Community-based Forest Enterprises in Tropical Countries: Status and Potential Comparative Study ITTO, Forest Trends, Rights and Resources

Community Forest Enterprise Development in Guatemala: A Case Study of *Cooperativa Carmelita R.L.*

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by Dietmar Stoian[1] and Aldo Rodas[2], CATIE-CeCoEco

1. Country Background

Guatemala has a land surface of 108,889 km², with a forest cover of about 37%. An estimated 2.3 million ha are broadleaved forests, 1.1 million ha fragmented forests associated with agricultural land, 0.5 million ha mixed forests, 100,000 ha coniferous forests, and 20,000 ha mangrove forests (FAO, 2003). Forest ownership is divided into three major categories: 1) private forests; 2) national forests; and 3) communal or municipal forests. The latter cover 0.9 million out of a total of 4.1 million hectares of forests (Table 1). In terms of forest types and management goals, there is a clear divide between the community forests in the highlands, which mainly consist of coniferous or mixed forests producing firewood and construction wood for household consumption and the domestic market, and the community forest operations in the Peten, with broadleaved forests producing precious woods and lesser-known species (LKS) for the national and international market, along with non-timber forest products (NTFPs).

In 1990, the Maya Biosphere Reserve was created in Peten, covering an area of 2.1 million hectares with three distinctive zones: 1) the core zone, consisting of national parks and biotopes (747,800 ha); 2) the multiple use zone (MUZ), where forest concessions are located (864,300 ha); and 3) the buffer zone, where cooperatives and municipal *Ejidos* are located and where land use is generally restricted, also on private property (roughly 500,000 ha). Since the mid-1990s, more than half a million hectares of broadleaved forests have been granted as forest concessions in the MUZ. These concessions constitute the largest forest management units in the country. Of the 18 units established to date, 12 are community concessions, 4 are cooperatives or municipal *Ejidos,* and 2 are industrial concessions. According to Guatemalan regulations, all concessions are required to obtain forest certification according to the scheme of the Forest Stewardship Council (FSC) within three years of their establishment.

Table 1 – Forest cover in Guatemala according to ownership type

Type of ownership	Area (ha)	Percentage (%)
Private	1,531,133	37.8
National	1,367,732	33.8
Municipal-Communal *	934,630	23.1
Other **	212,521	5.3
Total	**4,046,016**	**100.0**

Source: FAO/INAB (2004)

* Includes registered communal and municipal farms, non-registered communal farms, and farms encroached on by communities

** Areas lacking clear ownership rights due to conflicts or encroachment

[1] Contact address: Dietmar Stoian, CATIE 7170, Turrialba, Costa Rica; email: stoian@catie.ac.cr
[2] Contact address: Aldo Rodas, CATIE 7170, Turrialba, Costa Rica; email: arodas@catie.ac.cr

In Guatemala, the development of community forest enterprises (CFEs) has largely been confined to the Peten where 12 community concessions and four cooperatives or municipal *Ejidos* reflect different stages of enterprise development, with most of them in the start-up phase. Since 2003, 11 out of a total of 16 CFEs have been organized under the umbrella of a second-tier enterprise called FORESCOM[3] (Empresa Forestal Comunitaria de Servicios del Bosque S.A.) that provides technical (e.g., resource manager function, nursery production, road construction) and business services (e.g., commercialization of LKS, group certification). Table 2 summarizes the forest areas and forest certification status of the Peten-based CFEs.

Table 2 – Forest area and certification status of community forest enterprises in Peten, Guatemala, as of June 2006

	Community forest enterprise	Area (ha)	Population benefiting	Year of first certification	Certification status
Community concessions	Impulsores Suchitecos	12,217	191	1998	Recertified
	San Miguel la Palotada	7,039	145	1999	Group certification (FORESCOM)
	La Pasadita	18,217	386	1999	Suspended
	Carmelita	*53,797*	*388*	*1999*	*Recertified*
	Uaxactún	83,558	688	2001	Certified
	San Andrés	51,940	1,015	2001	Group certification (FORESCOM)
	Árbol Verde	64,973	7,452	2002	Certified
	Laborantes del Bosque	19,390	392	2003	Certified
	El Esfuerzo	25,328	250	2004	Certified
	Custodios de la Selva	21,176	423	2004	Certified
	Cruce a la Colorada	20,469	n.d.	2005	Group certification (FORESCOM)
	La Colorada	22,067	n.d.	2005	Group certification (FORESCOM)
	Sub-Total	**400,171**	**>11,330**		
Cooperatives and municipal *Ejidos*	La Técnica	4,607	298	1999	Group certification (FORESCOM)
	Bethel	4,149	523	1999	Suspended
	Unión Maya Itzá	5,924	1,059	2001	Group certification (FORESCOM)
	Ejido Sayaxché	7,419	5,000	2002	Certified
	Sub-Total	**22,099**	**6,880**		
	Total	**422,270**	**>18,210**		

Source: Own elaboration based on FSC (2004, 2006) and SmartWood (2005a)

n.d. = no data available

[3] Among the 11 CFEs organized as FORESCOM, six have own processing facilities for primary wood transformation (Arbol Verde, Carmelita, Custodios de la Selva, Laborantes del Bosque, San Andrés/AFISAP and Uaxactún); the remainder (Cruce a la Colorada, La Colorada, La Técnica, San Miguel la Palotada and Unión Maya Itza) contracts milling services from the former or local private industry. Among the "independent" CFEs, Impulsores Suchitecos and El Esfuerzo operate sawmills, while La Pasadita, Bethel and Ejido Sayaxché do not possess own processing facilities.

Management goals, investment policies and benefit sharing mechanisms vary according to the legal status of the CFEs – cooperative, civil society or producer association – though all aim at providing social benefits to their members in addition to employment opportunities and dividends. Most CFEs (13) are governed by their boards of directors rather than professional managers or administrators. Planning, auditing and general business administration skills are rather limited, unless specific training programs and technical assistance have been or are being provided by NGOs, development projects, or state agencies.

The National Council for Protected Areas (CONAP) is in charge of administering Guatemala's protected areas, while the National Forestry Institute (INAB) administers all forest areas outside them. Forest management in the MUZ of the Maya Biosphere Reserve thus falls under the supervision of CONAP. Mandatory forest certification evolved as the *sine qua non* for advancing sustainable forest management in the MUZ, as otherwise CONAP would have advocated forest protection (Carrera et al. 2006). Outside the MBR, sustainable forest management is far from being a reality which is reflected, among other things, in the virtual absence of forest certification. For most users, forests continue to be a source of firewood rather than construction wood or valuable timber. This has largely hindered the development of a national-level approach towards sustainable forest management. In the southern region, forestry is constrained by small-scale landownership, pressure to convert forests into agricultural lands, and low productivity of coniferous and mixed forests along with their overexploitation for firewood. In the northern region (Peten), overall conditions are more conducive to sustainable forest management, though the region suffers from poor access and a long trajectory of forest fires and illicit logging of valuable species, particularly mahogany (*Swietenia macrophylla*).

