

***The Impacts of Certification on  
Community Forest Enterprises:  
A Case Study of the Lomerío Community  
Forest Management Project, Bolivia***

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## ACRONYMS

APCOB	Apoyo Para el Campesino-Indígena del Oriente Boliviano (Support for the Peasants-Indigenous People of Eastern Bolivia)
BOLFOR	Proyecto de Manejo Forestal Sostenible de Bolivia (Bolivia Sustainable Forest Management Project)
CATIE	Centro Agronómico Tropical de Investigación y Enseñanza (Tropical Agronomy Teaching and Research Centre)
CDF	Centro de Desarrollo Forestal (Forestry Development Centre)
CFV	Consejo Boliviano para la Certificación Forestal Voluntaria (Bolivian Council for Voluntary Forest Certification)
CICC	Central Intercomunal de las Comunidades de Concepción (Intercommunal Central of the Communities of Concepción)
CICOL	Central Intercomunal Campesina del Oriente de Lomerío (Intercommunal Peasant Central of Eastern Bolivia)
CIDDEBENI	Centro de Investigación y Documentación para el Desarrollo del Beni (Research and Documentation Centre for the Development of Beni)
CIDOB	Confederación Indígena del Oriente, Chaco y Amazonía de Bolivia (Indigenous Confederation of the Bolivian East, Chaco and Amazon)
CIMAR	Centro de Investigación y Manejo de Recursos Naturales Renovables (Centre for Research and Management of Renewable Natural Resources)
CITES	Convention on International Trade in Endangered Species of Wild Flora and Fauna
COATLAHL	Cooperativa Regional Agro-Forestal Colón Atlántida, Honduras, Ltda. (Colón-Atlántida Honduras Regional Co-operative Limited)
COPNAG	Central de Organizaciones Nativas de Guarayos (Central of Native Guarayos Peoples' Organisations)
CUMAT	Centro de Investigaciones y Estudios de la Capacidad de Uso de la Tierra (Centre for Research into Land Use Capacity)
DFID	Department for International Development
EMS	Environmental Management System
FONOMA	Fondo Nacional para el Medio Ambiente (National Fund for the Environment)
FSC	Forest Stewardship Council
HIVOS	Humanistisch Instituut voor Ontwikkelingssamenwerking (Humanist Institute for Cooperation with Developing Countries)
IIED	International Institute for Environment and Development
ILO	International Labour Organisation
INRA	Instituto Nacional de Reforma Agraria (National Land Reform Institute)
IPHAE	Instituto para el Hombre Agricultura y Ecología (Institute for Man, Agriculture and Ecology)
ISO	International Organisation for Standardisation

MDSMA	Ministerio de Desarrollo Sostenible y Medio Ambiente (Bolivian Ministry for Sustainable Development and the Environment)
NHLA	United States National Hardwood Lumber Association
OFI	Oxford Forestry Institute
PFM	Participatory Forest Management
PL480	United States Public Law 480
PSV	Proyecto Sello Verde (Green Labelling Project)
SCS	Scientific Certification Systems
SF	Superintendencia Forestal (Forestry Superintendency)
SNV	Nederlandse Ontwikkelingsorganisatie (Netherlands Development Organisation)
TCO	Tierra Comunitaria de Origen (Indigenous Territory)
USAID	United States Agency for International Development
WWF	World Wide Fund for Nature
YFC	Yanesha Forestry Co-operative

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## **EXECUTIVE SUMMARY**

### **Background to the study**

Certification is a market-based instrument, designed to improve forest management by linking market demands for sustainably-produced forest products with producers who can meet such demands. Although there are positive indications that certification will be effective in achieving its purpose, many issues and uncertainties have yet to be resolved. These include the impact of certification in relation to its alternatives (e.g. improved policy and legislation), and the costs and benefits for different groups.

For community forest enterprises, which are typically small-scale operations, the potential benefits of certification may be offset by internal constraints such as weak economies of scale (leading to high certification costs), a lack of marketing opportunities, and a limited capacity to bear market risks. The ability of certification procedures to cope with social conditions at a community level is also uncertain. As a first step towards resolving such uncertainties, practical assessments of the impacts of certification on individual community enterprises are needed. Such assessments, which have so far been lacking, should not only allow certification procedures to be improved and adapted to community needs, but should also support the development of local capacities for participatory monitoring and evaluation of certification.

As a first contribution to this area of inquiry, this report presents an analysis of the economic, social and environmental impacts of forest certification on the Lomerío Community Forest Management Project in eastern Bolivia. Owned and managed by indigenous Chiquitano Indians, the Lomerío project secured forest management certification from the Rainforest Alliance's Smart Wood programme in February 1996. In doing so, it became the first forest enterprise to be certified in Bolivia.

The analysis of certification at Lomerío is divided into five themes:

1. Forest management practices;
2. Enterprise administration, finances and marketing;
3. Institutions and social relations;
4. Distribution of costs and benefits; and
5. National forest policy and legislation.

Under each of these themes, an attempt is made to assess both the direct and indirect impacts of certification. In the case of national policy and legislation, the analysis concentrates on the project's legal standing following certification, as well as more general developments in Bolivian forest policy and legislation related to forest certification. The study used a combination of approaches, including field investigation, in-depth interviews, and literature review.

The report concludes with suggestions for the focus and methodology of future impact assessments of community forest certification, particularly in (tropical) developing country situations. A series of



research themes is presented, together with an analytical framework that identifies key variables and baseline questions for each stage of the certification process.

## **The Lomerío Community Forest Management Project**

Situated in eastern lowland Bolivia, in the Department of Santa Cruz, the canton of Lomerío is home to 25 Chiquitano communities with an estimated population of around 5,300. Since 1986, these communities, under the direction of their communal organisation CICOL (Intercommunal Peasant Central of Eastern Lomerío), have participated in the development of a vertically-integrated forest enterprise designed to both generate material benefits and secure legal recognition for indigenous territorial claims. Financial and technical support for this endeavour has been provided by the non-governmental organisation APCOB (Support for the Peasants-Indigenous People of Eastern Bolivia) and, latterly, by the Bolivia Sustainable Forest Management Project (BOLFOR). Following an evaluation by the Rainforest Alliance's Smart Wood certification programme in October 1995, the Lomerío project officially received certification as a 'well-managed' source in February 1996.

