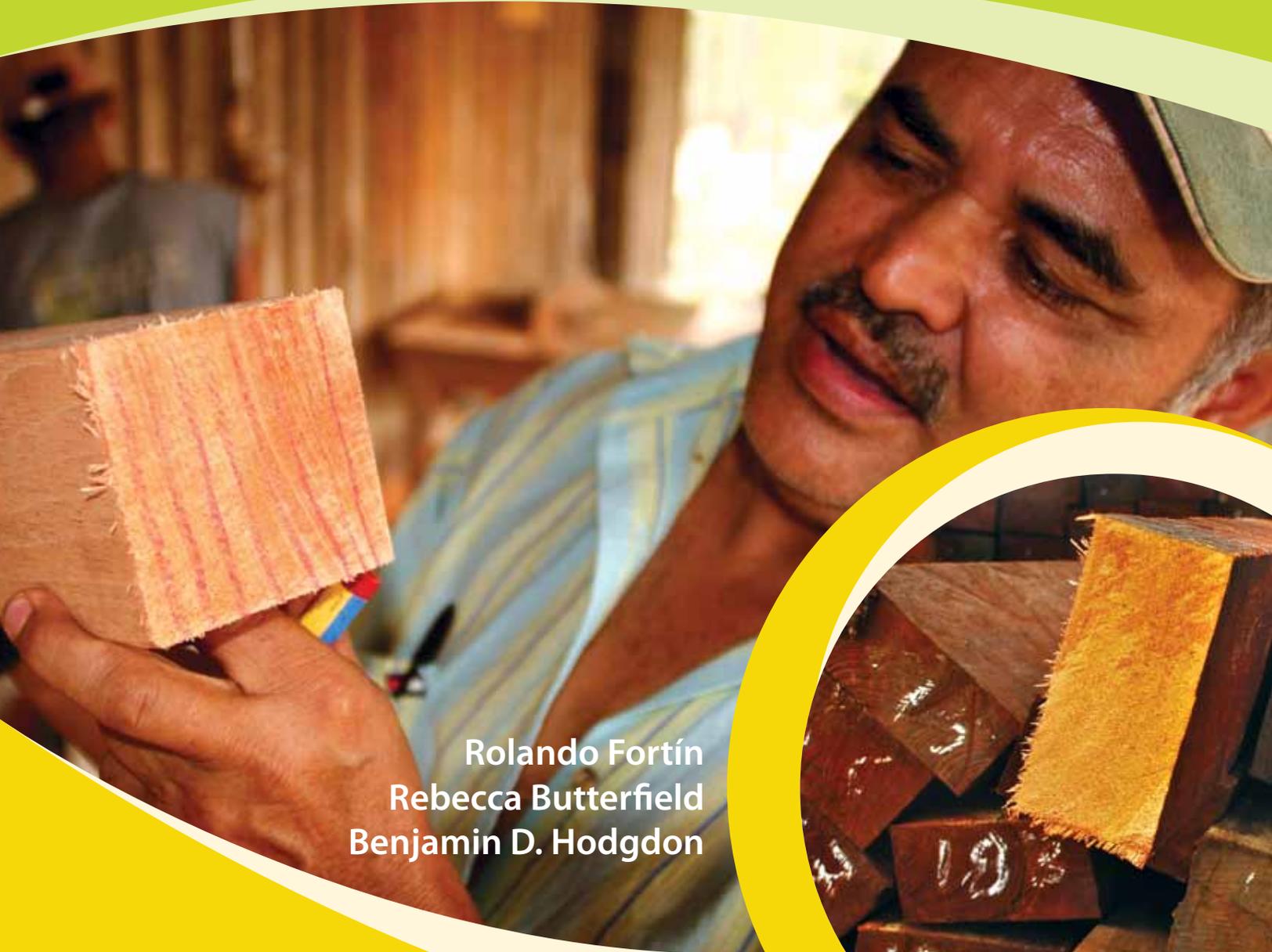


**The impacts of training,
technical assistance and new market access
for community forest enterprises in the Rio
Plátano Biosphere Reserve, Honduras**

June 2010



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Summary

Covering over two million acres, the *Rio Plátano* Man and Biosphere Reserve (RPBR) is Honduras's largest natural forest reserve and an area of global biodiversity importance. Subjected to high rates of deforestation for decades due to conversion for agricultural use and livestock raising, and suffering from the unsustainable mining of its valuable mahogany stands, the RPBR was created in 1982 to stem deforestation while ensuring livelihood development in one of Central America's most remote regions.

Twelve community cooperatives have been granted the right to harvest timber and non-timber forest products in multiple-use zones of the RPBR, but they face substantial technical and financial challenges. While significant international demand exists for sustainably-harvested mahogany, the cooperatives have had difficulty producing large enough volumes of high quality timber to meet buyer needs. High transportation costs due to poor roads and heavy seasonal rainfall have made the situation particularly challenging, as has a lack of working capital and outmoded and low-capacity technology.

One company actively seeking sustainably-produced mahogany is Gibson Musical Instruments, which manufactures electric guitars in the United States using component parts certified by the Forest Stewardship Council (FSC). The key components are the body and neck of the guitar, built from solid blocks of mahogany. In 2005, the Gibson Foundation and other donors began providing support to Rainforest Alliance's work with the

cooperatives in the RPBR to increase their capacity to supply legally-produced and FSC-certified mahogany and expand market linkages with multiple buyers.

Work began in 2005 with community enterprise trainings in business management and organization, techniques for value-added production, inventory and cost control, and strategic alliance formation. With support from other organizations, the cooperatives also moved forward on improving management practices with the goal of attaining FSC certification. Community cooperative members responded with enthusiasm. That same year, the twelve timber cooperatives of the RPBR joined together to form a second-tier organization dubbed the Union of Agroforestry Cooperatives of the RPBR (UNICAF-BRP, following the Spanish acronym), consolidating their production of mahogany into higher volumes, moving up the value-added chain, opening access to finance and increasing exports to preferred buyers, such as Gibson, as well as national markets. As the cooperatives have taken greater control over the value chain, they have successfully cut out local brokers and middlemen and increased local incomes from forestry. Meanwhile, illegal activity in the area has steadily declined.

Applying the principles of sustainable forest management and sound business practices, by 2008 the cooperatives had achieved remarkable successes in increasing their productivity, enterprise competitiveness and overall income.

The below points summarize the most significant gains:

- Sustained production of high-quality pre-dimensioned mahogany for guitar components achieved, with a low percentage of rejects.
- 128% increase in income achieved, with a 33% increase in production (well within the allowable volume set out in management plans).
- Primary processing efficiency using improved chainsaw techniques improved by 12%, from 170 board feet (bf) per cubic meter (m³) in 2005 to 190 bf/m³ in 2008.
- Music grade wood increased from 17% of total output in 2005 to 51% in 2008. Higher grade quality output reached 15% and medium grade lumber increased from 2% in 2005 to 36% in the same period.
- Reduction in illegal trafficking of wood in the area of influence of UNICAF-BRP cooperatives.