Guatemala's principal forest products are logs for sawn wood production and fuelwood. The average annual volume of harvested timber destined for the national forest industry is 575,000 m^3. However, illegally harvested timber is estimated to be an additional 30 to 50% of the volume reported, amounting to a total of between 748,000 and 862,000 m^3 a year (FAO, 2003). Annual consumption of firewood has decreased from 15.8 million m^3 in 1990 to 13.8 million m^3 in 1999 (INAB 2001, FAO 2003). However, firewood will continue to be the principal source of heat and lighting (currently used by 60% of the population), unless energy consumption patterns change significantly, and electric energy and propane gas supplies are increased (IDC, 1999).

There is no reliable information regarding primary and secondary processing in the timber industry. According to INAB (2001), 1,054 forest product processors and 1,097 forest product retailers are officially registered. However, the real number of sawmills, secondary wood manufacturers (furniture makers, woodworkers, among others) is believed to be significantly higher. The majority are small enterprises processing softwood, with low technical and technological capacities and unstable flows of raw materials. As a result, product quality is low, waste is high and little value is added. However, there are a few large enterprises which meet high-quality standards and export a good part of their production. Except for the two industrial concessions in Peten, the wood-based industry does not manage its own forests and, consequently, depends on third parties for its raw material supplies.

Around 90% of harvested timber is destined for the national market which absorbs mostly low quality products while high quality products are exported. It is estimated that 68% of the processed volume is marketed as sawn wood, 14% as manufactured goods, 8.6% as plywood and wood-based panels, and 9.4% as miscellaneous products; roughly 70% of the processed wood originates from coniferous forests (FAO, 2003). This shows that despite their limited area coniferous forests are by far the most important source of industrial round wood.

In 2001, 66,857 m^3 of sawn wood were exported, of which 78.0% were pine (*Pinus* spp.), 11.4% mahogany (*Swietenia macrophylla*), 2.9% santa maría *(Calophyllum brasiliense*), 2.1% palo

blanco (*Cybistax donnell-smithii*), 1.7% tropical cedar (*Cedrela odorata*) and 1.5 % castilla (*Castilla elastica*). The remaining 2.4% were made up by another 12 species (INAB, 2001). Exports are destined mainly to El Salvador, the USA, the Dominican Republic, Honduras, and Mexico, while imports originate principally from Costa Rica, Mexico, the USA, Nicaragua and Chile (PAFG 2003).

Non-timber forest products have long played an important role in forest-based livelihood strategies, in particular in Peten. Chamaedorea palms (*Chamaedorea* spp.), locally called xate, chicle gum (*Manilkara zapota*), and allspice (*Pimenta dioica)* are the country's commercially most important NTFPs. According to CONAP statistics, 4.2 million lbs. of xate and 300,000 lbs. of chicle are produced annually, worth US$660,000 and US$309,000, respectively (FAO, 2003). Combining timber and NTFPs, Guatemala's forest sector contributes approximately 2.5% of the GDP. It generates an estimated 37,000 jobs, involving 1.1% of the economically active population (PAFG 2000). Forest sector statistics are summarized in Table 3.

Table 3 – Forest sector statistics in Guatemala

1 General statistics [a]	Surface Area	
	ha	%
1.1 Total land surface	10,888,900	
1.2 Land with forestry land use capability	5,570,000	51.1
1.3 Protected areas	3,098,700	28.5
2 Forestry statistics [b]	**ha**	**%**
2.1 Forest cover area (total)	3,898,600	100
• Broadleaved forest	2,244,400	57.6
• Coniferous forest	101,600	2.6
• Mixed forest	460,000	11.8
• Forest associated with agricultural land	1,074,800	27.6
• Mangrove forests	17,700	0.5
2.2 Forest plantation area (total)	71,155	100
• Fiscal incentives	19,337	27.2
• Programa Nororiente	5,492	7.7
• Forestry incentives (PINFOR)	25,565	35.9
• Voluntary plantations (Simpson)	8,842	12.4
• Area earmarked for reforestation	11,719	16.5
2.3 Annual deforestation rate [c]	53,700	1.4
3 Forest industry [a]	**Number**	
• Registered forest product processors	1,054	
• Forest product retailers	1,097	
4 External timber trade [d]	**US$**	
• Exports	23.2 million	
• Imports	10.4 million	
• Balance	12.9 million	
5. Macro-economic indicators		
5.1 Percentage of GDP [d]	2.5	
5.2 Direct employment (jobs) [e]	36,878	

[a] INAB (2001)
[b] FAO (2003)
[c] FAO (2001, cited in FAO, 2003)
[d] PAFG (2003)
[e] PAFG (2000)

2. Overview of Case Study

The emergence of *Cooperativa Carmelita R.L.*, from here on called Carmelita, needs to be seen in connection with the creation of the Maya Biosphere Reserve in 1990 and the subsequent forest concession and certification processes. These were largely a result of successful lobbying by local grassroots organizations and NGOs, with the support from development projects and donor agencies[4]. In 1996, the indigenous community of Carmelita established the Committee for the Development of Carmelita (*Comité Pro Mejoramiento de la Aldea Carmelita*). By the second half of the 1990s, the forest concession process in the multiple use zone of the reserve had gained momentum and in response to the changes in the political and legal frameworks for forest use in the Peten the committee applied for a concession area. On August 6, 1996, CONAP granted the committee a community concession of 53,797.9 ha for a period of 25 years. Legally recognized forest use thus started in 1997 on an area of 100 ha, based on a pilot management plan (SmartWood 2005b). On September 14, 1998, the community became formally organized as *Cooperativa Carmelita R.L.* which succeeded the committee as concessionaire.

After forest utilization had initiated on a pilot area in 1997, subsequent management operations were based on five-year management plans with annual logging areas of up to 500 ha. In December 1999, Carmelita obtained FSC certification through the SmartWood Program of the Rainforest Alliance – just in time to comply with the requirement of obtaining certification within three years after being granted the forest concession. In 2001, Carmelita began to hire local processing facilities to process the wood originating from its concession and to offer milling services to adjacent community concessions. In 2003, Carmelita became one of the nine founding members of FORESCOM, a second-tier community forest enterprise providing group certification under the resource manager scheme, along with a series of technical and business services. In the same year, another 10,000 ha were opened up for timber extraction in connection with the management plans for the periods 2003-2007 and 2008-2012. In 2004, Carmelita acquired machinery and equipment to operate a sawmill aimed at integrating forest management and primary wood transformation.

3. Type of Forest and Community Enterprise

The Maya Biosphere Reserve belongs to the Selva Maya, an extensive forest region with a high number of animal and plant species as well as archeological sites of world reputation. It stretches from southeastern Mexico in the North (Yucatan Peninsular) to Belize in the East and Peten in the West and South. The region is covered by tropical broadleaved forest characterized by the virtual absence of rivers due to the limestone parent material and the carstic structure of the underground.