## **Summary of certification's impacts**

### *Forest management practices*

- Existing high technical standards within the project, as well as new forest legislation that imposes strict standards for inventories, plans, and other tools of management, have meant that the incremental impact of certification has been relatively low.
- However, certification has increased the emphasis on conservation management. The project has been required to prepare a protected area plan and take measures to reduce human disturbances such as fire-setting and hunting.

### *Enterprise administration, finances and marketing*

- Two of the main expectations of certification were higher prices and greater market security. With support from BOLFOR and several wholesalers and secondary processors (both in Bolivia and abroad), the project has secured new export markets and price premiums for several lesser-known timber species.
- Several caveats apply to this market success. Firstly, higher timber prices have not translated into significantly higher community incomes, due to the financial demands of the under-capitalised communal sawmill. Secondly, administrative and managerial capacities are limited and the demand for certified timber is only being met with difficulty. Export market requirements are forcing the project to face difficult business choices that may jeopardise the social and political roles of the enterprise. Finally, the extent to which higher prices are due to certification *per se*, rather than improved marketing techniques, is open to question.

### *Institutions and social relations*

- Debilitating weaknesses in social and institutional relations were identified by the certification process. In addressing these weaknesses, certification has refocused attention on the community, rather than CICOL or any other entity, as the basic socio-political unit of forest management.

- Certification has promoted the redefinition of community roles and responsibilities in forest management and enterprise administration, with greater emphasis placed on active community participation in decision-making. Without certification, it is likely that the conflicts engendered by enterprise development would have received far less attention.

#### *Distribution of costs and benefits*

- The direct cost of forest management certification (including the field assessment and first annual audit) is estimated at US\$47,525, or US\$0.90/ha over a certified area of 53,000 ha. As this was paid in full by external donors, the willingness of local stakeholders to pay for certification has not been tested.
- No attempt was made to estimate the indirect costs of meeting certification standards. The practicability and potential value of such an exercise at Lomerío is reduced by three factors: 1. the high levels of external assistance, 2. the long history of the project (which means there are considerable historical costs), and 3. the costs of compliance with new forest legislation and international agreements on sustainable forest management.
- Higher prices for timber have not translated into significantly higher community incomes. If this situation continues, there is a risk that commitment to sustainable forest management will be weakened.

#### *National forest policy and legislation*

- In addition to its market benefits, certification was expected to facilitate the demands of the project for a forest concession (which has been continually refused by the Bolivian authorities), and a legally-recognised indigenous territory for the Chiquitano.
- To a large extent, both expectations have been overtaken by new land and forest legislation that recognises the legal right of indigenous peoples to their traditional lands and the natural resources within them. The demand for an indigenous Chiquitano territory was officially recognised by the government in mid-1997. Certification is thought to have contributed to this process by generating favourable national and international publicity for the achievements of the project.
- The certification of Lomerío has given an important boost to forest management by indigenous groups in Bolivia as a whole. Not only have the Chiquitano shown themselves to be pioneers in quality forest management, but also the experience gained at Lomerío should benefit other indigenous forest enterprises being developed in lowland Bolivia.

### **Conclusions**

Given that Lomerío is passing through a period of considerable change, and that this study is only a 'snapshot' of a project which has been heavily influenced by external factors such as new forest legislation and donor support, the following conclusions can be made:

- Certification has brought immediate market benefits, but only with substantial external assistance. Furthermore, the project's position as a certification pioneer has exposed it to the full force of market demand, and the enterprise's managerial and production capacities have been quickly overloaded.

- Although positive, social changes have been passive and in response to the demands of certification rather than any internal driving force. It remains to be seen whether these changes can be sustained in the long term.
- The practice of subsidising certification, even for small-scale enterprises, needs to be examined. For pioneering enterprises such as Lomerío, some subsidisation of costs may be justified. In general, however, subsidies may serve only to distort markets and weaken stakeholder commitment to long-term processes of change and improvement.

### **Key research issues for future impact assessments**

The findings of the study point to some key issues that appear to condition the viability of community forest certification. These can be grouped into four main themes, which will merit attention in future impact assessments:

1. The *demands* placed by certification on local resources: Lomerío has been able to meet the demands of certification only with support from external donors. For other community enterprises with perhaps little or no support, compliance on a similar scale would be difficult. Furthermore, if the rate of change demanded by certification is too rapid, it may restrict the scope for normal processes of participation and decision-making.
2. The *implications* of certification for community enterprise development: To a large extent, the problems faced by the Lomerío sawmill derive from a failure to thoroughly review the business and marketing implications of certification. Superficial assessments of the potential costs and benefits of certification may also have given rise to unrealistic expectations amongst stakeholders.
3. The *relevance* of certification to local land management strategies: The Lomerío experience suggests that the conceptual focus of community forest certification should be on the 'landscape' rather than the 'forest', thus mirroring local perceptions of space and territory and supporting a more integrated approach to community land use planning.
4. The *social and developmental roles* of certification: At Lomerío, certification has gone beyond the simple verification of management standards to play a significant role in social development. Notwithstanding the relative merits of this role, the use of certification as a tool of social policy has implications for the way in which certification conditions are formulated and monitored. Amongst other things, it will mean a greater emphasis on intermediate, qualitative indicators of progress, developed and monitored by local stakeholders themselves. The role of certifiers in this context will be to guide and facilitate rather than to supervise or enforce.

### **The analytical framework**

In light of field experience, the basic methodology adopted at the outset of the study can be developed into a comprehensive analytical framework for impact assessments of community forest enterprise certification. This framework is divided into five main sections, each of which corresponds to a stage in the certification process. At each stage, the progressive impact of certification on local

stakeholders and their behaviour can be assessed by means of key variables and baseline questions.

