group affected | Activity Contracted | Category of Deal | Project Area | Contract dates |
|---|---|---|---|---|---|
| Community Enterprise Santa Catarina Ixtepeji Oaxaca, Mexico | Santa Catarina Community, population of 2,532 | Forest Management and Conservation for Hydrological Services | Public payment | 1,581 Ha | 2003-2008 |
| Watershed Conservation Fund Quito, Ecuador | Inhabitants of the reserves | Conservation activities, access control, for Hydrological Services | Mixed public-private payment | 520,000 ha. on three reserves | 1997 partnership began; 2000 fund operational; 2002 implemented |
| Cauca Valley Corporation Watershed Program Colombia | Upland sellers of services and downstream farmers/buyers | Purchase of upstream lands, revegetation and fencing for Hydrological Services | Private deal | Extends 1 million hectares. | Began 1992 |
| Working for Water National Program, South Africa | 33,000 people | Removal invasive plants, monitoring for Hydrological Services | Mixed public-private payment | 1.2 million ha. riparian, 11 million ha. mountain area | Began 1998/2000 |
| Macquarie Salinity Credits Project New South Wales, Australia | Unreported | Management of vegetation and timber for salinity control | Mixed public-private payment | 100 hectares | Began 2001 |
| Nam Ty commune, Hoang Xu Phi district, Vietnam | 6 villages or 383 households in commune | Forest protection and management for watershed function and carbon stock | Public Payment | 4,235 ha. | Began 1998 |
| San Nicolas Agroforestry Dept of Antioquia, Colombia | Unreported | Planting and management for carbon sequestration | Mixed Public-Private payment | 2,500 ha (increase to 8475 ha.) | Partnership began 1999, project lifetime is 40 yrs |
| Scolel-Te Carbon Project | 700 individuals in 40 | Forest management for carbon | Private deal | 15,000 ha | Established 1996, began 1997 |

| | | | | | |
|---|---|---|---|---|---|
| Chiapas, Mexico | communities | sequestration | | | |
| Nhambita Community Carbon Project Sofala Province, Mozambique | 250 local households | Reforestation for carbon sequestration | Mixed Public-Private payment | 3,770 km2 | Began 1995. Project life cycle scheduled for 25 years |
| Giang Cai Village Van Chan District, Yen Bai, Vietnam | Unreported | Forest protection and management for carbon sequestration | Public Payment | 1,200 ha | Began 1999 |
| Chalpadi Village Andrha Pradesh, India | 12 families in village | Plantations of pongamia spp. For carbon sequestration | Private deal | Unreported | Carbon sold March 2003, payments spread over 10 years |
| Arabuko Sokoke Project Kilifi, Kenya | 700 local families | Forest management for Biodiversity in coastal dry forest | Mixed Public Private payment | 410 km2 | Began 2002 |
| Mgahinga Bwindi Impenetrable Forest Conservation Fund. Kabala and Kisoro Districts, Uganda | Unreported | Forest conservation for Biodiversity services | Public Payment | Unreported | 1995-2000 |
| Budongo Forest Ecotourism Development Project Uganda | 28 host families within community | Ecotourism activities for Biodiversity conservation services | Mixed Public-Private payment | Unreported | Began 1993 |
| Guanacaste Conservation Area (GCA) Costa Rica | Community of Guanacaste | Forest management and biological pest control, decomposition for various bundled ecosystem services | Private Deal | 87,000 ha. | Began 1998 for 20 years. |

In the following Table entitled "Structure of the PES Deal", information is presented demonstrating how deals are structured based on how buyers and sellers are organized. Sellers and Buyers organize themseleves in different ways to engage in PES, and different combinations are structured as shown in the table. The way sellers are organized is often a function of the participation of intermediaries (see Table III) and the institutional structure of the community ecosystem service provider. Note that landholders operating as individual sellers are not included in the 15 cases analyzed, given that private landowners operating outside of a community structure does not constitute an example of community PES.

**Categories of Buyers and Sellers:**
Buyers:

- operate on their own (Single Buyer)
- structure the PES deal in tandem with other buyers (Multiple buyers). More than one buyer can also seperately purchase environmental services without operating together.

Sellers are typically found operating:

- under a community association selling services on communally held land or on land to which community members have rights.
- in an association for purposes of selling although they are individual land owners, even when they live in community. Often they may use funds for community purposes.
- On their own, when governments or governmental agencies have rights to the land where communities live and are the sellers. In these cases, they subcontract with community or inhabitants for the ecosystem service management.

**Results:**
Single Buyer interacts with Community Seller is very common. In the 15 cases selected below, 7 of the 15 cases are in this situation. PES projects with multiple buyers of a single community's services are seen here in 3 cases.

Single Buyer purchasing services from a landowner that subcontracts to inhabitants or communities who manage the land often arises where national parks, reserves or forest land is owned by government agencies, but communities live and help manage the resources. Single Buyer and Multiple Buyer instances of these cases where communities are subcontractors are both seen here in a total of 4 cases, appearing 1 and 3 times respectively.

Sellers in Association are individual landowners who decide to coordinate their sale of services. Only 1 case falls into this category.

**Table II: Structure of the PES Deal**

| PES project | SINGLE BUYER | | | MULTIPLE BUYERS | |
|---|---|---|---|---|---|
| | 1. Community Seller | 2. Owner sells and contracts services from community | 3. Individual Sellers in Association | 4. Community Seller | 5. Owner sells and contracts services from community |
| **Santa Caterina Ixtepeji, Mexico** | Govt of Mexico via National Water Commission. BUYS FROM Community members | | | | |
| **Watershed Conservation Fund, Ecuador** | | | | | Quito Electrical Utility, Sewage Agency, Irrigation project, farmers and Hydropower Co. BUY FROM Ecuador Park Service who subcontracts communities |
| **Cauca Valley Corporation Watershed Program, Colombia** | | | Water User Associations BUY FROM Upstream landowners | | |
| **Working for Water, South Africa** | | | | | Bulk water users; Agricultural users and forestry users BUY FROM Working for Water program who has 33,000 individual contractors |
| **Macquarie Salinity Credits Project, Australia** | | Macquarie River Food and Fibre Company represents irrigators BUYS FROM State Forests Org who subcontracts with private landholders | | | |
| **Nam Ty Commune, Vietnam** | Vietnam-Sweden Mountain Rural Development Programme: MRDP BUYS FROM commune | | | | |
| **San Nicolas Agroforestry, Colombia** | BioCarbon Fund groups buyers and BUYS FROM local landowners | | | | |

| PES project | SINGLE BUYER | | | MULTIPLE BUYERS | |
|---|---|---|---|---|---|
| | 1. Community Seller | 2. Owner sells and contracts services from community | 3. Individual Sellers in Association | 4. Community Seller | 5. Owner sells and contracts services from community |
| **Scolel-Te Carbon Project, Mexico** | | | | Future Forests & the Federation Internationale de l'Automobile BUY FROM landowners in community | |
| **Nhambita Community, Mozambique** | Future Forests groups buyers and BUYS FROM community who distributes emission reduction units | | | | |
| **Giang Cai Village, Vietnam** | Mountain Rural Development Program of Swedish Govt. BUYS FROM Villagers | | | | |
| **Chalpadi Village, India** | 500ppm represents multiple buyers and BUYS FROM village families | | | | |
| **Arabuko Sokoke, Kenya** | | | | USAID & German Nature Fund BUY FROM Arabuko Sokoke Forest Guides Association (ASFGA) | |
| **MgahingaBwindi Impenetrable Forest Conservation Fund, Uganda** | | | | | GEF Trust Fund, USAID and Netherlands Aid BUY FROM Govt of Uganda who pays Local Community Steering Committee (LCSC) |
| **Budongo Forest Ecotourism Project, Uganda** | | | | Fees from tourists, DFID UK and NORAD Norway BUY FROM Community association | |
| **Guanacaste Conservation Area (GCA), Costa Rica** | Grupo del Oro, Ltd. BUYS FROM Community | | | | |

**Table III: Intermediaries in PES Cases**

| Project Name & Location | Intermediaries and PES Participants |
|---|---|
| Community Enterprise Santa Catarina Ixtepeji<br>Mexico | CONAFOR National Forestry Commission administers program.<br>Community Special Units administer forest company's activities. |
| Watershed Conservation Fund<br>Ecuador | Quito City Governmentt, Park Service, FONAG NGO, and endowment trust.<br>Start up costs from the Quito Municipal Water & Sewage Agency, The Nature Conservancy, & Fundacion Antisana (backed by USAID). |
| Cauca Valley Corporation Watershed Program<br>Colombia | Voluntary Water users Associations (14) are grouped into a larger CORPOCUENCAS Association. |
| Working for Water<br>South Africa | Water User Association and<br>Department of Water Affairs and Forestry Accounting system (WARMS). |
| Macquarie Salinity Credits Project<br>Australia | State Forest of NSW pays landholders from funds received from Macquarie River Food and Fibre Company.<br>NSW State Forests has title to timber resource and carbon on private land. |
| Nam Ty Commune,<br>Vietnam | Village meetings take place prior to discussions with Buyer. |
| San Nicolas Agroforestry<br>Colombia | CONARE Regional Environmental Agency; MASBOSQUES operates Trust Fund. Participatory process to decide on Forest Management Plan. |
| Scolel-Te Carbon Project<br>Mexico | Farmers organizations allied to various other local institutes. |
| Nhambita Community Carbon Project<br>Mozambique | Envirotrade Limited: project design and funding; DFID and European Commission helped finance Project.<br>Univ of Edinburgh and ICRAD provided technical support. |
| Giang Cai Village<br>Vietnam | Swedish Development Agency, Local extension staff from Districts |
| Chalpadi Village<br>India | Integrated Tribal Development Agency funds plantations.<br>500ppm verified carbon valuation.<br>Village Self Help Group coordinates. |
| Arabuko Sokoke Project<br>Kenya | Government since forest is public trust land; Nature Kenya operates the project on the ground; ASFGA is community entity. |
| Mgahinga Bwindi Impenetrable Forest Conservation Fund<br>Uganda | GEF- World Bank, Government of Uganda thru Uganda Wildlife Authority (UWA) and Local Community Steering Committee.<br>A Trust Board also established. |
| Budongo Forest Ecotourism Development Project<br>Uganda | Uganda Forest Department; Uganda Wildlife Authority: technical support.<br>District forest officer and UWA monitor reserve;<br>BFEP carries out research activities. |
| Guanacaste Conservation Area<br>Costa Rica | Guanacaste Community |

**Payment types** also vary, involving cash or in-kind payments, tax incentives or trust-fund disbursements. Compensation packages also can include non-monetary benefits, such as support for community strategies for rural or ecological tourism, international markets for environmental services, etc. In addition, technical assistance, financing of investments and marketing support may also be included in compensation packages. The **means of channeling the funds to** sellers also varies, ranging between direct payments to landowners, payments to a trust fund, or payments to a community organization to be distributed. Some of these differences can be seen in Table IV below. Most common is the Trust Fund mechanism, seen here in 7 out of the 15 cases, whereby buyers, intermediaries and often community members participate in the fund management.

**Table IV: How Communities are Paid for Ecosystem Services**

| Community PES Project | How Payments are Made | | | Amount of Payment | Uses of money |
|---|---|---|---|---|---|
| | Direct to individual landowner | Direct to community | Direct to Trust Fund | | |
| **Santa Caterina Ixtepeji, Mexico** | | | X | US$30/ha in the program paid to community. | Invested in community social works, infrastructure and equipment for forestry activities or benefit sharing |
| **Watershed Conservation Fund, Ecuador** | | | X | Payment received undisclosed.<br>Interest from fund pays people in the reserve.<br>Buyers pay FONAG $0.001 per cubic meter of water used (1996) or less for non consumptive water usage. | 10-20percent total expenditure is for FONAG's admin costs.<br>Conservation activities: land purchases, access control, land management, sustainable production, and environmental valuation. |
| **Cauca Valley Corporation Watershed Program, Colombia** | X | | | Undisclosed payment per landowner.<br>CORPOAGUAS raises over $600,000 annually from user fees. | No information provided |
| **Working for Water, South Africa** | | | X | Working for Water annual income is 33 million ZAR. Currently 33,000 people participate as contractors, so by deduction , 1,000 ZAR paid to each seller. | No information provided |
| **Macquarie Salinity Credits Project, Australia** | X | | | Payment from MRFF to State Forests and annuity to landowners is confidential. | No information provided |
| **Nam Ty Commune, Vietnam** | | X | | Undisclosed. | No information provided. |
| **San Nicolas Agroforestry, Colombia**<br><br>**San Nicolas (continued)** | | | X | US$5.30-8.36 per tC for Certified Emission Reduction Units; US$2 per tC for Verified ERs; US$1.50 per tC for Environmental Shares. | CONARE Regional Env. agency finances afforestation & reforestation.<br>Community benefits from ownership of plantation and its products. |

| Community PES Project | How Payments are Made | | | Amount of Payment | Uses of money |
|---|---|---|---|---|---|
| | Direct to individual landowner | Direct to community | Direct to Trust Fund | | |
| **Scolel-Te Carbon Project, Mexico** | | | X | International Automobile Foundation purchsed tons of VERs at US$10-$12/ton. In 2002, US$180,000 carbon credits sold. | Two-thirds of the revenue goes to providing technical assistance and to farmers to be spent on seedlings to plant the land. |
| **Nhambita Community, Mozambique** | | | X | Undisclosed. | Payments to buy the seedlings and plant the land. Most revenues go to research, local enterprise development, and project extension services. The system also provides education and training to forest farmers |
| **Giang Cai Village, Vietnam** | | X | | 28,000/VND/ha/yr for critical protection forest | Granted the land, now payment is for forest protection activities |
| **Chalpadi Village, India** | | X | | 900 tons CO2 sold for $4,000 as VER. Payments spread over 10 years | Management of Pongamia spp, upkeep of generators to produce valuable byproducts, and obtain electricity |
| **Arabuko Sokoke, Kenya** | | via the Association of Guides | | Undisclosed amount to community. 1,900,000 euros in 1995 from EU, US$1 million USAID in 2003. | Employment, capacity building and training in biodiversity management, support from fund to buy seedlings. |
| **MgahingaBwindi Impenetrable Forest Conservation Fund, Uganda** | | | via the Local Community Steering Committee | GEF reports $400,000 given to subgrants program, for various forest conservation and social improvement activities. | Community development, research and park management activities. Access to forest resources in the parks were restricted and projects consistent with biodiversity conservation. |
| **Budongo Forest Ecotourism Project, Uganda** | X | | | Undisclosed | 40percent payment received goes to community projects; 60percent goes to BFEP maintenance. |
| **Guanacaste Conservation Area (GCA), Costa Rica** | | X | | $24,000 per year to community for activities over 20 years | Land is added to conservation area; money goes to cover park management costs, including pulp waste transportation. |

**Key Characteristics of PES**

A survey of forest based environmental services in 2002 found almost 300 ongoing and proposed PES initiatives worldwide (Landell-Mills & Porras, 2002). Including services from other ecosystem types would increase the number considerably, although forest based PES is the most prevalent (Rosa et al 2003). Many PES efforts are still in an exploratory phase and are based on experimental modalities, so experiences are too short to draw appropriate conclusions on the actual potential of this mechanism.

Markets for carbon sequestration and water services represent the largest demand for PES provision. Biodiversity and landscape services have been contracted at a lesser rate. In an increasing number of cases, PES is oriented to providing bundled services, where carbon, water and biodiversity are sold together, resulting in larger income for providers. Mixed services are also widespread, wherein PES contracts allow landowners to carry out activities for which they can gain additional income, as is the case in agroforesty landscapes.

Another key characteristic is that PES projects typically are not designed to stand alone and be the sole source of income for the community. In some cases, not all the community land is dedicated to the PES program, while in others, many activities apart from PES provision are allowed for in the PES contract. Although income from PES may be minor percentage of total income, it may also come at a time when other payments are not forthcoming.

- **Santa Catarina Ixtepeji, Mexico:** PES contract for 1,581ha of the 21,058 ha. of community owned land.
- **Giang Cai, Vietnam:** receives payment for protection of 80ha of the 1200 ha it holds.
- **Arabuko Sokoke, Kenya:** All 421 km2 of the park is part of the PES project

Other compatible income generating activities depend more than anything on the management allowed in the negotiated contract. Activities carried out in a sustainable manner, with controls for ecological impacts, can occur simultaneously to the PES provision. Typically, for either biodiversity, carbon or watershed benefits, the collection and harvesting of nontimber forest products is feasible. Sustainable extraction of timber is feasible in PES projects managed for hydrological and biodiversity purposes. For carbon projects, more limits are placed on extraction of timber from the project site.

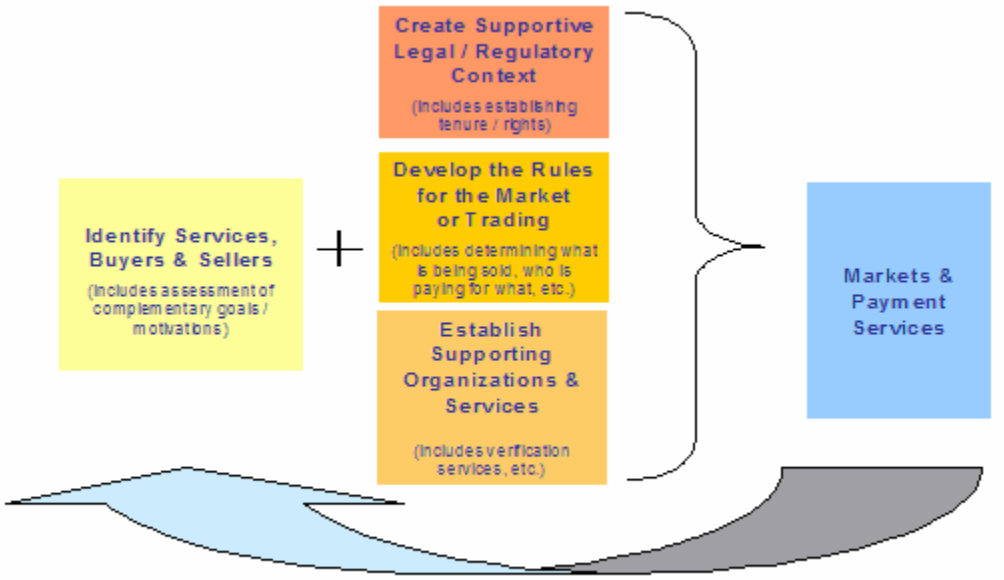
- **Scolel-Te Carbon Project, Mexico:** PES funds go towards live fences, shade grown coffee, plantations, and intercropping. All planted species are native and will enhance and protect biodiversity, diversify production and reduce pressure on remaining forest resources and increase watershed quality. The plantations will eventually provide farmers with a steady supply of saleable timber, as well as fruit, medical plants and modest quantities of fuelwood.
- **Nhambita Community, Mozambique:** Allowable planting includes agroforestry, indigenous shade species, and fruit trees. Income continues from the sale of timber and non-timber forest products, fodder production, bee-keeping, cane rat production, and craftmaking.

Many sources of support for parties interested in participating in or developing PES programs have also arisen in the past years, taking the form of documents, manuals and websites (such as www.ecosystemmarketplace.com) and workshops, training and other capacity building efforts. International development institutes such as the Worldbank, FAO, and IFAD have materials available for PES guidance, as well as international NGO's such as Forest Trends, IIED, and many others. In some areas, local NGO's or government institutes have begun developing support material to encourage and benefit parties interested in PES involvement. In this trend, and to strengthen the learning and foundations for improved PES projects, more far-reaching PES support programs are being funded and developed by international institutions and NGO's.

**Some Basic Mechanics of PES**

Apart from defining the general characteristics of PES models in terms of the institutional form within which the buyer operates, other aspects new PES initiatives need to define include identification of service desired, the sellers, regulatory context, supporting organizations and services, and the definition of rules for the market. In general terms, PES program development has followed the process outlined in Diagram I.