Since the early 20th century, the forest concession of Carmelita, situated in the central part of the Peten (for a map, see Fig. 1 in Annex 1) at the southern fringe of the Selva Maya, has been exploited for timber – in particular mahogany and tropical cedar but also tinto (*Haematoxylum campechianum*) – and the latex of chicozapote (*Achras zapota*). Since the 1960s, further NTFPs have been extracted, including allspice (*Pimenta dioca*) and Chamaedorea palm or xate (*Chamaedorea* spp.). In the 1960s, the concession area was also exploited for timber by the Guatemalan Commerce Company (*Compañía Guatemalteca de Comercio* or COGUACO). From the 1970s to the late 1980s, other companies (MAINGUA, Baren Comercial) had the permission to extract annually 6,000 trees of mahogany or tropical cedar, with the only restriction that a

[4] Most instrumental in these processes was the United States Agency for International Development (USAID) that to date has spent some US$135 million in different projects in the Peten.

minimum cutting diameter (MCD) of 70 cm had to be respected. When the government agency Promotion and Economic Development of the Petén (FYDEP) was succeeded by CONAP in 1989, these local companies lost their permissions and it was only through the concession system that gained momentum in the second half of the 1990s that timber extraction would be legal again. The fact that the MCD for mahogany or tropical cedar had largely been respected has ensured sufficient volumes of precious woods at the time of granting the concession to Carmelita (SmartWood 2005b).

Out of a total concession area of 53,796.9 ha, 34,152.2 ha have been earmarked as production forest, 18,751.8 ha as conservation area, and 792.9 ha for agricultural land use. In addition, 100 ha have been set aside as settlement area given that the community of Carmelita is situated within the concession. Out of the 34,152.2 ha of production forest, NTFP and timber extraction are allowed on 32,005 and 20,400 ha, respectively. Chicle gum can be extracted from trees with a minimum diameter of 20 cm at breast height. Xate palms can be harvested for their leaves every six months. The management plan also includes stipulations for other NTFPs, such as pimienta (*Pimenta dioica*) and the dyes saltemuche (*Sickingia salvadorensis*) and chaltecoco (*Caesalpinia velutina*). Hunting of forest animals is subject to environmental considerations.

Timber has first been exploited in a block of 10,000 ha from 1997 to 2003. A second block of a similar size (10,400 ha) was opened up under the management plans for the periods 2003-2007 and 2008-2012. Recently, these plans have been based on volume of mahogany as principal commercial species rather than logging area. For the period 2005-2007, for example, 1361.2 ha have been divided into three parts with similar volumes of mahogany (580.9, 589.9 and 588.4 m^3), corresponding to logging areas of 272.6, 288.0 and 800.6 ha, respectively (SmartWood 2005b).

The rotation cycle has been set at 40 years, with MCDs for precious woods and LKS of 55 and 45 cm, respectively, to allow for natural regeneration of the commercial tree species. The rotation period implies completing the first cycle in 2036 which does not coincide with the concession period from 1996 to 2021. It is hoped, though, that sound forest management will be a strong argument for renewal of the concession.

Carmelita is legally constituted as a cooperative which implies specific mechanisms for benefit distribution and reinvestment of utilities. Both the community and the cooperative are situated within the forest concession. The cooperative is registered as a legal personality in the town hall of Flores, with 127 members (56% male and 44% female) as of June 2006. The principal objective is to promote the conservation of natural resources through sustainable forest management and community participation, in an economically viable fashion and respecting biodiversity. Its specific objectives are to:

- strengthen sustainable and integrated management of diverse forest resources
- offer an economic alternative to the community by participating in forest management that permits to generate income and higher value added to the raw materials they produce
- offer the conditions to carry out a research program related to natural resource management
- conserve sites of archeological and ecological interest through integrated ecotourism.

Key productive activities include:

- production of sawn wood of precious woods (mahogany, tropical cedar)
- production of roundwood of lesser-known species (LKS)
- NTFP extraction, in particular Chamaedorea palm or xate (*Chamaedorea* spp.), allspice (*Pimenta dioica)*, and chicle gum (*Manilkara zapota*)

♦ ecotourism in connection with the archeological sites in the park "El Mirador."

Production of sawn wood of precious species is the key activity in terms of employment and income generation. Sawn wood of 1st class certified mahogany fetches very favorable prices (up from US$742/m³ in 2000 to US$1781/m³ in 2006); 6186 m³ of mahogany have been sold between 1997 and 2006, equivalent to 63.1% of the total of 9800.05 m³ of timber and wood products sold over this period. In view of Carmelita's position at the beginning of the value chain and the relatively few years of operation, value adding opportunities have been confined to primary wood transformation. The installation of a community-based carpentry, envisioned for the next years, is anticipated to generate higher value added through secondary wood transformation.

In addition to timber, NTFP extraction has been a major source of income for community members. Over the past years, the extraction of Chamaedorea palm or xate has become ever more important as about US$12/day can be earned in xate extraction, equivalent to more than 1.5 daily wages. About 400 bundles[5] of xate worth US$4,000 are exported weekly, though there is potential for up to 500 bundles a week. For 2005, CONAP has approved an annual production of 20,000 bundles. Several NGOs (Rainforest Alliance, WCS, Counterpart International, Helvetas, SDC) are currently supporting the communities of Carmelita and Uaxactun through a program that seeks to export 800 bundles a week. Current production of chicle gum fluctuates between 15,000 and 20,000 quintals per season (SmartWood 2005b) and, hence, is below its potential of 35,000 quintals that could be produced sustainably (Trujillo, pers. comm.).

An ecological hotel has been set up for tourists who visit Carmelita on their way to the park "El Mirador." There is an incipient program of guided tours through the forest, both by foot and on horseback. Some recently discovered archeological sites within the concession are yet to be fully uncovered but bear the potential to expand Carmelita's low impact tourism program.

Over the past years, major progress has been made towards achieving the stated forest management goals and scope. Value has been added to timber production through primary transformation, benefits from NTFP extraction have been raised through better integration into the value chain, and ecotourism, albeit still incipient, will be an additional source of income in the future. A research program related to natural resource management is yet to be established, but employment and income generated through forest management, wood processing, NTFP extraction, and ecotourism have helped improve living conditions of community members.

4. Enterprise Organization, Management and Governance

As a cooperative, Carmelita is governed by a board of directors composed of a president, a vice-president, a treasurer, a spokesperson and three more members. The board reports on a quarterly basis to the general assembly which is the highest decision making body in which all cooperative members have voice and vote. The assembly meets at least once a year and all mayor issues are discussed and decided during these meetings, including the approval of financial and operational plans. Board members are typically elected for two years. Though this ensures the participation of a broader group of members in business development, it also hampers continuity at management level and the strategic orientation of the enterprise.

Day-to-day management decisions are taken by the operations manager. It is common practice, though, that the he takes major decisions, including those related to timber sales, in consultation with the board members. The manager – currently Carmelita is managed by an experienced person who used to administer the CFE Arbol Verde – oversees four commissions, namely

[5] Bundles contain 80 palms each and are classified into four grades (Super, Jade-24, Jade-18, Jade-16).

marketing, forest protection, credit, and education. The marketing commission comprises timber, xate, chicle gum and tourism as major business areas (for the organizational chart, see Fig. 2 in Annex 1). Timber-related activities include timber extraction and wood processing in the sawmill operated by the cooperative. Though the current manager does not originate from Carmelita, he has succeeded in creating a good sense of ownership and stimulate community participation based on his former experiences as administrator of another Peten-based CFE.