The analytical framework is included to support investigation into the four themes above, both as a working model for general use and improvement, and in future studies of community forest certification by the author. Its use need not be limited to external assessments, however: it is broad enough to support internal assessments of certification by local stakeholders. The variables and baseline questions can be modified or augmented to reflect local conditions.

## INTRODUCTION

Certification is a relatively new, voluntary procedure in forestry, designed to link market demands for sustainably-produced forest products with producers who can meet such demands. The use of international markets to provide an incentive for improving forest management appears, outwardly, to be a reasonable strategy. The current demand for certified wood products in Europe and North America is reported to be high, and steadily growing (BOKU *et al.* 1998). A great deal of effort is currently being expended on developing and testing certification schemes and standards that are acceptable to both producers and markets.

Despite the current interest in certification, there remains much uncertainty about its potential impact. The ability of certification to improve forest management, rather than simply to identify good practice, has yet to be proved. The role of certification in the rapidly changing policy and legislative environment of many countries is also unclear. Improved laws and law enforcement may limit the further contribution that certification can make to forestry standards. The expense of complying with new legislation may also limit the number of forest managers willing to adopt certification, as may unnecessarily rigorous certification procedures, high market risks, and uncertain 'green' price premiums.

Although the global forest industry as a whole is affected by these uncertainties, there are particular sub-sectors where reliable answers will be needed soon. One is small-scale forest enterprise, and in particular community-based operations. In the tropics, especially, the development of certification is converging with that of another contemporary movement: participatory forest management (PFM). Experience with PFM has shown that marketing and income generation are key to the success of community-level forest management (ODA 1996). Many of the institutions that support PFM are, therefore, taking a growing interest in the use of certification to support, and endorse, market-oriented community forest management.

Although potentially high, the benefits of certification for small-scale, community forest enterprises may be offset by a number of internal constraints. These include weak economies of scale (which will lead to high audit costs), a lack of marketing opportunities, and a limited capacity to bear market risks. In addition, the ability of certification procedures to cope with the diverse land management systems and livelihood strategies found amongst local communities has yet to be proved.

As a first step towards resolving such uncertainties, practical assessments of the economic, social and environmental impacts of certification on community forest enterprises are needed. Such assessments have so far been lacking. But they are needed to improve certification procedures, to adapt them to community circumstances and those of other small-scale enterprises, and to support the development of local capacities for participatory monitoring and evaluation of certification.

This report is a first contribution to this area of inquiry, and offers evidence to help those involved in both community forest enterprise and certification. It provides a preliminary assessment of the economic, social, and environmental impacts of certification on one community forest enterprise: the

Lomerío Community Forest Management Project in the Department of Santa Cruz, Bolivia. This enterprise, which is owned and managed by native Chiquitano Indians, was selected for the study because it was the first to be certified in Bolivia and one of the first community projects to be certified anywhere in the world. Drawing on the analysis of key impacts at Lomerío, the report also makes suggestions for the focus and methodology of future impact assessments of community forest certification, particularly in tropical, developing country situations.

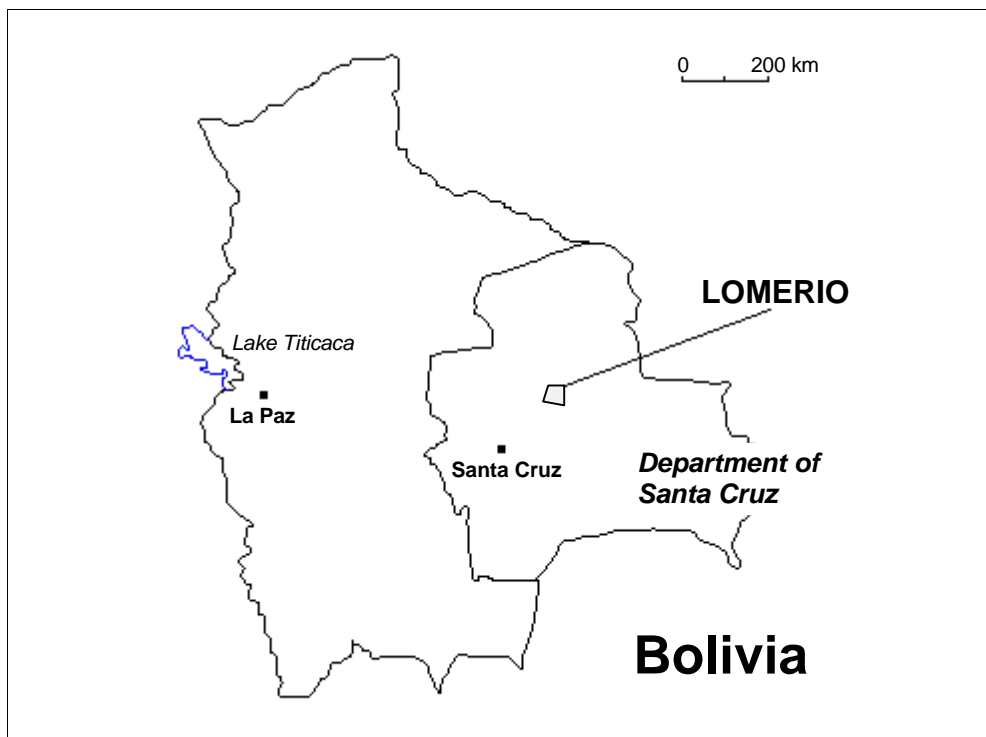
The study is based on two periods of field work in Santa Cruz and Lomerío (28 May-11 June and 2-11 October 1997), as well as a full review of all relevant certification and project documentation (in both Spanish and English). Details of the field programme and methodology can be found in the Appendices. As this is one of the first studies on the impact of certification to be published, and causes and correlations are not at present fully clear, a considerable amount of detail on the background and development of the Lomerío Project is presented. This will facilitate both future work at Lomerío and, more generally, the reader's own interpretation of possible links and key factors.