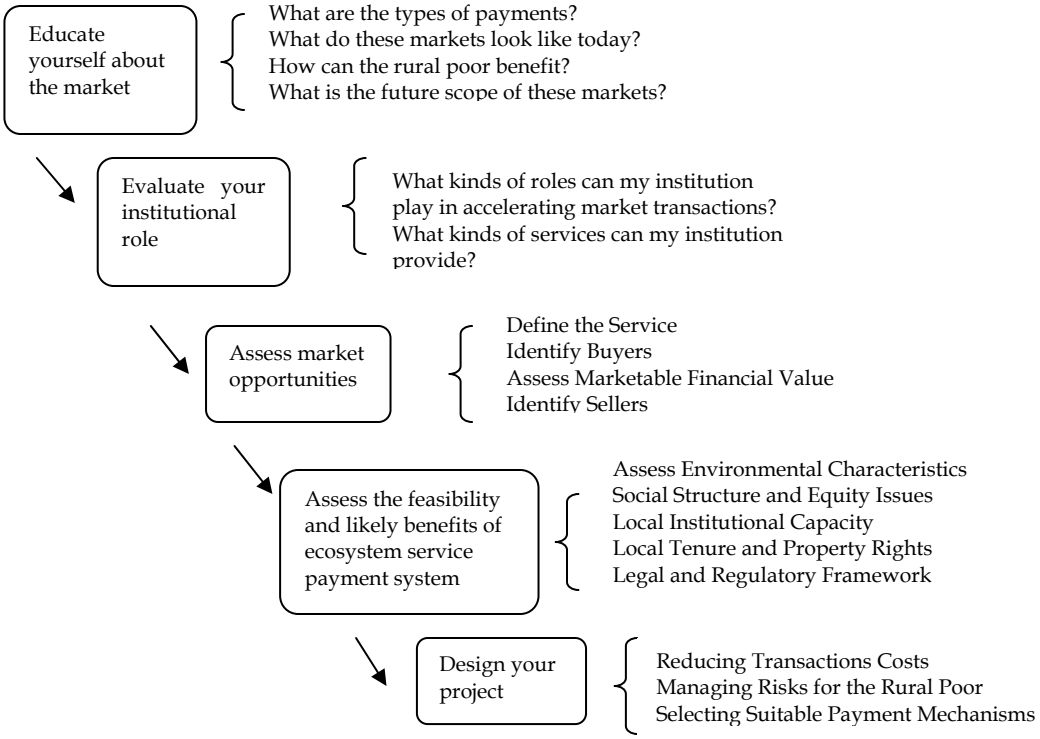
**Diagram 1: PES Program Development**




Adapted from Brand, David. 2002. "Investing in the Environmental Services of Australian Forests." In S. Pagiola, J. Bishop, and N. Landell-Mills (editors). *Selling Forest Environmental Services: Market-Based Mechanisms for Conservation and Development.* London, U.K.: Earthscan Publications.

Diagram 2 demonstrates steps that need to be taken to secure a group's successful participation in PES programs.

**Diagram 2: Developing your Participation in PES**




Adapted from: Inbar, Mira and Sara Scherr (2004 draft) *Getting Started with PES: A Guide to Designing payments for Ecosystem Services.* Forest Trends, Washington, D.C.

**Opportunities, Benefits and Potential Threats in Community PES**

The current stage of PES development and lessons derived from PES case studies point to large potential opportunities of community PES from increased private business and buyer participation in PES schemes, and continued small landholder involvement in PES schemes.

Rural PES projects can help to diversify and increase rural income, thus lessening threats from poverty, but policy environments and necessary capacity building efforts will be needed to secure more and more successful PES projects. Proactive national policy action in a variety of areas (land tenure, regulations) will be required to attract investors, ensure projects are consistent with development goals and provide enabling conditions for them to succeed (Smith, J. & Sara Scherr 2002).

The following list of potential benefits have become apparent already in PES projects around the world to varying degrees. Nonetheless, potential threats continue to be pertinent: for example in China, enrollment in PES without the landowners consent resulted in a loss of rights to the land.

**Potential contributions of ecosystem service markets to reduce rural poverty**

- • Establish higher productivity and more sustainable farming and forest systems for local livelihoods (biomass, water, biodiversity services)
- • Provide cash income that can be used by local people for consumption or investment purposes (from ecosystem service payments, increased gathering of products for sale, improved enterprise productivity)
- • Restore the local ecosystem services of forests and agroforestry, such as watershed maintenance, pollinator species and soil control
- • Provide a resource for community social investment
- • Contribute to improved business and market organization in local communities
- • Provide training and technical assistance and improve environmental knowledge and appreciation

**Potential threats of ecosystem service markets to local livelihoods**

- • Loss of rights to land, harvest products or environmental services. If a project infringes upon the sovereignty of local people, their rights to access the resources or services that the land provides could be lost
- • Loss of land ownership rights. In the case of a large entity purchasing land for the objective of selling ecosystem services, local ownership claims may be ignored
- • Loss of employment when local forest harvesting rights are excluded for ecosystem service protection
- • Loss of control and flexibility over local development options and directions, where easements or long-term contracts specify a narrow range of management alternatives
- SOURCE: Reproduced from Table 9 in Scherr, et al (2004b) "For Services Rendered".

Much of the controvery surrounding social impacts of forestry projects for the Clean Development Program center around large scale industrial plantations and forest protection projects, which may pose significant threats to communities, nonetheless, designing reforestation of degraded or deforested lands, averting deforestation can provide benefits to communities and reduce threats (Smith,J. & Sara Scherr 2002).

**Some Barriers to Successful pro-poor PES**

Many barriers still exist for communities to become involved in PES mechanisms, and to improve the quality of their participation in PES initiatives. These can be classified according to the different phases in the development of PES initiatives as follows.

Barriers to *learning that programs exist* that they can participate in include

- lack of mechanisms and channels for information dissemination about PES initiatives in design or in progress. This affects NGO's or other potential community partners that can channel information to them about PES initiatives,
- infrastructure development such as telephone and computer access is a limiting factor, but forums for community exchange & workshops can be used to overcome this barrier.

Communities also face barriers to *organizing their own participation* in PES:

- limited finances to cover start-up costs,
- limited know-how in business and market participation,

- lacking organizational capacity within the community. Difficulties in dealing with complex economic, soc service questions are further compounded by weak or incipient community organizations,
- inability to deal with internal conflicts that limit community involvement in PES programs

**Table V: Key Barriers faced by Communities**

| |
|---|
| Information to know that programs exist to participate in |
| Difficulties organizing their internal structure and abilities to facilitate participation |
| Knowledge of PES requirements, ecological know-how, valuation, contracts, etc. for influencing PES program design |
| Strong structure and ability to ensure participation is just, to vouching for own interests, utilize monitoring, etc. |
| Information and platforms for sharing experiences with other communities |
| Standing and organization to participate in relevant policy making |

Influencing PES program design is difficult due to:

- lack of community expertise with PES program design and implementation,
- lack of mechanisms to value their own resources,
- communities not being offered the opportunity to influence program design,
- defending their interests is impossible without well studied decisions on how to best obtain community goals,
- unclear or insufficient regulatory frameworks hinder communities' ability to participate and influence PES program design and outcomes,
- unclear land tenure limits communities' ability to be recognized as important stakeholders for input into policies affecting them,
- limited time, resources and ability on behalf of community members to attend fora where PES policy is discussed.

Ensuring that PES programs *meet community needs* and are adapted to their specific context is hampered by:

- weak local institutions and poorly prepared leaders,
- lack of information, training and support structures. Intermediaries often fill this role, but communities may have issues of trust with NGO's who represent them, and even lose some of their profit through high administrative costs charged by intermediaries.

*Sharing community experiences* and lessons are a useful way to improve pro-poor outcomes for communities, but:

- deficiencies in communications infrastructure, and thus ability to identify other PES communities makes interaction difficult.
- Carrying out workshops for interaction requires financial means and contacts that may be beyond many communities' abilities.

**Lessons Learned from PES initiatives**

**Building on existing community based institutions**
There has been greater success in communities with pre-existing local institutions and organizations (administrative or market focused). Even if these were not directed at PES activities, the existence of a predefined and operating structure helps simplify community involvement. Highest transactions costs arise during the planning, design and initiation phase, and these are greatly reduced when market oriented experiences exist amongst the community. Additionally, communities can benefit from having institutions that can grow to manage multiple income generating activities.

**Engaging intermediaries with a view of reducing transactions costs**
The need for an intermediary often exists to address physical and even social distance and disparities between buyers and sellers. Deals are often structured by community leaders under the guidance of intermediary NGO's, who address many technical and business oriented capabilities. Instead of being approached and guided by NGOs into PES arrangement, stronger community institutions can initiate hiring a support or advisory organization to work for them in negotiating and mediating PES deals. This empowerment of the community can help ensure that its interests are at the heart of PES transactions.

Work within transparent negotiating platforms
More succesful initiatives can arise from transparent negotiating platforms where representatives and stakeholders participate on equal footing, although to date, few examples of this exist. Recommendations are made to this effect in the Conclusions.

**Need to cover full opportunity costs of land use change**
Opportunity costs of dedicating land to PES must necessarily be covered in order for the resource management activity to be sustainable. If owners do not receive the total value of foregone activities, they may return to those, often less ecologically sustainable activities. Here, notions of land management type and of bundling are relevant. The type of stewardship that is contracted for will produce different income results: some PES arrangements are more restrictive of land management (ie payment to not log a certain area), while others are of a more active type, where sellers are being paid to carry out an activity that provides an ecosystem service (ie restoring a riparian area), while other income generating activities also take place. The notion of bundling arises given the importance of integrating PES income, firstly, by bundling payments received from different type of ecosystem services, and secondly, with other forms of income from product markets. PES should not take the place of other activities, or be relied on exclusively as a source of income.

**Recognize heterogeneous and dynamic land uses**
Heterogeneous land uses exist within communities and these need to be recognized in designing payment structure. Landscape level planning or contracting is more indicated than plot level contracting or land management given the often varying dynamics that occur in landscapes. Integrating dynamic pricing schemes can address this issue, as does making PES

agreements relate to large land areas, which provides land owners with more flexibility in the activities they can carry out within the area.

**Secure land tenure and land rights**

Since land tenure is a requirement for entry into contracts, often the poorest of the poor, who have not secured legal land ownership, can not participate. In fact, many analysts see PES as a means to increase tenure or provide greater security to landowners where illegal incursions or threats to ownership are a problem. Conversely, the interaction between PES provision and regulatory frameworks can pose a concern. Legal statutes can limit participation amongst otherwise eligible land holders, as is the case in Costa Rica for land reform beneficiaries where, "once participation in PES begins, households are barred from accessing some other public benefits" (Grieg Gran, et al 2005 pg 21). Additionally, concern exists that changes in a legal system can arise after providers sign contracts, or that decisions on land use will be subjugated to PES service agreements.

**Consider long term impacts to participants and surrounding communities**

To date, evaluation of impacts of PES initiatives show that the specific community context and the design of the program will lead to different outcomes. Many benefits or impacts of the projects will take time to be fully realized (eg in carbon projects, sustainable timber management will provide income in future years). Also, it is important to not only consider impacts to the service providers themselves since surrounding non-participating communities are typically also affected. Increased employment, reinvestment in community, strengthening community structures and solidifying land tenure are some of the ways in which local communities can benefit from market initiatives, even when they are not receiving direct financial payment (Grieg Gran, et al. 2005, pg 29-30).

**Ensure existence of buyers for the services provided**

Supply of PES services is often greater than demand given the traditionally 'public goods' quality of many enviromental services and the potential PES presents for providing income to the world's poor. PES instances (especially those promoted by governments or NGO's) are developing where suppliers take steps first to organize the supply before establishing contracts with buyers, which can be risky as it may put into question the long term financial sustainability of the programs.

**Develop the business case for buying from communities**

Related to promoting buyer activity and participation in PES markets is the need for developing a business case for the buyers to seek out PES with communities and the need for facilitating buyer involvement. Some reasons why businesses should buy from communities include the geographic specificity of the environmental service desired. Those living upstream from a factory with high levels of water usage may be poor community landowners, whose activities would benefit water needs of the factory. Long term relationships in the area of the business can be improved by entering into transactions with local stakeholders. Benefits to the private sector buyer include improving their reputation internally by engaging in enviromentally and socially responsible behaviors, and increased levels of external legitimacy and better reputation from operating in a environmentally responsible manner. Community derived environmental services can potentially have lower

costs than from other sources, particularly in the carbon market, and also can provide the opportunity for businesses to brand their carbon with multiple benefit certification standards, such as the Climate, Community and Biodiversity Standards (www.climate-standards.org).

**Address buyer concerns and risks in the design of PES projects**

Concerns on behalf of buyers about entering into PES transactions are also important to recognize. Establishing cause and effect between land management actions and the service provided can be difficult. Thus, risk management efforts and insurance strategies have a role in PES transactions to allay the concerns of potential buyers. Failure to achieve contract compliance when dealing with communities can result from the weak regulatory framework regarding land rights or inability of authorities to enforce contracts. Instability of local institutions can pose a problem for negotations, as can dealing with multiple actors/multiple suppliers at once. The permanence of the benefits may thus be put at risk, and should be considered during contract negotiations.

**Conclusions and Key Recommendations**

- It is important for communities to *build and strengthen local institutions and infrastructure* so as to define their own needs and interests, and be able to acquire capacities needed to negotiate and interact with intermediaries and potential buyers. Strong community institutions will also help them compete against large landholders who can provide the same service at (typically) much lower transaction costs. This investment will help communities be prepared to participate more in the definition of rules and guidelines for PES programs. At the same time, access of small landowners to PES design should be facilitated and increased.
- Resources need to be directed at *educating and mobilizing buyers*, and to facilitating and building structures that can *help link them to communities*. Government and NGO efforts towards this end can be invaluable. PES sustainability will be enhanced by involvement of the buyers from the outset of the PES project design.
- *Learning by doing* is invaluable in PES markets. Technical, business and financial support from local and international sources should continue to be offered to selected communities to navigate through the various stages of PES transactions. The specific lessons that are learned from early cases are very helpful in guiding policy makers, advisors and market participants in the next generation of PES iniciatives. Actions taken for PES need to be based on solid analysis of the many adhoc successful and unsuccessful experiences to date and be directed at the next generation of PES.
- *Certification efforts* such as the Climate, Community and Biodiversity Alliance standards and guidelines from the BioCarbon Fund can continue to have a positive effect on the development of PES projects, ensuring that investors and communities benefit from high quality projects and increase certainty of project success.
- PES should be *used strategically* as an income generating instrument. It is not always the right model for the community to follow. Some instances where it is less indicated are when cause and effect of the change in land management and the service provided are not clear, or when institutional capacity is insufficient. Unsuccessful PES initiatives, particularly those that may be inappropriate for specific

poor constituencies could bring about anti-PES advocacy, or discontent among communities with negative experiences.

- *Legal frameworks and regulations* must not impede PES participation, nor provide perverse incentives. Legalizing land tenancy for landholders so that they may enter into contracts and safeguard their rights is critical. It is important that legal protections be put in place such that PES evolve as rewards for stewardship and not into claims on the resources. Liability and risks involved in PES transactions call for a role for rules about risk sharing that should be defined with input from a cross section of stakeholders.

Thus, in the short term, it is critical to continue to acquire more PES experiences and facilitate high levels of engagement to share the learning obtained from them. A platform for negotiating PES deals needs to be designed, founded on appropriate participation by relevant parties, and based on standards to ensure quality projects. Communicating interests and needs across sectors is critical to fostering more successful next generation of PES initiatives. Continued comprehensive evaluation and concrete learning experiences should be distilled such that guidance can de developed for all the different types of PES markets.

In the long term, PES initiatives need to continue to get financial, technical and logistical support from multiple local, national and international actors to ensure that their potential to contribute to the Millenium Development Goals and the goals of other international conventions is not wasted.

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## ANNEX 4: LIST OF CASE STUDIES AND POWERPOINT SUMMARIES

1. **From Policy to Practice: The development of a community forest enterprise: A case study from Bolivia**, Charlotte Benneker, Forest and Nature Conservation Policy Group.

2. **Community Timber Enterprises in the Mamiraua Sustainable Development Reserve in Brazil**, Andrea Pires, Mamairaua Sustainable Development Institute.

3. **Community-based Forest Enterprises in Cameroon: A case study of the Ngola-Achip Community Forest in East Cameroon**, Kenneth Angu Angu, IUCN-Regional Office for Central Africa.

4**. PingShang Bamboo Group: A case study of a community enterprise in China's bamboo sub-sector**, R. Anders West, Christopher H. Aldridge.

5. **A Participatory and Holistic Approach for Forestry: Payments for environmental services as a piece in building an alternative for sustainable management of forests in San Nicolás, Colombia**, Carmenza Robledo and Patricia Tobón.

6. **Community Forestry Enterprises: A case study of The Gambia,** Wolfgang Thoma and Kanimang Camara, FAO.

7. **Community Forest Enterprise Development in Guatemala: A Case Study of *Sociedad Civil para el Desarrollo Árbol Verde*,** by Dietmar Stoian and Aldo Roldas, CATIE-CeCoEco.

8. **Community Forest Enterprise Development in Guatemala: A Case Study of *Cooperative Carmelita R.L*,** by Dietmar Stoian and Aldo Rodas, CATIE-CeCoEco.

9. **A Brief History of the COATLAHL Cooperative: At last a little optimism, Honduras**, Filippo del Gatto with Danilo Dávila, Jens Kanstrup, Sergio Herrera, André Mildam, and Noé Polanco.

10. **The New Oil Economy of the Rural Poor: Biofuel plantation for power, water, transport and carbon credit: A case study from Adilabad**, Emmanuel D'Silva.

11. **Ixtepeji Forest Community, Oaxaca, Mexico,** Salvador Anta Fonseca, Mexican Civil Council For Sustainable Silviculture.

12. **Global Review of Community Forest Enterprises: One Small Peasant Village's Grand Forest Industry: A Case Study of the El Balcon Ejido in Western Mexico**, Claudio Garibay Orozco, Consejo Civil Mexicana para la Silvicultura Sostenible.

13. **Sociedad de Productores Forestales Ejidales de Quintana Roo**, Peter Wilshusen, Bucknell University.

14. **Supporting Livelihoods through Employment: the Chaubas-Bhumlu Community Sawmill**, Netra Prasad Timsina, Michael Nurse, RECOFTC.

15. **Including the Excluded: A Pro-Poor Bel Fruit Juice Making Enterprise in Nepal** Dinesh Paudel, RECOFTC.

16. **Community Forestry Benefits Customary Landowners, Madang Province, Papua New Guinea**, Yati Bun and Bazakie Baput, Fund for Peoples' and Community Development.

17. **Behind the Fragile Enterprise: Community Based Timber Utilization Southern Philippines**, John M. Pulhin, Ph.D and Mark Anthony M. Ramirez.

18. **Amani Butterfly Enterprise Case Study, Tanga Region, Tanzania**, Cecilia Scurrah-Ehrhart and Tom Blomley.

19. **From subsistence harvesters to market players: the evolution of Brazil Nut production in Manicoré, Amazonas state, Brazil**, Alejandra Martin and IBENS.

20. **Case study of the Agro-Forestry Cooperative of the Tri-Natoinal, Ngoyla, Cameroon**, Patrice Andre Pa'ah, CAFT.

