

The Impacts of Technical Assistance on a Community Forest Enterprise: The Case of San Bernardino de Milpillas Chico, Mexico

Case study

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Summary

This report describes work undertaken to improve community forest enterprise competitiveness in Mexico as a means to local economic development and forest conservation. Over a three-year period, Rainforest Alliance facilitated increased investment while providing technical assistance in value-added processing for a medium-sized indigenous community forestry operation in the northern state of Durango. As a result, a failing forest enterprise has been transformed into a profitable one, increasing community control down the value chain and generating increased employment opportunities, resulting in better forest management.

San Bernardino de Milpillas Chico covers a total area of 159,925 hectares (ha) and manages 123,142 ha of mixed pine-oak forest under a common property regime. Milpillas began managing its forest and selling logs in 1969. Since then it has established four sawmills; the forestry operation now employs some 360 people. In 2004, the community achieved FSC certification. However, Milpillas was losing money: in 2005, the operation had a net negative income of minus US\$561,646, a loss that was masked by advance payment from local buyers which covered harvesting.

In 2006, Rainforest Alliance began working with Milpillas. Over the following three years, a total of US\$1.1 million of investments were facilitated, mainly for equipment and

technical training. These investments helped to enhance silvicultural practice and forest harvesting, while dramatically increasing the productivity of sawmills (by 66%) and reducing production costs (by 43%), as well as creating fifteen new jobs. At the same time, improvements in wood processing increased the average sale price from US\$0.59/ board foot (bf) to US\$0.70/ bf. Finally, market analyses and strategizing allowed Milpillas to expand its buyer base by producing new product lines and tap new markets. By the end of 2008, the community forest enterprise was turning a profit of \$1.7 million.

This case clearly demonstrates the potential for relatively small investments in community forestry operations to garner major returns. Targeted investments in primary processing, quality enhancement and value-added production can generate increased efficiencies and market opportunities, while not undermining employment generation goals. Technical support and capacity building for community leaders, administrators, foresters and workers is critical in helping community enterprises reach their potential and become robust and sustainable businesses. The case of Milpillas shows that local forest enterprise –with the right assistance and market-oriented planning– can compete in local and regional markets, highlighting the potential for community forestry as a means to secure forest conservation and rural development.

Introduction

San Bernardino de Milpilllas Chico is a community-owned and managed forest company, located in the municipality of Pueblo Nuevo, in southern Durango, Mexico. The company has evolved considerably over the past half century, starting with simple forest operations selling round wood in 1969 to achieving a multifaceted, value-added operation with four sawmills by 2005. In 2004, Milpilllas achieved certification by the Forest Stewardship Council (FSC) in recognition of its sustainable forestry practices.

Despite its growth and apparent success, in 2005 San Bernardino de Milpilllas had a net negative income of US\$561,646. The loss was masked by advanced payments for timber provided by local companies and timber traders which allowed the community to start each year's harvest. Clearly, the financial viability of the operation –along with the jobs of its 360 workers– were being put at risk.

In late 2005 the Rainforest Alliance began a three-year project with Milpilllas that provided technical support and capacity building to the company. Working through the Rainforest Alliance TREES program, this was one of several projects in Mesoamerica and Mexico aimed at improving the competitiveness of indigenous –and community– managed forest companies involved in sustainable forest management. Rainforest Alliance provided guidance on company management and strategy, promoted business relationships with local and regional buyers, and trained personnel on sawmill procedures, production controls, management of inventories and cost controls.

To ensure that the impacts of the project were adequately assessed, project staff gathered baseline data on a set of key indicators before technical assistance began in 2005 and then again at the project's conclusion in 2008. This case





study presents the findings of an analysis of the changes in indicator data.

As presented in the following pages, by 2008 Milpillas had achieved a startling turnaround, with a net profit of US\$1,785,025. This change was due to many small adjustments and investments,

coupled with technical assistance to improve business operations and build skilled personnel. It is hoped that this case will demonstrate the major impacts that are possible by applying a relatively simple set of tools to improve the competitiveness of small and medium sized forest enterprises.

History and background of San Bernardino de Milpillas Chico

San Bernardino de Milpillas Chico is a community owned and managed forest company located in the municipality of *Pueblo Nuevo*, in southern Durango (**Map 1**). Milpillas' lands were formally recognized as an *ejido* –a communally-held land unit– by the Mexican government in 1961. At that time, the community was comprised of 639 individuals with formal voting rights regarding communal matters (*ejidatarios*). Today, half a century later, there are a total of 1,151 *ejidatarios* distributed in a number of settlements, including Milpillas (the main population center), Cebollas, Maíz Gordo and Llano Grande.

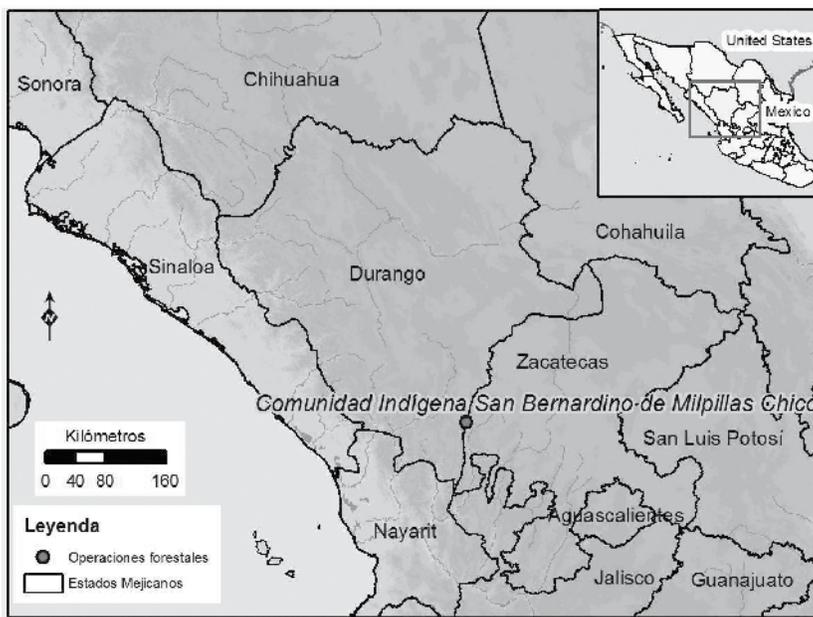
Milpillas covers 159,925 hectares. Most of its area (77%) is covered by third-growth, natural pine forests. The most common species are *Pinus durangensis*,

P. teocote, *P. leiophylla* and *P. cooperi*. Annual timber production is approximately 40,000 m³ per year, all of which is pine. Some noncommercial tree species (especially *Quercus* spp.) are used domestically, primarily for fuel.