Since the beginning of organized community forestry in the RPBR, many observers have been skeptical regarding the capacity of local groups to sustainably manage their forest resources, access international markets and run successful forest enterprises. In the face of tremendous challenges, community forest enterprise development, value-added production and strategic alliances have put in place the fundamental building blocks for the long-term success of community forestry in the RPBR. This case study presents in detail the work of Rainforest Alliance and other groups with UNICAF-BRP forest communities, demonstrating how even in very difficult settings, relatively small investments in enterprise competitiveness can lead to significant and tangible gains for both conservation and development.

Introduction

Illegal logging of threatened and endangered tree species with strong market demand is a problem in Central America and around the world. Honduras is no exception: satellite imagery has shown that between 2002 and 2005 deforestation of mahogany stands reached a rate of 2.41% within the *Rio Plátano* Biosphere Reserve (RPBR) reserve¹. The degradation and deforestation dynamic familiar in frontier forests in other parts of the tropics has taken hold in the RPBR—illegal and unsustainable poaching of high-value mahogany is opening access to new areas of formerly closed forest on the western and southern borders of the reserve. These areas are in turn vulnerable to conversion for permanent agricultural use by landless migrants arriving in increasing numbers and pushing deeper into the forest each year.

This interrelated dynamic of illegal logging, immigration, accelerated reduction of forest cover and change in land use is attributable primarily to a lack of effective planning for sustainable forest use and a lack of government policies incentivizing sustainable forest management over competing land uses. Entrenched official corruption and the increasing presence of organized crime related to narcotrafficking only exacerbate the problem.

In 2005 the Rainforest Alliance TREES Program (TRaining, Extension, Enterprises

and Sourcing) –an arm of the international group focused on community forestry, began working with cooperatives in the RPBR. Rainforest Alliance and partners provided technical assistance on several aspects of forestry operations, value-added production and marketing, as well as business finance and enterprise development.

The Government of Honduras (GOH) has supported the development of community forest enterprise through the government agencies responsible for forestry², as well as the Foundation for Export Investment and Development (FIDE), which has provided financing. Technical and financial support was also received from donor organizations such as GTZ.

Over the course of the three years of assistance summarized here (2005-2008), detailed records were kept to allow the cooperatives to determine the extent to which technical assistance efforts affected productivity, income, employment, exports, and a host of socioeconomic variables. The objective of this report is to describe the activities undertaken by the Rainforest Alliance and partners, and to illustrate the social and economic impacts of investing in value-added community forestry, based on value-added production, enterprise development and expanded access to markets.

¹Source: COHDEFOR-GTZ. Evaluation of ground cover in the RHBPR, Multitemporal image analysis by Landsat-TM and Spot between the years 2002-2005/2006.

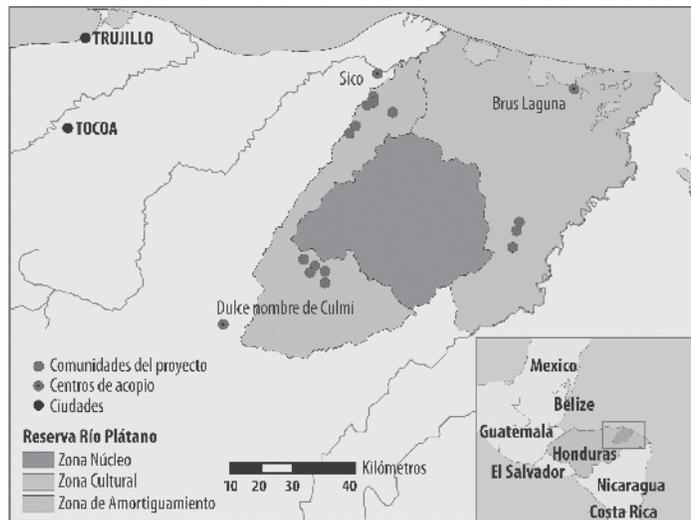
²Formerly the State Forestry Administration (AFE-COHDEFOR by its Spanish acronym), now the Institute for Forest Conservation and Development (ICF).

The Rio Plátano Biosphere Reserve

Extending over two million acres, the *Rio Plátano* Biosphere Reserve (RPBR) is the largest natural protected area in Honduras.

It is divided into three management units: a Core Zone, a Cultural Zone and a Buffer Zone (**Figure 1**).

Figure 1
The Rio Plátano Man and Biosphere Reserve (RPBR)



For over a century, this important forest region has experienced heavy pressure from various forms of resource exploitation, with the greatest impacts from forest degradation and deforestation occurring along the southern and western extremes of the reserve. This dynamic has been both a result and a cause of extensive logging of mahogany, by far the region's most important commercial timber species.

In recognition of this problem, starting in the early 1990s, the Honduras forestry administration, worked to establish twelve local forestry organizations within the RPBR. While some were formed as timber cooperatives and others as "collective corporations," all had the key aim of forest management for sustainable

production. Eleven of these community-based organizations established forest management plans between the years of 1998 and 2005.

As is common with local forestry bodies around the world, these incipient operations were initially quite weak and frequently manipulated by individuals or outside interests to undertake illegal exploitation. As capacities have increased, the cooperatives have become more independent and resilient in the face of such illegal operations.

During the first years of operation, the cooperatives' main activity was sawmilling, especially mahogany and cedar, supplying the local market through

intermediaries, and producing rather low-quality product. Business was done locally and informally, generally in the sawmill yard. An intermediary took charge of the product after sale, trucking it to market at his expense. Intermediaries usually paid an advance for selected logs; the remainder was paid at a later date.

This advance was the first outlay by the buyer, typically made prior to local purchase of standing wood by an agent of the cooperative, usually accompanied by the buyer to assure that the sale would be consummated.

The balance of payments, when outstanding, was typically made under the following conditions:

- 1) Following the buyer's onward sale of the lumber in the local market and collection of fees, he could pay in one or several installments;
- 2) Up to 20% deduction from the agreed price could be applied if the market price had since dropped;
- 3) Up to 20% deduction could also be applied if the lumber was found to be found defective;
- 4) Up to 10% discounts could be applied for incomplete volumes delivered.

Cooperatives conducted forestry operations as governed by the responsible state forestry agency (AFE), based upon forest management usufruct agreements valid for four years. At the end of these four year periods, an evaluation was conducted on compliance

with the specifications of the overall forest management plan and annual operational plans. This regulatory arrangement remains in place, although the term has been extended to five years (and may be further extended).

Recognizing the severe capacity issues in the cooperatives and their potential to significantly enhance conservation of a globally-important area for tropical forest conservation, the Rainforest Alliance, in partnership with GOH and GTZ and, began providing technical assistance in July 2005. Assistance began by facilitating the cooperatives' work to ship 25,163 board feet of mahogany in three containers to the United States. This marked the cooperatives' first export sale, amounting to \$101,307. Initial training was also provided on the standards of Forest Stewardship Council (FSC) certification, with the aim of starting the cooperatives down the road to certification.