One of the most important benefits perceived by the members of Carmelita are the employment opportunities offered in timber and NTFP extraction as well as sawmilling. Only a few community members practice agriculture, mostly to meet subsistence needs. Though both NTFP and timber extraction are seasonal activities, they constitute an important, if not principal, source of income for the majority of community members. Forest-based income is derived directly through temporary employment in timber and NTFP extraction or wood processing. In addition, cooperative members receive dividends at the end of each year. Tourism-related employment and income opportunities have increased over the past years, both through the construction of the lodge “Ecoturístico” in Carmelita and the work as guides for tourists on their way to the archeological sites in the park "El Mirador."

As a concessionaire, Carmelita needs to report to CONAP which approves annual and five-year management plans and collects taxes related to the extracted volume. At the same time, Carmelita is a member of ACOFOP and FORESCOM and as such is represented by its president on the two organizations’ board of directors. The relationship with FORESCOM is somewhat complex as clear rules about the respective rights and duties are yet to be established. FORESCOM commercializes certified sawn wood of mahogany and lesser-known species such as pucté (*Bucida buseras*), manchiche (*Lonchocarpus castilloi*) and santa maría (*Calophyllum brasiliense*). Carmelita, as well as other CFEs organized under the umbrella of FORESCOM, produce sawnwood of certified mahogany and tropical cedar in their own processing facilities and sell it either directly and/or through FORESCOM. FORESCOM in turn hires out the sawmilling of LKS logs purchased from its member CFEs to two local private companies (Petexbatún, PROFIGSA) and seeks for new marketing opportunities for LKS sawnwood. Despite this labor division, no clear mechanisms have been established between the first-tier CFEs and FORESCOM that would ensure minimum wood volumes to be commercialized by the latter. Rather, member CFEs prefer to receive alternative offers from local intermediaries and external buyers and only sell through FORESCOM if they perceive tangible benefits. Several CFEs even see FORESCOM as "just another intermediary." This perception, however, ignores the important role FORESCOM plays in identifying new market outlets for LKS, along with the provision of other important services such as group certification, resource manager scheme, and road construction with own heavy machinery.

The continued development of FORESCOM provides the opportunity for a concerted approach towards organizational effectiveness, with a clear labor and service division between FORESCOM as second-tier CFE and its first-tier member CFEs. Both at first and second tier level, capacities and skills need to be developed to address diverse goals and mediate actual and potential internal conflicts. The fact that at both levels community members rather than professional managers govern the CFEs stimulates sense of ownership and community participation, but at the same time requires long-term processes of capacity and skills development with the help from NGOs, development projects, state agencies, and for-profit service providers.

5. Economics of the Enterprise

Production, harvesting, and processing

Out of a total of 20,400 ha earmarked for timber extraction, 3795 ha have been harvested in the period 1997-2006. The extracted volume of 9800 m^3 corresponds to an extraction density of 2.58 m^3 per hectare. Taking into account a rotational cycle of 40 years, this is equivalent to an extraction density of a mere .06 m^3 ha^{-1} $year^{-1}$. The major reason for the low density is the limited availability of precious woods such as mahogany and, to an even lesser extent, tropical cedar which combined make up for less than 5% of the harvestable timber volume. While sawnwood of these two species fetches prices between US$3.00 and 4.20 per boardfeet, sawnwood of lesser known species sells only at between US$.8 and 1.35 per boardfeet. Production costs of LKS, however, may well exceed those of precious woods.[6] In 2003, eight community concessions and cooperatives combined produced about 6400 m^3 of sawnwood, more than half of which (53%) mahogany (Carrera et al. 2006). In the same year, the raw material equivalent extracted from Carmelita's concession was 1325 m^3, with the volume extracted annually typically fluctuating between 800 and 1500 m^3 (Table 4).

Table 4 – Extraction area, volume and density in the community concession of Carmelita, 1997-2006

Year	Extraction area (ha)	Extraction volume (m^3)		Extraction density (m^3/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

The five most important species contributed 97.5% of the overall volume of 9800 m^3 extracted over the period 1997-2006. By far the most important species, both in terms of volume and value, was mahogany (*Swietenia macrophylla*; 6186 m^3 or 63.1%), followed by manchiche (*Lonchocarpus castilloi*; 1690 m^3 or 17.2%), tropical cedar (*Cedrela odorata*; 1017 m^3 or 10.4%), pucté (*Bucida buceras*); 456 m^3 or 4.7%), and amapola (*Pseudobombax ellipticum*; 209 m^3 or 2.1%); the remainder of 242 m^3 was derived from another six species, in particular santa maría (*Calophyllum brasiliense*; 207 m^3 or 2.1%). For more details, see Table 1 in Annex 1.

[6] The average costs of milling primary species has been estimated at US$230/$m^3$; the exact cost of milling secondary species has yet to be established.

Precious woods such as mahogany and tropical cedar have been processed in Carmelita's sawmill since 2004. The installed capacity of 10,000 to 12,000 boardfeet a day has largely been underutilized, as the sawmill operates only for about two to three months a year. It has thus been envisioned to offer milling services to adjacent community concessions that do not possess processing facilities. Recently, wood originating from the concession La Colorada has been milled by Carmelita, and it is hoped to extend this service to Cruce a la Colorada, San Andrés and La Pasadita. Lesser known species, such as manchiche, pucté, amapola, and santa maría, are processed by two local private companies (Petexbatún, PROFIGSA) that have been contracted for this purpose through FORESCOM. Grading of sawnwood distinguishes between high quality grades (*FAS, Select*), standard grades (*Comunes I, II & III*), and low grades (*Rechazos, Cortos*) for the local market.

Marketing

When forest exploitation started in 1997-1998, timber was sold on the stock to the local industry. In the years 1999 and 2000, so-called flitch (logs sliced with chainsaw) was sold to the local industry (Baren Comercial). Over the period 2001-2003, machinery was rented for local processing and first exports were realized to the Unites States (Rex Lumber Company) and the UK (John Boddy Timber Ltd). Sawmilling in own processing facilities acquired in 2004 has allowed to deepen the contact to specific buyers, such as Rex Lumber Company who buy not only certified mahogany and tropical cedar but also lesser-known species. Commercialization of certified wood and primary wood products is performed by the operations manager who typically consults with the board members before final decisions are taken. Marketing as such hardly takes place, as the type of products (simple sawnwood) and the number of buyers are rather limited and an explicit marketing strategy is yet to be developed.