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## PART I: OVERVIEW OF THE LOMERIO PROJECT

### 1 Physical and social setting

The canton of Santa Rosa del Palmar, more commonly known as Lomerío, is situated in the eastern lowlands of Bolivia, in the Department of Santa Cruz (see Map 1). It covers an area of almost 300,000 hectares (ha), of which 136,000 ha are classified as productive forest (Olivera & Raessens 1994). The remainder of this area consists of a mosaic of cattle pasture, cropland, natural savannahs, marshy areas, and degraded forest fragments (Visser 1996).



**Map 1.** The location of Lomerío.

Lomerío lies in the transition zone between the dry forests of the Gran Chaco<sup>1</sup> and the humid rainforests of the Amazon basin, and supports a sub-humid, semi-deciduous forest formation known as *bosque Chiquitano*, or Chiquitano forest (Navarro 1995, Olivera & Raessens 1994). Widespread burning and, until recently, prolonged timber exploitation by private companies have contributed to the degradation of large areas of this forest and the relative scarcity of commercially valuable timber species such as *roble*, *cedro* and *morado*<sup>2,3</sup>.

<sup>1</sup> The Gran Chaco is an area of biologically-diverse dry forests covering approximately 1 million km<sup>2</sup> of Bolivia, Argentina, Paraguay and Brazil (Taber *et al.* 1997).

<sup>2</sup> Forest formations influenced by fire have a low, stunted structure and are known locally at Lomerío as *pampa-monte*. Productive high forest is known locally as *monte*.

<sup>3</sup> Latin names for all timber species mentioned in the report are listed in Appendix 1.

Lomerío possesses only the rudiments of a modern infrastructure. Basic services such as electricity and piped water exist only in San Antonio, the capital of Lomerío and the largest of all the local settlements. The sparse road network is based on logging roads, parts of which become impassable to vehicles during the rainy season between November and March.

The inhabitants of Lomerío belong to the Chiquitano tribe, one of the largest remaining Indian tribes of the Bolivian lowlands<sup>4</sup>. They are distributed amongst 25 communities (and 10 smaller groupings on private ranches), with a combined population estimated at 5,306 (Fischermann 1996). Within these communities the Chiquitano preserve their traditional customs and language, albeit under a social and cultural model derived from the time of the Jesuit 'reductions'<sup>5</sup> and heavily influenced by both the Catholic Church and the modern Bolivian state.

In economic terms, the Chiquitano are almost entirely dependent on subsistence agriculture, supplemented by small-scale cattle raising, the sale of modest crop surpluses, and honey production. Land is communally owned, but work invested in cultivation guarantees individuals temporary ownership rights according to community tradition (Fischermann 1996). In addition to working their own lands, the Chiquitano seek temporary employment as day labourers in the surrounding area or further afield in the region (Riester 1975).

The dominant agricultural system of the Chiquitano is that of 'slash and burn', involving the cultivation of maize, rice, cassava, bananas and, latterly, groundnuts<sup>6</sup>. Fishing and hunting are also important activities, both for the supplementary protein they provide and for the cultural functions they serve. The Chiquitano use over 250 plant species from forests for nutritional, medicinal, ritual and construction purposes (Centurión & Kraljevic 1996).

In common with other indigenous groups of the Bolivian lowlands and wider Amazon basin, the Chiquitano of Lomerío have faced a difficult struggle for legal recognition of their territorial claims. These claims cover the full surface area of Lomerío, but legal titles to only 81,775 ha have been granted by Bolivia's National Council for Agrarian Reform. At the end of 1995, titles to a further 9,849 ha were under official consideration (Gretzinger *et al.* 1995), although all titling procedures have since been frozen by the preliminary designation of Lomerío as a *Tierra Comunitaria de Origen* (TCO), or Indigenous Territory, in July 1997 (see section 16).

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<sup>4</sup> According to the 1994 census of Bolivian indigenous peoples, the total Chiquitano population (including that of Lomerío) is 48,524. The total indigenous population of the Bolivian lowlands is 160,546 (Figures quoted in ITTO 1996).

<sup>5</sup> These reductions, or *reducciones*, were obligatory rigid economic and religious settlements established by the Jesuits in eastern Bolivia between 1692 and 1767 (Davies 1994). The origins of the Chiquitano as an ethnic group lie in these settlements, which were originally populated by different indigenous groups with distinct cultures and languages. Through a process of cultural assimilation, these groups adopted a common culture and a common language - Chiquitano (Krekeler 1993).

<sup>6</sup> In communities that have received external technical assistance, monocultures of commercial crops such as groundnuts have increasingly replaced traditional intercropping mixes and cropping sequences (Louman 1990).



Until recently, Bolivian law made clear distinctions between property rights and exploitation rights according to surface soil (agrarian laws), subsoil (mining laws) and vegetation (forest laws)<sup>7</sup>. The agrarian titles granted to the communities<sup>8</sup> of Lomerío covered only the top 25 centimetres of surface soil; the government could still grant forest exploitation and mining permits to others in the same area. In the 1970s and early 1980s, this loophole was exploited by private logging companies to gain access to the forests of Lomerío (although in many cases logging was carried out illegally or with the active collusion of corrupt forestry officials). Many of the Chiquitano, who lacked the organisation or resources to secure their forests against these interventions, were forced to become wage labourers in the concessions on their own community lands (Louman 1990).

## 2 Project evolution

In 1982, the communities of Lomerío established a supra-communal organisation known as the *Central Intercomunal Campesina del Oriente de Lomerío*<sup>9</sup> (CICOL). Later in the same year, CICOL became one of the founding organisations of the *Confederación Indígena del Oriente, Chaco y Amazonía de Bolivia*<sup>10</sup> (CIDOB), a claim-making organisation established to represent indigenous groups in the eastern lowlands of Bolivia. The establishment of CICOL and CIDOB formed part of a wider movement towards self-determination amongst the indigenous groups of lowland Bolivia, which has since been supported and guided by CIDOB. Similar community organisations were formed during this period by other indigenous groups in the eastern lowlands, for example the Guarayú Indians in the province of Guarayos<sup>11</sup> (ITTO 1996).