Historically, Milpillas forests suffered from high levels of overharvesting from private forestry companies. Such poor forestry caused severe degradation and outright deforestation, driving significant changes in land use. Reacting to these dynamics, and with the support of the federal government, the community gradually started to take over forest management activities to ensure environmental protection.

The General Assembly of *ejidatarios* holds maximum authority in the community.

Map 1





Beneath the Assembly, a Community Advisory Board acts as legal representative, a Council serves as link to development and issues recommendations to the Administration, and a Forest Management Unit is responsible for the forestry operations and wood processing activities of the community.

In 1969, the community initiated its forest operations by selling round logs almost exclusively to the private company Forest *Chapultepec*, now called *Forestal Alfa S.A. of C.V.*¹, located in the state of Durango. Three years later, in 1972, Forest *Chapultepec* and Milpillas signed their first business agreement, which resulted in the installation of a sawmill for community use in exchange for sawn timber.

Over the following decades, the community gradually improved its capacity to produce sawn timber by acquiring three more sawmills with support from Forestal Alpha. Together the four sawmills reached a combined installed capacity of 24,000 board feet (bf) per 8 hour shift. Additional support provided by the company included training in equipment operation and administrative management.

At the same time, Milpillas utilized federal government subsidies and combined these with financial resources of its own to purchase harvesting equipment. Such acquisitions marked the beginning of a process towards genuine community management of

the forest. *Forestal Alfa* encouraged the community to obtain Forest Stewardship Council (FSC) certification, which the community obtained in 2004.

Milpillas maintained the business relationship with *Forestal Alfa* until 2006. Since then, it has accessed a range of markets that currently includes a group of medium and large national private companies dedicated to wood processing, which operate with a mixture of owners' capital and funding from Mexican banks.

The relationship between Rainforest Alliance and Milpillas began in April 2005 and continued throughout 2008. The agreement to engage technical cooperation grew out of a recognition that although the community had achieved FSC certification, there was a strong need to improve enterprise competitiveness to realize the full benefits of sustainable forestry. As a result of this cooperation, Milpillas began to operate with working capital obtained from profits earned by its own operations for the first time in 2008.

Training and Technical Assistance

Project planning activities were coordinated between Milpillas' Community Resource Management Board, the Community Advisory Board, the Forest Management Unit and Rainforest Alliance personnel. Agreements were recognized and

¹*Forestal Alfa S. A. of C.V.* is a private forest company focused on the production and marketing of green and kiln-dried sawn timber, plywood, and furniture for sale in national markets. The company has achieved FSC certification of its own forest management areas.

endorsed by the Community Council and the General Assembly of *ejidatarios*.

The following objectives were agreed to guide the community towards achieving its goal of increased competitiveness:

1. Mechanizing and upgrading sawmill equipment –to optimize efficiency, increase production and improve quality;
2. Improving sawmill processing methods and wood classification–training employees in specialized jobs to produce greater volumes of higher quality timber;
3. Developing methods to cure boards –producing greater percentages of high-quality wood products by eliminating defects and maintaining longer board dimensions;
4. Using kilns or wood-drying stoves–allowing for the production of new value-added products for sale in national and international markets;
5. Relocating and retraining personnel - increased efficiencies in some areas of the industrial process create excess personnel that need to be relocated or retrained to new jobs in the processing of new value-added products. (A new policy states that there will not be any new hiring except in rare cases).

The first step in the collaboration with the Rainforest Alliance was to obtain detailed analyses of current industrial processes and the production costs of sawn wood. Daily, weekly and monthly

summaries were completed so that managers would have more information on which to base sound decisions in business operations.

Based on this information, Rainforest Alliance proposed the following specific objectives to the Milpillas forest enterprise:

- Strengthen the current administrative structures of the company, with a focus on management;
- Adopt competitive technologies for processing raw timber;
- Establish alliances with governmental and nongovernmental organizations to promote investment in human, material and financial resources;
- Stimulate the creation of value-added wood products;
- Assist in forming new business contracts with the private sector;
- Create, through collaboration with the private sector, value chain strategies for the production of furniture parts and pieces; and
- Research and develop regional, national and international markets.

Rainforest Alliance provided technical support to Milpillas in the areas of training and organizational support, administration, sawmill and production monitoring, and management of inventories and cost controls. These activities are summarized in **Table 1**.



Table 1
Technical assistance provided by Rainforest Alliance in the community of San Bernardino de Milpillas Chico (2005 – 2008)

| N° | Training | N° | Other support |
|----|--|----|---|
| 1 | Directional felling of trees | 1 | Identification of government resources |
| 2 | Efficient dimensioning, extracting, and quantification | 2 | Introduction to integrated forest management |
| 3 | Sawmill processing | 3 | Integration of administrative controls through the software "ASPEL" |
| 4 | Sawn timber classification and quantification | 4 | Identification of markets and new products |
| 5 | Daily production monitoring | | |
| 6 | Monitoring and administration of inventories | | |
| 7 | Costs of production | | |
| 8 | Administration and finances | | |



Results: The impact of training and technical assistance

To determine the impact of Rainforest Alliance's technical assistance, data were collected on the following indicators in 2005, before the technical assistance began, and again in 2008.

Forest indicators

- 1.1 Volume harvested (m³ and as a percentage of allowable harvest)
- 1.2 Quality of round logs harvested

Production indicators

- 2.1 Round log yield (bf/m³)
- 2.2 Production rate per person (bf/day/person)
- 2.3 Production quality (%)
- 2.4 Production capacity (%) as a function of equipment capacity

Enterprise management Indicators:

- 3.1 Employment by gender (number of men and women)
- 3.2 Specialized posts (sex disaggregated)
- 3.3 On-time delivery
- 3.4 Financing and investments (USD and %)
- 3.5 Business alliances
- 3.6 Improvements in enterprise management