The Union of Agroforestry Cooperatives of the Rio Plátano Biosphere Reserve (UNICAF)

In April 2006 the Union of Agroforestry Cooperatives of the *Rio Plátano* Biosphere Reserve (UNICAF) was officially created, a second-tier organization formed by twelve cooperatives whose member communities are located within the buffer and cultural zones of the RPBR. UNICAF's establishment was supported by Rainforest Alliance and the GTZ/COHDEFOR Rio Plátano Biosphere Project, and was born of the necessity

identified by the cooperatives to solve critical problems such as the following:

- Excessive procedural delays in securing management plan approvals and harvesting permits, plus a general lack of attention to forestry cooperative needs from state forestry administration agencies.
- Illegal felling by third parties within the RPBR, and a recognition of the need to combat it.
- Uncertain markets and poor market alternatives, since all production was sold through middlemen at extremely low prices.
- Lack of financial support for drawing up management plans (although a state obligation, support has not been forthcoming).
- Lack of financial resources for investments in forestry and value-added production.
- State reluctance to formalize pending forest management contracts to assure access by individual cooperatives.

UNICAF is officially seated in the community of *Sico*, municipality of *Iriona*, in the department of *Colón*, with a liaison office in the city of *La Ceiba*, *Atlántida*. There are three affiliate offices: in *Culmí*, *Olancho* in the southern zone; *Sico-Paulaya/Irona/Colón* in the western zone; and *Brus Laguna* in the *Miskito* indigenous zone. All three are commercial outlets for local and international trade in forest products.

The base membership forming UNICAF has been recognized by the Social Forestry System of the forestry administration, through which they have entered into utilization and management agreements for legal harvesting in forest management units. These areas total over 263,000 acres of tropical broadleaf forest, rich in species such as mahogany (*Swietenia macrophylla*), cedar (*Cedrela odorata*), *santa maría* (*Callophillum brasiliensis*), *San Juan areno* (*Ilex tectónica*), *huesito* (*Macrohasseltia macroteranta*), *rosita* (*Hyeronima alchorneoides*), *varillo* (*Symphonia globulífera*) and others of current and potential commercial value. The table below summarizes available volumes of important timber species in the UNICAF member forestry cooperatives.

Table 1
Harvestable volumes in UNICAF cooperatives (as of 2008)

No.	Cooperative	Annual Allowable Cut (m ³)			
		Mahogany	Other commercial species	Lesser-known species	Total
1	Won Helpka	752	3,740	1,961	6,453
2	Yabal Ingnika	335	6,653	1,080	8,068
3	KAIFUL	1,444	3,169	2,313	6,926
4	Sawacito	91	285	919	1,295
5	Mahor	639	610	2,182	3,431
6	El Guayabo	6	185	572	763
7	Brisas de Copen (R. Barahona)	119	217	737	1,073
8	Altos de la Paz	56	245	37	338
9	Río Payas (Martínez Fúnez)	21	177	824	1,022
10	Limoncito	208	428	751	1,387
11	MIRAVEZA	183	1,414	924	2,521
12	Maya Tulito	86	374	531	991
	Total	3,940	17,497	12,831	34,268

Although UNICAF was initially conceived as an independent second-tier entity that would facilitate the process of group certification under FSC, as the Union began to gain experience it became evident to each member cooperative that it could assume additional functions to benefit the cooperatives. Accordingly, it was formally agreed to adopt the following principal objectives:

1. Assume responsibility for the group Forest Stewardship Council (FSC) process, from pre-evaluation, formal application, and evaluation, to certification and follow-up measures to assure compliance.
2. Carry out due diligence functions to avoid abuses among members and outside agents; take an active role in legislative, regulatory and policy decisions at multiple scales affecting members.
3. Promote responsible group forest management with neighboring communities in the the *Rio Plátano* Biosphere Reserve as a proactive measure to reduce illegal logging in the area.
4. Negotiate and promote, locally and internationally, projects that are beneficial to cooperative members and to their respective communities.
5. Support business and marketing efforts to benefit the RPBR cooperatives and UNICAF members.

Technical assistance

Rainforest Alliance began providing technical assistance to UNICAF in 2005. It initially supported the Union's legalization and consolidation in favor of its twelve member cooperatives.

Technical assistance during the period analyzed for the present case study had the following components:

- Improvement of UNICAF's organizational and business structure, at two levels:

- a) Central (offices in *Sico*), focused on management and administration.

- b) Regional (offices in Brus Laguna, Culmí and Sico), focused on value chain development.

- Enterprise development.
- Marketing and valued-added processes.
- Strategic market alliances.
- Inter-institutional coordination.

A number of other groups gave critical support to UNICAF and its member cooperatives (and other groups) during the period of analysis. Funding sources for the period 2005-2008 are shown below in **Table 2**.

Table 2
Support to UNICAF cooperatives from variable sources over time

No.	Cooperative name	Volumes (m ³ /annum) since 2008				
		GTZ	BID	Rainforest Alliance	USAID/ Madera Verde	
1	Won Helpka	2005-2007	2006-2007	2006-2009		Cultural Zone
2	Yabal Ingnika	2005-2007	2006-2007	2006-2009		
3	KAIFUL	2005-2007	2006-2007	2005-2009		
4	Sawacito	2005-2007	2006-2007	2005-2009		
5	Mahor	2005-2007	2006-2007	2005-2009		Southern Zone
6	El Guayabo	2006-2007	2006-2007	2005-2009		
7	Brisas de Copen (R. Barahona)	2006-2007	2006-2007	2006-2009	2005-2009	
8	Altos de la Paz	2005-2007	2006-2007	2006-2009		Sico-Paulaya Zone
9	Río Payas (Martínez Fúnez)	2005-2007	2006-2007	2006-2009		
10	Limoncito	2006-2007	2006-2007	2006-2009	2008-2009	
11	MIRAVEZA*	2006-2007	2006-2007	2006-2009	2008-2009	
12	Maya Tulito			2008-2009		

* Formerly *Empresa Hermanos Unidos*

In addition to such direct assistance, indirect assistance was developed through a range of procedures aimed at facilitating the development of UNICAF, whose members were support to attend relevant political forums, round-table discussions, inter-institutional coordination and company outreach events.

Though such indirect, intangible support to the Union has been important, the bulk of Rainforest Alliance's support has gone to direct assistance, most significantly in the form of technical training. The below table itemizes the trainings held during the period under analysis for the present case study.

Table 3
Training sessions held by Rainforest Alliance between 2005-08

N°	Theme	Training topic	Attendance	
			Organization	members
1	Management	Strategic Planning	CAIFUL	20
2	Management	Strategic Planning	ACAFOB	10
3	Management	Strategic and Business Planning	UNICAF	17
4	Marketing	Market protocols	UNICAF	20
5	Added value	Methods in the production of pre-dimensioned guitar neck components	Six member cooperatives	60
			TOTAL	127

Source: Rainforest Alliance, La Ceiba.

Table 4 summarizes the investments made in these various forms of technical assistance, and some of the outcomes.