As a permanent communal organisation, CICOL's principal responsibilities are the co-ordination of internal affairs and the representation of the Lomerío Chiquitano in their external relations. The specific long-term goals of the organisation include the following (CICOL 1992, cited by Gretzinger *et al.* 1995):

- To define, consolidate and protect the territory of Lomerío;
- To exploit sustainably the natural resources of Lomerío for the benefit of the Chiquitano;
- To improve the living conditions of the communities of Lomerío;
- To promote the recognition of traditional systems of organisation;
- To defend the identity and culture of the Chiquitano.

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<sup>7</sup> New land and forest legislation introduced in 1996 has since altered the distribution of resource ownership rights. The impacts of this legislation on Lomerío are discussed in section 16.1.

<sup>8</sup> These titles take two forms: community and individual titles. In practice, however, all titled lands are treated as community lands, or as the joint property of a group of communities (in Spanish, *mancomunidad*) (Schwarz 1995).

<sup>9</sup> The Intercommunal Peasant Central of Eastern Lomerío.

<sup>10</sup> The Indigenous Confederation of the Bolivian East, Chaco and Amazon. CIDOB adopted this name in 1989 to better reflect its growing constituency (Heijdra 1996). At the time of its foundation it was known as the *Central Indígena del Oriente Boliviano* (Indigenous Central of Eastern Bolivia).

<sup>11</sup> The *Central de Organizaciones Nativas de Guarayos* (COPNAG), or Central of Native Guarayos Peoples' Organisations.

CICOL's activities are under the day-to-day management of an executive board (*directiva*), which is governed by a specially-formed communal General Assembly. Amongst other things, the General Assembly is responsible for the election of CICOL's executive officers and the monitoring of CICOL's work programmes. Each of the communities of Lomerío is represented in the General Assembly by at least three delegates: the mayor<sup>12</sup>, the president of the community council, and the head of the mothers' club. The president of the community council is CICOL's representative within each community<sup>13</sup>.

In 1983 CICOL, with assistance from *Apoyo Para el Campesino-Indígena del Oriente Boliviano*<sup>14</sup> (APCOB), a small non-governmental organisation supporting over 40 indigenous groups in eastern Bolivia, began to develop an action plan for the protection and sustainable management of the forest resources of Lomerío. The main aim of this plan was to superimpose, by means of a forest concession, the long-term legal right to manage forests over existing agrarian land titles. It was hoped that this would both consolidate the territorial rights of the Chiquitano, and halt the logging of communal forests by private companies (Olivera 1995). The finished plan incorporated five principal elements:

1. Application for a 130,000 ha forest concession with the active participation and support of the national forest authority (the key strategy for protecting the forests of Lomerío);
2. Design and implementation of a sustainable management system for the Chiquitano forest;
3. Processing and marketing of timber through a communal sawmill;
4. Education and training of the Chiquitano in technical aspects of forest management and project administration;
5. Collective use and distribution of the economic benefits produced by forest management.

In its concept and design, the plan closely resembled another forest management project supported by APCOB in the neighbouring territory of the Ayoréode Indians of Zapocó. Here, since 1982, the Ayoréode had been developing a communal sawmill enterprise designed to demonstrate to state agencies their ability to manage the forest resources on their territory (Davis 1985). The similarity in approach between this project and the Lomerío project derived from the fact that commercial forest management was seen at that time as the only legally valid option for indigenous groups to control and defend their natural resources.

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<sup>12</sup> The mayoralty of a community (in Spanish, *alcalde político*) is a modern political office that has largely superseded traditional community institutions such as the Jesuit-imposed *Cabildo*, or council, and the pre-Jesuit *Sib*, or group of community elders (Davies 1994).

<sup>13</sup> As CICOL's representative in a community, the president of the community council is responsible for communicating CICOL's plans and decisions to the community, and in return communicating the community's own feelings and demands back to CICOL.

<sup>14</sup> Support for the Peasants-Indigenous People of Eastern Bolivia.

In December 1983, CICOL applied to the *Centro Desarrollo Forestal* (CDF), the then-national forest authority<sup>15</sup>, for a 130,000 ha concession on behalf of the 25 communities within Lomerío. In June of the following year, the inventory required under forest law for all concession applications was carried out by CDF, APCOB, and the Chiquitano themselves. The results of this inventory formed the basis for the first management plan which, in 1986, became a project with funding provided by Oxfam America and the Dutch development organisation HIVOS<sup>16</sup> (Louman 1990). Project activities began in June 1986 with the construction of a forest nursery and installation of a communal sawmill (Olivera & Raessens 1994, BOLFOR 1995).

### 3 Project structure and objectives

The ultimate objective of the Lomerío project is to gain control over indigenous social and economic development by establishing a legally-recognised Chiquitano territory. The specific objectives include (Louman 1990):

- Creation of an income-generating small industry;
- Strengthening of long-term agricultural production through agroforestry interventions;
- Establishment of a sustainable, economically-viable land use system.

In accordance with its objectives, the Lomerío project has three main technical components:

1. Natural forest management;
2. Small-scale agriculture;
3. Commercial timber processing.

These elements are complemented by subsidiary programmes of territorial consolidation, institutional strengthening, training and gender development. The structure of the natural forest management component has been determined to a large extent by forest legislation in effect at the time of project development. This legislation required all applications for forest concessions to be supported by an integrated management plan covering nursery establishment, reforestation, and forest ecology research (Louman 1990). All of these elements have been put in place at Lomerío, although the focus of management has gradually shifted away from reforestation<sup>17</sup> towards timber processing and marketing through the communal sawmill enterprise.

Under the project, all responsibility for programme policy and execution lies with the executive board of CICOL. This responsibility extends to the administration of funds provided by APCOB for programmes, the daily wages of community members employed in project activities, and the

<sup>15</sup> All references to CDF in this study refer to its departmental branch, UTD-CDF Santa Cruz (*La Unidad Técnica Desconcentrada del Centro de Desarrollo Forestal*).