# From Policy to Practice

The development of a community forest enterprise:
a case study from Bolivia

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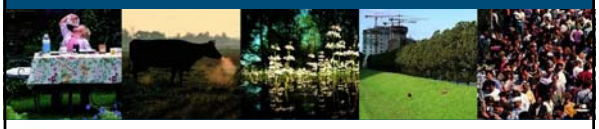
PhD student



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CFE in Tropical Forest Countries,
Forest Trends and ITTO

# The Bolivian context

## Bolivia: 53 million ha. of forest in lowlands

**Before 1996:**

- 20 million ha. assigned to concessionaires
- Overlap with communities and indigenous territories
- Extraction of mahogany, oak and cedar
- No management


**After 1996:**

- New forest law
- Includes user rights for local people
- Exclusive user rights for land owners

**New actors:**

- Farmers groups
- Indigenous groups
- Social local groups (ASL)

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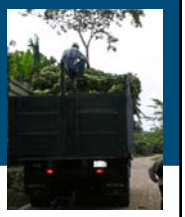
# 1. Farmers groups

- > 35 farmers groups
- 500,000 ha. managed
- Private and communal lands
- Specific regulations for forest areas < 200 ha. and < 3 ha.
- Potential forest area: ?
- Potential interest: low/medium
- Alternative forest use = agriculture



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# 2. Indigenous groups

- > 70 indigenous groups
- 1,300,000 ha. managed
- Communal lands
- Specific regulations for indigenous landholdings > 200 ha.
- Potential forest area: 9 million ha.
- Potential interest: high
- Alternative forest use = ?

  supposedly for traditional uses but forests are being invaded


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# 3. Social Local Associations (ASL)

- > 80 ASLs registered
- 900,000 ha. managed (?)
- Forest concessions
- Specific regulations for ASL
- Potential forest area: 3 million ha.
- Potential interest: high
- Alternative forest use = conversion to agriculture

  Alternative activity = illegal logging


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# Agro-forestry Association of Tumupasa


## AGROFORT

***General:***

- Location: Northern La Paz
- Management area: 7707 ha.
- Members: 16, ex-*piratas*
- Origin: Tacana
- Initial assistance: BOLFOR project
- Current assistance: incidental

***History:***

- 1997: Foundation ASL
- 2000: Conversion to indigenous association
- 2001: First harvest
- 2002: Management plan approved
- 2004: Purchase sawmill

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## Management system

*As defined by the state:*

- Commercial timber production
- Management plan:
  - Forest inventory
  - Cutting cycle = 25 years
  - Harvest = max 80 % of mature trees
- Annual harvest plan:
  - Species selection
  - Planning of harvest operations
- Yearly harvest report

*Main critics:*

- Inefficient harvesting as use of chainsaw is forbidden
- Required capital ≠ available

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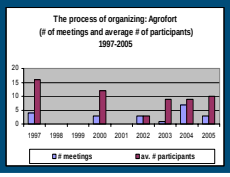
## Organization

*What influenced the process:*

- High initial expectations
- Bureaucracy
- Persistent leaders
- Employment
- Defining responsibilities for all




- Investments
- Capacity to learn and improve
- Autonomous definition of vision and strategy
- Renewed high expectations

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## Finances

| | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|
| Timber harvest ($m^3$) | 604 | 2,366 | 3,892 | 5,628 |
| Average price (us$/$m^3$) | | 5 | 8 | 7 |
| Income timber sales (us$) | | 11,992 | 29,207 | 41,307 |
| | | | | |
| Inventory annual harvest area | | 899 | 2,399 | 2,355 |
| Forest technician and administrator | | 1,159 | 1,793 | 3,446 |
| Forest patent | | 193 | 305 | 369 |
| Transport permits | | 812 | 757 | 1,636 |
| Harvesting | | 1,211 | 12,669 | 24,382 |
| Amortization / depreciations | 1,239 | 1,153 | 1,058 | 4,588 |
| Contribution CIPTA | | | 184 | 178 |
| Total costs | 1,239 | 5,426 | 19,163 | 36,954 |
| | | | | |
| Profit | 1,239 | 6,566 | 10,044 | 4,353 |
| Cost:benefit (%) | | 45 | 66 | 89 |
| profit / m3 | | 3 | 3 | 1 |

***Observations:***

- Increased volume harvested
- Higher income
- Increased harvesting costs
- Increased investments
- Lower profits

***Explanation:***

- Inefficient harvesting: new activities & personnel
- But also additional cost for:
  - protection area
  - installation saw mill

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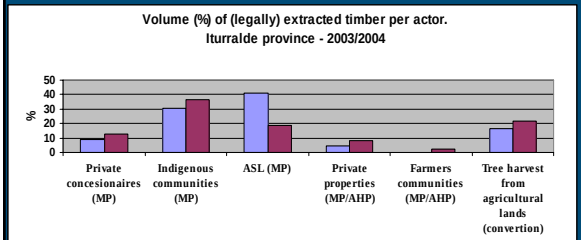
## Market share - 1

**Agrofort:** 7% legally extracted timber in the region




MP = Management plan AHP = Annual Harvest plan

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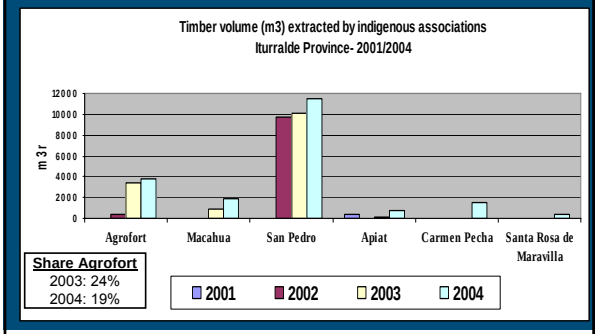
## Market share - 2




**Share Agrofort**
2003: 24%
2004: 19%

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## Government regulations

*Enabling:*

- Forest law creates opportunity
- Clear norms & regulations

*Obstructing:*

- Getting permits takes time and money
- No effective support to local forest organizations
- Land law & forest law are contradictory **(!)**
- No enforcement of property rights **(!)**
- No way to enforce contracts on the market
- Management system not adequate

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## Ways forward

*Great potential for community forestry in Bolivia:*

- Local actors interested
- Ratification of rights
- Autonomous development
- Generates employment
- Generates economic benefits
- Protection of land & forest

*Requires:*

- Room and support for development processes of forest groups
- State support to protect property rights and abuse by market actors
- Redefinition of requirements and forest management systems
- Courses and training at all levels
- Exchange of experiences (AFIN)
- Recognition by and interaction with forest sector as a whole

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## Thank you very much

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## Community Timber Enterprises in the Mamirauá Sustainable Development Reserve, Brazil


Andrea Pires

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PhD Student

CFE in Tropical Forest Countries, Forest Trends and ITTO

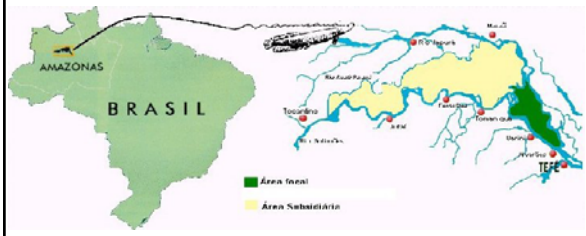

## Country Background

- 60% of Brazilian territory is tropical forest cover
- 70% of the Brazil's tropical forest cover available for economically feasible timber extraction
- 1998: Community forest management formally recognized and regulated
- 605,605 ha of forested area formally under CFM control
- 10,413 ha managed by communities; 599,011 ha managed by small-scale producers

## Mamiraua Sustainable Development Reserve (MSDR)

- MSDR is the largest protected area of flooded forest (1,124,000 ha), and the only completely *várzea* protected area
- 1996: MSDR converted from an Ecological Station to SDR, ensuring the rights of local peoples to reside in the area and make use of natural resources

## Mamiraua Sustainable Development Reserve (MSDR)




- 21 settlements with 1585 inhabitants in the focal zone of the management plan; 42 settlements in plan buffer zone

## Mamiraua Sustainable Development Reserve (MSDR)

- Várzea ecosystem is one of the richest ecosystems in the Amazon in terms of biodiversity, biological productivity, and natural resources
- Seasonal flooding of land makes agriculture impracticable for those parts of the year, and fishing difficult as fish spread throughout the flooded forest
- Forest producers cut timber in the rising water period (Jan – April), and as water lowers, float cut timber to main tributaries for transportation downstream

## Overview of Case Study

- Prior to the formation of MSDR, inhabitants participated in timber extraction in a precarious cycle based on extended credit from predatory lenders/timber buyers, forced pricing of timber below market values, and unsustainable rates and methods of extraction
- MSDR management implemented a highly participatory process of engagement with local communities, created a low-impact management plan, organized production groups, and assisted with financing

## Organization of the Enterprises

- Settlement-based enterprises have been organized into a series of associations to comply with legal requirements for harvesting
- Each association harvests an area of about 4000 ha, with a maximum of five trees per ha (including raft trees for floating logs downstream)
- Community associations establish assigned forest use areas by mutual agreement
- Participatory mapping techniques define community forest management areas
- Polycyclic sustainable use management plan, 25-year felling cycle

## Organization of the Enterprises

- Mamiraua community organizations created in 1999
- Currently there are 24 community organizations managing resources in Mamiraua, including 500 associates (70% men, 30% women)
- Forest management decision-making takes places at the level of community associations, during community meetings
- MSDR management plan defines permanent preservation areas (26%) and sustainable use areas (74%); 45% of the sustainable use area has timber potential

## Organization of the Enterprises

- Managed timber from MSDR has been commercialized almost exclusively in logs (hardwood and softwood)
- Timber processing in MSDR started in 2005
- Management plans incorporate participatory stock surveys with specific and stringent criteria for selecting timber, conducted by CFE members
- Current commercialization of managed timber is carried out through business rounds, where local producers can take advantage of market competition
- MSDR identifies the best markets and assists CFE producers in negotiations with buyers

## Economic and Financial Returns

- Price of managed timber from MSDR is influenced by timber markets in Manaus, but main markets for managed timber are regional (small and medium-sized sawmills)
- Increasing surveillance and protection from illegal extraction, from communities and government organizations, has raised the price for legally produced timber from managed areas like MSDR
- 2003: 13 communities and 98 families of producers extracted 8,504 m3 of managed timber

## Economic and Financial Returns

- In a survey of CFM projects in the Brazilian Amazon, MSDR CFEs have the lowest cost of timber extraction, due to low levels of technology employed and alternative methods of extraction and transportation

## Benefits and Impacts

- Local producers no longer dependent on predatory lending and debt relationships to finance timber extraction and subsistence during flood months
- Community members and local residents have exclusive use of resources in the management area
- Participatory mapping reduces conflict related to land use decision-making
- Legalization of extraction activities
- Higher local family incomes
- Creation of community organizations strengthens political capital in the region

## Benefits and Impacts

- Improved safety of extraction techniques
- Conservation of forest areas
- Sustainable, low-impact timber extraction conserves forests and protects forest biodiversity
- Greater economic opportunity in forest activities reduces pressures for deforesting to expand land available for agriculture and subsistence
- Improved efficiency of production in the region

## Obstacles and Constraints

- Illiteracy is high in these communities; the MSDR model addresses this by implementing a model of continuous training, flexible and often-modified according to situation and lessons learned from past experience
- Main barriers for direct commercialization to sawmills relate to availability, scale, species variety, unpredictability of volume and dependence on magnitude and timing of the annual flood
- Pressure on species selected for extraction (negative effects of high selectivity)
- Lack of purchaser credit and capital for financing equipment purchase and extraction expenses

## Ways Forward and Opportunities

- Investment from the state is necessary to strengthen local education and political organization, and thus improve community members' capacity for effective organizing and entrepreneurship
- Tradition of informality in (formerly illegal) traditional use of forest resources hinders formalization of CFE associations and management structures
- Greatest success of Mamirauá is the approach to forest management as a social process and the successful integration of many stakeholders into associations and decision-making processes

# Community-Based Forest Enterprises in Cameroon:
## A case study of the Ngola-Achip Community Forest in East Cameroon

**By Angu Angu Kenneth**

Developmental/Conservation Anthropologist
Technical Assistant to the Coordinator of
the Central African Forest Conservation Programme
and the Central African Moist Forest Ecosystems
IUCN-Regional Office for Central Africa

CFE in Tropical Forest Countries, Forest Trends and ITTO

# Country Background

- Situated in the Congo Basin, Cameroon has a surface area of 47.5 m ha of forests
- 40% forest cover
- Forest activities contribute to 10% GNP

- 1995, ITTO estimated timber production at 2.3 m $Cm^3$
- 2002, 4.3 m $Cm^3$
- Commercial logging companies employ 30,000
- 2003, production valued at 187 million USD

# Country Background (2)

- During the 1980s and early 1990s, the world economic recession plunged Cameroon into an economic malaise that precipitated unrest and fostered unsustainable forest practices;
- January 1994, CFE devalued by 50%, leading to serious impacts on local and indigenous populations
- Forestry as an avenue for restructuring the economy
- 1994: Forestry Reform – institutionalization of local management of forestry activities, village communities have access to greater income from commercial logging

# Highlights of the 1994 Forestry Reforms

- Forest divided into Non-Permanent forest domain (multiple-use land) and Permanent forest domain (belong to the state and rural councils)

- Community forestry defined by the new law as "increasing the participation of local populations in forest conservation and management" and "seeking to secure substantial benefits for village communities a well as to motivate them to better protect forest cover"

# Overview of Country Case Study

- Four rural villages: Ngola, Achip, Ndam, and Ngola-Baka
- Multi-ethnic community of Bantu and Baka Pygmies; control of village activities lies with three main families – the Balogbos, the Pa'ahs, and the Bamouhs.
- Each village has a village Chief, who reports to the "Chef de Canton" (Paramount Chief) at Zoulabot (a few km away)
- 1998: creation of The Association of the Families of Balogbo, Pa'a and Bamouh of Ngola-Achip
- 2000: Legalization of the Association
- 4 villages, population 1050, 4200 ha of forested area managed as community forest

# History of the Enterprise

- 1996: national NGO EnviroProtect organises a workshop in a neighboring village on the 1994 Cameroonian forestry law, applications and new opportunities for local communities like Ngola-Achip
- 1998: new impetus for acquisition and organization of community forest with the arrival of SNF/SDDL, a Dutch development and conservation organization

- 1998: Association of Balagbo, Pa'a and Bamouh Families of Ngola-Achip created to run the enterprise on behalf of the villages

## Exploitation of Timber and other NTFPs

- Small-scale loggers have often been contracted to harvest various timber species;
- To date, four major loggers have had the privilege to harvest:
  - L'Homage Investissement Service (Owned by M. Lomié Gérard);
  - Passerelle (Owned by Mme Esther Ela);
  - SICOGEC (Owned by M. Paul Mpay); and
  - Bexdan (owned by M. Daniel Djoh).
- Loggers contracted by bureau members and later presented to villagers in a general village meeting
- Villagers are not satisfied with operations – selective and unsustainable exploitation and low rate of payment per $m^3$ of wood (24,000 FCFA).

## Exploitation of timber and other NTFPs (2)

- NTFPs are exploited mainly for subsistence purposes (i.e. food and shelter).
- Predominant NTFPs include Bitter kola (Garcinia kola), Moabi oil (Baillonella toxisperma), Njansang (Ricinodendron heudolotti), Bush mango (irvingia gabonensis), and raffia palm leaves.

## Enterprise Organisation, Management and Governance

- Elected bureau members represent the village in all aspects concerning community forestry;
- Bureau must represent all four villages, also gender and youth
- Village elites (bourgeouises living in large cities) often influence the decisions of bureau members, to the detriment of the realities for those actually living in the villages

## Economics of the Enterprise

- 34 million FCA profit in the first five years
- Heavy financial investment necessary to exploit timber resources, so communities are unable to conduct harvesting themselves;
- Communities sign contracts with small-scale logging companies for harvest and sale of final product;
- Very little lucrative re-investment in first five years of business. Rather, priorities were rehabilitating health infrastructure and providing education;
- 16-18 people employed by each factory

## Environmental & Social Benefits

- New forestry laws and regulations create incentives for local conservation of biodiversity
- Higher local incomes result in local development, improved education infrastructure, health and medical emergency infrastructure
- Construction of two new churches, two television sets, a generator, and a satellite dish for the village

## Obstacles & Lessons Learned

- Vast administrative bottlenecks;
- Lack of financial and technical expertise;
- Lack of financial capital or credit resources to fund extraction and processing;
- Decentralization of forest management alone is not sufficient; success also demands technical training, and funding or credit availability;
- Lack of bargaining experience or knowledge, villagers taken advantage of by logging companies;
- Generational and socio-economic conflicts within villages surrounding opportunity, control, and decision-making in the enterprise;
- Community enterprise may be creating a new form of social stratification;

## Conclusions, Ways Forward, & Opportunities

- Most communities were not well-prepared to manage their community forests – new programs and models must include extensive training and capacitation for logging, fundraising and marketing
- Communities must be educated to recognize the differences between logging and community *forestry*, which also includes agriculture, fishing, ecotourism, and NTFP harvesting
- Additional investment is necessary to allow CFEs to diversify their products
- Training and careful institutional structure must work to address internal conflict within communities
- Equal benefit distribution does NOT occur naturally and must be carefully cultivated within management plans, employment and institutional structure
- Government should allocate more resources for appropriate technical support and training for communities

## PingShang Bamboo Group (PBG)

**A Community Enterprise in China's Bamboo Sector**

**CFE in Tropical Forest Countries, Forest Trends and ITTO**

## China's Bamboo Forests

- Total forest area: 153.6 million hectares (ha) (SFA 2000)
- Bamboo forests: 7.6 million ha (4.6 million ha pure and plantation bamboo forests & 3.0 million ha "mixed and mountain natural bamboo stands" (Lobovikov 2003; SFA 2003)
- Over 93% of bamboo forests are collectively owned (SFA 2000) and over 80% of collective forests are managed by households (Hyde *et al.* 2003)

## PBG – Enterprise Profile

- Location: PingShang Village, Hushi Township, Chishui County, Guizhou Province, P.R. China
- Membership: All 72 families in PingShang Village (pop. 354) are eligible to participate
- Bamboo chopstick & whole culm producer
- Resources: Harvest rights to 130 hectares of bamboo forest
- PingShang Village borders Chishui National Nature Reserve (NNR)

## Guizhou Province, China


## Chopstick Production Chain

Harvest → Unfinished chopsticks → Machine-shaping

↓

Sterilization ← Packaging and labeling ← Finished Product

## Organizational Structure

1 Group Manager

2 Chairpersons

12 PBG Management Committee members (incl. group manager, co-chairpersons, & 1 Chishui NNR representative)

354 PingShang Village members

## Socioeconomic and Environmental Benefits

- Annual household income in PingShang Village has almost doubled to approximately US$50 in PBG's short existence
- More disposable income available to spend on educational, communication, and health services
- There are plans to plant bamboo on village land not suitable for agriculture

## Production

- **Before PBG**: PingShang Village produced 300,000 pairs of rough, unfinished chopsticks annually
- **After PBG**: PingShang Village produced 400,000 pairs of rough, unfinished chopsticks and 400,000 pairs of finished, ready-to-use chopsticks in the first full year of operation
- PingShang also sells whole, unprocessed bamboo culms

## Revenue & Profit

- **Before PBG**: PingShang Village sold rough, unfinished chopsticks for approximately US$0.25 (2CNY) per pái (10 pairs of chopsticks)
- **After PBG**: PingShang Village sold finished, ready-to-use chopsticks for between US$0.43 to US$0.56 (3.5 CNY to 4.5 CNY) per pái
- It is estimated that each pái brings PingShang Village a profit of US$0.01 to US$0.06 (0.1 CNY to 0.5 CNY)

## Advantages That Helped PBG

- Large, growing demand for chopsticks
- Proximity to Chishui NNR and close working relationship with staff
- Village gov't permitted formation of separate PBG management committee
- Donor support of approximately US$4800 and technical expertise from Community-based Conservation & Development Research Center of Guizhou Normal University
- Hushi Township is helping market an eco-label for PingShang chopsticks
- No tax on the donor's grant nor on chopsticks produced in PingShang

## Obstacles Facing PBG

- PingShang Village has no road, so large effort to get products into the marketplace
- PBG presently does not have members contributing monetarily to the enterprise for new equipment or machine repairs
- Bottlenecks in the production chain, since the whole production process is not mechanized
- There is potential that private enterprises operating in the area may attempt to encroach into PingShang Village's bamboo forests

## Ways Forward and Opportunities

- Property, use, and benefit rights are uncertain on forestlands across China, e.g. the formation of Chishui NNR on land traditionally used by PingShang Village for resource collection. Clarifying these rights would result in, among others, better management, fewer conflicts, and greater achievement of objectives.
- In Guizhou, there are 7 national-level nature reserves and 120 local-level reserves that could benefit from support similar to that received by PingShang Village

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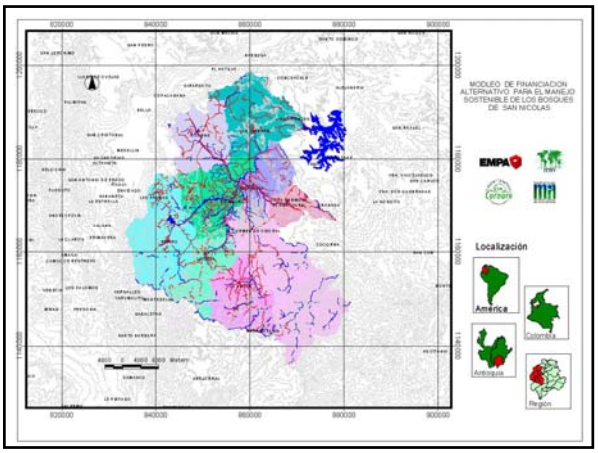
CFE in Tropical Forest Countries, Forest Trends and ITTO