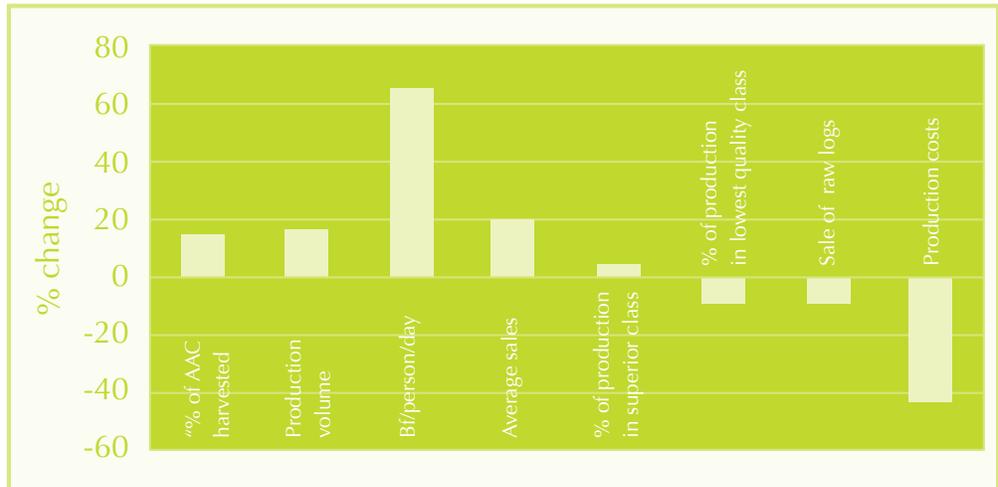
Sales and revenue indicators:

- 4.1 Production costs, sales and revenues (USD/bf)
- 4.2 Product mix (%)
- 4.3 Sales to FSC chain of custody certified buyers (% of total sales).





Figure 1
Percent change between 2005 and 2008 in key enterprise indicators.



Production indicators

Volumes harvested (m³ and harvested volume as a percentage of allowable harvest)

According to the FSC certification standard, forest operations cannot harvest more volume than is permitted by the forest management plan. However, small forest companies rarely attain their annual

allowable cut due to a range of factors, including: (I) a lack of resources to pay for harvesting; (II) short harvesting seasons due to climatic conditions; (III) lack of suitable planning; or (IV) lack of sufficient machinery.

The data in **Table 2** reveal that the harvested volume increased during the study period, increasing from 65% of the allowable harvest in 2005 to 80% in 2008.

Table 2
Actual harvest and allowable harvest in 2005 and 2008

| Year | Volume | | |
|-------------|-------------------------------------|----------------|-----------------------------|
| | Allowable harvest (m ³) | Actual harvest | |
| | | m ³ | as a % of allowable harvest |
| 2005 | 40,197 | 26,000 | 65 |
| 2008 | 36,510 | 29,200 | 80 |

A 15% increase in harvested volume occurred between 2005 and 2008. This is an example of greater capture of the economic value of the forest resource, without compromising sustainability by exceeding the growth capacity of the forest as determined in the forest management plan. In 2005, management registered a loss of authorized volume as a result of a series of technical deficiencies in tree felling, excess waste during dimensioning, very high stump heights and merchantable wood left in the forest. These deficiencies were corrected

in a relatively short time period through awareness and training for workers at all levels.

Quality of logs harvested

The percentage of volume utilized in each wood quality class depends on the inherent characteristics of the harvested tree and the capacity and training of personnel. Between 2005 and 2008 there was a 3% increase in the utilization of first class (highest quality) wood products (**Table 3**), which went from 82% in 2005 to 85% in 2008.

Table 3
Volume of wood harvested in different quality classes in 2005 and 2008.

| Year | Volume per quality class | | | |
|-------------|--------------------------|-----------|----------------|-----------|
| | First class | | Second class | |
| | m ³ | % | m ³ | % |
| 2005 | 21,320 | 82 | 4,680 | 18 |
| 2008 | 24,820 | 85 | 4,380 | 15 |

Optimal use of the allowable harvest in terms of volume and quality represents a positive economic impact, as it makes available more wood for processing and marketing. This positive economic gain also generated improvements in the overall business vision of the company.

Production of material from raw logs (bf/m³)

The information presented in **Table 4** was generated during the daily monitoring activities of the production department.

Table 4
Board feet of wood produced per m³ of raw logs in 2005 and 2008.

| Year | bf/m ³ | % |
|------------|-------------------|----|
| 2005 | 198 | 47 |
| 2008 | 205 | 48 |
| Difference | 7 | 1 |



The increase in performance of 7 bf/m³ reached in 2008 was the result of the application of a policy focused on efficient use of raw logs through improvements in sawmill technology and training of personnel. To highlight the real impact of such an improvement: for example, an increase of 7 bf/m³ in a sawmill that processes 29,200 m³ per year results in an additional production of 204,400 bf, amounting to an additional income of US\$143,080 per year. This is

thus clearly an incentive to improve efficiencies in the use of raw materials.

Production rate per person

Worker performance is presented as a relationship between the volume in board feet produced per person per time unit (8 hour workday). The data were compiled from daily controls of production, managed by the production department (**Table 5**).

Table 5
Production rate per person in 2005 and 2008.

| Year | Workers | Performance | |
|------|---------|-------------|-----------------|
| | | bf/shift | bf/person/shift |
| 2005 | 139 | 26,000 | 187 |
| 2008 | 126 | 39,000 | 310 |

Between 2005 and 2008, there was an increase of 123 bf/person/shift, and a reduction of 13 workers in the area of production, which results in an overall increase of 66%. This does not mean that there was a reduction in payroll because, as indicated in **Figure 7**, between 2005 and 2008 there was an increase of 15 positions in other departments of the company. These positive changes were the result of: (I) training by Rainforest Alliance to improve personnel and (II) new equipment that has improved the efficiency and performance of personnel.

The reduction of 13 workers in the production area has had a positive economic impact because it reduced the production cost of labor. The increase of 123bf produced per person/shift

represents a significant economic impact and a management improvement. In addition, the reduction of production costs improves the competitiveness of the company and the potential to earn more profits, as will be shown later.

Product quality and income from sales

This indicator examines the quantity, prices, and sales of wood processed into various qualities and products (**Table 6** and **Figures 2** and **3**). In this case, the analysis compares sawed wood, short wood (less than 8' lengths, all thicknesses and widths), pallets, square blanks for brooms, and recovered material. This information was obtained from daily production monitoring documented by the production department.