<sup>16</sup> *Humanistisch Instituut voor Ontwikkelingssamenwerking* (Humanist Institute for Cooperation with Developing Countries).

<sup>17</sup> At the outset of the project, forest plantations were planned as the main source of timber for the sawmill in approximately 40 years time (Louman undated). Limited plantation trials of *cedro/maize*, *cedro/banana*, and other mixtures based on the Taungya system have since been established.

salaries of field 'promoters' (see below). In addition to financial support, APCOB's main role is to provide technical assistance to all aspects of programme implementation. In 1994, however, responsibility for forest research and timber marketing passed to the Bolivia Sustainable Forest Management Project (BOLFOR) under a tripartite agreement between CICOL, APCOB and BOLFOR (see section 5.4).

An important aspect of the Lomerío project, allied to the objective of giving the Chiquitano control over their economic and social development, is the training of community members in nursery management, harvesting technologies, sawmill management, and timber marketing. This training takes place either on-site, utilising expert assistance from APCOB or BOLFOR, or off-site at regional agricultural or forestry colleges. Once trained, community members are employed by the project in each of its main technical components.

An additional twelve trained community members are employed by CICOL as field promoters. Promoters are responsible for community extension under each of the three technical components of the project, as well as the subsidiary programmes. A total of 11 promoters work with APCOB in forest management, reforestation and nursery management. Since 1994, one promoter has worked with BOLFOR on timber processing and marketing.

The focus of the project, the sawmill enterprise, has been set up as an independent and autonomous commercial entity. It employs approximately 40 Chiquitano workers, half of whom are permanent, qualified employees, and the other half casual labourers drawn on a rotating basis from the surrounding communities (Kopp & Domingo 1997). Ultimately, the sawmill is expected to pay all its costs with the revenue generated by timber marketing, although so far it has been heavily subsidised by APCOB. The sawmill is officially registered in CICOL's name, and is under the overall supervision of the General Assembly. Administration of the sawmill is supposed to be independent of CICOL although, given a number of factors discussed in section 5.2, CICOL has increasingly become associated with day-to-day management.

In general, the communities of Lomerío play a lesser role in the forest-based components of the project. Apart from those community members who are directly employed in project activities, the role of the communities is restricted to providing temporary labour for pre-harvesting operations, for example road building.

The order of timber harvesting is determined annually by communal agreement within the General Assembly. Communities submit logging requests to the Assembly, which are then analysed in consultation with forest management technicians. Once a community's request has been approved, the community enters into a harvesting agreement with the sawmill, under which it is paid a fixed stumpage fee as determined by the General Assembly. Harvesting is then carried out by teams employed by the sawmill.

## 4 Key development stages of the Lomerío Project

Three main developmental stages can be identified in the history of the project, each of which begins with the introduction of a new forest management plan. These comprise the original 1984 plan (on the basis of which project activities started in 1986), a provisional management plan of 1991, and a community management plan of 1994. The latter was based on the global Principles and Criteria of the Forest Stewardship Council (FSC). Stage three saw the entry of BOLFOR (Bolivia Sustainable Forest Management Project) as a project counterpart in 1994, and the eventual certification of the project in 1996.

### 4.1 *Ambitious beginnings (1986-1990)*

The term of the first management plan was marked by considerable change in the philosophy, orientation and management of the project. One of the key factors contributing to this process was (and has been up to the present day) CICOL's failure to obtain a forest concession. Both the initial application in 1983 and a second in 1987 for 167,000 ha were unsuccessful. A third application in 1992 (for 260,000 ha) was also unsuccessful.

CICOL's failure to obtain a concession was not due to any flaws in the application itself. Rather, the lack of provisions under Bolivia's General Forestry Law of 1984 for indigenous control of timber resources on tribal territories, as well as unresolved conflicts with private logging companies operating in the Lomerío area, were used by CDF as a pretext for not granting a concession (Chase-Smith 1993, Gretzinger *et al.* 1995)<sup>18</sup>. The resulting uncertainty over CICOL's legal basis for forest management restricted the Lomerío management plan to areas covered by secure community land titles, where exploitation has been conducted on the basis of annual harvesting permits issued by CDF.

The original management plan was strongly biased towards the technical aspects of forest management. It included little consideration of the social or economic implications of communal forest management, or the relationship between forestry and other economic strategies, for example agriculture. The main reason for this bias was the exclusive involvement of forestry specialists in the development of the plan (Kress 1996). Despite being the putative beneficiaries of the plan, communities were alienated from the development process by its technical nature and poor communication between them, their representatives in the General Assembly, and CICOL itself (Louman 1990).

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<sup>18</sup> It is only recently, in 1996, that new land and forest legislation has opened up the possibility of CICOL finally being granted a concession (see section 16.1).

The lack of social and economic considerations in the planning process was reflected in the proposed system of forest management and benefit distribution. The entire forest area of Lomerío was viewed as one 'intercommunal' block, under the exclusive control of CICOL. This block, which incorporated 52,000 ha of productive forest (on legally-titled land), was divided into annual coupes of 1,300 ha under a monocyclic rotation of 40 years<sup>19</sup>. Harvesting plans concentrated on the most easily accessible of these coupes, where commercial volumes of approximately 20 m<sup>3</sup>/ha had been estimated under the inventory of 1984 (Olivera & Raessens 1994).

In keeping with the intercommunal approach towards forest management, the income from the sawmill was earmarked for general development work and investment within Lomerío as a whole (Olivera & Raessens 1994). However, the mechanisms for distributing and investing this income were not stipulated (C. Vallejos 1997, pers. comm.).

As subsequent events were to prove, the intercommunal approach to forest management was flawed in two main respects:

- Firstly, the communities of Lomerío do not legally own the forests on their lands, but each community nonetheless claims a particular area of forest (which varies between 400 ha and 9,500 ha).
- Secondly, the status of each of these community forests is closely linked to the economic strategies of the community and the ordination of other land uses within community boundaries (of which agriculture is seen as the most important).