Table 4
Summary of investments and outcomes of Rainforest Alliance technical assistance to UNICAF (2005-08)

Direct assistance	Amount \$	Outcomes
Organizational structuring and legalization	29,974	<ul style="list-style-type: none"> UNICAF establishes itself as a regional enterprise for adding value to wood and assisting its members with marketing Three operational structures designed for enabling UNICAF functions
Business management	45,055	<ul style="list-style-type: none"> Strategic and business plans created Implementation of marketing protocols
Value added	48,277	<ul style="list-style-type: none"> Capacities in the production of pre-dimensioned guitar neck components
Marketing	32,647	<ul style="list-style-type: none"> Commercial alliance with the international buyer North American Wood Products (a supplier of Gibson Guitars) Eleven containers of guitar necks exported to Gibson (78,251 board feet of mahogany) with total value of US \$345,304 Value added and marketing alliance between UNICAF and domestic buyer Caobas de Honduras 64,340 board feet of mahogany sold to Caobas de Honduras for \$146,272

Indirect assistance	31,708	<ul style="list-style-type: none"> • Investment in coordinating inter-institutional relations <ol style="list-style-type: none"> 1) The project “Business Management Improvement in Community Forest Cooperatives in the RPBR” launched (supported by INCAE-FOMIN). 2) The project “Organizational-entrepreneurial development for implementation of value-added processes in the forest communities of the RPBR launched (supported by FIDE-RA). • Coordination with the BRP/GTZ project and with the AFE
Technical team salaries	91,107	Salaries for the permanent technical team
Consultancy inputs	113,616	Fees for temporary specialists and logistics for their attendance
Total	392,384	

Source: Rainforest Alliance, La Ceiba.

Results: The Impacts of Training and Technical Assistance

In this section, we quantify the impacts of the technical assistance summarized above on UNICAF over a 3-year period, 2005-2008. Broadly, we are interested in how cooperatives' productivity, competitiveness and income changed over the three years; more specifically, we collected data for the following 14 indicators, which are discussed individually below.

Production indicators

- 1.1 Annual volume in cubic meters.
- 1.2 Authorized and unauthorized harvesting.
- 1.3 Annual production volume (board feet).
- 1.4 Utilization of raw material (lumber – board feet per cubic meter).

1.5 Forest production and transport costs (\$/board foot).

1.6 Quality index for pre-cut guitar necks (% rejects).

Social and business indicators

1.7 Employment.

1.8 Specialized jobs.

1.9 Transparency.

1.10 Business relations.

1.11 Delivery.

1.12 Financing and investments.

Sales and income indicators

1.13 Prices and income from sales.

1.14 Sales to FSC-certified markets.



Production Indicators

Annual volume in cubic meters

The cooperatives have been operating under forest management plans since 1998, with an annual allowable cut (AAC, or CAP in Spanish) of about 7500 cubic yards (5700 m³) of mahogany. Despite the fact that this was the AAC prescribed in government approved management plans, the AAC was readjusted to a 5200 cubic yard (4000 m³) ceiling in 2007, i.e. 2300 cubic yards (1700 m³) less than what could be sustainably harvested.

For various reasons not all of the cooperatives have been able to harvest this lesser legally-assigned volume. In some cases, cooperatives are not able to dedicate the time and effort required to submit timely applications; in other cases, they lack adequate capital to carry out operations or win the required permits to harvest; in others, heavy

rainfall or poor roads hinder forest operations.

Technically, such low volume harvests (18% of AAC in 2005 and 30% in 2008) translate as poor forestry practice, insofar as they inhibit the application of sustainable forest management as defined in the management plan. Additionally, from the producers' standpoint, such low-volume harvests quite obviously negatively affect productive capacity and therefore income. A key objective, therefore, has been to increase local capacity to reach AAC while respecting sustainable forestry practice.

Authorized and unauthorized harvesting

Table 5 summarizes available information on regulated and unregulated harvesting in nine UNICAF cooperatives for the period under analysis. Unregulated volumes are those cited in a study published in 2008³.

Table 5
ACC and authorized and unauthorized volumes harvested in 9 RPBR cooperatives (2005-2008)

Year	ACC (m ³)	Regulated		Unregulated (m ³)	Total (m ³)	Remainder
		(m ³)	% of CAP			
2005	5,700	1,021	18	Unknown	1,021	4,679
2006	5,700	1,210	21	3,976	6,015	5,385*
2007	5,700	829	15			
2008	4,000	1,214	30	Unknown	1,214	2,786

Source: ICF Regional Biosphere BRP Directorship.

*This CAP remainder refers to years 2006 and 2007.

³Thiel, H. and Del Gatto, F., (2008) 'Evaluación de la situación general de la tala ilegal en la Reserva del Hombre y la Biosfera del Río Plátano', Report produced for AFE-COHDEFOR and Kreditanstalt für Wiederaufbau (KfW).

In the RPBR context, two distinct forestry scenarios have emerged. First, there are the nearly 262,000 acres (106,000 ha) that are assigned to legally-organized cooperatives for forest management. On paper, harvesting here occurs as outlined in forest management plans, executed according to agreements signed with GOH. Second are the unmonitored forest areas with no management plans or responsible body; these are the areas where illegal logging is most widespread.

However, this division is not clear cut. During 2006-07, for example, unauthorized harvesting was detected in some of the areas under the management responsibility of UNICAF member cooperatives and estimated at 3,976 m³ (5,180 cu. yds.), all mahogany. As a result, in 2008, during a management plan review process, operational permits were not renewed for those cooperatives where it had been proven that unauthorized harvesting took place⁴.

The UNICAF cooperatives currently implementing management plans have contributed to a cumulative reduction in illegal logging in their assigned areas. Rainforest Alliance's strategy for assisting them to do so has been to build value-added processing and the capacity to exporting pre-dimensioned mahogany. This has freed them from their former total dependence on intermediaries (widely known to engage in illegal forest trafficking), and is providing greater incentives for local groups to tighten controls, reporting and verification of volumes harvested from forest areas under their responsibility, thus contributing to a reduction in illegal activity.

Before Rainforest Alliance began technical assistance operations in 2005, no reliable production records of mahogany harvests or sales were available. Since then, assistance has been provided to UNICAF to maintain a database of sales to specific national and foreign markets; as of 2008, this was still a work in progress, but **Table 6** below notes some encouraging progress.

Table 6
Percent of total production sold directly by UNICAF and cooperatives (2005-08)

Year	Total production	Direct sales	
	Board feet	Board feet	% total production
2005	173,570	29,237	16.8
2006	205,700	56,197	27.3
2007	149,220	62,243	41.2
2008	230,660	117,420	51.0

Sources: ICF and Rainforest Alliance Regional Biosphere BRP Directorship.

⁴For more information on illegal logging in the RPBR, see Global Witness (2009), *Illegal logging in the Rio Platano Biosphere: A farce in three acts*; the Thiel and Del Gatto study cited above, and the reports of the Honduras Independent Forest Monitor.