Table 6
Production rate per person in 2005 and 2008.

| Characteristics Denomination | June 2005 | | | | June 2008 | | | |
|---------------------------------|-----------|------------------|-----------------------|------------------|-----------|------------------|-----------------------|------------------|
| | % | Bf | Price/ bf/ US\$ | Sales US\$ | % | Bf | Price/ bf/ US\$ | Sales US\$ |
| Wood 2 and better | 10 | 514,800 | 0.89 | 461,776 | 15 | 897,900 | 0.99 | 888,921 |
| Wood No. 3 | 15 | 772,200 | 0.70 | 540,540 | 25 | 1,496,500 | 0.74 | 1,167,270 |
| Wood No. 4 | 14 | 720,720 | 0.69 | 497,297 | 17 | 1,017,620 | 0.65 | 661,453 |
| Wood No. 5 | 41 | 2,110,680 | 0.52 | 1,097,554 | 32 | 1,915,520 | 0.57 | 1,091,846 |
| Wood short | 11 | 566,280 | 0.49 | 277,477 | 5 | 299,300 | 0.46 | 137,678 |
| Platform | 6 | 308,880 | 0.49 | 151,351 | 4 | 239,440 | 0.55 | 131,692 |
| Squared broom, others | 3 | 154,440 | 0.70 | 10,108 | 2 | 119,720 | 0.89 | 106,551 |
| Totals | 100 | 5,148,000 | | 3,134,103 | 100 | 5,986,000 | | 4.185.411 |

As is shown in **Table 6** and **Figures 2** and **3**, in 2008 there is an important increase in the production of higher qualities of wood products. Higher quality products tend to be more useful and sell at higher prices. A corresponding reduction in the production of inferior qualities is also observed. Comparing the value of sales over the project period, revenues increase from US\$ 3.1 million dollars in 2005 to 4.1 million dollars in 2006.

Figure 2
Production volumes for different products before and after Rainforest Alliance training and technical assistance (2005 and 2008)

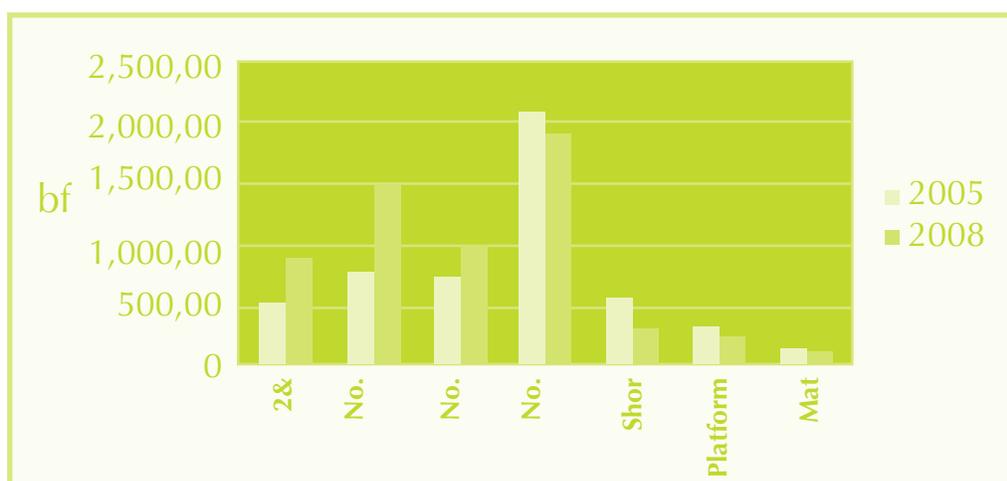
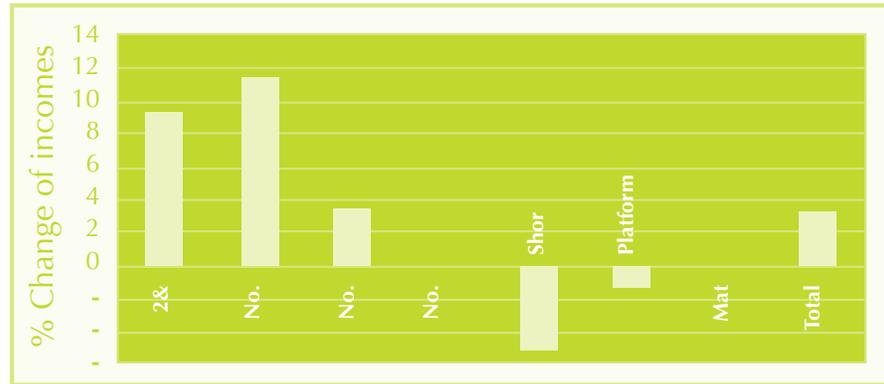




Figure 3
Percentage change in income for different products between 2005 and 2008.



Production capacity, compared to the capacity of the equipment

Prior to 2005, the industrial facilities of Milpillas were comprised of four sawmills acquired with the support of Forestal Alpha. These mills had an installed potential capacity of 33,000 bf/8 hour shift under optimal working conditions. However, “idle” times caused by faults in planning and operator deficiencies in equipment use

resulted in an actual capacity of 26,000 ft/8 hour shift.

Between 2006 and 2008, the community invested US\$1,131,839 in improvements to wood processing facilities, and received technical support and training from Rainforest Alliance. The installed capacity of the saw mill under optimal conditions increased to 43,000 bf/8 hour shift, and its actual capacity reached 39,000ft/8 hour shift (**Table 7**).

Table 7
Potential and actual production values in 2005 and 2008.

| Year | Production capacity of the equipment (bf) | Actual production | |
|------|---|-------------------|----|
| | | bf | % |
| 2005 | 33,000 | 26,000 | 78 |
| 2008 | 43,000 | 39,000 | 90 |

Table 7 shows that in 2005, Milpillas was only able to occupy 78% of the installed capacity. In 2008, it reached 90%, producing 39,000 bf out of an estimated 43,000 bf/8 hour shift. This improvement is the result of investments

and training that personnel at different levels received from Rainforest Alliance. This increase in production capacity led to an increase in sales of raw logs and sawn timber, leading ultimately to a **US\$419,020** profit.

Administrative Indicators

Employment

Despite the decrease in the number of workers in the primary processing

facilities, a slight but notable 5% increase in total employment of women was achieved. This information was gathered by the Department of Human Resources, through the administrative system ASPEL (**Table 8**).

Table 8
Employment by gender, in 2005 and 2008.

| Denomination | June 2005 | | | June 2008 | | |
|-----------------------|-----------|--------|-------|-----------|--------|-------|
| | Total | Gender | | Total | Gender | |
| | | Men | Women | | Men | Women |
| Employment | 360 | 347 | 13 | 375 | 350 | 25 |
| Specialized positions | 7 | 6 | 1 | 38 | 34 | 4 |

Redistribution of employment reduced production costs without lowering the total number of jobs. The employment of 13 women in 2005 represented 3.6% of the total employment that year. This number doubled to 25 in 2008, through the addition of six department assistants and various other positions (food preparation, cleaning, and workers in the pallet processing department). Thus there has been a strong positive impact on

employment opportunities for women, a human resources policy promoted by the community.

Specialized positions

Specialized positions are those that require special training and the development of new skills. There were 7 of these positions in 2005 and 38 in 2008 (**Table 9**).