# Alternative Financing Model for Sustainable Management in the San Nicolas Forests Colombia

CARMENZA ROBLEDO
Intercooperation/EMPA





## Project partners
### Design phase (2001 - 2004)

- Autonomous Regional Corporation for the Rionegro - Nare Region (CORNARE)
- Swiss Federal Laboratories for Material Testing and Research (EMPA)
- International Tropical Timber Organization (ITTO): Funding agency
- Intercooperation: Technical backstopping on behalf of seco
- State Secretariat for Economic Affairs from Switzerland (seco): Mayor donor

## Project Rationale

Test a methodology for the Financing of long-term Sustainable Management of Forests (SMF)

Knowledge and Technologies for the Sustainable Management of Forests (SMF)

CDM (reforestation y afforestation)

National and international investors in SMF

Participative decision making process

## Social Component

- During the design phase
  - Through a Regional Forum (including public and private sectors, civil society)
    - Information and capacity buiding
    - Exchange and formulation of project activities
    - Decision Making (through concertation)
- During the implementation
  - Monitoring and Verification Plan
    - Definition of social and environmental C&I

## Results of Phase I

- **Integrated Forest Development Plan** for the region
  - Includes products and services , as well as socio-economic elements
  - CDM component (reforestation)
  - Non-CDM component (forest conservation and forest restoration/rehabilitation)
- **Investment and Financing** Plan
  - NTFP and TFP
  - CERs, VERs
- Promotion of **social and institutional alliances** to facilitate implementation of the management plan
  - Corporation MASBOSQUES: farmers, local industry, government, research institutions, church
  - Land tenure
  - Ownership of ES

*Agreed through the Regional Forum*

## Outputs from Phase I

- Creation of the MASBOSQUES Corporation
- Financial instruments and trust fund
- Forests inventory and forest management plan
- Socio-economic characterization
- CDM documentation: PDD, Carbon quantification study, MVP
- Risk management strategy
- Market analysis for timber and NTFP
- Training and participation of the local community

## Financial Instruments for Environmental Services Payments

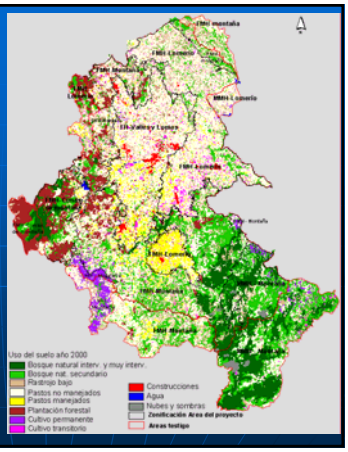
- **Certified Emission Reductions (CER)** ➡ Kyoto eligible
- **Verified Emission Reductions (VER)** ➡ Kyoto non-eligible
- **Environmental shares (ES)** ➡ Other environmental services
- **Environmental and Social Recognition (ESR)** ➡ Corporate PR

**Managed by the legally installed Corporation that incorporates GOs (municipalities and the department), enterpreneurs, NGOs and the land-owners**

**Establishment of a trust fund**

## Kyoto Eligible Land

- Secondary bushes
- Pastures
- Managed pastures
- Permanent crops
- Annual crops



## Current land use (baseline)

- Highland zone
  - Extensively managed pastures
  - Intensively managed pastures (seeded and fertilized)
  - Croplands (permanent and annual)

- Lowland zone
  - Extensively managed pastures
  - Croplands (permanent and annual)

## CDM eligible project activities

1 Silvopastoril system

Alnus acuminata + Persea americana

6 Forest plantation systems

Alnus acuminata, Persea americana, Guadua angustifolia, Pinus tecunumannii, Pinus ocarpa, Acacia mearnsii, and others

6 Agroforesty systems

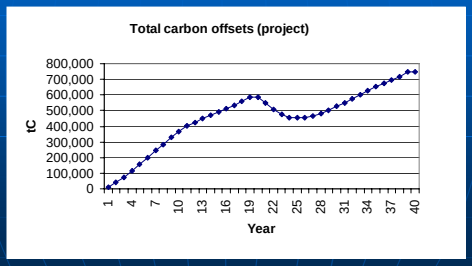
Various combinations including timber, citrus and other fruit trees, platano, corn, beans, yuca, coffee, sugar cane, etc.

## Actvities non-eligible for CDM
(Voluntary markets)

- Rehabilitation of degraded forests with native species
- Forest conservation activites
- Harvesting and processing of NTFP and selected timber products

## Carbon Quantification

Overall result




## Monitoring and Verification Plan

- Aimed to be transparent, accurate and participative
- Includes CDM and non-CDM eligible activities
- Includes a set C&I on environmental and socio-economic impacts designed with the community
- Includes leakages and other GHG emissions
- Make possible the verification of the calculations for the C modelling
- Define activities for quality control

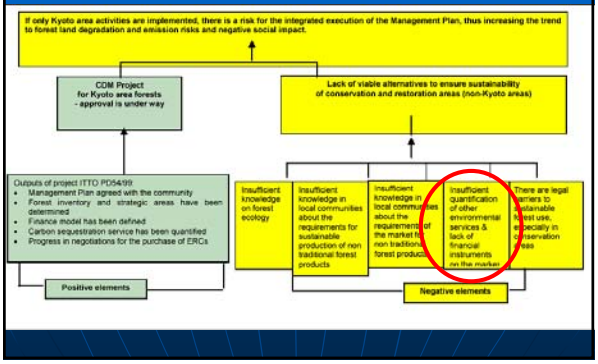
## Getting into the markets of Ecosystem Services. Experiences from the San Nicolás Project in Colombia

## Phase II

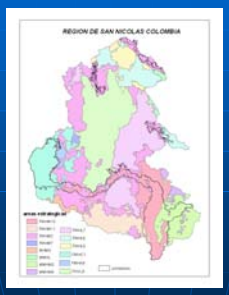


- **Phase I (1999 – 2003)**
  - Overall development planning (covering social, institutional and forestry aspects)
  - Instruments for participation and participatory decision-making
  - Carbon sequestration:
    - CDM component: reforestation (plantations, agroforestry and sylvo-pastoral)
    - VERs: from activities in "*non-eligible*" land for CDM
- **Phase II (2003 – 2007)**
  - Continuing social and institutional approach
  - Focus on conservation and restoration

## Phase II



## Which Ecosystems?




## Which services?

- C Sequestration
- Regulation of microclimate
- Food production
- Wood production

Resolved in Phase 1: CERs and VERs; TFP and NTFP

- ~~Resilience to disturbances~~
- Water regulation (quantity) — Regulation of the hydrologic cycle
- Water offer (Quantity and quality) — Soil conservation
- Control of erosion
- Soil formation
- Soil fertilization
- Polinization
- Biological control
- Species habitat — Conservation of biological diversity
- Species diversity
- Production/conservation of genetic resources — Conservation of cultural habitat (incl. scenic beauty)
- Recreation

## A Way to Marketable Products

1. Define the forestry activities for ensuring or increasing ecosystem services
   - Conservation of forest biodiversity
   - Restoration according to its objective
2. Define units that are clear for all market actors: e.g farmers, buyers, institutions responsible for legal framework
   - Area per activity
   - Days/hours (recreation/relaxing/cultural activities)
3. Define potential „buyers“
4. Define the marketable product (according also the potential buyer)
   - Environmental Shares
   - Ecotourism

## Potential Buyers

Local — Global

- Direct users of the ecosystem service
  - Farmers (polinization),
  - Energy company (water for energy generation)
- Indirect users of the ecosystem service
  - Urban population (regulation of quantity and quality of water)
  - Global population
  - Ethics

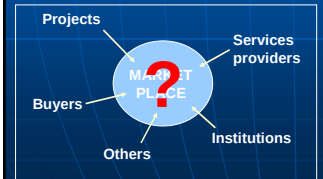
Less regulation — More regulation

## Potential Buyers

| | *Biodiversity conservation* | | | *Regulation of hydrologic cycle* | *Conservation of cultural habitat* | | |
|---|---|---|---|---|---|---|---|
| | Pharma-Industry | Agriculture farm | Compensator | User of water (drink water, water for energy generation) | Tourists | Tourism enterprises | Investor |
| **Product** | | | | | | | |
| Ha of conserved forest | | X | X | X | | X | X |
| Ha of restored forest landscape for biodiversity | | X | X | X | | X | X |
| Ha of restored forest landscape for soil conservation | | | X | X | | X? | X? |
| Access to tourism | | | | | | | |
| Access to genetic material | X | | | | X | | |

## Is there any market?

Bilateral — MASBOSQUES




**(BINDING) AGREEMENTS**

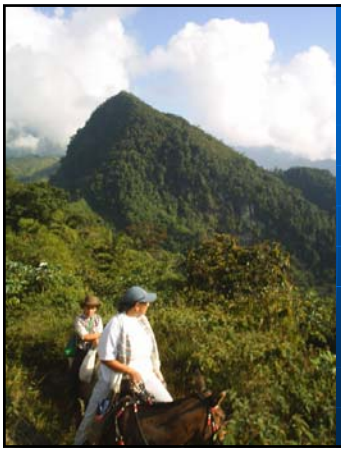
**Local- National : e.g.**
- Agreement 016/98
- Law on Retributions for watershed conservation


**Global: e.g.**
- UNFCCC and Kyoto Protocol

## Next Challenges

- Approval of the CDM methodology
- Validation of the CDM component
- Impacts of the new Forest Law
- Setting the prices:
  - PES are complementary to other income sources
- Completing (bilateral) negotiations
- Improving enabling conditions
  - Outside the project: legal agreements for taxes and subsidies
  - Within the project: Empowering MASBOSQUES as a representative of the local community
- Ensuring sustainability
  - Maintenance of planting and management agreements
  - Providing/using adequate management practices
  - How to ensure long-term, adequate payments?
  - Which are the best mechanisms for redistribution?

**Do we need to think also about penalties and liabilities and not only about incentives?**



**THANK YOU VERY MUCH FOR YOUR ATTENTION!!**

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## Community Forestry Enterprises in the Gambia

**Wolfgang Thoma & Kanimang Camara, FAO**
CFE in Tropical Forest Countries, Forest Trends and ITTO

## The Context: Biophysical

- Gambia has suffered severe deforestation through its history
- River Gambia is a natural barrier to spread of desertification in region

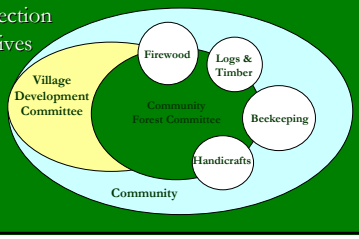
- 43% of total area is forested – 460,000 ha. (excluding mangroves)
- 78% of this is tree and shrub savannah

## The Context: Policy Reform

- Since central control did not work, Gambia moved to participatory management approaches in 1990s
- Gambia Forest Management Concept and National Forestry Fund made state forests nuclei of knowledge for community forest management
- Goal of 30% forest cover, 170,000 has of it community owned and managed according to forest management principles (400 CFs)

## Community Forests in Gambia

- 264 CFCs (committees) registered with 22,100 has.
- 141 CFCs with 12,900 ha. eligible for commercialization of products though Foresters give conflicting advice and slow process
- 24 joint forest protection management initiatives for another 17,300 ha. with potential to involve 240 communities.




## Enterprise Development: Market Assistance and Development (MA&D) Program

- Work with 26 villages with 72 interest groups around 11 products
- Enterprise development plans prepared during 2003 and 2004.

## Enterprise Development and Market Assistance Program

- Some villages partner to Dobo, Dobo forest park management and Sibikuroto.
- Fuelwood, logs/timber, and honey most promising options.

- Other commercial palm handicrafts, Rhun palm splits, ecotourism, Netto fruits, oil palm fruits, tree nurseries, and Kembo (ironwood) posts.

## Organization of Enterprises

- CFCs have six members legally--JFPM rules are more flexible than CFC rules
- Interest groups organized around specific products or sub-activities but marketing down at CFC level
- Difficulties with planning and organization due to continuous need for technical and entrepreneurial skill building.
- Honey entrepreneurs market through a national association for better price and access to technical training
- 2004: Jamorai Timber and Fuelwood Federation registered as the first successful association organization, despite earlier FD promotion of this model elsewhere.

## Future Strategies

Organizations asking for expansion of CF area to reduce harvesting pressure on existing area.

## Economic and Financial Returns

- Doubled profits in timber from 33 to 63%--added processing of dead wood (example from CRD region)
- Employment of 484 IG members in all
- Raised honey returns 10x by marketing through established association--20% of its total honey production by CFCs
- Supply 80% of local wood market (CRD)
- Generated aggregate profits of US$ 61,500

## Social and Environmental Benefits

- Empowerment, better organization for other productive activities

- 10% of profits invested in social infrastructure and micro credit
- CFCs seek to extend forest area; 14 wildlife species increase habitat
- Limited but some investment in forest management with earnings

## Obstacles and Constraints

- Administrative procedures for handover take 4+ years, even though community ownership is now legally allowed
- Limited government investment in program and villages for NRM
- Forest Fund procedures cumbersome and slow
- Limiting orientation of forest department staff to value of improved commercialization and income streams versus strict protection
- Tariffs/ tax policy penalizes enterprises and encourages imports for tariff revenue-perverse incentive structure created

## Lessons Learned and Future Strategies

- MA&D approach has led to involvement of communities and solid approach to enterprise planning--key to success
- Local ownership and responsibility is key to managing a resource base under pressure from population--CFs with enterprises have better forest cover than those without them.
- Forest products that have greatest potential are not those that villagers were originally commercializing
- Strong training and skills building programs key to organization and technical success

Community-based Forest Enterprises in Tropical Countries: Status and Potential (ITTO-Forest Trends)

## Sociedad Civil para el Desarrollo Árbol Verde (SCDAV)

Case Study from Petén, Guatemala

Dietmar Stoian & Aldo Rodas
CATIE-CeCoEco

## History of the Enterprise

**Emergence of the Enterprise**

- in response to the changes in the political and legal frameworks for forest use in the Peten
- opportunities provided through forest concession process in the multiple use zone of the Maya Biosphere Reserve at the end of the 1990s
- nine forest-based communities become organized in 1992
- Sociedad Civil para el Desarrollo Árbol Verde (SCDAV) founded on February 7, 1998
- concession of 64,973.37 ha awarded in 1999
- forest utilization initiates in 2000
- forest certification obtained in 2002
- sawmilling initiates in 2002

## Organizational Structure (1)

**Leadership**

- Administrator (A), administrative assistant and secretarial support

**Structure and Governance**

- General Assembly (GA): all members entitled to vote on major decisions and elect BoD
- Board of Directors (BoD): president, secretary, treasurer, and four other members meet at least every three months to coordinate and guide A
- Administrator: from within or outside SCDAV
- Units for forest management, sawmilling, and hotel & restaurant
- First tier association (member of FORESCOM)

**Membership and size**

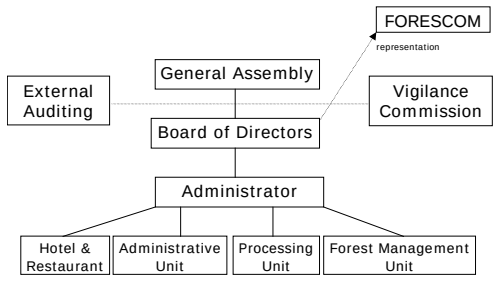
- 344 members (♂: 85% vs. ♀: 15%; 94% mestizo vrs. 6% indigenous) from 9 communities

## Organizational Structure (2)

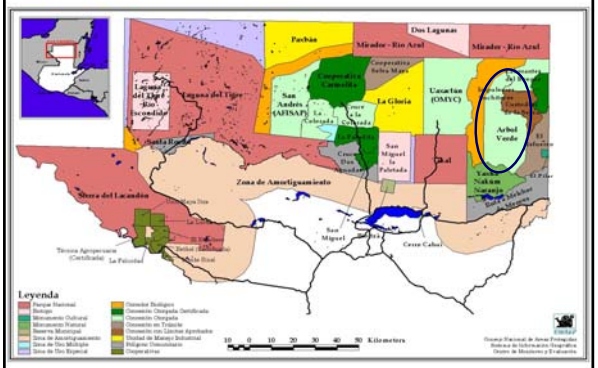
**Decision-making structure**

- Administrator consults BoD for major decisions; BoD reports to GA
- As concessionaire also needs to report to National Council of Protected Areas (CONAP)
- Legal constitution: SCDAV as civil society association; 25-year community concession (renewable)
- Membership of FORESCOM: second-tier community forest enterprise with 11 first- tier CFEs
- Contract with local private industry through FORESCOM for milling of lesser-known species

## Organizational chart




## Location of forest concession in the MBR



## Economics of the Enterprise (1)

**Forest Area**

- Concession of 64,973.37 ha (33,079.01 ha production forest; 31,894.36 ha protection forest)

**Principal timber products (2000-2006)**

- Mahogany: 4173 $m^3$ (46.1%)
- Manchiche: 1410 $m^3$ (16.2%)
- Santa María: 1138 $m^3$ (12.6%)
- Tropical cedar: 782 $m^3$ (8.6%)
- Tempisque: 473 $m^3$ (5.2%)

**Principal non-timber forest products**

- Camedor palm or xate (*Chamaedorea* spp.)
- Gum or chicle (*Manilkara zapota*)
- Allspice or pimienta gorda (*Pimenta dioica*)
- Bayal (*Desmoncus* spp.)