For these reasons, communities insisted from the outset that forest management planning should take place at a level and scale appropriate to the individual community, rather than the overall area of forest within Lomerío.

The 'collectivisation' of the benefits of forest management was another miscalculation by project designers. Apart from viewing forests as communal, rather than intercommunal, property, prior experience with logging companies had taught many of the communities that their forest resources were assets with a market value (Schwarz 1995). A number of communities therefore demanded cash payments for any timber harvested from their forests. Eventually, CICOL and APCOB were forced to abandon the strategy of collectivisation, leaving the sawmill to pay stumpage fees directly to communities in whose forests harvesting was taking place (Olivera & Raessens 1994)<sup>20</sup>.

Once a decision was made to pay only those communities who were currently harvesting, communities were faced with a gap of 30 to 40 years between returns from timber. Naturally, communities were unwilling to wait this long, and demanded revisions to the order of harvesting. In

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<sup>19</sup> The 40-year rotation period was adopted on the basis of existing literature on the Chiquitano forest (Olivera & Raessens 1994).

<sup>20</sup> These fees, which are calculated on a per-tree basis and vary with a species' marketable value, are fixed in a signed agreement between the sawmill and the community. In general, the fees paid by the sawmill have matched those paid by private companies. In some cases companies have offered higher fees to communities, but in other cases have failed to make any payment at all (Gretzinger *et al.* 1995). The sawmill also buys a greater range of species than other companies.

1991, a new, provisional management plan was prepared which introduced changes to the distribution of harvesting coupes to increase the number of communities annually involved in management and extraction activities (Zolezzi & Raessens 1996).

#### 4.2 *Adjusting to social and economic realities (1991-1993)*

The 1991 revision of the Lomerío forest management reflected much of what was learned during the initial stage of the project. Under the new plan, the communal distribution of forests at Lomerío was recognised, and the system of forest management revised to take account of community demands for a greater share in the distribution of project benefits. All of these changes were developed and agreed during community consultations led by CICOL and APCOB, at which community forest areas were defined and frameworks for greater community participation established.

Despite improvements in the social aspects of management planning, the economic performance of the project declined steadily during this period. Pre-harvest commercial inventories, carried out in 1988, 1989 and 1991, revealed that the original inventory of 1984 had overestimated commercial volumes by almost 10 times (Olivera & Raessens 1994). Whereas volumes of up to 20 m<sup>3</sup>/ha had been predicted for the Chiquitano forest, actual yields were closer to 2m<sup>3</sup>/ha. Yield predictions therefore had to be substantially reduced under the 1991 plan. Amongst other things, these reductions meant that the installed capacity of the communal sawmill (planned on the basis of the erroneous first inventory) was far greater than production could sustain.

The communal sawmill "*La Esperanza*" (Hope), which is situated in the community of Puquio (the headquarters of CICOL), had been plagued by problems since the first stage of the project. The two-year delay in funding that followed the presentation of working plans in 1984 came at a time of extreme economic instability in Bolivia. One consequence of this was that the final approved budget could not support the purchase of a new sawmill (Louman 1990). And, although a used sawmill was obtained, technical problems and the internal conflicts described above extended the planned three-month construction period to over a year, with consequent delays in the timber harvesting programme.

With the reduced yields under the 1991 management plan, the operating capacity of the sawmill was cut by over 60 percent. In practice, this was reduced even further by problems such as a high labour turnover, poor quality control, and weak financial management. Throughout the early 1990s, the annual output of the sawmill averaged only 830 m<sup>3</sup>, with a processing efficiency of 35-40 percent<sup>21</sup>. This output was based almost exclusively on a small group of four to six commercially-valuable timber species (Olivera 1995).

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<sup>21</sup> The relatively low processing efficiency has been due to a number of factors, including a lack of training in sawing techniques and machinery maintenance, and the poor quality of much of the timber .

The poor performance of the sawmill was compounded by a serious marketing bottleneck. In addition to refusing CICOL's application for a forest concession, CDF was also withholding legal recognition of the sawmill enterprise<sup>22</sup> (Olivera & Zolezzi undated). This meant that the sawmill was restricted to local markets, because it lacked the documentary proof of its official registration that is required for marketing at regional or national levels (Olivera & Raessens 1994). At that time, local prices averaged only US\$0.37/b.f. (approximately US\$157/m<sup>3</sup>) for Grade 1 timber<sup>23</sup> (which accounted for about 40 percent of the sawmill's output), whereas prices in the Departmental capital, Santa Cruz, were double those received locally, or about US\$0.75/b.f. (approximately US\$318/m<sup>3</sup>).

Taken together, the poor technical and economic performance of the sawmill meant that the project returned a significant loss in every year between 1988 (when timber harvesting and processing began) and 1993. Total revenues from the sale of timber in 1993 were only US\$99,540, as against total costs of US\$158,878 (these divided almost equally between forest management and timber processing) (Olivera & Raessens 1994).

Despite these problems, CICOL and APCOB decided in 1993 that the sawmill enterprise had developed to a point where the financial and technical support of APCOB could be reduced, and the enterprise could be allowed to take on greater responsibility for its own administration and management. As later events were to prove, this was a premature step. The distribution of benefits between the sawmill and the communities was still poorly defined and at risk of being compromised by the commercial failures of the sawmill. Furthermore, the already poor state of financial affairs was exacerbated by informal cash loans and other payments made by the sawmill administrator (see section 5.2). Once APCOB reduced its support, the sawmill was unable to comply with stumpage fee payments and increasingly went into debt with communities.

#### 4.3 *Integrating sustainable forest management and commercial systems (1994-1996)*

The community management plan, prepared in 1994 by CICOL and APCOB, responded to a number of developments, not only within the project itself, but also in national forestry legislation and international forestry policy. At the project level, the plan developed and extended the changes introduced under the provisional plan of 1991. As already noted, these included measures aimed at increasing community participation in forest management and widening the distribution of benefits from timber marketing. And, for the first time, tripartite agreements were made between the communities, CICOL and APCOB, dedicating community forest areas to management and harvesting (Olivera & Raessens 1994).