Table 9
Number of specialized positions in 2005 and 2008.

| Name of the position | Amount | |
|----------------------|--------|------|
| | 2005 | 2008 |
| Technical Director | 1 | 1 |
| Forest Technicians | 4 | 4 |
| Accountant | 1 | 1 |
| Accountant assistant | 1 | 1 |
| Manager | | 1 |
| Assistant manager | | 1 |



| | | |
|---------------------------------|---|----|
| Assistant of technical services | | 1 |
| Administrator of camping | | 4 |
| Document person of camping | | 4 |
| Document person of mount | | 4 |
| Sawmill managerl | | 4 |
| Field manager | | 4 |
| Human resources manager | | 1 |
| Human resources assistant | | 1 |
| Invoicing clerk | | 1 |
| Cashier | | 1 |
| Wood classifier | | 2 |
| Shipping clerk | | 1 |
| Storage clerk | | 1 |
| Total | 7 | 38 |

The strong increase in specialized jobs (443%) between 2005 and 2008 shows how quickly a small community operation can improve efficiencies in management and administration. The contrast between 14 administrative positions (37%) and 24 technical positions (63%) is also a reasonable proportion of specialized jobs.

On time delivery

In 2005, the community was committed to delivering its daily production to a buyer in Durango. This commitment was fulfilled but there were frequent delays, partly because the buyer financed forestry operations and provided a guaranteed market without any repercussions for poor delivery. As a result, the community often did not meet meet delivery timelines.

With the change in business vision of the community and business growth to include a wide portfolio of clients, a strict fulfillment of quality, place, and time of

delivery has been achieved. This further facilitated a solid and efficient cash flow. Greater detail will be provided in the section Commercial Relations.

Financing and investments

For many years, the financing of the Milpillas community enterprise depended on Forestal Alpha, which offered a US\$250,000 annual contribution. This changed in 2006 when the community obtained new funding sources, including self-financing. The change from a loss to a profit permitted investments from the community into the company (**Table 10**).

Between 2006 and 2008, the community self-financed 46% of the \$1.1 million total investments. The rest of the financing came from the Federal Government: the National Commission for the Development of Indigenous Peoples (CDI, 20.9% of the total), the Trust for Shared Risk

(FIRCO, 18.4%), the National Forestry Commission (CONAFOR) –including its Community Forest Development Program (PROCYMAF) and ProArbol (12.4%)– and, finally, the State Government of Durango (1.9%).

In 2006, Milpillas made investments including the purchase of specialized equipment (e.g. a lumber sorting table), and the mechanization of the sawmill at Maiz Gordo, for a total of US \$86,537. The following year, the community bought a freight elevator, the Cebollas sawmill, installed the kiln (wood drying oven), purchased a peeling machine, a work vehicle, value-added equipment and an industrial vessel, for a total of US\$667,822. Finally, in 2008, Milpillas

invested in an automatic double chisel, an automatic double gleaner, a router, a lumberman’s saw, a sharpening machine, a moulding and finger joint, a suction system, a pneumatic system including its electrical systems, an electrical substation and an electrical system, for a total of US\$377,487.

Table 10 clearly shows that the community improved its capacity to manage funds and investments. Milpillas contributed 46% of the total investments of **US\$1,131,839**. This capacity to invest and sustainably manage the forest company is the result of a long-term business vision that began in 2006, thanks in part to the technical assistance and support of Rainforest Alliance.

Table 10
Sources of financing and investments per year and total in US\$

| Source of financing | 2005 | | Period 2006-2008 | | | | | | | |
|---------------------|----------------|-----|------------------|------------|----------------|------------|----------------|------------|------------------|------------|
| | | | 2006 | | 2007 | | 2008 | | Total | |
| | US\$ | % | US\$ | % | US\$ | % | US\$ | % | US\$ | % |
| Forestall Alfa | 250,000 | 100 | | | | | | | | |
| Community | | | 61,537 | 71 | 292,698 | 43.8 | 170,525 | 45.2 | 524,760 | 46.4 |
| FIRCO | | | | | 207,985 | 31.1 | | | 207,985 | 18.4 |
| CDI | | | 25,000 | 29 | 101,922 | 15.3 | 110,000 | 29.1 | 236,922 | 20.9 |
| CONAFOR | | | | | | | | | | |
| ProArbol | | | | | | | 50,000 | 13.3 | 50,000 | 4.4 |
| CONAFOR Procymaf | | | | | 43,478 | 6.5 | 46,962 | 12.4 | 90,440 | 8.0 |
| State Government | | | | | 21,732 | 3.3 | | | 21,732 | 1.9 |
| TOTAL | 250,000 | | 86,537 | 100 | 667,815 | 100 | 377,487 | 100 | 1,131,839 | 100 |



Business Relations

Business relations between the community and *Forestal Alfa* continued until 2006. Verbal and written agreements guaranteed Milpillas would have a market for its timber and would receive technical assistance, financing and investment for social development projects. In exchange, the cooperative would supply the private company with its entire wood production. Both companies were certified by the FSC

and some of the certified wood products produced by Forest Alpha were destined for US markets.

In 2006, Milpillas began selling its wood products in different quality classes. The community began a process of diversification by forging new business relations in different markets that offered better prices for the same products, dimensions and qualities. Thus they improved their income and attained greater profits (**Figure 4**).

Figure 4
The evolution of commercial relationships between the community (C) and firms (F).

| Period | Type of commercial relation | Description of relation | Comments |
|------------|--|---|--|
| Until 2006 | <pre> graph LR C[C] --> F[F] F --> C </pre> | The community establishes relations with a company/ firm directly (one to one). The relations are of mutual support, where there are benefits in both directions. | The community sold its wood products exclusively to <i>Forest Alfa</i> on the local market |
| 2008 | <pre> graph LR C[C] --> F1[F1] F1 --> C C --> F2[F2] F2 --> C C --> F3[F3] F3 --> C C --> Fn[Fn] Fn --> C </pre> | The community establishes relations with several companies. The relations are commercial in nature. | The community maintains a wide portfolio of clients in the national market. |

Improvements in Enterprise Management

Community Council

The Community Council of Milpillas is made up of a group of *ejidatarios* and it has become important in the process of decision making. The council was founded in October 2005 with the objective of analyzing and supporting viable projects and activities related to

the social and economic development of the community. The Community Council demands transparency and accountability in the activities of its managers, developing processes that are democratic and participatory.

Forest Management

Forest management is one of the most important departments in the company.

Forest management activities improve the quality of forest products, increase profits with the same raw materials, and ensure conservation of the forest resource.