The increase in registered volume presented above reflects an increase in the number of cooperatives engaging in direct legal sales (i.e., without intermediaries) in local as well as export markets. In 2005, the twelve cooperatives produced 173,570 board feet, of which only 16.8% were registered, the product of the sales of four cooperatives into national and export markets. In 2006, 27.3% were registered from the same cooperatives for sales to the same markets. In 2007, five cooperatives, or 41.7%, were registered. Finally, in 2008, 51% were registered, corresponding to six cooperatives. Thus, over a 3-year period, significant gains were made towards greater control over harvesting and trade in this highly complex region of Honduras.

Annual production volume (board feet)

Production here refers to annual mahogany harvests in cubic meters of logs by UNICAF, using chainsaws to fell, buck, and saw harvested timber, which is in turn measured in board feet for pre-cut guitar necks, and by log for other qualities.

According to AAC permits, RPBR total cooperative volumes as registered by the Rainforest Alliance are as shown in the above Table 6. Yield factors have been applied as follows: 170 board feet/m³ for 2005-06, 180 board feet/m³ for 2007, and 190 board feet/m³ for 2008 – reflecting improvements in yields achieved as a result of technical trainings.

Registered volumes of sawn wood show increases (except for 2007, when

only five cooperatives operated under management plans); 2005-08 showed an overall increase of 32.6%, and although volumes for 2005 and 2006 were relatively low, subsequent increases were thereafter registered, from 17% in 2005 to 51% in 2008. These registries are national and export sales volumes by the cooperatives documented with Rainforest Alliance's assistance.

The 32.6% production increase in sawn wood in 2005-08 was partly due to improved sawmill performance, from 170 board feet/m³ in 2005 to 190 board feet/m³ in 2008. At the same time, registered production increased from 17% in 2005 to 51% in 2008, reflecting cooperative involvement in export. In both cases, the positive impact of Rainforest Alliance's technical assistance is clear. Such improvements show how relatively small investments in community forest enterprise development, when correctly targeted, can have significant impact over a short period of time.

Utilization of raw material (board feet/m³)

International mahogany price increases and royalty fee hikes (paid to the state) from \$25.30/m³ to \$80/m³ in mid-2007, contributed to an increase in production costs, but also motivated producers to reduce waste. With assistance from RA, between 2005 and 2008, a 4.8% log yield increase was attained, improving lumber output and reducing rejects in pre-dimensioned guitar necks from 40% in 2006 to 10% in 2008 (**Table 7**).

Table 7
Sawmill log yield (2005-08)

Year	Yield	Rejects	
	(bf/m ³)	%	%
2005-2006	170	40.0	40
2007	180	42.5	30
2008	190	44.8	10

Source: Archives RA, *La Ceiba*.

Both the 20 board feet/m³ yield increase and the 30% reject reduction achieved in these two years can be attributed to Rainforest Alliance and buyer-sponsored trainings, combined with the trainees' strong effort and dedication. These factors allowed producers to master waste avoidance techniques to meet buyer requirements in less than two years.

The 1,214 m³ utilized in 2008 would have yielded only 206,380 board feet at the efficiency rates of 2006; however, with the improved waste reduction procedures of 2008, an output of 230,660 board feet was attained. This represents an incremental

increase of 24,280 board feet annually. With 70% of sales to the local market and 30% exported, this increase amounts to an additional income of \$80,706.

Forest production and transport costs (\$/board foot)

UNICAF production costs are still not well defined; only approximations and estimates from surveys taken in 2006 and 2007 are available. A systematic verification based upon an increased sample population is required. An approximation of average costs is presented in **Table 8**.

Table 8
Total production costs (\$/board foot)

Year	Forest production	Transport	Total
2006	0.80	0.42	1.22
2008	1.16	0.55	1.71
Difference	0.36	0.13	0.49

Source: Archives RA, *La Ceiba*.

This table differentiates between the costs of forest production and costs of transport. Costs of forest production include the cost of management plans, operations and local sales, payment of royalties to government, primary sawmill operations,

secondary processing for added value, and administration.

The costs of transport typically involve transport from the forest to the cooperative's lumber yard, and from there to the regional

lumber yard (for low capacity), and to market (for high capacity). This cost varies with weather conditions and oil prices. As mentioned, conditions in the RPBR - often

including poor or non-existent roads - sometimes requires transport by mule back or by river barge; both are low-capacity and time-consuming methods.



RHBRP Photographs taken by Technical Team Rainforest Alliance.

From the cooperative's lumber yard to that of the regional yard, roads are only accessible by small capacity vehicles with 4-wheel drive; traffic is limited by heavy rainfall much of the year. The only efficient stage of transport is from the regional lumber yard to market. Though this system is not optimal in terms of efficiency, such extensive transport is a source of employment throughout the zone (56% of the total).

The 40% increase in total production costs between 2006 and 2008 was due to increases in investments in both forest operations and transport. With forest

production, the increase can primarily be attributed to increased management and processing costs, as both the primary and secondary stages of production of pre-dimensional guitar pieces requires more labor than the production of previous products. Most significantly, the cost of standing timber, defined by GOH and paid to the State Forest Administration, increased dramatically from \$25.30/m³ to \$80/m³ in mid-2007, a 220% increase.

The increase in transport cost is primarily due to increases in oil prices and increased occurrence in inclement weather.

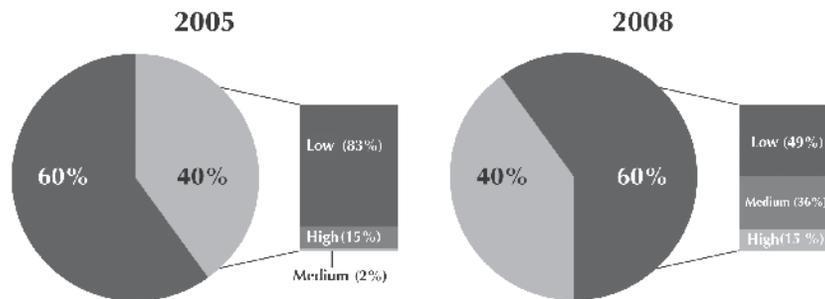
However, as will be shown, these increased costs were outweighed by the higher prices obtained for value-added products on the international market.

Quality index for pre-cut guitar necks

As a function of mahogany standing volume, 80% of the logged timber is used by the sawmill and 20% is considered waste

(stump, defective parts and tip). In 2005, half of the 80% brought to the sawmill was turned into saleable products. Of these saleable products, 15% was high quality lumber, 2% medium quality, and 83% low quality. By 2008, the amount of timber that was turned into saleable products increased to 60%, and, of this timber, 15% was turned into high quality lumber, 36% medium quality and 49% low quality.

Figure 2
Percentage relationship of yields and qualities produced in primary mahogany processing.



As shown in **Figure 2**, between 2005 and 2008 the proportion of low quality timber decreased dramatically (from 83% to 49%), and the proportion of medium quality timber increased from 2% to 36%. The proportion of high quality timber remained constant. These changes have positive implications for overall income.