## Economics of the Enterprise (2)

**Production figures, 2000-2006**

| Year | Annually allowable area (ha) | Extracted volume ($m^3$) | | Density of extraction ($m^3$/ha) | |
|---|---|---|---|---|---|
| | | Allowed | Extracted | Allowed | Extracted |
| 2000 | 400 | 841.33 | 904.41 | 2.10 | 2.26 |
| 2001 | 1,000 | 2,835.84 | 2,774.89 | 2.84 | 2.77 |
| 2002 | 1,000 | 1,223.68 | 529.19 | 1.22 | 0.53 |
| 2003 | 1,000 | 730.59 | 1,182.48 | .73 | 1.18 |
| 2004 | 1,000 | 1,064.57 | 899.72 | 1.06 | .90 |
| 2005 | 847 | 1,257.16 | 1,255.20 | 1.48 | 1.48 |
| 2006 | 1,438 | 1,375.19 | 1,508.98 | .96 | 1.05 |
| Total | 6,685 | 9,328.46 | 9,054.87 | 1.40 | 1.35 |

**Source: CONAP, Forest Department**

## Economics of the Enterprise (3)

**Sales**

- Sales contracts for mahogany and tropical cedar (processed by SCDAV) with US-based companies (e.g., Rex Lumber Company or, more recently, Gibson Guitars through FORESCOM)
- 1st quality sawn wood of certified mahogany fetches highest price: from US$890/$m^3$ in 2000 to US$1,760/$m^3$ in 2006
- Lesser-known species (2-3 per year out of a total of 18) principally sold in domestic or Mexican market: prices vary (US$220-500/$m^3$)
- Recent advances in sales of three LKS (manchiche, santa maría and pucté) processed by local private industry and sold through FORESCOM or independently (US$382-572/$m^3$)

## Economics of the Enterprise (4)

**Employment**

- 30 persons in timber extraction (January-April)
- 5-10 persons in sawmilling of precious woods (mahogany, tropical cedar) and a total of 14 lesser-known species (May-June/July)
- Full or part-time employment for 19 staff, including administrator, administrative officer, administrative assistant, secretary, forest resource manager, forest technician, hotel & restaurant staff, and forest guards
  - 5-6 staff in hotel & restaurant in Ixlú
  - 3-5 staff in carpentry project (from 2007 on)

## Economics of the Enterprise (5)

**Technical Professionals**

- ACOFOP instrumental for community organization and progress in certification process
- Initially technical assistance by NGOs (NPV, ACODES, Centro Maya) and projects (BIOFOR/ USAID), in particular in quality management
- Training in carpentry, communal management and communal forest management (INTECAP, Helvetas)
- Further support through ACOFOP, ACICAFOC, Univ. of San Carlos, Rainforest Alliance, CONAP
- Forest Resource Manager oversees technicians in charge of logging operations and sawmilling
- Operations Manager/Administrator requested by SmartWood (certification condition) recently hired

## Economics of the Enterprise (6)

**Profitability of different product lines**

- Processing of mahogany and tropical cedar profitable
- Precious woods subsidize processing of LKS (number of utilized LKS dropped from 15 in 2000 to 2 in 2006)
- Average cost of sawmilling (2003): US$ 310/$m^3$
- Certification mandatory in multiple use zone of the Maya Biosphere Reserve
- Certification imposes additional costs but brings about benefits for the commercialization of mahogany, tropical cedar, manchiche, santa maría and pucté
- Group certification with FORESCOM (resource manager of 11 community concessions) helps diminishing certification cost

## Internal and External Barriers (1)

**Market Barriers**

- Demand for precious woods (mahogany, tropical cedar) outstrips local supply
- Difficulties to market lesser-known species profitably (though recent advances with manchiche, santa maría and pucté)
- Certification helps market precious woods, but less so lesser-known species

## Internal and External Barriers (2)

**Internal Barriers**

- Technical and managerial capacities still limited
- Planning deficient (no strategic or business plan, but recent advances with five-year planning)
- Blend between social organization and enterprise
- Payment of dividends despite restricted liquidity
- Unclear investment policy
- Changes in board of directors lead to discontinued development processes
- Employment effect limited to a relatively small number of members; mostly part-time and/or seasonal employment
- Stricter market orientation required for local production of sawn wood

## Internal and External Barriers (3)

**Regulatory Barriers**

- No land titles, only usufruct rights
- Concession period 25 years (though renewable)
- Mandatory certification (but perceived positive; group certification helps reduce costs)
- CONAP as governmental agency with a strong say on what happens in the multiple use zone of the MBR (though also providing certain services)
- Illegal logging causes unfair competition (lacking law enforcement)

## Non-financial Benefit Streams (1)

**Social Benefits**

- Targeted to designate 30% of utilities to social investments (though rarely fulfilled)
- Employment perceived as social benefit (despite its seasonal character)
- Financial assistance for funerals (US$ 650)
- Participatory decision making process (General Assembly as principal forum)

**Environmental Benefits**

- Less incidence of forest fires
- Generally better conservation of forest resources

## Non-financial Benefit Streams (2)

**Important Trends**

- Link with second-tier organization (FORESCOM) for group certification, resource manager scheme, and commercialization
- Product diversification: inclusion of three new LKS (manchiche, santa maría and pucté)
- FORESCOM about to install own processing facilities for lesser-known species (primarily manchiche, santa maría and pucté)
- Hotel & restaurant, with potential to serve as convention center and starting point for ecological and archaeological tours

Community-based Forest Enterprises in Tropical Countries: Status and Potential (ITTO-Forest Trends)

## Cooperativa Carmelita R.L.

Case Study from Petén, Guatemala

Dietmar Stoian & Aldo Rodas
CATIE-CeCoEco

## History of the Enterprise

**Emergence of the Enterprise**

- in response to the changes in the political and legal framework for forest use in the Peten
- opportunities provided through forest concession process in the multiple use zone of the Maya Biosphere Reserve at the end of the 1990s
- in 1996, the community Carmelita establishes the Committee for the Development of Carmelita
- concession of 53,797.9 ha awarded in 1996
- forest utilization initiates in 1997 on 100 ha
- in 1998, the committee becomes formalized as Cooperativa Carmelita Ltd.
- FSC certification obtained in 1999
- sawmilling initiates in 2001 (rented equipment)
- own processing plant since 2004
- FSC recertified in 2004 (including xate)

## Organizational Structure (1)

**Leadership**

- Operations manager oversees 4 commissions (marketing, forest protection, credit, education)

**Structure and Governance**

- General Assembly (GA): all members entitled to vote on major decisions and elect BoD
- Board of Directors (BoD): president, vice-president, secretary, treasurer, and three other members coordinate with and guide manager
- Operations manager: initially from within the cooperative; now hired from outside (ex-administrator of Arbol Verde)
- First tier association (member of FORESCOM)

**Membership and size**

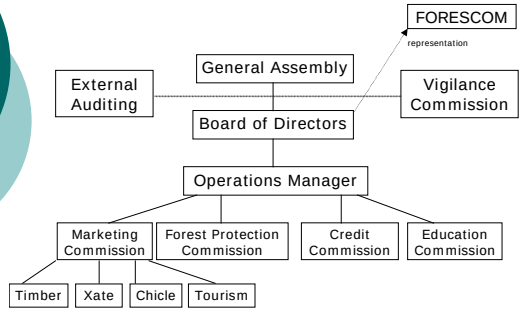
- 127 members (♂: 56% vrs. ♀: 44%), mainly mestizos

## Organizational Structure (2)

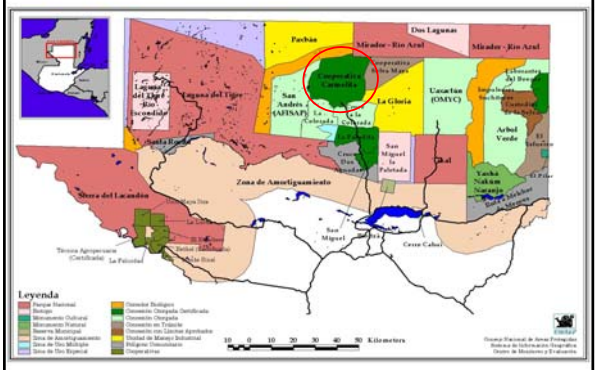
**Decision-making structure**

- Manager consults with president of BoD for major decisions; BoD reports to general assembly
- As concessionaire also needs to report to National Council of Protected Areas (CONAP)
- Legal constitution: Cooperative with limited liability (*Cooperativa R.L.*); 25-year community concession (renewable)
- Membership of FORESCOM: second-tier community forest enterprise with 11 first-tier CFEs
- Contract with local private industry through FORESCOM for milling of lesser-known species

## Organizational chart




## Location of forest concession in the MBR



## Economics of the Enterprise (1)

**Forest Area**

- Concession of 53,797.9 ha: 20,400 ha for timber extraction and 32,005 ha for NTFP extraction

**Principal timber products (1997-2006)**

- Mahogany: 6186 m³ (63.1%)
- Manchiche: 1690 m³ (17.2%)
- Tropical cedar: 1017 m³ (10.4%)
- Pucté: 456 m³ (4.7%)
- Amapola: 209 m³ (2.1%)
- Santa María: 207 m³ (2.1%)

**Principal non-timber forest products (NTFP)**

- Camedor palm or xate (*Chamaedorea* spp.)
- Gum or chicle (*Manilkara zapota*)
- Allspice or pimienta (*Pimenta dioica*)

## Economics of the Enterprise (2)

**Production Figures, 1997-2006**

| Year | Annually allowable cut (ha) | Extracted volume (m³) | | Density of extraction (m³/ha) | |
|---|---|---|---|---|---|
| | | Allowed | Extracted | Allowed | Extracted |
| 1997 | 100 | 427.01 | 434.11 | 4.27 | 4.34 |
| 1998 | 400 | 363.57 | 449.52 | .91 | 1.12 |
| 1999 | 432 | 1,091.65 | 848.99 | 2.53 | 1.97 |
| 2000 | 423 | 962.40 | 1,201.27 | 2.28 | 2.84 |
| 2001 | 450 | 1,463.31 | 969.67 | 3.25 | 2.15 |
| 2002 | 402 | 1,646.00 | 1,478.29 | 4.09 | 3.70 |
| 2003 | 500 | 1,367.67 | 1,324.50 | 2.74 | 2.65 |
| 2004 | 500 | 1,364.94 | 1,522.46 | 2.73 | 3.04 |
| 2005 | 272 | 989.90 | 790.69 | 3.64 | 2.91 |
| 2006* | 316 | 1,270.23 | 771.55 | 4.02 | 2.44 |
| Total | 3,795 | 10,946.68 | 9,800.05 | 2.88 | 2.58 |

* Preliminary data

**Source: CONAP, Forest Department**

## Economics of the Enterprise (3)

**Sales**

- 1997-1998: on the stock sales to local industry
- 1999-2000: sales of flitch (logs sliced with chainsaw) to local industry (Baren Comercial)
- 2001-2003: contraction of milling services from local industry; sales to Unites States (Rex Lumber Company) and UK (John Boddy Timber Ltd)
- Since 2004: sawmilling in own processing plant; sales of lesser-known species (Rex Lumber Company) and 50% of mahogany (Gibson Guitars) through FORESCOM

## Economics of the Enterprise (4)

**Sales**

- Sales contracts for mahogany and tropical cedar (processed by cooperative) with companies in the United States and Europe
- Typically sells certified mahogany at US$ 0.10-0.15/m³ above the average price fetched by the community concessions (bargaining power)
- 1st quality sawn wood of certified mahogany fetches highest price: up from US$ 742/m³ in 1997 to US$ 1,781/m³ in 2006
- Lesser-known species (2-3/year out of a total of 9) principally sold in domestic or Mexican market: prices vary largely (US$220-500/m³)
- Recent advances in sales of LKS (manchiche, santa maría and pucté) processed by local private industry and sold through FORESCOM or independently (US$382-530/m³)

## Economics of the Enterprise (5)

**Employment**

- 25-30 persons in timber extraction (January-February/March)
- 50-60 persons in NTFP extraction (seasonal)
- 30-35 persons in sawmilling of precious woods (mahogany, tropical cedar) (March-May)
- Sawmilling services provided to other CFE (La Colorada)
- Small carpentry operated from 2002 to 2004; to be reopened if funds for machinery are secured
- Full-time employment of operations manager
- Part-time employment of forest resource manager and other support staff

## Economics of the Enterprise (6)

**Technical Professionals**

- ACOFOP instrumental for community organization and progress in certification process
- Initially technical assistance by various NGO (e.g., Alianza para un Mundo Justo, ProPeten) and projects (BIOFOR/USAID)
- Further support through ACOFOP, INACOP, University of San Carlos, Rainforest Alliance, and CONAP
- Legal representative in charge of administration
- Resource manager (*regente forestal*) oversees logging operations
- Operations manager hired in 2005 from outside the community (ex-manager of Árbol Verde)

## Economics of the Enterprise (7)

**Profitability of different product lines**

- Processing of mahogany and tropical cedar profitable
- Processing of lesser-known species probably not profitable (exact cost analysis pending)
- Average cost of sawmilling (precious woods): US$ 230/$m^3$
- Certification is mandatory in multiple use zone of the Maya Biosphere Reserve
- Certification imposes additional costs but brings about benefits for the commercialization of mahogany, tropical cedar, manchiche, santa maría and pucté
- Recertification obtained in 2005, independent from group certification offered by FORESCOM

## Internal and External Barriers (1)

**Market Barriers**

- Demand for precious woods (mahogany, tropical cedar) outstrips local supply
- Difficulties to market lesser-known species profitably (though recent advances with manchiche, santa maría and pucté)
- Certification helps market precious woods, but less so lesser-known species

## Internal and External Barriers (2)

**Internal Barriers**

- Limited technical and managerial capacities
- Planning deficient (no strategic or business plan), but recent advances with mid-term plan (2005-2007) and long-term plan (2008-2012)
- Blend between social organization and enterprise
- Changes in board of directors lead to discontinued development processes
- Employment effect limited to a relatively small number of members; mostly part-time and/or seasonal employment
- Stricter market orientation required for local production of sawn wood

## Internal and External Barriers (3)

**Regulatory Barriers**

- No land titles, only usufruct rights
- Concession period 25 years (though renewable)
- Mandatory certification (but perceived positive; recertified in 2005)
- CONAP as governmental agency with a strong say on what happens in the multiple use zone of the MBR (though also providing certain services)
- Illegal logging causes unfair competition (lacking law enforcement)

## Non-financial Benefit Streams (1)

**Social Benefits**

- Targeted to use 40% of utilities as working capita for the following year; 30% for education, health and social work; remaining 30% to be distributed directly among members
- Community organization
- Women participation
- Improvements in health and education
- Capacity building
- Infrastructure development and service provision
- Employment and income generation

**Environmental Benefits**

- Less incidence of forest fires
- Generally better conservation of forest resources

## Non-financial Benefit Streams (2)

**Important Trends**

- Link with second-tier organization (FORESCOM) for resource manager scheme, marketing and other services
- Product diversification: three LKS (manchiche, santa maría, pucté) and NTFPs (xate, chicle, allspice)
- FORESCOM about to initiate own processing facilities for lesser-known species (primarily manchiche, santa maría and pucté)
- Carmelita seeks to offer sawmilling services to other community forest enterprises (Cruce a la Colorada, La Colorada, La Pasadita)
- Ecotourism development around archaeological sites (starting point for visits to park *El Mirador*)

# A Brief History of the COATLAHL Agroforestry Cooperative, Honduras: at last a little optimism

Filippo del Gatto
Danilo Dávila, Jens Kanstrup, Sergio Herrera,
André Mildam, Noé Polanco

CFE in Tropical Forest Countries,
Forest Trends and ITTO

## Honduras' Forestry Background

- 53% of Honduras is covered by forests
- 63% national forests, 14% ejidos (communities), 23% private property
- 1974: COHDEFOR Law establishes a semi-autonomous state institution for managing Honduran forests, and the Social Forestry System (SSM) for community forestry
- 1992: Policy reform decentralizing forest management and recognizing indigenous and local people's rights to natural resources

## COATLAHL

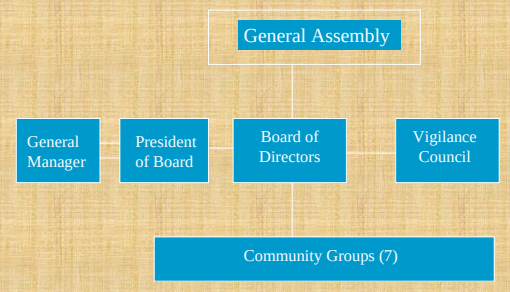
Cooperativa Regional Agroforestal "Colón, Atlántida, Honduras," Ltda.

- A regional agroforestry cooperative, composed of member community groups at the local level
- One of 120 cooperatives created by the SFS program in the mid-70s
- Initially founded with 25 member groups and 700 individuals
- 1990s: 13 groups, 392 individuals
- Now: 7 groups, 105 individuals; manage 10,336 ha. of forest

## Certification

- 1991: 5 groups in the cooperative receive SmartWood forest certification
- 1996: SmartWood certification process now verified by FSC; all 13 groups certified
- 2003: 7 remaining groups re-certified

## Organization




## Organizational Obstacles

- General Manager:
  - 1990s: four different managers hired, without lasting success
  - Expectations were too high, organizational difficulties for new manager, hired managers had limited business experience
  - Now President of the Board of Directors also serves in the role of General Manager
- Cooperation between communities (politics)

## Social Benefits

- Employment for community members at the sawmill, woodwork shop, handcraft production, and in timber transport

## Environmental Benefits

- Forest conservation: forested areas under community management suffer lower rates of deforestation than adjoining areas not under community management
- Timber transported by mule or river: minimizes negative impacts on biodiversity, minimizes soil compaction and erosion, protects watershed

## Obstacles

- 1980s: over-harvested valuable timber species
- Internal organizational and inter-community conflicts
- Institution of obligatory forestry management plans – huge barrier for many communities
- Competition with illegal timber extraction
- Financial stability (flow of funds, payment to members); bankruptcy
- Cash flow problems prevent timber extraction – sawmill and workshop stand still without wood
- Policy of reciprocal obligation in the purchase and sale of wood

## Lessons Learned & Future Strategies

- Forest certification and enterprises can be successful economic tools even in unfavorable social and political situations, and even in a country without a market for certified forest products
- Importance of functional and decentralized regulatory framework focused on community needs
- Importance of practical (realistic) technical assistance to communities

## The New Oil Economy of the Rural Poor

***Biofuel plantation for power, water, transport and carbon credit***

**A case study from Adilabad district, India**

Emmanuel D'Silva

2 February 2006

**CFE in Tropical Forest Countries, Forest Trends and ITTO**

## Country background

**India's forests**

- Cover one-fifth of land area, but 42% of forested land is degraded
- Most of forest land is owned by state
- Livelihood of 200 million people depend on forest
- Forestry contributes 1% to GDP
- 'Joint forest management' new approach giving local communities some say in managing public lands
- Sharing of government revenue in return for public participation in forest management

2

## Regional background

**Adilabad district**

- Poor district in Andhra Pradesh state
- 50% of 2.2 million people live in poverty
- Most are indigenous tribes, low castes
- Rich in natural resource, 42% under forest, timber valued at $ 2 billion
- Timber smuggling of about 1,000 trucks a year
- Tribal women enjoy fairly equal status to men
- 19,500 women self-help groups, mobilized 200,000 women, assets worth $4.25 million
- Government, NGOs promoters of women groups

3

## Overview of case study

**Biofuel plantations**

- Biofuels here refer to raw oils extracted from certain trees and plant species
- 300 oil-bearing trees in tropical world, tested only 4-5. *Pongamia pinnata* main basis of biofuel
- Raw oils from trees can be used to produce electricity, pump up groundwater, run buses and cars
- Possible for rural poor to get out of poverty with right interventions in land, water, energy
- Opportunity for mitigating climate change, carbon credit

4

## The biofuels model

**The strategy**

- Plant energy trees in degraded lands, both private and public
- Make it part of watershed management, reforestation, combating desertification
- Focus on providing rural livelihoods, improving environment, meeting local fuel needs of rural and urban consumers
- Set poverty reduction and gender equity goals along with increased employment and incomes
- Complementary income-generating activities: vermi-composting, bee-keeping, bamboo value addition

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Neem (above); jatropha (below); pongamia (right)

*The biofuel trees*

## Oilseeds for fuel

Neem (left); jatropha (middle); pongamia (right)

7

## The enterprises

**Power system**

- Use raw pongamia oil in generator to produce electricity
- Provide off-grid, decentralized power

**Example**

- Chalpadi village: 7.5 kVA generator produces10-12 kWh daily from 5-6 liters of pongamia oil
- Power system run by village women
- 900 tCO2 worth $4,000 sold to 500PPM, Germany in verified emission reduction

*Chalpadi women operate the village power system*

8

## The enterprises

*…continued*

**Machines that convert seeds into oil**
**Powerguda, India (above);**
**Niamey, Niger (right)**

9

## The enterprises … *continued*

**Water system**

- Biofuel-powered water pump draws groundwater for drinking or irrigation in Kishtapur village
- Oil mix is 20% pongamia oil, 80% petro-diesel
- Water irrigates 25 acres, helps 25 farmers grow second crop after rainy season
- System owned and operated by local people
- Uses cash payment in advance in multiples of Rs 1,000 ($22)
- Participatory hydrological monitoring system in place to avoid over-extraction of groundwater

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*Biofuel-powered water system in Kishtapur village*

11

## The enterprises … *continued*

**Oilcake as organic fertilizer**

- Pongamia, jatropha oilcake serve as good organic fertilizer, better than farm yard manure.
- Tests on cotton, soybean, and maize. Results good

Impact of Pongamia Fertilizer on Cotton, Powerguda Village, 2004

| Fertilizer treatment | Average cotton yield (g/sq m) | Increase over farm practice (%) |
|---|---|---|
| Farmers practice: 1 bag DAP | 125 | -- |
| Inorganic fertilizer: 120 kg N/ha | 174 | 39 |
| Pongamia oilcake: 300 kg/ha | 156 | 25 |
| 50:50 mix: Inorganic fertilizer (60 kg N/ha) + Pongamia cake (150 kg/ha) | 179 | 43 |

Note: 1bag of Di-Ammonia Phosphatecontains 9 kg of N and 23 kg of $P_2O_5$

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*A pongamia plantation in Adilabad district*

*Oilcake used as nitrogenous fertilizer on cotton, maize, and soybean grown as intercrop to pongamia*

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## The enterprises … *continued*

**Biofuel for transport**

- Raw oils can be refined ("transesterified") to produce biodiesel for use in vehicles
- Biodiesel is top end of biofuel value chain, possible to commercialize enterprise

**Example**

- Hyderabad: 10,000 ton refinery being set up using pongamia, jatropha, palm sludge, other oils
- Crude oils to be sourced from small farmers, marginal areas with energy plantations
- Partnership between private sector and rural poor
- Biodiesel in bus tested with good result

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*Pongamia-based biodiesel successfully tested in a Hyderabad city bus*


15

## Economics of enterprise

**Pongamia plantation**

40-yr rotation, 400 trees in yr 0, 200 yr 11

- NPV $ 2,715 (incl. carbon) per hectare
- IRR 36%

Sources of Income from A Pongamia Plantation

| Income source | Percentage |
|---|---|
| Raw oil | 58.6 |
| Oil cake | 38.5 |
| Carbon | 2.9 |
| Total | 100 |

Note: The value of raw pongamia oil has been calculated at Rs 16 per liter; it may be higher in some villages. Oilcake has been assumed at Rs 3.5/kg.