Current buyers are from the United States (e.g., Rex Lumber Company, Gibson Guitars) and, to a lesser extent, Europe (e.g., Kloepferholz, Espen), Mexico, and Guatemala (e.g., Megamaderas, Universidad de San Carlos). Trust relationships have particularly been established with Rex Lumber Company, resulting in price premiums of US$0.10-0.15 per boardfeet of certified mahogany as compared to other certified community concessions.[7] In addition, Rex Lumber Company offers advance payments of up to US$55,000 three months prior to harvest. In 2004, the company provided a loan of 600,000 Quetzals (about US$83,000), equivalent to 60% of the funds needed for purchasing sawmilling machinery and equipment, which was paid off through the sale of 900 m^3 of certified mahogany the same year. Contacts with alternative buyers of mahogany (e.g., Gibson Guitars) and lesser-known species such as pucté (e.g., Kloepferholz) have been facilitated by FORESCOM. Marketing support has also been provided through a USAID-funded project executed by the Rainforest Alliance and an IDB/MIF-funded project executed by CATIE.

Financial and efficiency data, profitability and reinvestment

Financial and efficiency data are difficult to obtain as they are not elaborated on a regular basis. The only data available originate from the USAID-funded BIOFOR project and refer to 2003. Costs of timber extraction and wood processing are presented in Tables 5 and 6, respectively.

[7] In 2006, for example, a price of US$4.20 per boardfeet has been negotiated for 1st class certified mahogany while other CFEs received about US$4.10.

Table 5 – Costs of timber extraction in the forest concession of Carmelita in 2003

Currency	Primary logging roads	Secondary logging roads	Demar-cation	Felling	Winching	Hauling and Chain Sawing	Wood cutting	Loading and transport	Total
Quetzals	13,600	37,697	20,875	32,056	59,610	99,660	17,479	129,893	**410,853**
US$	1,744	4,831	2,676	4,110	7,642	12,777	2,241	16,653	**52,673**

Source: BIOFOR Project

Table 5 shows that the principal costs of timber extraction relate to loading and transport (31.6%), hauling and chain sawing (24.3%), and winching (14.5%).

Table 6 – Costs of wood processing in the sawmill of Carmelita in 2003

Currency	Volume verification	Coarse Cutting	Fine cutting	Loading	Grading	Inventory	Sharpening	Total
Quetzals	7,609	5,613	362,055	25,380	64,057	2,770	28,807	**496,291**
US$	976	720	46,417	3,254	8,212	355	3,693	**63,627**

Source: BIOFOR Project

As Table 6 reveals, fine cutting is by far the most important cost factor of wood processing (73.0%), followed by grading (12.9%), and sharpening (5.8%). Operational and administrative costs of Carmelita are presented in Table 7.

Table 7 – Operational and administrative costs of Carmelita in 2003

Currency	General management plan	Annual operational plan	Timber extraction	Wood processing	Taxes	Administration (20%)	Total
Quetzals	39,700	117,043	410,853	496,291	107,882	234,354	**1,406,122**
US$	5,090	15,006	52,673	63,627	13,831	30,045	**180,272**

Source: BIOFOR Project

Table 7 shows that timber extraction and wood processing combined accounted for 73.0% of total costs of Carmelita in 2003. Costs related to management and operational planning constituted 5.7% of total costs. For an overview on production costs and income, see Table 8.

Table 8 – Production costs, gross and net income of Carmelita in 2003

Currency	Production costs	Income from timber sales	Net income
Quetzals	1,234,305	3,358,462	2,124,157
US$	158,244	430,572	272,328

Source: Adapted from BIOFOR Project

In 2003, Carmelita sold timber for about US$430,000, resulting in a net income of more than US$270,000 (Table 8). In 2005, timber sales of about US$140,000 translated into a net income of roughly US$100,000, as the available volumes of precious woods (mahogany and tropical cedar) had dropped from 1115 m^3 in 2003 to 472 m^3 in 2005. Moreover, the depreciation of buildings, machinery, equipment, and vehicles is not fully accounted for so that effective net income in these years was considerably less. Future challenges of the enterprise include the development and consolidation of financial planning and monitoring.

The investment plan for 2006 totals 680,000 Quetzals, equivalent to about US$92,000. Major investment categories are machinery and equipment (44.1%), capitalization of the next annual operational plan (29.4%), and the distribution of dividends (18.3%). Further investments include social projects (4.4%) and control and vigilance (3.7%).

Competitive advantage

The competitive advantage of Carmelita roots principally in forest certification. Over the past years, the Peten has attracted the attention of international buyers, as more than half a million ha have been certified according to the FSC scheme, in compliance with mandatory forest certification within three years after being granted a forest concession. With an area of 53,797 ha Carmelita was granted the third largest forest concession in Peten, surpassed only by the community concessions of Uaxactún (83,558 ha) and Arbol Verde (64,973 ha).

As shown below, the FSC label has helped market precious woods and, to a lesser extent, lesser known species. Certified mahogany is clearly the flagship among the commercial species available, both in terms of volumes and prices. In fact, demand for certified mahogany far outweighs the available supply. Over the period 1997-2006, Carmelita's supply of certified mahogany has varied between 223 and 1093 m^3 per year, equivalent roughly to 6-27% of the overall supply of certified mahogany in Peten.

Position in domestic and international marketplace

In the international market, Carmelita and other community concessions in Peten stand out because of the volumes of certified mahogany they supply (roughly 4,000 m^3 per year). Competitors are certified forest management units in Brazil, though the volumes currently available are likely not to surpass the mahogany supply of Peten. In contrast, the vast areas of certified forest concessions in Bolivia (about 2 million ha) had been creamed for mahogany before they became subject to forest management and certification.

The volumes of certified LKS marketed by Carmelita and other community concessions in Peten have been relatively modest (roughly 2,000 m^3 per year). Most of them are sold on the domestic or Mexican market that show little demand for certified wood, if any. Softwood from coniferous species, both produced domestically and imported, is far more important in the domestic market, though demand exists for limited volumes of broadleaved species with specific characteristics.

Technical support and outside finance/donor support

The Association of Forest Communities of Petén (ACOFOP) has been instrumental for community organization and advances in the concession and certification process. Several donor funded projects were facilitated by ACOFOP, providing training and technical assistance. Initially, Carmelita received technical assistance by various NGOs (e.g., NPV, ACODES) and development projects (e.g., BIOFOR/USAID) in the field of forest management and certification. More recently, Carmelita received training and technical assistance in wood processing, business administration and marketing through ProPeten, Alianza para un Mundo Justo, INACOP, INTECAP, Helvetas, CONAP, ACICAFOC, University of San Carlos, and Rainforest

Alliance. A xate export program has been supported by a number of NGOs (Rainforest Alliance, WCS, Counterpart International, Helvetas, SDC) along with the University of Minnesota and CATIE. Currently, one person undergoes training in processing technology in a local private company (Baren Comercial). In addition, Carmelita receives embedded services (e.g., forest resource manager scheme, road construction) through its membership in FORESCOM.