Daily documentation of sawmill production, performances, adjustments to equipment, systems of wood classification and the handling of inventories is an important part of achieving efficient operations in the Forest Management department. The need to keep detailed records was promoted by specialized consultants of Rainforest Alliance.

Aspel System

The Aspel administrative system (*Windows*-based) software was installed in August 2006 and is made-up of four modules: List, Banks, Accounting and Production. The Aspel system creates up-to-date inventories, sales, client portfolios, balances and other important information that is required for effective administration of the company. The system is currently operated by community members who have received intensive training in its operation. By using this software to support administrative decision making, the community put itself to the forefront of community forest enterprises in Mexico.

Sales and Revenue Indicators

Cost of Production, Sales and Revenue

From the start of its operations in 1969, Milpillas managed forest harvesting, milling and sales without performing

cost-benefit analyses. Upon analyzing management activities in 2005, it was revealed that the average production cost per unit was higher than the average sale cost per unit of US\$ 0.11/bf (**Table 11**). This led the company to close with losses of US\$566,280 in 2005.

The main expenses were:

1. Permits to harvest raw material (payment to *ejidatarios* for access to wood);
2. Silvicultural practice, such as inventory, stand prescriptions, thinning, reforestation and fire protection;
3. Forest harvesting, including employee salaries and benefits, transportation, roading, fuels and lubricants, maintenance of machines, equipment and tools, repair of fences, etc.;
4. Wood processing, including maintenance of machines, equipment and tools, electricity; and
5. Administration, including employee salaries and benefits, office expenses, etc.

The situation had changed by 2008, when average sale prices reached US\$0.70/bf, through a combination of selling different quality wood products separately, and selling a greater percentage of high-quality wood products. In addition to the increase in average sale prices, production costs significantly dropped to an average

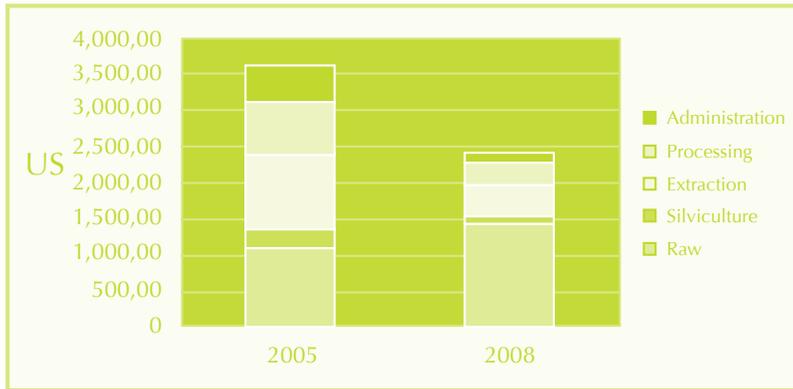
of US\$ 0,40/bf, due to lower costs of silviculture, harvesting, processing and administration (**Figure 5**). These changes translated into a 66% increase in daily

performance, a reduction of 43% in costs, and an increase in the average price of 19% per sale unit between 2005 and 2008.

Table 11
Production costs and sales, 2005 and 2008.

| Production costs and sales 2005 | | | | |
|---------------------------------------|-----------------|---------------------|----------------|-----|
| Description | Bf/year | Cost (US\$) | | % |
| | | unit/bf | Total | |
| Raw material (26.000 m ³) | 5,148,000 | 0.21 | 1,081,080 | 30 |
| Silviculture | 5,148,000 | 0.05 | 257,400 | 7 |
| Extraction | 5,148,000 | 0.21 | 1,081,080 | 30 |
| Transformation | 5,148,000 | 0.14 | 720,720 | 20 |
| Administration | 5,148,000 | 0.09 | 463,320 | 13 |
| Total costs | 5,148,000 | 0.70 | 3,603,600 | 100 |
| Average price per sale/bf | 0.59 | | | |
| Sales | Production (bf) | Unit price per sale | Total sale | |
| | 5,148,000 | US\$ 0.59 | US\$ 3,037,320 | |
| Medium Utility | 5,148,000 | US\$ -0.11 | US\$ -566,280 | |
| Production costs and sales 2008 | | | | |
| Description | Bf/year | Cost (US\$) | | % |
| | | unit/bf | Total | |
| Raw material (29.200 m ³) | 5,986,000 | 0.24 | 1,436,640 | 61 |
| Silviculture | 5,986,000 | 0.01 | 59,860 | 3 |
| Extraction | 5,986,000 | 0.08 | 478,880 | 20 |
| Transformation | 5,986,000 | 0.05 | 299,300 | 12 |
| Administration | 5,986,000 | 0.02 | 119,720 | 4 |
| Total costs | 5,986,000 | 0.40 | 2.394,400 | 100 |
| Sales | Production (bf) | Unit price per sale | Total sale | |
| | 5,986,000 | US\$ 0.70 | US\$ 4,190,200 | |
| Medium Utility | 5,986,000 | US\$ 0.30 | US\$ 1,795,800 | |

Figure 5
Production Costs 2005 and 2008 (US\$).



Product mix

The increased capacity of sawmill equipment and the support provided by Rainforest Alliance contributed to the processing of 100% of the raw logs. When kiln-drying is added to its processing capabilities, the community will be able to sell its current products (e.g. boards, planks, platforms, squares for handles of brooms, bobbin wood for handles of

brooms, materials for packing, chips and sawdust) as kiln-dried products.

The products that appear in **Figure 6** are from current wood processing methods and from the business vision of Milpillas, which tries to minimize raw timber sales in order to create more value-added production. The figure also represents the changes from mill run sales to wood products classified into different qualities.

Figure 6
Product mix between 2005 and 2008.

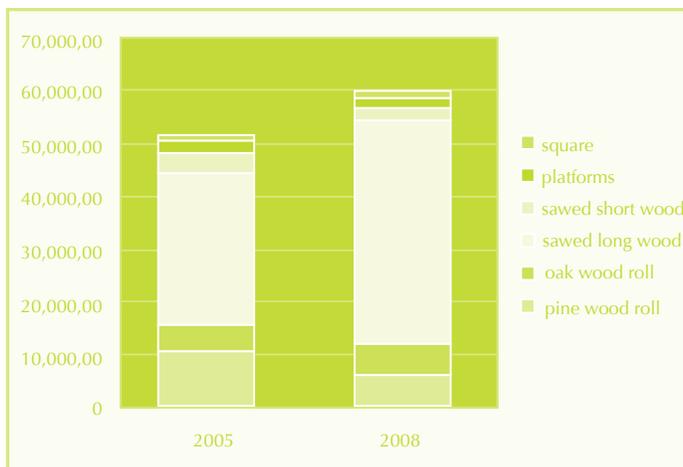




Figure 6 shows that an important reduction in the supply of products of lower value; notably, there is a 10% reduction in raw timber sales and a 4% reduction in sawn short wood sales. Also, commercial long wood increased 15% as a result of the policy to offer products of higher value.