In addition to the changes in quality, the rejection rate from the 40% of wood appropriate for saleable products dropped to 10%, thanks to technical improvements in chainsaw operations, a direct result of training. This training also increased medium-quality production and pre-dimensioned pieces for the local market, at prices equivalent to \$2.43. Training

has improved coarse (low quality) lumber production as well.

Pre-dimensioned high quality guitar neck production accounts for 15% of all production and represents the best opportunity for the UNICAF cooperatives to optimize wood output. The average export price is \$5.41, more than double the local market price of \$2.43. Local market sales have also increased, since more cooperatives are now participating. Prior to 2005, all cooperative sales were made on the local market.

Cooperatives are effectively unified through this type of high-value product. Over poor roads and under heavy rains, a

single cooperative could not frequently fill a container to satisfy international market requirements, but united, a group of cooperatives can meet these commitments and manage their assigned forest zones, greatly improving income and the quality of forest management.

Social and business indicators

Employment

‘Employment’ is defined by forest activity work days (and measured as wages/day) annually engaged by UNICAF-BRP work crews. Activities include harvesting, on-site operations, skidding, transport to processing centers, production of pre-

dimensioned guitar necks and lumber and loading of the finished products for sale (Table 8).

The following production metrics were applied as assumptions:

- Forest harvesting: 150 board feet/person/day;
- Value-added processing: 200 board feet/person/day;
- Transport: 445 board feet/ person/day.

Volumes, yields, and daily wages per activity are presented in Table 8, while work days generated by forest activity throughout 2006-08 appear in **Table 9**.

Table 9
Annual wood production, yields, and daily wages for sub-activities

Year	m ³ /log	Production (board feet)		Yield		Wages/day* \$
		Sawed	Pre-dimensioned	Sub-activity	bf/day/person	
2006	1,210	205,700	28,375	Sawed	150	8.0
				Pre-dimensioned	200	8.0
				Transport	445	8.0
2007	829	149,220	24,723	Sawed	150	10.5
				Pre-dimensioned	200	10.5
				Transport	445	10.5*
2008	1,214	230,160	34,890	Sawed	150	10.5
				Pre-dimensioned	200	10.5
				Transport	445	10.5

Source: La Ceiba Rainforest Alliance, Archives.

*Cooperative workers generally earn 200 lempiras daily, regardless of activity.

Based on data from Table 9, annual work days can be analyzed by sub-activity.

Table 10
Total annual workdays by forest activity (2006-08)

Year	Sub-activity									Total Days/ year
	Harvesting			Value-added & Packing			Transport			
	Men	Women	Total	Men	Women	Total	Men	Women	Total	
2006	1,371	0	1,371	142	0	142	462	0	462	1,975
2007	995	0	995	124	0	124	335	0	335	1,454
2008	1,534	0	1,534	175	35	210	517	0	517	2,261

Source: Generated from data.

Annual wages per workday are derived from Tables 8 and 9. (Beginning in 2008, women were employed in production, especially in processing high-quality wood).

Calculations for the years 2006-08 are presented in **Table 10** by activity and by gender, to include percentage of total income.

Table 11
Annual income by job generated in 2006-08

Workdays generated/activity/year			Income in \$			Percentage of total income (%)
2006	Men	Women	Men	Women	Total	
Sawed	1,371	0	10,968	0	10,968	69.4
Pre-dimensioned	142	0	1,136		1,136	7.2
Transport	462	0	3,696		3,696	23.4
Total	1,975				\$15,800	100
2007						
Sawed	995	0	10,448		10,448	68.4
Pre-dimensioned	124	0	1,302		1,302	8.5
Transport	335	0	3,518		3,518	23.1
Total	1,454				\$15,268	100
2008						
Sawed	1,534	0	16,107		16,107	67.8
Pre-dimensioned	175	35	1,838	368	2,206	9.3
Transport	517	0	5,429		5,429	22.9
Total	2,261				\$23,742	100

Source: Own archives.

Those activities generating the most employment within the UNICAF cooperatives include forest management, independent small-scale cattle-raising,

subsistence agriculture (home gardening of basic grains for family consumption), and commerce. These are shown in **Table 12**.

Table 12
Employment-generating activities in the RHBRP (2008)

Activity	Workdays	%	Approximate income (\$)
Forest production	2,261	46.8	23,700
Cattle-raising	1,287	26.7	13,500
Farming	857	17.7	9,000
Commerce	429	8.8	4,500
Total	4,834	100	50,700

Source: Own research made in the Region

The above tables reveal that, while the volume of wood sawn is similar in 2006 and 2008 (1210 m³ and 1214 m³, respectively), income increased dramatically over the same time period. Income went from \$15,800 in 2006 to \$23,742 in 2008, a direct increase of \$7,942 or 50.3%. This was due to an increase of 4.8% in the yield of raw wood in 2008 (an additional 24,220 board feet), generating 238 jobs and additional wages of \$2.50 daily in 2008. This exceeds the total income for farming in the region (\$22,500). Income from forestry has been the basic motivation for forest management and the reduction of the expansion of the agricultural frontier.

During 2008, 35 working days were performed by women in value-added production, representing a positive, if small, impact. Also during 2008, 2261 workdays provided wages of approximately \$23,742. The advent of new cooperatives in the region may lead forestry to surpass agricultural activity, traditionally the major source of employment in the region.

Specialized jobs

Since 2008, UNICAF-BRP has had an administrative structure of seven specialized jobs. The twelve member cooperatives have also developed specialized jobs (Table 12), carried out by trained workers, particularly in forest exploitation and value-added production.

Since 2005 at least two chainsaw operators work on-site in each production zone in the field to size the wood into the required lengths; they are aware of the market quality demands. At least one other technical specialist, well versed in market qualities, is also present in the forest.

Only five of the cooperatives own processing machinery. Each employs a classifier operator to produce pre-dimensioned pieces for export. There are also two plants for producing packing material, including strapping machines. These operators also stack finished product for shipment.

Each cooperative is managed by the current board chairman who specializes in administrative matters and is familiar with forest quality criteria and

participates in forest monitoring. Export documentation is handled through lawyers and customs brokers.

Table 13
Specialized functions defined in 2005-08

Area	Title	2005	2008	
		Incumbent	Proposed	Incumbent
Management	General Manager (UNICAF)		1	Pending
	Commercial manager (UNICAF)		1	Pending
	Manager		1	Pending
	Clerk/assistant		1	Pending
	Forest technician		3	1 (Pending 2)
Forest exploitation	Chain saw operator	24	24	24
	Checker (woods inspector)	12	12	12
Secondary processing (piecework)	Machine operator		5	5
	Packer		10	10
	Total	36	58	53

Source: Rainforest Alliance Archives, La Ceiba

Transparency

Before assistance from Rainforest Alliance began in the UNICAF cooperatives, a proper registry of administrative information was lacking. Since 2006, RA and GTZ have held joint training seminars in bookkeeping as required by cooperative law. To date, however, state support measures to encourage better accounting practices have not been sufficient. It is hoped that with the installment of the new ICF, this may be achieved.