Specialty markets, certification and ecolabelling

Forest certification according to the FSC is mandatory in the MUZ of the Maya Biosphere Reserve. The Carmelita concession was first certified by the SmartWood Program on December 15, 1999, and became recertified five years later for the period 2004-2009.[8] The renewed certificate includes xate for which a management plan was prepared. The first certification imposed 61 conditions to be complied with in a given lapse of time, while recertification was based on no more than 19 (SmartWood 2005b). The group certification scheme offered through FORESCOM might have been an alternative due to lower costs, but it was initiated only in 2005 and, hence, not in time for the recertification of the concession required by CONAP.[9]

The FSC label has helped Carmelita to market certified mahogany and tropical cedar and, to a lesser extent, lesser known species. In the case of certified mahogany, a price premium of US$0.05-0.10 per board feet, equivalent to 1-2% of the sales price, may be obtained. Typically, however, prices for non-certified mahogany soon catch up. Price premiums are difficult to be maintained in an environment where competing buyers of non-certified wood match prices in order not to lose access to raw material (Carrera et al. 2006). The fact remains, however, that prices of high quality certified mahogany have risen from US$742/m³ in 1997 to US$1781/m³ in 2006, due largely to the dwindling supply of mahogany throughout Latin America. Some buyers of certified mahogany are willing to purchase certified LKS, helping to market particularly species such as manchiche (*Lonchocarpus castilloi*), santa maría (*Calophyllum brasiliense*, and pucté (*Bucida buceras*) which virtually had no market a few years ago. Prices for high quality sawnwood of these species vary between US$382 and 572 per m³.

Employment and income generation

As stated earlier, employment opportunities provided through Carmelita are ranking high among the benefits perceived by its members, though temporary employment far outweighs permanent employment. Out of a total of 7,000 day's wages generated in 2005, equivalent to about 31.5 person-years, members and non-members accounted for 81% and 19%, respectively (Table 9). Based on a day wage of US$7.6 (56 Quetzals), this translated into a value of US$43,320 and US$9,880, respectively. About 25-30 persons find temporary employment in timber extraction from January to March and 30-35 persons in sawmilling from March to May. Depending on the harvest season, another 50-60 persons are temporarily employed in NTFP extraction.

Table 9 – Number of day's wages in Carmelita in 2005

Activity	Non-Members	Members	Total
Timber extraction	250	2,000	2,250
Wood processing	1,000	3,000	4,000
Xate	- - -	400	400
Chicle	- - -	200	200
Tourism	50	100	150
Total	**1,300**	**5,700**	**7,000**

Source: Carmelita (unpublished data)

[8] Certification code: SW-FM/COC-100
[9] Group certification of FORESCOM was granted on March 31, 2005 (Code: SW-FM/COC-1469)

Table 9 reveals that out of a total of 7,000 day's wages paid by Carmelita in 2005, roughly 90% related to wood processing (57.1%) and timber extraction (32.1%). The remainder was paid in connection with NTFP activities (extraction of xate and chicle) and, to a lesser extent, tourism. Interestingly, the number of day's wages in wood processing (3736) has risen by 7% from 2003 to 2005, though timber extraction diminished over the same period by 40% from 1325 m^3 to 791 m^3. This increase in day's wages reflects the increasing importance of milling services offered to an adjacent community concession.

According to a rough estimate, xate extraction is the principal source of household income (40%), followed by timber extraction and wood processing (30%), chicle extraction (25%), and tourism and other activities (5%) (Crasborn, pers. comm.).

6. Environmental and Social Benefits

Environmental benefits

In a number of community concessions, including that of Carmelita, there has been less incidence of forest fires. Satellite images and ground observations indicate that unlike the adjacent national park where 'social fencing' is not at play, the number of forest fires has greatly been reduced in the concession area over the past years. In the multiple use zone of the Maya Biosphere Reserve, each management unit requires a plan for the prevention and control of forest fires, including monitoring and patrol programs, a system of fines for those responsible for fires, the organization of brigades, fire fighting strategies, training of personnel, and acquisition of fire extinguishing equipment (Carrera et al. 2006).

Social returns from the enterprise, culture, and livelihoods

The constitution of Carmelita stipulates that 30% of the utilities be reinvested in social projects. Though this stipulation has not always been fully accomplished – the general assembly can set other priorities – investments have been made in a potable water system, labor inputs for the local school, and educational stipends for primary and secondary school (about six to eight stipends a year).[10] In general terms, CFE development has had positive effects on community organization, women participation (mainly related to xate), education, human resource development, local infrastructure and service development, health, and income generation.

In addition to the employment opportunities in timber and NTFP extraction, wood processing, and tourism, dividends have been paid at the end of each year. Dividends typically vary between 1000 and 1500 Quetzals (roughly US$140-210) per member.[11] For 2006, 125,000 Quetzals (US$16,900) have been earmarked for dividend payments, equivalent to about 1000 Quetzals (US$135) per member.

Most members of Carmelita base their livelihoods on forestry-related activities. Only about 10% of the households are fully dedicated to agriculture, while the vast majority makes its living on timber and NTFP extraction and, to a lesser extent, wood processing or tourism. Remittances received from family members who migrated to the United States or elsewhere complement household income in a number of cases. Despite their seasonal character, forest activities are still the backbone of the household economy. The concession and related certification process have reinforced the local forest culture that had been built up over decades in Carmelita.

[10] In 2006, stipends worth 50,000 Quetzals (US$6750) have been budgeted for.
[11] No dividends were paid in 2004 when sawmill machinery and equipment were purchased.

Investment in social infrastructure

For the time being, the social benefits generated through Carmelita are employment generation and payment of dividends, rather than investments in the social infrastructure. It is anticipated that social infrastructure investments will increase as the enterprise develops.

Subsistence products

All members of Carmelita live inside the concession area but only a few maintain agricultural parcels. Far more important are forest products, both to generate income and to meet subsistence needs, for example through hunting of deers, wild boar, and agouti, as well as the extraction of firewood and construction wood.

Cultural products, cultural knowledge and identity

The forest-based livelihoods and related forest culture provide a strong foundation for the development of a community forest enterprise in Carmelita. The increasing importance of the enterprise is reflected in the number of members that rose from 37 in 1997 to 127 in 2006. This increase has been facilitated by the fact that there are no specific barriers to entry other than a one-time payment of 300 Quetzals upon being admitted to the cooperative (about US40).

Professional training or skills building of community members

Several trainings were facilitated by or channeled through Carmelita. From 2002 to 2004, for example, 15 persons were trained in two consecutive 12-month carpentry courses provided by the National Technical Training Institute (INTECAP), among them 8 representatives of Carmelita. Upon completion of the training, INTECAP removed the machinery that was used during the training and carpentry activities have since been suspended. It is planned, however, to revitalize the local carpentry through acquisition of machinery and equipment. The related investment is estimated at US$8000.

Further training was provided in community management (INTECAP and Helvetas), community forestry techniques (Helvetas), and CFE administration (facilitated by ACOFOP).