Sales of FSC to Chain-of-Custody Certified Buyers

In 2005, Forestal Alpha was the sole FSC chain-of-custody certified buyer of forest products from Milpillas (**Table 11**). Forestal Alpha sold 42% of its production as certified wood products. The rest was sold to clients in markets that did not demand certified wood. In 2005, the average unit price for raw wood was US\$0.59 (**Table 12**).

Table 12
Sales to FSC chain-of-custody certified buyers.

| Year | Total Sales US\$ | Sales COC | |
|------|------------------|-----------|----|
| | | (US\$) | % |
| 2005 | 3,037,320 | 1,281,532 | 42 |
| 2008 | 4,190,200 | 125,562 | 3 |

Table 11 shows that the percentage of sales to FSC chain-of-custody certified buyers had declined to 3% by 2008. The other 97% were sold to non-COC certified buyers. While this shift to other buyers has increased revenue for Milpillas, the downside is that less FSC-certified wood is entering the certified marketplace.

Conclusion and Lessons Learned



The community of San Bernardino de Milpillas Chico has overcome many obstacles to manage its forest resources sustainably and profitably. It has evolved from selling raw logs in 1969 to running four sawmills and employing 360 people in 2005. During that time the community achieved FSC certification for forest management, a significant accomplishment

However, until it decided to invest in its business and work with the Rainforest Alliance to improve its production systems, the community was still under-utilizing its forest resource, generating employment but at a financial loss. Through a financial and business planning process, it has been able to lower costs

and raise productivity. Investments in both machinery and employee training have dramatically increased sawmill productivity (by 66%) while lowering production costs (by 43%) and adding 15 new positions to the payroll. The community has expanded the number of buyers to which it sells, selling specific products into differentiated markets rather than selling the whole production as a mill run. This market change, along with increasing the percentage of production in higher value products, has boosted the average sale price from \$0.59 per board-foot to \$0.70 per board-foot. Soon the community will add kiln-dried wood to its product mix; it is anticipated that the average sale price will rise even more.



In addition to above results, three years of collaboration and support between San Bernardino de Milpillás Chico and Rainforest Alliance have generated important lessons for others embarking on partnerships with community forestry operations, including:

1. Forest certification promotes a process of constant improvement. Through certification, a process of business development was initiated that has been enriched and supported through greater transparency and accountability, and more participation by the general assembly of *ejidatarios*.
2. The participation of government agencies, through their development programs, is an important source of economic resources and is essential in the development of community forest operations.
3. Technical support for community-managed forest companies involves two major processes:
 - i) Detailed analyses of social and economic conditions, as well as industrial processes of the forest company. This analysis must be open and transparent and presented to the community so members can understand the problems and visualize their existing strengths, weaknesses and opportunities.
 - ii) The creation of a business development plan focused on social, economic and financial objectives. The plan should include administrative changes to establish a forest management department, training for managers, an efficient administration, specialized training for workers, a program of investments to improve efficiencies and outcomes of the industrial process, identification of funding sources, access to markets and specialized and committed technical support.
4. Because community-managed forest companies often suffer from inefficient administration and a lack of monitoring of the industrial process, those groups providing technical assistance should develop a plan or long-term vision that emphasizes improved integrated business management from the start. Such an approach would take into account the entire process, from how wood volumes are quantified in the field to the improvements in the production of the final product. This will help not only with the success of the project but also with securing complementary funds inside and outside of government programs.
5. Because of the character of the collective property of *ejidos* and indigenous communities, decision-making in these companies must count on the support of a social system. It is recommended that a Community Council (or similar organization) act as a liaison between the Community Resource Management Board and the General Assembly. In this way, the Community Council can research and assess potential projects

and recommend viable and sustainable development options.

6. Communities often focus on technologies that improve processing efficiency and quality, not understanding that support in training, skill development and management practices must complement investments in technology. In the case of Milpillas, adapting new methods of administration and documentation (daily monitoring of production, inventory management, cost control and expenses) has been fundamental in improving production and decision making by management.

The management and community members of Milpillas should be congratulated for their commitment and willingness to invest in their business (\$1.1 million over 3 years, 46% from

the community itself) and for embracing changes in the way they organize and monitor their production. The government agencies in Mexico (both federal and state) also deserve credit for the funds that they make available to the community and the forest sector at large to promote more value-added processing and better forest management. Lastly, the value of technical assistance to guide, promote and technically support these processes should be emphasized. Too often, communities are focused on buying equipment without considering their overall business plan and strategy and the need to invest in developing human capacity. It is the training and technical assistance of community leaders, managers and workers that helps forest enterprises achieve their full potential and become robust and sustainable businesses, capable of competing in local and regional markets.



Appendix

Chart 14 Summary of impact indicators. Company San Bernardino de Milpillas Chico

| Wood indicators | | | | | | | |
|---|-----------------------------|---------------------------|-----------------------|---------------------------|----|-------------|----|
| Year | Volumen | | | | | | |
| | Authorized | Obtained | | Prime | | Secondary | |
| | Tree vol (M ³) | Log vol (M ³) | % | Log vol (M ³) | % | Log vol (M) | % |
| 2005 | 40,197 | 26,000 | 65 | 21,320 | 82 | 4,680 | 18 |
| 2008 | 36,510 | 29,200 | 80 | 24,820 | 85 | 4,380 | 15 |
| Difference | (-3,687) | 3,200 | 15 | 3,500 | 3 | 300 | 3 |
| Indicators of performance of sawed wood | | | | | | | |
| | bf/m ³ (log vol) | % | | | | | |
| 2005 | 198 | 47 | | | | | |
| 2008 | 205 | 48 | | | | | |
| Difference | 7 | 1 | | | | | |
| Indicators of performance of human capital (8 hour shift) | | | | | | | |
| | No. employments | Feet/table shift | Feet/table day/person | | | | |
| 2005 | 139 | 26,000 | 187 | | | | |
| 2008 | 126 | 39,000 | 310 | | | | |
| Indicators of production quality | | | | | | | |
| qualities | % per year | | Difference % | | | | |
| | 2005 | 2008 | | | | | |
| Wood 2 and better | 10 | 15 | 5 | | | | |
| Wood No. 3 | 15 | 25 | 10 | | | | |
| Wood No. 4 | 14 | 17 | 3 | | | | |
| Wood No. 5 | 41 | 32 | (-) 9 | | | | |
| Short Wood | 11 | 5 | (-) 6 | | | | |
| Platform | 6 | 4 | (-) 2 | | | | |
| square/broom and recovery material | 3 | 2 | (-) 1 | | | | |