16

## Environmental benefits

**Benefits of pongamia system**

- Nitrogen-fixing property of pongamia improves soil
- Watershed management practices in plantation area helps to recharge aquifers
- Bamboo, other native species planted along with pongamia to prevent monoculture
- Pongamia oil helps to reduce emission reduction
- Substitution of inorganic fertilizer by pongamia oilcake
- Carbon sequestration by pongamia trees

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## Carbon income as 'seed money'

**Carbon income**

- Sold carbon from 30 villages
- Provide 'seed money' for nurseries, planting trees

**Examples**

- Chalpadi 900 $tCO_2e$ sold to 500PPM, Germany
- Powerguda sold 147 $tCO_2e$ to World Bank
- Kommuguda 42 individuals bought160 $tCO_2e$ to offset emissions from their vehicles.
- Project proposal to sell 50,000 $tCO_2e$ in CERs from 100 villages in Adilabad district

18

KLIMABALANCE | Fair trade for the protection of the global climate

Certificate for Environmental Leadership

The World Bank has agreed to purchase and Powerguda village, Adilabad district, Andhra Pradesh state, India has agreed to sell the equivalent of 147 tons of carbon dioxide in verified emission reductions by substituting petroleum diesel fuel with natural pongamia oil in local power generators

The purchase

The World Bank's ESSD Forest Team has purchased the equivalent of 147 tons of carbon dioxide in verified emission reductions from Powerguda village. The emission reductions over ten years come from the production of natural pongamia oil substituting for petroleum diesel for use in power generators and other engines.

The World Bank has purchased the carbon credits to neutralize the emissions from air travel and local transport used by participants attending the international conference on the reform of forest fiscal systems, held in Washington, DC October 19–21, 2003.

The emission reductions

| Vintage Year | Projected emission reductions (t $CO_2$eq) through pongamia oil | Vintage Year | Projected emission reductions (t $CO_2$eq) through pongamia oil |
|---|---|---|---|
| 2003 | 1.17 | 2009 | 15.45 |
| 2004 | 1.41 | 2009 | 20.61 |
| 2005 | 1.69 | 2010 | 26.43 |
| 2006 | 3.22 | 2011 | 30.91 |
| 2007 | 10.30 | 2012 | 36.06 |
| | | Total | 147.25 |

These emission reductions will be delivered on the basis of a certification protocol that is part of the emission reductions purchase and retirement agreement that both parties have signed on April 14th 2003.

Individual transaction number: VVSE24ARFDR44449XRVLHF3F

Our guarantee

We guarantee the purchase of the indicated amount of verified emission reductions and their retirement for the benefit of the global climate by withdrawing them permanently from the market.

The individual transaction number on this certificate is used to account and track the emission reductions purchased on behalf of the World Bank.

Project description(s) can be viewed at: www.klimabalance.de

Signed on October 7, 2003

500 PPM GmbH
Ingo Puhl

Witness
Emmanuel D'Silva

Purchaser
Kevin M. Cleaver

Seller
Ms. K. Subadrabai

14 OCT 2003

*Ms Subadrabai of Powerguda's women's group signs paper to sell 147tCo2 to the World Bank*

## Government policies

- Village-level biofuel experiments having big impact on state and federal governments
- Govt. recognized potential in increasing rural employment and incomes, rehabilitating degraded public lands, and displacing oil imports
- Andhra Pradesh state government created a separate agency to promote biofuel production
- National Biodiesel Board set up by federal govt.
- Govt. task force recommends a blend of 5% biodiesel in conventional diesel by 2006, 20% by 2012
- 20% biodiesel production would require planting 12 million hectares; 40 million ha degraded land available

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## Way forward

- New opportunities created by high fuel prices
- Availability of degraded land, large numbers of underemployed rural poor, successful biofuel experiments provide basis for large biofuel program
- Small 10-ton capacity biodiesel units may come up near plantation source in the future
- State agencies can provide biofuel technical packages to small farmers, women's groups
- Financial agencies can support village enterprises in seed collection, oil extraction
- Government can provide financial benefits to enterprises to set up biodiesel units

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## Putting It All Together

1. High energy prices has provided an opportunity for oil-bearing energy trees to serve as a fulcrum of development production
2. Possible to lift people out of poverty through right intervention in land, water, energy
3. Pongamia, neem, jatropha provide source for producing electricity, pumping ground water, substitute for fossil fuel
4. Carbon income could provide seed money for agro-forestry, tree planting
5. Biofuels strategy could be packaged into watershed development, community forestry, combating desertification, and other government programs
6. Experiments in India could be expanded to other countries where conditions are right

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# IXTEPEJI FOREST COMMUNITY, OAXACA, MEXICO

SALVADOR ANTA FONSECA

Mexican Civil Council for Sustainable Silviculture

CFE in Tropical Forest Countries, Forest Trends and ITTO

## FOREST MANAGEMENT IN MEXICO

- Forest surface: 127.6 million hectares.
  - (66% of national territory).
- 21.6 million ha of temperate and tropical forests have commercial potential.
  - Only 8.6 million hectares are being managed.
- 80% of the total surface is in collective land grants (aka "ejidos" or indigenous community's).
- 12 million people live in forests, mostly in poverty.
- Forest production has been decreasing.
  - Yet, imported timber volume has increased.

## FOREST MANAGEMENT IN MEXICO

- 323 community forest enterprises
- 905 communities carry out forest activities.
- In Mexico, forest communities and "ejidos" can be grouped into four types of producers:

I. Potential users
II. Forest leasees
III. Raw material producers
IV. Communities or "ejidos" with forest enterprises

## COMMUNITY OF SANTA CATARINA IXTEPEJI

- Location: Sierra Juarez, Mexico
- Origin: Zapotec and pre-Hispanic origin.
- Territory: 21,058 ha under a community land system.
- Registered citizens: 792 (aka "comuneros")
- Population: 2,532.

## COMMUNITY OF SANTA CATARINA IXTEPEJI

| Community zoning | Land uses and vegetation types | Surface (ha) |
|---|---|---|
| Conservation | Forests | 1,981 |
| Forest production | Temperate forests | 15,036 |
| Restoration | Pine-oak forests and grasslands | 1,915 |
| Farming areas | Agriculture and cattle ranching | 1,810 |
| urban | settlements and roads | 365 |
| **TOTAL** | | **21,107** |

## HISTORY OF FOREST MANAGEMENT IN THE COMMUNITY OF SANTA CATARINA IXTEPEJI

- 1957-1980: Forests concessioned to FAPATUX
- 1983: foundation of the Community Forest Enterprise.
- 1985-1989: foundation of the Forest Communities and Ejidos Union (UCEFO).
- 1990-1993: forestry activities suspended.
- 1993: re-installation of forestry activities.
- 2001: FSC forest certification.
- 2003: forest industry re-structured.

## FOREST ENTERPRISE OF THE COMMUNITY OF SANTA CATARINA IXTEPEJI

- The Community Forest Enterprise has:

1. Sawmill
2. Extraction equipment (cranes and transportation trucks)
3. Documentation office
4. Permanent technical services
5. Community technicians

## FOREST ENTERPRISE OF THE COMMUNITY OF SANTA CATARINA IXTEPEJI

- Other community enterprises financed by the forest enterprise:

1. Bottling of spring water
2. Ecotourism
3. Extraction of non-timber products

## Community enterprises generate:

1. Employment for the "comuneros".
2. Income for the community.
3. Financial resources to invest for social benefits and new enterprises.
4. Financial resources to invest in the forest.

## IXTEPEJI CFE STRUCTURE

- The highest authority in the community is the **General Assembly**.
- The "**Comisariado**" is the community's legal representative.
- Each community enterprise has its own **coordinator**.
- There is an **Advisory Council** formed by the "Comisariado", the coordinators of the enterprises and the representatives from all communities.
  - Serves as an intermediate decision-making organism.

## Environmental benefits from Forest Management by CFE

1. Conservation of forest cover.
2. Biodiversity protection.
3. Forest management.
4. Protection of water re-charging areas.

## Challenges faced by the Community of Ixtepeji

1. Improvement of the existing forest industrial infrastructure.
2. Development of management schemes.
3. Consolidation of new community enterprises.
4. Development of products with added value.
5. Establishment of commercial and productive alliances with other community enterprises.
6. Greater participation of women.
7. Integration of their own professional teams.
8. Use of certification seal in the market.

# Global Review of Community Forest Enterprises

***One Small Peasant Village's Grand Forest Industry: A Case Study of the El Balcon Ejido in Western Mexico***

***By***
***Claudio Garibay Orozco***
*December 2005*

**CFE in Tropical Forest Countries, Forest Trends and ITTO**

## *El Balcon Ejido* Basic Profile.

- **Location**: *Sierra Costera del Sur* in the *Costa Grande* region of Guerrero.
- **Common problems**: poverty and social violence.
- **Altitude and ecosystems**: mixed pine and oak forests, mesophillic mountain woodlands, deciduous low-forest, dry forest; a lot of biotic diversity.
- **Population**: 1010.
- **Territory**: 25,000 ha.
- Ejido was formed in 1961.
- Community Forest Enterprise was formed in 1987 .

## Forest lands in Mexico

- Generally belong to peasant communities.
- 29% of the nation, or 56.5 million hectares, are covered by forests.
- Distribution:
  - 80% are the communal property of 8,000 small farming villages;
  - 15% private property.
  - 5% state-owned.
- Less than 700 villages manage their woodlands in accordance with forestry norms.
- Less than 50 farming villages have succeeded in organizing communal forest companies.

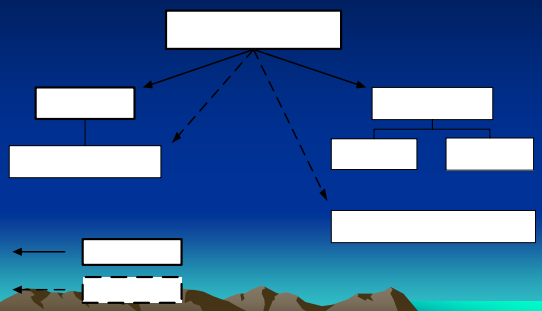
## Two forms of social property in Mexico

- The ***agrarian community*** : imposed in the 16th century by the Spanish Crown
- ***Ejidos*****:** collective organization of farmers organized into modern rural cooperative communities in accordance with the socialist ideals of the early post-revolutionary governments, formed since 1910 Mexican Revolution.

## CFE Development Barriers

- History of social violence generated by local *caciques.*
- Peasant resistance expressed in social outlawry, agrarian struggles, civic-electoral mobilizations, radical guerrilla groups, and peasant-led ecological movements.
- The *Sierra* is a dangerous place; one where gun battles, executions, military incursions, and family vendettas are all commonplace.
- Lacking or poor infrastructure
- Rainy season lead the large unemployed population to carry out illegal activities (such as illegal immigration to the USA and harvesting drug plants)
- Limited administrative and entrepreneurial experience

## *Institutional Organization of the El Balcón ejido*



## Economics of Enterprise 2005

- Two productive processes: logging and sawing in its sophisticated industrial plant located.
- Wood species: *pine, oak*
- Products: *measured plank (1ª.2ª, 3ª,4ª), chip, sawdust, broomsticks*
- Forested surface area: *15,200 ha*
- Commercial forest surface area*: 10,968 ha*
- Conservation surface area: *4,058 ha* Volume exploited (certified): *19,000m³ roll*

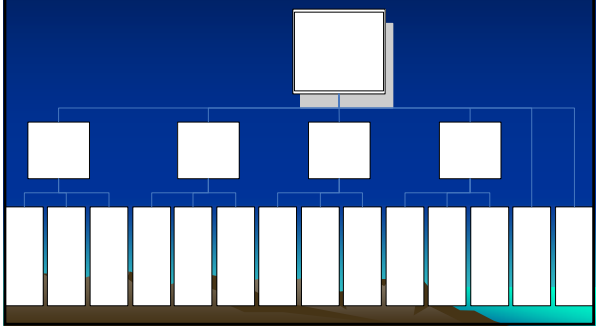
**Production of CFE 2005**

- Volume purchased (not certified): *5,000 m3 roll*
- Total volume sawn in 2005: *24,000 m3 rolls*
- Approx. conversion in board-meters (dried and classified): *4,000, 000*

**Total Income 2005**

- Total income from sales*: $3,600,000 USD*
- Production costs: *$2,340,000 USD (65%)*
- Company reinvestment*: $612,000 USD (17%)*
- Earnings transferred to the *ejido*: *$650,000 USD (18%)*

Organizational Structure of the El Balcón Communal Forest Enterprise



## Future challenges: Structural problems

- Demographic growth: local population rose from 840 inhabitants in 2001 to 1,010 in 2005; a high annual increase of 4%. One-fourth are of women of childbearing age.
- Unemployment during the rainy season. It is not yet clear what the growing younger generation will do during the rains.

## Social and economic benefits

- higher standard of living for the local populace. employment opportunities (built houses, pensions, scholarships, medicines, etc.)
- Higher incomes and legal employment opportunities
- More peaceful relations with other communities
- Strong sense of community and egalitarianism
- Environmental conservation.
- Absence of disputes over collective rights to forests and their use
- Balance of power and the functional separation between company and ejidal government:
- Transparent accounting and collective vigilance
- Social spending and a more optimistic view of the future
- Greater and improved infrastructure



General Manager

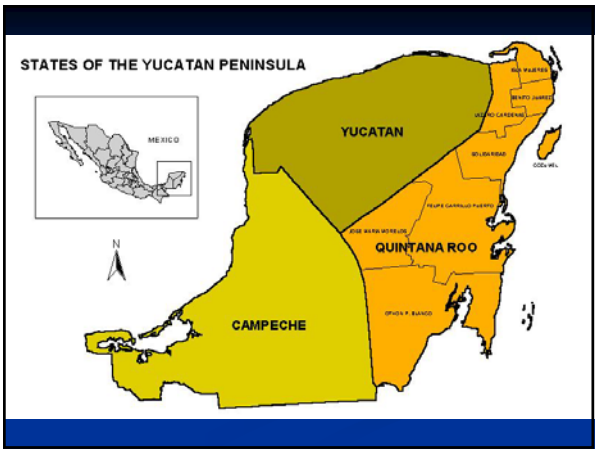
CFE in Tropical Forest Countries, Forest Trends and ITTO

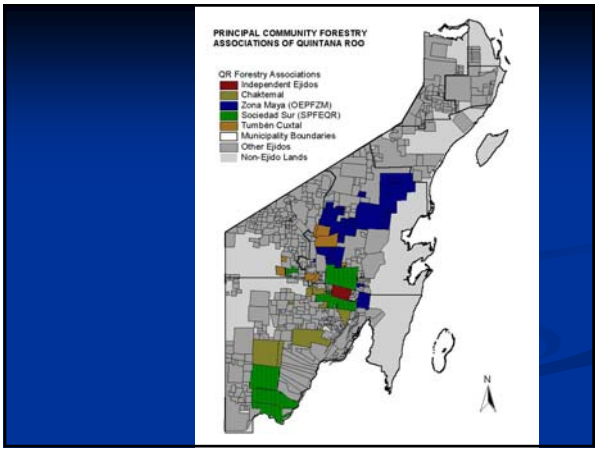
# Community Forestry in Quintana Roo, Mexico

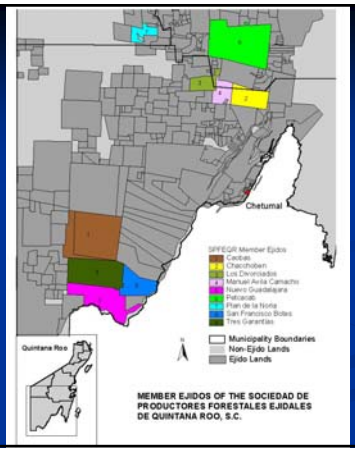
Case Study: The Sociedad de Productores Forestales Ejidales de Quintana Roo (SPFEQR)

Focus Community: Petcacab

Case Study prepared for Forest Trends by Peter R. Wilshusen, Ph.D.
Environmental Studies Program, Bucknell University,
Lewisburg, PA (USA)



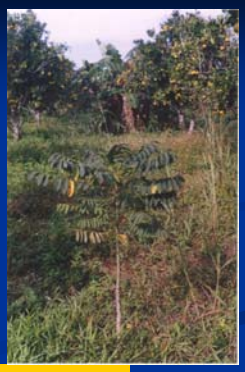

Forest Management & Planning

Extraction

Timber Volume Mensuration

Carpentry Workshop

Women's Artisan Group



Agroforestry

## Organizational Performance

| Category | Assessment |
|---|---|
| Goal Commitment | Technical: High<br>Outreach: Low |
| Sustainability | Low |
| Regime Stability | Forest Mgmt.: High<br>Admin.: Low |
| Community Representation | Participation: Med.-High<br>Political: High |
| Learning | Medium |

## Production Status & Capacity

TABLE: Forestry Production Status and Capacity of SPFEQR Member Ejidos

| Ejido | Status | Modality | Mgmt. Planning | Machinary Capacity | Sawmill Capacity | Secondary Capacity |
|---|---|---|---|---|---|---|
| Botes | Active | Sub-contract | 25-yr. plan | None | None | None |
| Caoba | Active | CFE/groups | 25-yr. plan | Medium | Low | Medium |
| Chacchoben | Active | Sub-contract | 25-yr. plan | None | None | None |
| Divorciados | Active | Sub-contract | 25-yr. plan | None | None | None |
| Manuel Avila Camacho | Inactive | n/a | n/a | n/a | n/a | n/a |
| NCPE Guadalajara | Inactive | n/a | n/a | n/a | n/a | n/a |
| Petcacab | Active | CFE/groups | 25-yr. plan | Medium | Low-Med. | Medium |
| Plan de la Noria Poniente | Inactive | n/a | n/a | n/a | n/a | n/a |
| Tres Garantias | Active | CFE/groups | 25-yr. plan | Low | Low-Med. | Medium |

Source: Wilshusen, 2003.

## Comparison: CFEs and Work Groups

| | CFEs | Work Groups |
|---|---|---|
| **Governance** | | |
| Locus of decision-making authority | Ejido executive committee | Work group leaders |
| Role of *ejido* assembly | Stronger | Weaker |
| **Participation** | | |
| Direct involvement in forest management | Weaker | Stronger |
| Direct management of timber revenues | Minimal | Complete |
| Monitoring and oversight of timber resources | Lower | Higher |
| **Informal Economies** | | |
| Source of cash loans | Ejido executive committee | Work group leaders |
| Collateral | Undefined | Per capita timber volumes |

Source: Wilshusen, 2005.