7. Intersection with Government Regulations and Policies

The corner stone of government rules and regulations creating an enabling environment for the development of Carmelita as a CFE was the initiation of the forest concession process in Peten. This process, advocated by a number of local and national NGOs as well as development agencies, clearly favored community concessions. This is reflected by the fact that 12 out of a total of 14 forest concessions have been granted to communities and only two to private companies. The concession period of 25 years – with the option for renewal – allows for a reasonably long planning process and strategic orientation of the CFEs. It needs to be borne in mind, though, that the concession system implies usufruct rights but no land titles. The forest land does therefore not serve as collateral for loans. However, local and national banks accept timber as collateral, though high interest rates make these loans little attractive. Currently, there are no specific government programs in place that would facilitate access to soft loans. Implementation of the national competitiveness program, designed for the period 2005-2015, is likely to bring about improvements in this respect.

The tax burden of the enterprise is modest (less than 8% of total operational and administrative costs in 2003), as shown in Table 7. Specific tax breaks are not in place for CFEs. Additional costs are brought about by mandatory forest certification. Direct costs of the first certification in

1999 and recertification in 2004 amounted to US$8500 and US$5000, respectively. In the future, the group certification scheme offered through FORESCOM may help dilute certification costs.

Guatemala has recently entered in a free trade agreement between the United States, Central America and the Dominican Republic (DR-CAFTA). It is anticipated that the effects on the forestry sector will be less than those on the agricultural sector. Specific implications for the development of CFEs relate to quality standards and other non-tariff regulatory stipulations.

8. Ways forward and opportunities

Changes needed in the enabling environment

- Lifting of mandatory forest certification: knowledge on and application of sustainable forest management practices have greatly advanced in the Peten and the control of CONAP seems sufficient to ensure sound forest management. The decision in favor or against forest certification should be in the hands of CFEs such as Carmelita and their decisions should be based on a thorough cost-benefit analysis.
- Conversion of community concessions in community forests: as community forestry and CFE development advance, it should be considered converting the community concessions into community forests to ensure long-term interest in forest management and conservation.

Challenges for future or continued success

- Mahogany subsidizes extraction and processing of LKS: without high returns from mahogany, timber extraction and wood processing would not be economically viable; diversification into other products and services is required to ensure the long-term viability of the enterprise;
- Underutilization of installed capacities: the sawmill operates effectively only during two or three months of the year. The fact that most CFEs in Peten have, or would like to have, own processing facilities impedes the realization of economies of scale and a more rational use of the installed capacities;
- Limited technical capacities: production of high quality wood products is hampered by limited technical skills and insufficient and/or inappropriate technology;
- Limited business administration skills: the CFE is administered by community members rather than professional managers. Skill development is key to continued success of the CFE but requires a long-term and tailor-made approach beyond short project cycles;
- Coordination with FORESCOM: a fruitful relationship between first-tier CFEs such as Carmelita and FORESCOM as their umbrella organization requires the definition of clear communication policies, mechanisms for labor division as regards processing and marketing of wood products, and increased awareness of managers and members on the opportunities and challenges regarding a mutually beneficial relationship between first-tier and second-tier CFEs.

Potential to expand or replicate the experience and lessons for similar initiatives or governments supporting CFEs

The cases of the community concessions in Peten in general and Carmelita in particular include a variety of lessons that can be useful in different countries and contexts, in particular regarding the importance of:

- political-legal framework that ensures long-term use rights (here through community concessions, elsewhere through community forests)
- enabling institutional environment (fruitful collaboration between local, national and international NGOs and development projects, though not in all cases without conflicts of interest)
- forest certification (though sound forest management had already gained momentum when the certification process set out and certification should principally be voluntary)
- technical and business development services: technical services related to forest management and wood processing are necessary but not sufficient; they need to be accompanied by business development services to upgrade management capacities and other business skills
- financial services: need to be in line with the technical capacities and skills in different stages of CFE development.

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Annex 1 – Supporting charts and graphs