One issue that has been challenging to overcome is the tendency for those in

leadership positions to make decisions based on personal interests, without adequate consultation with members. Ensuring group decision-making and engendering an equitable, collective-based ethic is one of the central challenges faced in building local community enterprise.

Business relations

Although no specific records are available on the subject of business relations, it is known that prior to 2006 the cooperatives sold lumber to shipbuilders, placing their product in the lumber yards of each customer, or

with local intermediaries who provided transport.

Currently, with the assistance of Rainforest Alliance, direct relationships have been established with brokers and exporters such as North American Wood Products

(NAWPI), which buys pre-dimensioned guitar neck pieces for sale to Gibson. A local company, *Caoba de Honduras*, purchases other products, such as guitar neck piece rejects, furniture parts, and block wood in various sizes for sale on the domestic market.

Figure 3
Business relationships between cooperatives (C) and purchasing firms (FC)

Year	Relationship	Comments	Observations
Prior to 2008		CL is the local agent who finances cooperative production costs and provides transport of the product.	A local agent could maintain business arrangements with several cooperatives.
2008		Through UNICAF-BRP, their umbrella organization, the cooperatives establish relations with Gibson through NAWPI and directly, with <i>Caoba de Honduras</i> .	UNICAF-NAWPI-Gibson Musical Instruments (International market): UNICAF- <i>Caoba de Honduras</i> (Local market)

Source: Own archives.

The relatively recent sales agreements between the UNICAF-BRP cooperatives and forest products processors and export agencies are one of the central impacts of efforts by Rainforest Alliance to link UNICAF with markets. The resulting enhancement of forest operations, value-added processing and market orientation paved the way for other strategic alliances and sales agreements with commercial entities.

For the NAWPI/Gibson sales relationship, NAWPI acts as a broker, purchasing certified mahogany from the cooperatives and assisting with targeted technical

advice, including the presence of a technical advisor when preparing shipments. Furthermore, a significant gesture of assistance to the cooperatives was a NAWPI advance against their first purchase order, which specified quality, dimensions, volume, and delivery terms. The presence of Rainforest Alliance and other partners formed a key “guarantee” for NAWPI to make such an advance.

Gibson Musical Instruments is the end buyer. Their requirement to move towards and eventually achieve FSC certification has strengthened incentives to produce legal, FSC-certified forest products.

On the domestic market, as noted, *Caoba de Honduras* purchases blocks of common quality, pre-dimensioned furniture components and related products, providing some limited training at their facilities to select cooperative members.

Delivery

The cooperatives' relationship with Gibson Guitar and with *Caoba de Honduras* is based on an informal agreement and unspecified delivery times.

NAWPI extended an initial purchase order to each cooperative, specifying quality, dimensions and volumes required during the first year, each delivery being negotiated. The cooperatives produce what they can and when a determined volume is reached, they notify the buyer's agent, who assists in classification, container preparation and shipment processing.

The letter of intent signed by *Caoba de Honduras* is very general, with no specific commitments. Accordingly, business is carried out on the basis of purchase orders citing product specifications such as measurements, volumes, species and qualities, but is unspecified regarding delivery.

The seeming informality of this arrangement is a response to the specific and difficult conditions in the RPBR noted previously.

Finance and investment

Up until recently, the UNICAF-BRP cooperatives could not qualify for formal

financing under the Honduran economic system because they could offer effective guarantees, and also because forestry in Honduras is classified as dangerous, disqualifying the cooperatives.

In order to finance operations, as well as technical assistance, the UNICAF cooperatives have relied on support from buyers, local lenders, foreign aid organizations, and from Rainforest Alliance.

Capital investments in productive equipment, as well as in machinery and transportation, have been achieved through a combination of sources:

- (i) personal funds of members, and group-owned cooperative funds;
- (ii) foreign aid project donations;
- (iii) advances on customers' purchase orders, and
- (iv) personal loans.

Working capital is generally provided by (i), (ii) and (iv), while technical assistance is freely extended by Rainforest Alliance and NAWPI.

Rainforest Alliance extended technical assistance amounting to \$204,722 during 2008. This went to training in value-added production and marketing, business planning and negotiation, organizational enhancement, and forest certification support. Additionally, support was given for salaries of the permanent technical team, temporary specialist fees, and for logistical costs related to attendance at events and business meetings.

Table 14 summarizes investments made including Rainforest Alliance technical by UNICAF over the past three years, assistance in 2008.

Table 14
Equipment and amount of investments by UNICAF (2006-08)

N°	Description	Amount (\$)	Source:
1	Logging equipment	30,000	Self-financing
2	Transportation equipment	43,000	Self-financing
	- Motorized vehicles	21,000	
	- Mules	7,000	
	- Motorized river piragua	15,000	
3	Secondary processing equipment	40,000	Mixed funding: self-financing & foreign aid
	Sub-total	113,000	Capital investments (equipment)
4	Technical assistance RA (2008)	204,723	Including salaries, fees, and negotiations
5	NAWPI technical assistance		Unknown
	Total	317,723	

Source: Rainforest Alliance, La Ceiba.

Table 14 shows that the cooperatives self-financed nearly \$100,000, or about 90% of capital investments in equipment between 2006 and 2008. RA's technical assistance investments for one year alone (2008) outweighed the combined capital investments.

A relatively modest investment in equipment has enabled the cooperatives to make effective use of the technical assistance provided by RA. Technical assistance has enhanced the local capacities and enabled them to secure funding to add greater value to their products.

Sales indicators

Prices and income from sales

The prices shown in Table 14 and Figure 4 apply to types of mahogany products

produced by UNICAF cooperatives: pre-dimensioned pieces for the international market (NAWPI-Gibson), block lumber and pre-dimensioned furniture pieces for the national market, and sawed lumber for the local market.

Products are registered for two different periods and for three types of market:

- (i) Pre-dimensioned pieces or guitar parts for the export market;
- (ii) Sawed lumber in lengths of 6' to 10', by 2" to 6" thickness, and from 4" to 12" in width; shorter boards of 1' to 5', by 2" to 6" thickness, by 4" to 12" in width; and pre-dimensioned furniture parts for the national market; and
- (iii) Coarse-sawed block lumber of all sizes for the local market.

Table 15
Product prices by market and total sales income

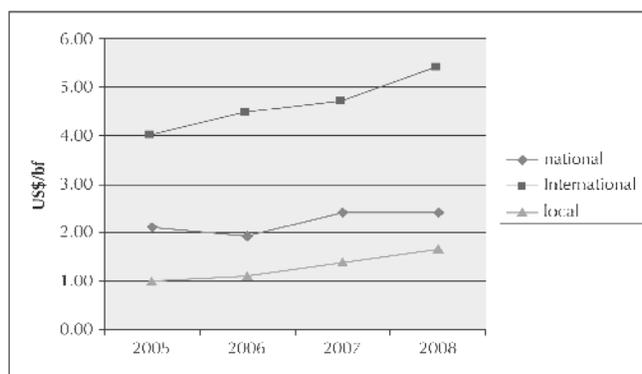
Year	Product prices by market (\$/board foot)			Sales by market type							
				Volume (board feet)				Income in \$			
	Local	Nat	Export	Local	Nat	Export	Total	Local	Nat	Export	Total
2005	1.00	2.10	4.03	144,333	4,074	25,163	173,570	144,333	8,555	101,407	254,295
2006	1.10	1.93	4.48	149,503	27,822	28,375	205,700	164,453	53,697	127,120	345,270
2007	1.40	2.41	4.72	86,977	37,520	24,723	149,220	121,768	90,423	116,693	328,884
2008	1.68	2.43	5.41	113,267	82,503	34,890	230,660	190,288	200,245	188,843	579,375

Source: La Ceiba, Rainforest Alliance.