| Indicators of installed capacity | | | | | | | | | |
|-------------------------------------|-------------------------|---------------------|----------------------------|-------------------------|------------|---------|--|--|--|
| | Installed Capacity (bf) | Production capacity | | 50% increase | | | | | |
| | | Bf | % | | | | | | |
| 2005 | 33,000 | 26,000 | 78 | | | | | | |
| 2008 | 43,000 | 39,000 | 90 | | | | | | |
| Difference | 10,000 | 13,000 | | | | | | | |
| Indicators of employment by gender | | | | | | | | | |
| | Employments | | | Specialized positions | | | | | |
| | Total | Men | Women | Total | Men | Women | | | |
| 2005 | 360 | 347 | 13 | 7 | 6 | 1 | | | |
| 2008 | 375 | 350 | 25 | 38 | 34 | 4 | | | |
| Difference | 15 | 3 | 12 | 31 | 28 | 3 | | | |
| Indicators of financing and sources | | | | | | | | | |
| | Amount US\$ | % | Source | | | | | | |
| 2005 | 250,000 | 100 | Forestell Alfa | | | | | | |
| 2006-2008 | 524,760 | 46 | Community | | | | | | |
| | 607,079 | 54 | State and Federal programs | | | | | | |
| Total | 1,131,839 | 100 | | | | | | | |
| Indicators of sales (US\$) | | | | | | | | | |
| | Total sales | COC Sales | % | Average value (US\$)/bf | | | | | |
| | | | | Production cost | Sale value | Utility | | | |
| 2005 | 3,037,320 | 1,281,532 | 42 | 0.70 | 0.59 | -0.11 | | | |
| 2008 | 4,190,200 | 125,562 | 3 | 0.40 | 0.70 | 0.30 | | | |
| Difference | | 1,148,605 | (-39) | (-0.30) | 0.11 | 0.41 | | | |

Chart 15
Summary of impacts

| No. | Impact indicator. | Type of impact |
|------------|--|--|
| 1.1 1.2 | Volumes and quality of logs harvested. In terms harvest of authorized volume between 2005 and 2008, an increase in the harvested volume of 15% was achieved. | The greater impact is economic, when optimizing the volume authorized (in amount and quality). Simultaneously, an inductive impact in the improvement of the enterprise vision of the community company is shown. |
| 1.3 | Production of material from raw logs. Between 2005 and 2008 there is an increase of 7 of bf/m ³ in raw material. | The impact is economic, because the increase in performance of 7 bf/m ³ r with the availability of 29,200 Ms ³ r/year, represents 204,000 bf (without increasing harvest) and an additional income/year of US\$ 143,080. |
| 1.4 | Production rate per person. At the end of the analyzed period there is a reduction of 13 workers and an increase of 123 feet table/day/person. | The impact is positive in the economics because the production cost by manpower has been reduced. On the other hand, the increase of 123 feet table produced by person-day represents a mixed, economic and administrative improvement impact of the community company. In addition, the reduction in production costs improves the competitiveness of the company and it increases the possibility to obtain more revenues. |
| 1.5a | Production quality. There has been an increase in the production of superior qualities, as well as a reduction in the production of inferior qualities. | The appreciations of the analysis represent a significant economic impact, since the increase of volumes of superior qualities implies higher incomes at better sale prices. |
| 1.5b | Income from sales. In 2005 the community company had a loss of US\$566,280, having to pay US\$1,079,536 to co proprietors for mount rights due (raw material), although they only paid US\$518,404 to continue operating. In 2008 the company closed with positive utility of US\$1,795,800. | In the evolution of the community company between 2005 and 2008 there is a positive economic impact derivated from the dynamics of three sections of the enterprise management: production, production costs and sales. Thus, in 2008 there is a 66% per person increase in daily performance, a 43% reduction in costs and an increase in the average price of 19% per sale. |
| 1.6 | Production capacity. In 2005 the community company took advantage of 78% of the installed capacity. In 2008 it used 90% of that capacity, producing 39,000 bf out of a total of 43,000. | There is a positive impact in the economic aspect, derivated of a better administration of the human, physical and financial resources. The increase in production capacity was due to the decrease in scaleboard sales and increase in saw wood sales for a US\$419,020 of gain. |
| 1.7 | Employment by gender. The redistribution of jobs lowered the production costs without eliminating the total number of positions. From the point of view of gender, the employment of 13 women in 2005 represents 3.6% of the total positions generated by the company in that year. However in 2008 there were 25 female recruits, almost doubling the positions for women. | With better distribution of positions and more added value, the total number of jobs can be maintained while reducing production costs. There is a strong positive impact on the employment of women, as a result of a policy of human resources promoted by the community company. |



| | | |
|------|---|--|
| 1.8 | <p>Specialized positions. The strong increase of specialized jobs (443%) registered by 2008, clearly denotes the fast process of administrative-management improvement reached by the community company. They have 14 administrative positions (37%) and 24 technical positions (63%), representing a logical proportional relation.</p> | <p>A strong positive impact is shown in the administrative development of the community company.</p> |
| 1.10 | <p>Financing and investments. The community company reaches a 46% self financing, for a total of US\$ 1,131,839 (2006-2008).</p> | <p>The community company shows a capacity of investment in the technological improvement of its industrial facilities (increase of the installed capacity), that hits positively in the generation of uses, elevation of the quality of products, reduction of costs, and the improvement in the security in the support of the markets, besides the positive impact in managemental matter.</p> |
| 1.15 | <p>Product mix. Comparing the percentage of different presented products, a reduction in the supply of products of smaller value is shown. Also, the percentage of commercial long wood was increased in by 15%.</p> | <p>Of course, the appreciations of the analysis represent a significant economic impact, since the increase of volumes of superior qualities implies higher income at better sale prices.</p> |
| 1.16 | <p>Sales to FSC Chain-of-Custody certified buyers. The community company has reduced its sales to companies with COC/FSC from a 42% to a 3% during the analyzed period, due to the change of sales of mil run to classified product sale.</p> | <p>There is an impact of economic type that allows the entrance of the community company into markets with better sale prices. There is also a negative impact of world-wide strategic type, since their sales to COC/FSC markets have been seen significantly reduced.</p> |



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