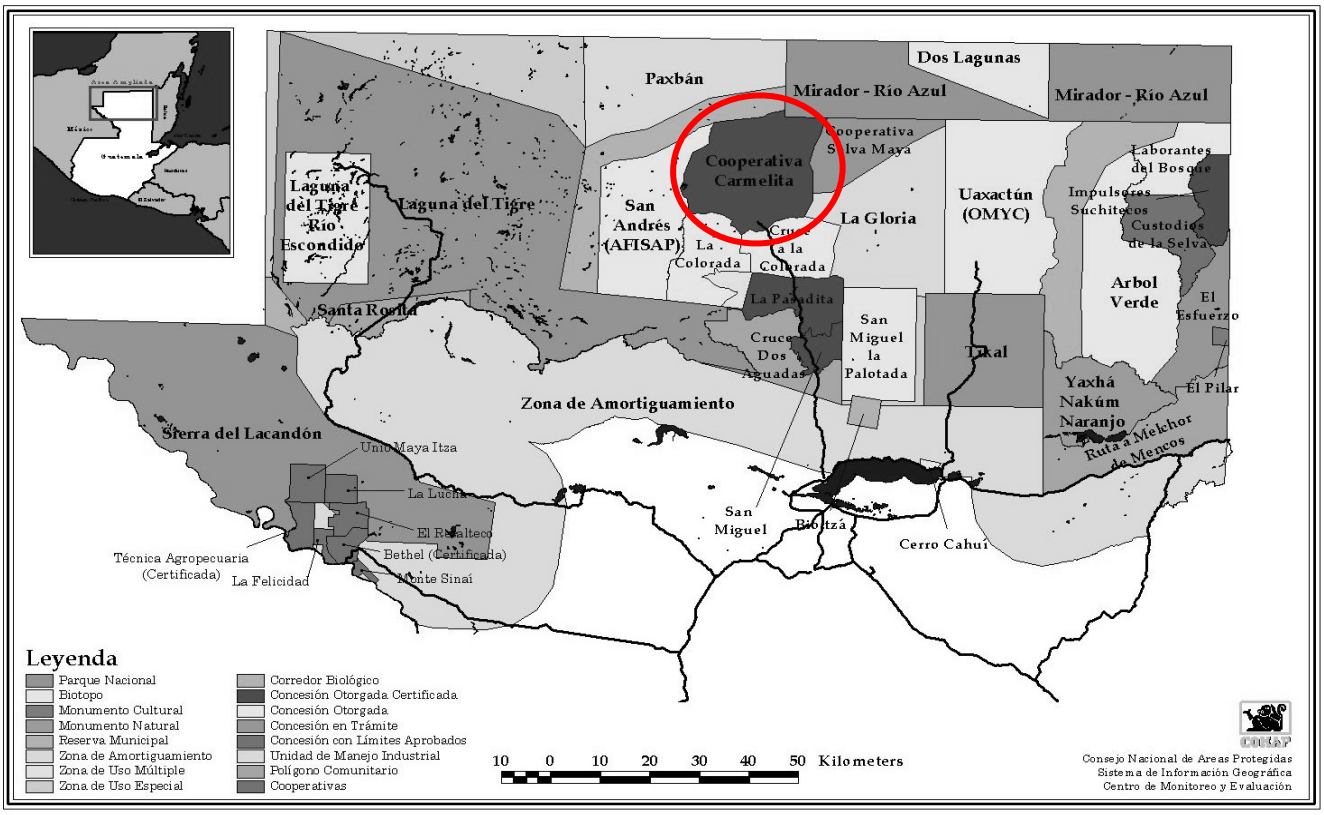

Fig. 1 – Map of forest conservation and management units in Peten, Guatemala

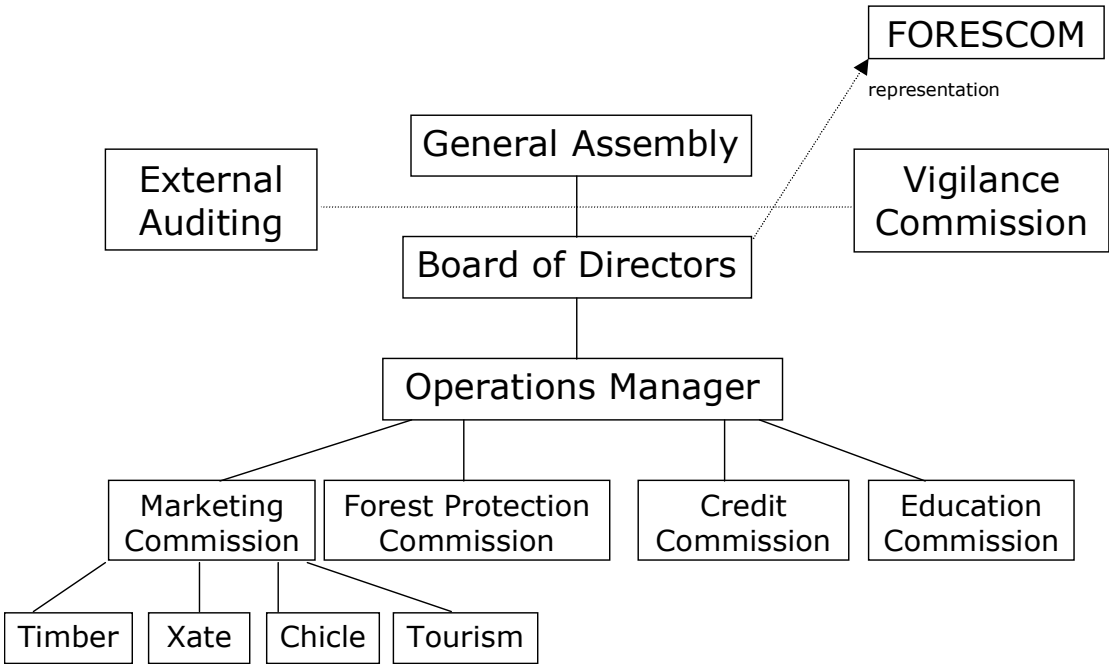

Fig. 2 – Organizational chart of Cooperativa Carmelita R.L.

Table 1 – Permitted and extracted volumes of timber (m^3) in the community concession of Carmelita, 1997-2006

Species	Botanical Name	1997		1998		1999		2000		2001		2002		2003		2004		2005		2006		Total		Percentage of total volume extracted
		Permitted	Extracted	Permitted	Extracted	Permitted	Extracted	Permitted	Extracted	Permitted	Extracted	Permitted	Extracted	Permitted	Extracted	Permitted	Extracted	Permitted	Extracted	Permitted	Extracted	Permitted	Extracted	
Amapola	*Pseudobombax ellipticum*	5.37	0,00	0,00	0,00	319.52	4.79	159.87	203.87	312.87	0,00	287,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1,084.63	208.66	2.13
Caoba	*Swietenia macrophylla*	277.07	409.4	250.25	309.86	201.21	223.21	572.75	623.42	273.49	500.75	1059,00	1092.94	1068.89	977.35	820.08	909.32	564.23	452.02	1,155.9	687.92	6,242.87	6,186.19	63.12
Cedro	*Cedrela odorata*	23.31	24.71	20.36	60.64	400.49	544.76	6.34	21.08	114.08	157.14	0,00	0,00	134.73	137.93	28.21	50.66	26.67	20.31	0,00	0,00	754.19	1,017.23	10.38
Hormigo	*Platimimiscium dimorphandrum*	2.74	0,00	0,00	0,00	1.07	0,00	7.01	6.16	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	10.82	6.16	0.06
Jobillo	*Astronium graveolens*	18.12	0,00	14.61	22.86	17.5	6.35	0,00	0,00	0.79	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	51.02	29.21	0.3
Malerio Blanco	*Aspidosperma stegomeris*	6.76	0,00	0,00	0,00	8.63	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	15.39	0,00	0,00
Malerio Colorado	*Aspidosperma megalocarpon*	1.77	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1.77	0,00	0,00
Manchiche	*Lonchocarpus castilloa*	91.87	0,00	78.35	56.16	123.73	69.88	216.43	346.74	186.75	311.78	211,00	296.66	128.44	180.96	201.04	272.56	139.7	116.01	57.2	39.41	1,434.51	1,690.16	17.25
Santa María	*Calophyllum brasiliense*	0,00	0,00	0,00	0,00	19.5	0,00	0,00	0,00	0,00	0,00	89,00	97.69	35.61	28.26	35.15	36.62	0,00	0,00	57.13	44.22	236.39	206.79	2.11
Pasaque	*Somarruba glauca*	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0.66	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0.66	0,00	0,00
Pucté	*Bucida buceras*	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	574.67	0,00	0,00	0,00	0,00	0,00	280.46	253.3	259.3	202.35	0,00	0,00	1,114.43	455.65	4.65
Total		**427.01**	**434.11**	**363.57**	**449.52**	**1,091.65**	**848.99**	**962.40**	**1,201.27**	**1,463.31**	**969.67**	**1.646,00**	**1,487.29**	**1,367.67**	**1,324.5**	**1,364.94**	**1,522.46**	**989.90**	**790.69**	**1,270.23**	**771.55**	**10,946.68**	**9,800.05**	

Source: CONAP-Forest Department Peten (unpublished data)

Notes: Species names in Spanish, as only few species such as mahogany (*caoba*) and tropical cedar (*cedro*) are known with English names in the international market
Preliminary data for volumes extracted in 2006

Annex 2 – List of persons interviewed

Name	Institution	Designation
Marcedonio Cortave	ACOFOP	Executive Secretary
Erick Cuellar	ACOFOP	In-charge Social Issues Section
Manuel Manzanero	BIOFOR Project	Asesor Forestal
Mario Reynoso	BIOFOR Project	Asesor Administrativo
Carlos Crasborn	Carmelita	President Board of Directors and Legal Representative
Wilson Guzmán	Carmelita	Forest Resource Manager
Juan Trujillo	Carmelita	Ex-President Board of Directors
Carlos Gómez	CONAP, Petén	Director MUZ-MBR
Vinicio Herrera	CONAP, Petén	Deputy Director Department of Forest Managment
Vinicio Montero	CONAP, Petén	Regional Director
Reyes de León	FORESCOM	General Manager
Jorge Sosa	FORESCOM	President Board of Directors
Gustavo Pinelo	Rainforest Alliance	Advisor to FORESCOM