Table 15 shows a progressive annual price increase for all three markets. International market prices are generally double those of the national market, especially for FSC-certified products. Also for export, FAS & Selecta woods are considered the highest grades. Moreover, international market prices for top grades increased by 35% between 2005 and 2008, while national market prices (as well as for grades below FAS & Selecta) have increased by 15% during the same period. Although local market prices also increased by 68% during this period, their base amounts are so low that they do not compare to export prices.

Table 15 also summarizes sales income registries for the local, national and international markets, showing that cooperative income for 2005 was \$254,295 and in 2008 was \$579,375 an increase of 228%. During this period, modest growth (38%) was registered in international market sales, while national market sales volume increased 20-fold (from 4,074 board feet in 2005 to 82,503 board feet in 2008). The trends reported here did not hold for 2007, when all sales decreased due to management plan revision.

Figure 4
Prices per board foot (\$/board foot) for products for the international markets (FSC-buyers), national (non-FSC) and local (non-FSC) for the period 2005-08.



Sales to export markets

The first export to Gibson was for three containers prepared in 2005, with the participation of three cooperatives. This was achieved in only three months, facilitated by personnel from AFE-COHDEFOR who approved the documentation, from the operational plan approval to the emission of the CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) permit. In 2006 and 2007, six cooperatives were able to export four containers annually.

Because all exports went to an FSC-certified buyer in the US, the 'export' data in **Figure 4** in effect outlines sales to FSC-certified markets (although the product itself at the time was not certified). In 2005, export sales reached 40% with four participating cooperatives; in 2008 these sales accounted for 33%, with six cooperatives participating. While export sales increased by 38%, national volumes grew twenty fold.

As described earlier, the presence of Gibson as a buyer that specifically

sought FSC-certified product was instrumental in providing an incentive for the cooperatives to move towards FSC certification. Between 2005, when the first shipments were made to Gibson, and 2008, export sales income increased by 86% for the six participating cooperatives, providing an incentive to other UNICAF-BRP organizations. Three other cooperatives have prepared to participate in export sales through NAWPI in 2009, while others have shown interest and improved their sustainable forest management through FSC certification and production of high quality wood for pre-dimensioned guitar pieces.

In 2010, 14,759 ha of forest under management by UNICAF cooperatives were awarded FSC certification. UNICAF is the holder of the group certificate. The plan is to expand the area under this group certificate to cover the total area of all UNICAF cooperatives by 2012. Again, the clear advantages of exporting to buyers demanding FSC product has been a key motivating factor for UNICAF to pursue certification.

Conclusion and Lessons Learned

Working with its twelve member cooperatives, UNICAF has achieved notable improvements in forest management, production, and marketing. These changes include improved forestry operations, sawmill performance and value-added production of guitar components. These gains came thanks to an association with Gibson and NAWPI, and the continued technical support from Rainforest Alliance and other international organizations such as GTZ. At the same time, business relationships have been established with *Caoba de Honduras*, a local resale agency purchasing lower-quality products for sale on the domestic market. As noted, these relationships motivated the cooperatives to pursue FSC certification and develop greater value-added production among cooperative members.

As a direct result of technical assistance from RA, the following changes occurred during the 2005-2008 time period:

- Sustained production of high-quality pre-dimensioned mahogany for guitar components achieved, with a low percentage of rejects.
- 128% increase in income achieved, with a 33% increase in production (well within the allowable volume set out in management plans).
- Primary processing efficiency using improved chainsaw techniques improved by 12%, from 170 board feet (bf) per cubic meter (m³) in 2005 to 190 bf/m³ in 2008.
- Music grade wood increased from 17% of total output in 2005 to 51%

in 2008. Higher grade quality output reached 15% and medium grade lumber increased from 2% in 2005 to 36% in the same period.

- Reduction in illegal trafficking of wood in the area of influence of UNICAF-BRP cooperatives.

The challenges to working in this remote, underdeveloped, and sometimes conflictive region of Honduras cannot be understated. Traditionally working as subsistence farmers, the vast majority of members of cooperatives had little formal education or familiarity with management concepts, nor with forest management, cost control or other issues central to building a competitive forest enterprise. That they have so rapidly acquired the knowledge and technical skills in processing and marketing a more complex product is a tribute to their energy and perseverance and also shows the real potential value of technical assistance. Working with the Rainforest Alliance and partners, cooperative members are learning to access new financing sources to further expand their knowledge and increase competitiveness.

We conclude with some lessons learned from this project. Our hope is that these observations will prove useful for other community forestry organizations working to maximize benefits through technical assistance.

1. Community willingness is critical

RA's efforts were ultimately successful because of cooperative members'

receptive attitudes. Their enthusiasm, and the successes they have realized through hard work and strategic alliances, has demonstrated that the commonly held belief that local farmers cannot run successful forestry businesses is indeed false. What is needed is dedicated and correctly-targeted support to develop management capabilities, add value to their product and find markets.

2. Resistance to deeper investment in administration must be overcome

Despite the benefits accrued to UNICAF due to improvements in management, administration and finance, many cooperative members have shown little interest or willingness to further develop capacities in these areas. Their desire is to invest in industrial transformation technologies that lead to immediate profit, failing to see how technical assistance in administration has led to significant benefits. Constant reinvestment in sound administration and financial management is central to long-term success and enterprise competitiveness.

3. Investment should be structured to allow for continuous training

The success of RA's technical assistance will be best maintained through a

continuous training program. This should be a key reinvestment area for UNICAF, as well as the assistance strategies from state institutions charged with forest management and monitoring.

4. Social capital needs to be built

Although the UNICAF cooperatives have been quite successful given the challenges, they continue to show marked weaknesses in key social and organizational matters. UNICAF Assembly meetings have continued to be susceptible to manipulation by leaders, impeding improvement in transparency in decision-making. The achievements and growing reputation of UNICAF could be put in jeopardy if they do not succeed in increasing transparency and equity in decision-making and benefit sharing, operating as an organized cooperative rather than following the interests of individuals. To help facilitate this transition, all base organizations were converted to cooperatives in conformity with legal requisites for the establishment of the UNICAF, to allow more open investigation, make decisions by assembly and perform audits by state authorities. This is only a first step, however; constant improvement will be necessary to achieve and maintain a strong social base of support for UNICAF's operations.



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