## Government Regulations and Policies

| | |
|---|---|
| **Enabling Conditions** | ■ Land tenure<br>■ Infrastructure<br>■ Community participation<br>■ Support organization |
| **Appropriateness of Policy Environment** | ■ Indirect subsidy support<br>■ Burdensome paperwork<br>■ Ambiguous public cost sharing |

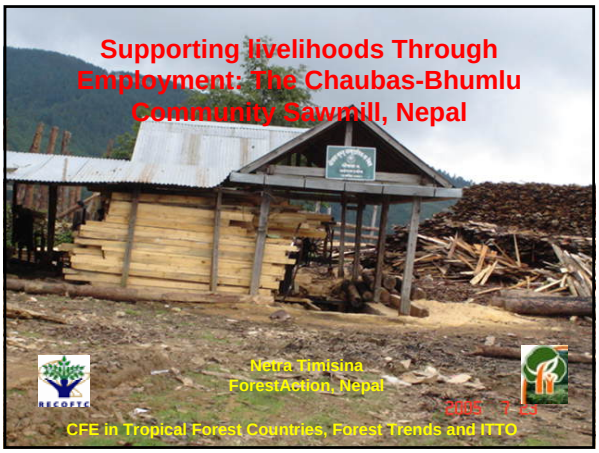
## Ways Forward and Opportunities

| | |
|---|---|
| **Proposed Changes to Enabling Environment** | ■ Public support for technical service providers<br>■ Collective timber marketing<br>■ Easier access to credit |
| **Challenges for Consolidation** | ■ Internal conflict<br>■ Resource imbalances among communities<br>■ Limited market access |

## Lessons Learned

- Continual investment in regime consolidation and oversight ("rules of the game").
- Continual investment in conflict resolution and communication mechanisms.
- Continual technical training and related education (e.g., enterprise administration).

## Supporting livelihoods Through Employment: The Chaubas-Bhumlu Community Sawmill, Nepal



Netra Timsina
ForestAction, Nepal

CFE in Tropical Forest Countries, Forest Trends and ITTO

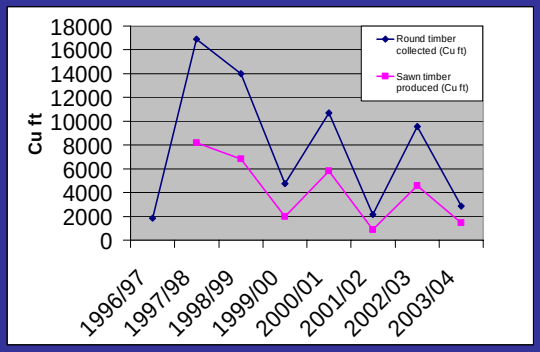
## Overview of the Enterprise

- 1970s: Community plantation programme
- 1980s: Plantations began to become overstocked
- 1996: Sawmill established (run by a consortium of 4 FUGs)
- People: Mixed community (293 households)
- Operations: Processing and marketing pine timber
- Support: Initially by Australian Forestry Project

## Management structure of the enterprise

- Each of 4 FUGs is represented by 1 man and 1 woman) on the sawmill management committee
- Total of 13 sawmill management committee members (8 from 4 FUGs; 1 manager/secretary; 4 chairpersons of each FUG)
- The 13 members elect a president, vice-president and treasurer
- General members of the sawmill are the executive committee members of the 4 FUGs

## Production by the sawmill




## Products of the Enterprise

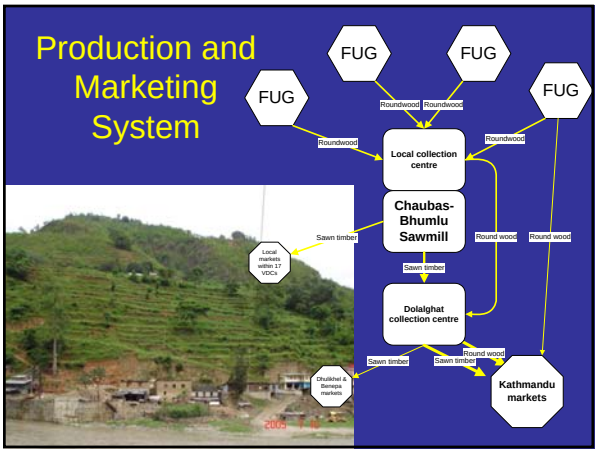
Major products

- Sawn timber (pine)
- Planks

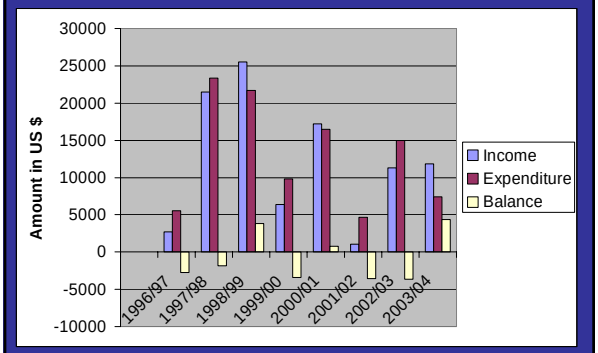
Residues

- Off-cuts and waste timber
- Bark planks
- Inner planks
- Sawdust

## Production and Marketing System



## Income, expenditure and profit




## Impacts

- **Natural Capital**: Regeneration and increase in biodiversity (broad-leaved species)
- **Social capital**: Network of FUGs at landscape level; empowerment of disadvantaged groups

## Impacts

- **Physical capital:** School buildings, play-grounds, community halls, roads, electricity.
- **Employment:** For women, men, dalits and other disadvantaged groups (6,000 person-days per year); decreased out-migration
- **Human Capital:** 300 individuals trained (in forest management; business planning; participatory monitoring; organisation management etc.)

## Constraints of Government policies and regulations

- Green tree felling ban in 1999
- Imposition of complex inventory guidelines in 2000
- 40% sales tax and 10% VAT sales of sawmill products
- Lengthy process for transporting timber
- Complex tender and bidding mechanisms imposed
- DFOs individual interpretation of Acts and Regulations (circulars and orders)
- Macro political process (Maoist insurgency and its influence)

## Ways forward

- Changes needed in the enabling environment
  - Authority of interpretation (DFOs role should be an enabling rather than controlling one)
  - Simplification of regulatory processes
  - Prompt decision-making (by DFOs)
- Current Challenges
  - Ownership (more inclusive and transparent)
  - Wages – need to target poorer households
  - Working with complex management structure
  - Economy of scale (size, volume, quality of products)
  - Dual rules and regulations (government & insurgents)
  - How to replicate the enterprise elsewhere

## Lessons learnt

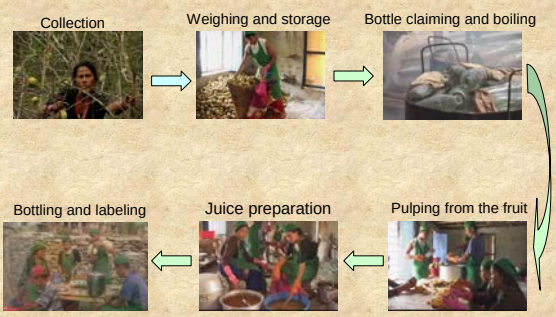
- Favourable policy and legal environment
- Constraints due to excessive and *ad hoc* government control rather than genuine facilitation of the enterprise
- Community ownership needs to be stimulated and supported – but it can create impacts
- Employment and income generation is a major impact (especially for the most disadvantaged households) and a contribution to poverty
- Need for better business planning and orientation – potential of private sector partnerships for this (especially for marketing)
- Need for diversification and innovation of the enterprise

# Including the Excluded: A Pro-Poor Bel Fruit Juice Making Enterprise in Nepal

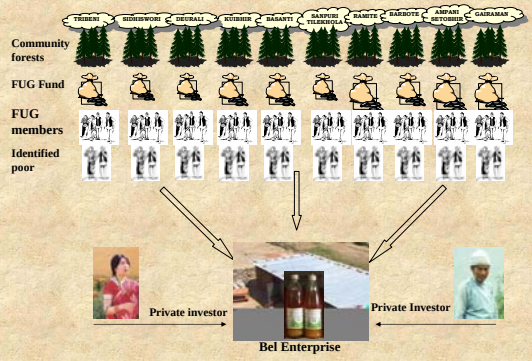
Dinesh Paudel

CFE in Tropical Forest Countries,
Forest Trends and ITTO

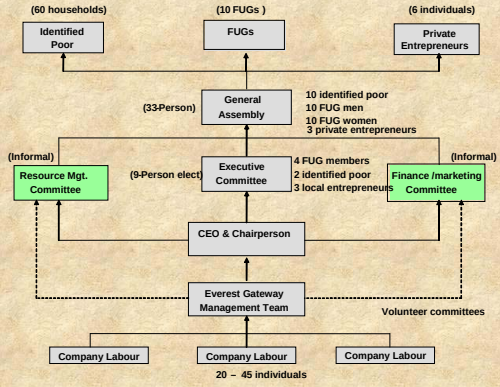
## Bel fruit juice production Process




## Structure of the Enterprise



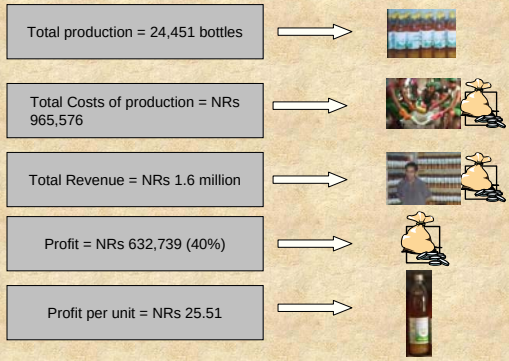

## Management structure and decision making




## In what way is the Enterprise Pro-Poor?

- Poor people receive a **dividend** based on their shareholding, if the Company is profitable.
- Poor people receive a **dividend based on their FUG shareholding**, if the Company is profitable, (because they are FUG members).
- Poor people may receive **wages and productivity bonuses** if they are working in the processing factory.
- Poor people get partial/full time **employment** for fruit collection and in the juice processing factory.

## Cost of production and profits in 2005



## Impacts of the Bel Juice Enterprise

**Environmental impacts**

- **Ten FUGs managing 713.73 ha of forest**
- **Degraded forests are being rejuvenated**
- **Regeneration of fruit tree species is 3 times higher in 2004 than in 2000**
- **Epidemics of pests and ants in agricultural crops have gone down**

**Economic impacts**

- **Income to FUG funds and wages through employment of local people**
- **NRs 300,000 went to the poor households for their labour in 2005**
- **Investment by poor in household level enterprises**
- **Employment: 142 people including 62 women earning NRs 222,604 during 3 months in 2005**

## Social impacts of the Bel Juice Enterprise

- Level of participation has increased (>50% of positions taken by poor and women)
- Poor people's status and confidence has improved
- FUG governance now follows equity and social justice principles
- Health and hygiene of people has improved
- Greater levels of participation by all sectors of the community in meetings and assemblies
- Almost all children have joined local schools
- Local government is now also becoming pro-poor in its outlook
- Consumption of coca-cola has been replaced by Bel juice
- Demonstration effect – spreading to other areas

## Why the Enterprise Works: Critical factors

- **Availability of natural resources (bel fruit) with high market demand.**
- **Forest Policy is appropriate i.e. it has a focus on community forestry with poverty reduction objectives.**
- **The shift from subsistence use of forests to sustainable commercial use allows for multiple-stakeholder ownership of the enterprise, a strong business orientation, and private skills to be tapped.**
- **Financial resources were available for start-up.**
- **General government support for community-based enterprise approach**
- **Strong and effective local leadership as a result of the well-established community forestry programme**
- **The Enterprise is market-driven (rather than socially driven)**

## The Regulatory Environment

Forestry Law provides for an appropriate institutional set up for sustainable forest management, but it is unclear about industrial use of forest products by communities (it applies mainly to contractors and government-managed forests)

Business policies are not orientated towards community-based industrial production. Those that do exist tend to deal with them under co-operatives which are not necessarily best for a competitive business model.

The overall policy environment works by controlling rather than fostering, community-based enterprise

## Examples of Controlling Regulatory Constraints to the Enterprise

- Transport of juice is controlled by DFO and depends on DFO support.
- Check-points offer opportunities for bribe-seeking by officials.
- The initial company registration process in Kathmandu is lengthy and tedious. A hired legal adviser is used for this.
- The company must renew its registration annually. This is time consuming and unnecessary.
- There is no on-site quality control by government. Samples have to be sent to Kathmandu – this is slow and expensive

## Some disadvantages of the Enterprise Model

- Lack of long-term business planning
- Lack of entrepreneurship knowledge and skills at all levels
- Complicated decision-making process and unclear lines of responsibility could lead to future conflicts
- High expectations have been raised. The company may become more driven by social rather than market motives – this will affect its business operations

## Future Opportunities for the Enterprise

- Market prospects for Bel juice are good. Demand is increasing and reputation is growing.
- Potential for other types of fruit juice exists. This needs to be tested.
- The first company in Nepal with a specifically pro-poor approach linked with a community-private partnership. The company can now demonstrate and show other groups how to be become established for a range of different product types.
- The pro-poor enterprise could be a good sales point for some specific markets in the longer term (e.g. for export). Need to build up an appropriate image to do this.

## Community Forestry Benefits Customary Landowners:

Madang Province, Papua New Guinea

Yati A. Bun and Bazakie Baput
CFE in Tropical Forest Countries, Forest Trends and ITTO

## Country Background

- 80% forest cover; 15 m ha operable, 6 m ha has been acquired for large-scale logging
- Population 5.3 m, 80% of population is rural
- 97% of land under customary ownership
- GDP per capita income US$ 2,200
- Forestry is the third major source of revenue
- Mainly oriented to large-scale round log export

## Provincial Background: Madang Province

- Total population 319,000, 290,000 rural-based
- 2.8 m ha forest-cover
- 880,000 identified potential timber area
- Five large-scale logging concessions covering a total of 515,000 ha (logs, timber, chip)
- Timber industry is main source of revenue
- Many CFEs not using management plans and not monitored by government forestry


## History of the Enterprise

- 1989 independent inquiry of forest sector identifies multiple abuses of industrial company-community concession model
- 1997 Madang Forest Resource Ownder's Association (MFROA) formed in Madang Province
- 1998 MFROA and FPCD, a local NGO
- 2005 MFROA and FPCD develop group certification label, Indigenous Community Forestry (ICF) with expected evaluation by SGS certifiers

## Overview of Case Study

- FPCD working with MFROA members who want to sell their sawn timber
- Portable sawmill as a major source of forestry work
- FPCD provides training in forest management, timber business, and small-scale sawmilling
- FPCD finds markets for locally-produced sawn timber

## Forest and Community

- Most remaining forest areas not allocated for large-scale logging are in remote areas
- Land owners are becoming aware of environmental impacts of logging and the need to manage forest resources themselves
- Land owners lack technical skills, financial capital, and equipment
- With FPCD assistance, approximately 10,000 ha secured for sustainable management under ecoforestry, with an estimated timber volume of more than 300,000 $m^3$
- Threat from large-scale logging companies offering money to land owners

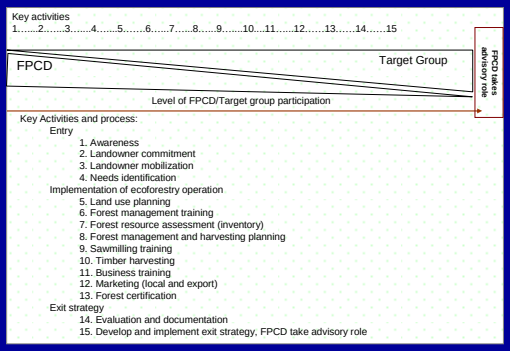
## Organization of the Enterprises

- MFROA has a company called METCorp that does businesses
- Directors of METCorp and members of MFROA are shareholders
- FPCD plays an advisory role
- All producers wanting to be involved in forestry work apply through MFROA

## SMEs in Parallel with Large Industry

- 2000 portable sawmills
- No support services
- No FMPs
- No controls in place
- Poor market access so selling near cost of production

## FPCD Ecoforestry Model




## Benefits and Impacts

- Forests retained and traditional uses (including hunting) are maintained
- Forest disturbance is minimal
- Land owners take ownership and control
- Skills and technology transferred

## Economic and Financial Returns

- Five times the export of sawn timber to New Zealand that earned more than US$ 33,000, directly to land owners
- Export of eco-labeled products earns two to three times more than local sales
- Forests retained for commercial and traditional uses

## Obstacles and Constraints

- Lack of government policy support
- No road access to most community forest areas
- Resource-intensive (most landowners cannot afford to buy their own saw mills)
- Hard work, but offers good returns financially and socially

## Government Regulations and Policies

- National forest poicy favors large-scale logging
- Recent amendments to the Forestry Act does nto guarantee land owner participation and honest representation in resource allocations (removal of NGO representation and PFMC)
- Opportunities to support land owners wanting to develop their forests themselves

## Ways Forward and Opportunities

- CFEs need to adopt a cost-effective model
- Government to change approach to accommodate land owners wanting to develop forest themselves
- Establish and strengthen partnerships with relevant government departments, NGOs and other stake holders
- Educate land owners to understand the importance of owning, managing and developing the forest resources themselves

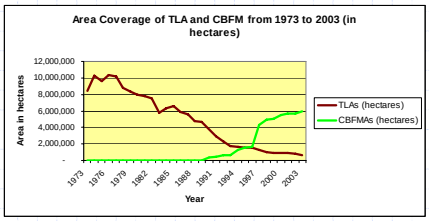
## Behind the Fragile Enterprise: Community Based Timber Utilization Southern Philippines

John M. Pulhin, Ph.D
Mark Anthony M. Ramirez

CFE in Tropical Forest Countries, Forest Trends and ITTO

## Philippines Country Background

- History: From TLA to CBFMA

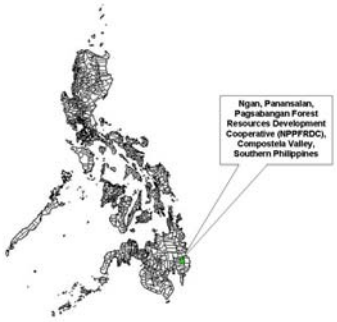



- 2 types of CBTEs: (1) with natural forest and tree plantation; (2) with tree plantation only

## Community Based Timber Enterprise (CBTE) Profile

- Name: Ngan Panansalan Pagsabangan Forest Resources Development Cooperative (NPPFRDC)
- Type: Natural forest and tree plantation
- Location: Compostela Valley, Mindanao, Region XI
- Area: 14,800 hectares
- Formerly a TLA concession area of Valderamma Lumber Manufacturers Company (VALMA)
- CBFMA No. 11 awarded on 4 December 1996
- People: migrants plus the indigenous Mansaka-Mandaya tribe. Total of 1,051 dependent households
- SmartWood certified in 2000

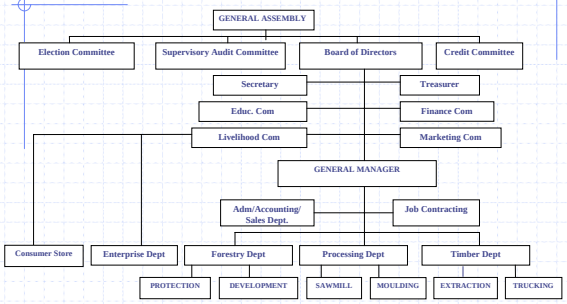
## Location map




## Enterprise Organization, Management and Governance

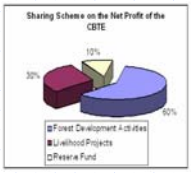
- Enterprise Stakeholders:
  - Department of Environment and Natural Resources (DENR)
  - Local Government of Compostela
  - Forest communities in Barangays Ngan, Panansalan and Pagsabangan
  - New People's Army (NPA)
  - Military
  - Illegal loggers
- NPPFRDC is a people's organization with 324 members (60% are migrants and 40% are indigenous people)
- BOD as policymaking body with administrative staff responsible for operation headed by General Manager
- BOD Chairman is a member of the Mandaya-Mansaka tribe
- Employs members (90%) and non-members (10%) in logging operation

## Enterprise Organization, Management and Governance

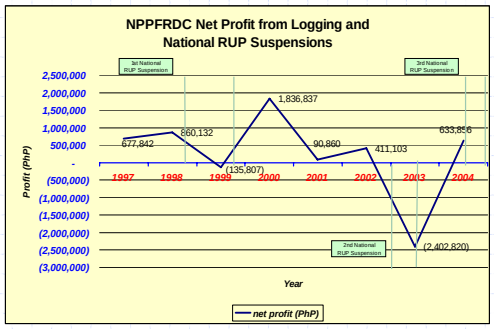


## Economics of the Enterprise

- Two areas of production: (1) timber harvesting, and (2) lumber processing
- Per board foot salary scheme
- Transaction costs: permits and requirements (i.e., RUP, ECC, SOPs)
- Profit from logging goes to fund for forest development and livelihoods activities
- Forest charges remitted to government: PhP 7m (1997-2004)




## Economics of the Enterprise




## Socioeconomic and environmental impacts

- Employment in logging operation is the main benefit to members and non-members
- 73% of the CBFM area is still covered with trees
- Has achieved 88% of forest rehabilitation targets for 2004
- Four forest guards (one guard to 3,700 ha) at present due to the on-and-off logging operation

## Intersection with government regulations, policies and enabling condition

- EO 263 as the driving force for the evolution of timber enterprise in the Philippines
- 3 national RUP suspensions have severely restricted progress of the enterprise; welfare of its workers; and forest protection and rehabilitation activities
- Timber certification is an additional cost to CBTE. The absence of supporting policy, appropriate institutional, and market mechanisms do not yet make it beneficial to be a certified enterprise
- The combined impacts of unstable and restrictive forest policy, weak institutional support system, and limited alternative sources of livelihoods diminishes the economic returns and other potential positive contributions of this community-based timber enterprise

## Ways forward

Success or failure of CBTE lies on a stable policy environment

- CBTEs should be consulted and empowered to participate in crafting policies that affect them.
- Issues such as the impacts of RUP suspension should be properly studied, debated and mediated by various stakeholders before implementation.
- Appropriate institutional support systems including marketing assistance should be provided to CBTEs (i.e., wood industry cluster)
- Institutionalize the timber certification process like the SmartWood and the ITTO Criteria and Indicators
- Step up efforts in establishing forest plantations
- Harness the opportunities in agroforestry and non-timber forest products (NTFP)

# Amani Butterfly Enterprise, Tanga, Tanzania

Cecilia Scurrah-Ehrhart, 2006

Pseudacreae

## Country Background

- Tanzania protected forests make up 43% of the total forest cover and include Catchment Forest Reserves, National FRs, Local Government FRs, and Village Land Forest Reserves (VLFRs)
- The Forest Policy (1998) promotes two types of Participatory Forest Management or PFM: (i) Joint Forest Management (JFM) and (ii) Community Based Forest Management (CBFM)

- CBFM, of relevance here, allows communities to gain ownership and management responsibilities for an area of forest within their jurisdiction. This is 'declared' a Village Land Forest Reserve by village and district governments
- PFM in Tanzania is not at an advanced or completed state. Adoption is accelerating and improving forest quality but forest CBEs are still scarce

## Case Study Overview

- Amani Butterfly Enterprise (ABE) breeds and exports butterfly pupae to live exhibits in Europe and North America since Dec 2003
- Location: Four villages in the East Usambaras, the latter a Global Biodiversity Hot Spot
- Forest tenure arrangements: VLFRs, private forests and NFRs
- Supporting institution: The Tanzania Forest Conservation Group (TFCG), a national conservation and development NGO working in the East Usambaras since 1993

- Current donors: McKnight Foundation and Critical Ecosystem Partnership Fund
- 3-way admin. partnership: (i) TFCG-based Amani Butterfly Project (ii) Amani Butterfly Group (iii) Farmers' Groups
- ABE stated goals: to create an independent, sustainable butterfly cooperative, to improve livelihoods in remote communities and to promote biodiversity conservation
- ABE taps into a profitable niche export market and controls all stages of the value chain

## Administrative Structure: a three way partnership

- (i) TFCG-Amani Butterfly Project (ABP): donor funded, hires all 7 enterprise management staff and controls donor and sales budget lines *but* staff have considerable decision-making autonomy *and* most of their salaries are paid by ABE sales
- (ii) Amani Butterfly Group: an Executive Committee comprised of 3 elected farmers/group, sells butterflies to ABP, makes final sale-price decisions, communicates farmer concerns and makes farmer payments
- (iii) Butterfly Farmers' Groups: 15-20 per group (total 350) come together for training, administrative and payment purposes but are not productive units
- **Admin style**: participatory and adaptable. Good rapport with villagers. Increasingly effective at resolving conflicts (see discussion on productivity)

## Forest Tenure Arrangements

| Village | Forest types | Access agreements |
|---|---|---|
| Kwezitu | One Village Land Forest Reserve (VLFR) legality in process; two National Forest Reserves (NFRs) one in process | verbal/informal agreements with all |
| MsasaIBC | Small village forest (not legal); private tea estate forest patches; one NFR | verbal/informal agreements with all |
| Shambangeda | One VLFR legality in process; private tea estate forest patches | verbal/informal agreements with all |
| Kisiwani | Small village forest (not legal); one NFR | verbal/informal agreements with all |
| Two villages in training | Amani Nature Reserve (a special status NFR) | Formal MOUs, not yet signed by GoT |

## Economics of the Enterprise

- Proceeds from sales: 28% for staff salaries and running costs 65% paid directly back to producers and 7% to a Community Development Fund (CDF)
- Production start-up costs are minimal *but* considerable and long-term investments (2+years) are needed in technical and managerial training and institutional development

- Productivity: affected by weather patterns, initial conflicts and farmers' limited experience-base *but* steadily rising: 50 new members from 2 additional villages expected by May 2006; conflicts resolved partially by hiring a female staff member and by switching to individualized production
- ABE income potential is calculated at USD 100,000 per annum. Actual sales incomes to date: USD 20,000 (2004) and 45,000 (2005), the latter being the first year in which ABE is financially self-sustaining
- Growing global butterfly market; low regional and global competition; intermediaries avoided through direct negotiation and by offering wide repertoire of butterflies

## Income and Sales for Amani Butterfly Enterprise Jan-Dec 2004, 2005

| | 2004 | 2005 |
|---|---|---|
| Total Sales US$ | 19,470.60 | 44,968.62 |
| Total Income to Farmers Tsh/US$ | US$ 16,718.00 | TSh 32,926,705.00/US $ 31,660.30 |
| Average income per farmer Tsh/US$ | US$ 62.00 (N=270) | Tsh 94,076.3/ US$ 90.45 (N=350) |
| Estimated market demand US$ | 40,000.00 | 50,000.00 |
| No of Buyers | 13 | 16 |
| No of butterfly species sold | -- | 27 |

Source: Amani Butterfly Project annual report (Jan-Dec 05); TFCG 2004 McKnight Foundation Proposal; TFCG 2005 Final Report for the UNDP/GEF Small Grants Program.

## Environmental Benefits and Impact on Biodiversity

- Sustainable harvesting: minimal environmental impact through occasional butterfly capture and host plant foraging. Both activites are greatly reduced once farming techniques mature (takes 6 months-1 year)
- More wild butterflies: more hatch in captivity than in the wild; farmers release butterfly adults no longer in use

- Decreased poaching: ABE provides an alternative source of income, thus reducing the frequency of illegal timber extraction and chameleon poaching
- Increased community support for global and local conservation. Increased good will between conservation authorities and villagers, increased direct and indirect villager support for natural resource management and biodiversity protection
- **ABE activities promoting conservation**: butterfly population monitoring, threat reduction assessments, environmental education for schools and villages, small live butterfly display for tourism and educational purposes

## Pro-poor and Social Benefits

- Employment for the underemployed: ABE's limited land and labor time requirements attract landless villagers and women (women =55% of members)
- ABE has resulted in a 15% increase in annual member household average incomes
- A community based savings and loans scheme is currently being developed

- Community Development Fund: 7% of ABE earnings go to community development funds in each village with clear guidelines for its use. Higher producers receive a greater share. Villages are in the process of accumulating sufficient funds to warrant investment– one village has used its funds to complete school buildings with good results
- Human capital is built among members through professional training activities including butterfly farming, entrepreneurial skills and accounting
- Social capital is accumulated through landscape level social organization, which is increasing villagers' collective negotiating and lobbying power

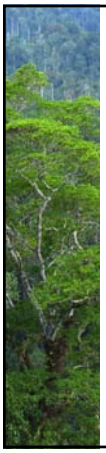
## Intersection with Government Regulation and Policies

- ABE is in line with National Forest Policy, Wildlife Policy and Environment Policy
- Has the support of local authorities including Central and District Government representatives. *However*,
- Formalizing and legalizing VLFRs and access agreements takes a long time; applications get caught up in red tape
- Forest Reserve authorities are slow to embrace more 'people friendly' approaches
- Small and medium enterprises in country operate within a risky economic and legal environment
- Few viable loan schemes available for small businesses

## Specific Challenges and Opportunities

ABE challenges:

- Risk of losing enterprise verticality (specifically marketing link) once the supporting NGO pulls out
- Need to ensure that management accountability and transparency are transferred to ABE before it de-links from the supporting NGO
- Need to finalize legal rights over VLFRs and to formalize access agreements with all forests
- Security risks surrounding payments in cash continue



ABE Opportunities:

- Potential to be replicated in Tanzania and elsewhere in Africa
- Potential to significantly expand production and sales
- Potential to reduce poverty in member households
- Potential to build human, social and physical capital
- Potential to positively affect conservation attitudes and practices

## Lessons Learnt

- Sustainable forest-based CBEs in Tanzania cannot be established in isolation from the broader framework of PFM and its implementation
- The low levels of education and skills of enterprise members means that high and sustained initial investments in technical and managerial training and in institutional development are imperative

- The presence of a supportive institution(s) is key to CBE success. Specifically, one which provides, or facilitates access to: a) additional funding b) professional training c) institutional development
- The supportive institution should likewise be committed to achieving CBE financial and managerial sustainability, and should both represent and promote a participatory and adaptive management style
- Preliminary or background research on the local and national institutional environment, market access and forest resources is imperative for CBE success

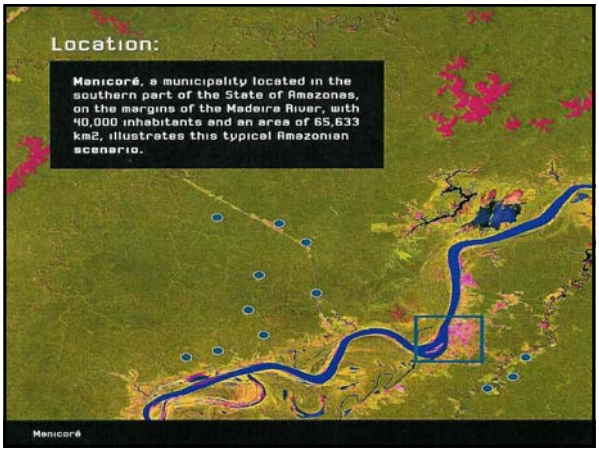
From subsistence harvesters to market players:

The evolution of Brazil-Nut production in Manicoré, Amazonas state, Brazil

Alejandra Martin

Instituto Brasileiro de Educação em Negócios Sustentáveis

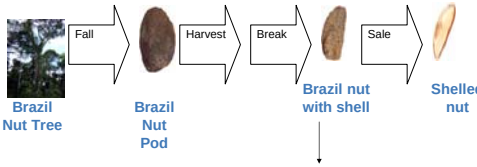
The Amazon rain forest in Brazil constitutes the largest continuous expanse of tropical rain forest remaining in the world


## Before the Project

- Middlemen controlled trade
- Nut collectors unorganized
- Precarious Nut Management
- Presence of Aflatoxin
- Intermittent sales
- Low Nut prices

## Brazil Nut Harvest Cycle




Nuts Transported by boat to processing plant for shelling

## Association's Social Context

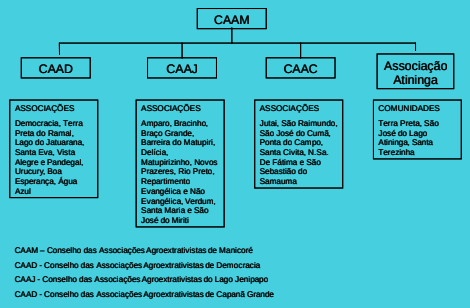
**2001**

- 12 communities
- 268 families
- Unpredictable income from nut sales

**2005**

- 28 communities
- 600 families
- 28% of family income from Brazil nut sales

## Conselho das Associações Agroextrativistas de Manicoré Flowchart




CAAM – Conselho das Associações Agroextrativistas de Manicoré
CAAD - Conselho das Associações Agroextrativistas de Democracia
CAAJ - Conselho das Associações Agroextrativistas do Lago Jenipapo
CAAD - Conselho das Associações Agroextrativistas de Capanã Grande

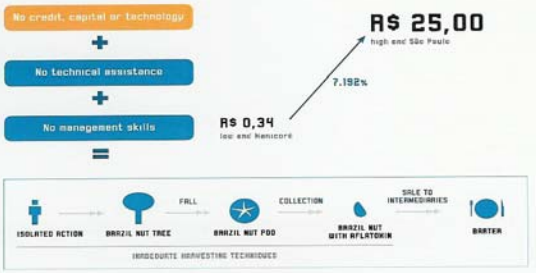
## Results

- Aflatoxin levels under control
- Reliance on local intermediaries disappeared
- Greater Vertical integration
- Selling price increased
- Volume harvested increased
- Nut harvest done through sustainable management practices
- Obtained seal of organic production
- **Results: better production and higher profits**

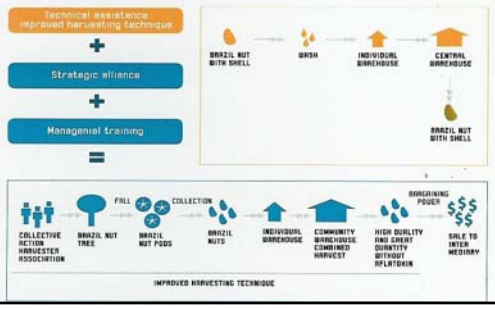
## Institutional Partners

- Gethal Amazonas
- Instituto Brasileiro de Educação em Negócios Sustentáveis (IBENS)
- Conselho Nacional dos Seringueiros (CNS)
- Universidade Federal do Amazonas (UFAM)
- Municipality of Manicoré

## 2002
## Pre-project: Alarming Scenario




## 2003-2005
## Capacity Building, Technical Assistance and Market Intelligence



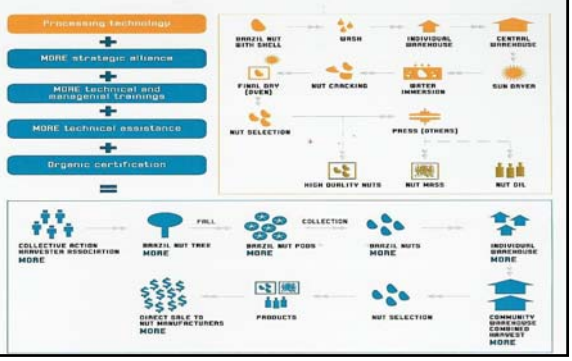

## Brazil Nut Production Estimate according to CAAM

| Harvest | Latas | Hectoliters |
|---|---|---|
| 2001/2002 | 2 000 | 400 |
| 2002/2003 | 4 480 | 896 |
| 2003/2004 | 10 000 | 2 000 |
| 2004/2005 | 10 000 | 2 000 |

**Selling price:**

| | |
|---|---|
| 2001/2002 | $R 2/lata |
| 2004/2005 | $R 17/lata |

**2006**
**Transforming a Community-based Activity into a Sustainable Business**




## Challenges and Constraints

### Organizational Structure

- Option to become a cooperative under consideration for over a year
- Internal divisions around management and organization's development
- Partners provide resources to make physical improvements BUT stay out of internal politics
- Let association evolve at its own pace

## Challenges and Constraints

### Production and Demand

- Highly seasonal demand (Christmas peak domestic season)
- Harvest Season (November - February)
- Major contracts to meet Holiday demand closed by October
- Certified organic nut, when shelled in processing plant it loses its seal since plant does not have chain of custody
- Too expensive to lease processing equipment to remain competitive

## Ways Forward

- Provide market access support – face to face meetings with buyers and industrial nut sector
- Enable travel to other communities to talk about their experience and provide context to their own achievements
- Promote horizontal exchanges with other communities

RESULT: creation of a Community Brazil Nut Movement gaining market share and credibility

**Community-Based Forest Enterprises in Cameroon:**
**A case study of the**
**CAFT (Coopérative Agro Forestière de la Trinationale)**
**Community Forest in East Cameroon, Central Africa**

By: Patrice André PA'AH
Chairman, Board of Directors,
Agroforestry Cooperative of the Tri-National
Forestry Consultant

**CFE in Tropical Forest Countries, Forest Trends and ITTO**

## Country Background

- 1960 until January 20, 1994, management of Cameroon's forest estates has been centralized
- January,20, 1994, Forestry Reform, New forestry policy environment founded on the need to decentralize forest management


- Zoning plan was decreed in 1996, This classified forests into two main domains (permanent forest estates and non-permanent forest estates)
- The non-permanent forest estates are expected to provide opportunities for legal community-based management and poverty alleviation.

## Overview of Country Case study

- 2 ethnic groups (Bantu (Ndjyièm) and Pygmies (Baka)) Population: 5,000
- 9 communities or villages (**Cobam, Cobaba, Codevie, Codenvi, Codel, Codem, Codoum, Covilam, Covinko**)
- December, 2001, Création of CAFT; April, 2002 legalization
- **17,970** ha of forested area managed
- The vegetation is characterized by natural, dense evergreen tropical forest, important biodiversity

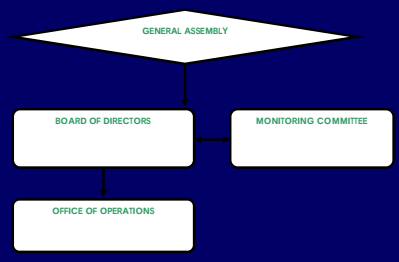
## History of the Enterprise

- 1998: OCBB – NGO organize sensitisation in Ngoyla with support of WWF and SNV/SDDL (Netherlands)
- 1999: 20 Associations created, only 9 associations legalized
- 2001, CAFT created following a series of four workshops with members of 9 communities; 2002, legalization of CAFT
- Each community with a community forest is linked to the CAFT by a collaboration contract defining the rights and obligations

## Exploitation of Timber and other NTFPs

- Multi-resource inventory realized at 100% (4486.14 to 7240.60 $m^3$ of timber would be harvested annually during 25 years)
- Based on the Free On-Board (FOB) prices, the CAFT can generate a gross revenue annually USD 714471,204 to 1108904,13
- Honey is an NTFP with high potential in the CAFT zone, as are Garcinia kola, Moabi oil (Baillonella toxisperma), Njansang (Ricinodendron heudolotti), Bush mango (irvingia gabonensis), raffia palm leaves, etc.

## Enterprise Organisation, Management and Governance



## Enterprise Organisation, Management and Governance

- **General Assembly :**Defines Strategic orientations of the CAFT, Takes and endorses high level decisions of the CAFT
- **Board of Directors**: Supervises and steers implementation following the orientations and decisions taken by the general assembly, Elected bureau members represent each village in all aspects concerning community forestry
- **Monitoring Committee** :Ensures control and feedback in internal and external processes of the CAFT
- **Office of Operations** : Executes tasks as stipulated and approved by the board of directors

## Economics of the enterprise

- CAFT is unable to conduct harvesting timber alone. Needs partners for extraction.
- Potential income during first five years: USD 3,572,356
- CAFT generates employment: 42 full-time jobs, 155 seasonal jobs
- Priorities were rehabilitating system of agriculture production, habitation, and social infrastructure

## Environmental & Social Benefits

- Best condition of sustainable forest management
- Construction of 700 houses and other social infrastructures needed
- Generation of local employement and low exodus, higher local incomes result in local development
- New system of agriculture production
- High value of local human and resouces
- Introduction of system of the TIC in resources management

## Obstacles & Lessons Learned

- CAFT communities have no traditional wood businesses (lack experience and high levels of knowledge needed for exploitation, transformation, commercialization of timber)
- Lack of financial and technical expertise;
- Lack of financial capital or credit resources to fund extraction and processing;
- Community enterprise may be creating a new form of thinking the future of the forestry management and local development,
- New forms of social conflicts

## Conclusion, Ways Forward, & Opportunities

- CFE is the best way to reduce poverty and test real opportunities for local en rural development since 1960 (Cameroon Independence year)
- There is great need for a capacity-building program to enrich best management practices for resources and incomes
- More resources are required for appropriate technical support, training for communities, and technology transfer
- Ecotourism, and NTFP harvesting could contribute to sustainable forest management
- CFE will allow apprecdiation of the real impact of development in a rural zone