<sup>22</sup> Legal recognition of the sawmill enterprise was withheld for similar reasons to the forest concession, i.e. forest legislation at that time did not recognise indigenous forestry enterprises.

<sup>23</sup> Prices refer to air-dried rough-sawn and rough-planed boards. Markets recognise three quality grades; for kiln-dried timber these correspond to US National Hardwood Lumber Association grades as follows: first is no.1 common to FAS; second is no. 2 common; and third is no. 3 common and lower (Hanrahan *et al.* 1997).



Under the new plan, a modified form of the Celos silvicultural system was introduced to the Chiquitano forest. The Celos system, which was developed in Suriname, is designed for forests that are dominated by slow-growing, shade-tolerant species with heavy timber, as is the case at Lomerío. The principal aim of the system is to stimulate the growth of medium-sized and large marketable trees in selectively logged forests, allowing these to be harvested on a polycyclic rotation of 20 to 25 years (Graaf 1986)<sup>24</sup>.

In the form adopted at Lomerío, the silvicultural system employed a polycyclic rotation of 20 years on a productive forest area of 30,700 ha. The resulting annual coupe of 1,536 ha was typically divided between four community forest blocks of 300 to 400 ha each (Olivera & Raessens 1994). As discussed in section 3, the blocks to be harvested were determined annually by a communal agreement. Under the new system, each community would harvest timber once every four to six years, although the design of the system was purposely made flexible, to allow areas to be harvested out of turn if a community had priority needs and if another community was willing to cede its turn (Olivera 1995).

The 1994 plan also incorporated a number of objectives aimed at strengthening the administration, management and marketing of the ailing sawmill enterprise. For the first time, an attempt was made to adopt business practices common to other private enterprises, for example the payment of bonuses for high individual performance, formal employment contracts for personnel, and internal regulations and guidelines (Olivera & Raessens 1994). The potential marketing value of voluntary certification, as promoted by the FSC, was also acknowledged, and an effort made to structure parts of the plan according to the FSC's global Principles and Criteria (P&C)<sup>25</sup>.

In terms of changes in the performance and orientation of the project, the main development of 1994 was the entry of BOLFOR as a project counterpart (see section 5.4). Under an agreement with CICOL and APCOB, BOLFOR began work to support natural forest management and timber marketing, tackling key issues such as the control of fire, the reduction of negative environmental impacts from harvesting, the economic efficiency of harvesting, and product commercialisation and marketing.

BOLFOR's involvement in the administrative restructuring of the sawmill enterprise in 1995 led to the development of a marketing strategy explicitly oriented towards environmentally-conscious export markets, and eventually to certification of the enterprise. This was given impetus by the legal recognition that was finally accorded to the sawmill enterprise in December 1994. International market development work carried out by BOLFOR, which included shipping samples of timber to potential buyers, had demonstrated that there were export markets for the timbers of Lomerío, including the lesser-known species that dominated the Chiquitano forest.

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<sup>24</sup> An additional feature of the Celos system is that the forest is treated to enhance the growth of smaller individuals of commercial species, and thus ensure sustained yields in the future. A subsidiary aim of the system is to minimise logging damage and costs through careful planning and control of harvesting operations (Graaf 1986). All of these measures were also adopted at Lomerío.

<sup>25</sup> The FSC's Principles for Forest Stewardship are summarised in Appendix 3.

In January 1995 the first contacts were made between CICOL and the Smart Wood certification programme of the Rainforest Alliance. Through the mediation of the Dutch development organisation SNV<sup>26</sup>, CICOL submitted an application for 'source' certification<sup>27</sup>. Although other certifying bodies were contacted for quotes at this time (including the Responsible Forestry Programme of the UK Soil Association), Smart Wood was a natural choice given its experience in Latin America and its policy of subsidising certification costs for small-scale and community producers<sup>28</sup>.

In September 1995, an agreement was signed between CICOL and Smart Wood setting the date of the certification evaluation for October 1995. Financial and logistical support for realising the evaluation was provided by SNV through CIDOB's *Proyecto Sello Verde* (Green Labelling Project - see section 7). The result of the evaluation, formally received on 19 February 1996, was certification as a 'well-managed' project<sup>29</sup>. Sales of certified timber to buyers in Europe and the USA followed immediately.

## 5 Stakeholders and the distribution of benefits

The primary stakeholders of the Lomerío project are the communities who participate in the management plan and the supra-communal organisation CICOL. The aims of the project are as much directed at strengthening CICOL's institutional capacity as at strengthening community capacity and generating social and economic benefits.

The main secondary stakeholders, or the intermediaries in the support delivery process, are APCOB and BOLFOR. At a higher level, the foreign aid agencies that support these intermediaries, as well as CIDOB and the Government of Bolivia, have an indirect stake in the success of the project. The following sections deal only with primary and secondary stakeholders.

### 5.1 *The Chiquitano communities*

The communities of Lomerío continue to depend heavily on the goods and services provided by forests, despite the pressure placed on their resource base by the activities of private logging companies and other human disturbances. The exact nature of this dependence varies between the different age, gender and occupational groups that exist within each community.

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<sup>26</sup> *Nederlandse Ontwikkelingsorganisatie* (Netherlands Development Organisation)

<sup>27</sup> Under the Smart Wood programme, sources are production forests certified as 'well-managed' or 'sustainable' (Rainforest Alliance 1996). Further details on these two distinctions are given in section 10.

<sup>28</sup> The director of the Smart Wood programme, Richard Donovan, had also been contracted by BOLFOR in 1994 to assist in the design of a national certification system for Bolivia (see footnote 39).

<sup>29</sup> See section 10.

For example, forests are exploited for different purposes by men, women and children (Vallejos *et al.* 1996a). Men are the main collectors of wild meat, honey, eggs, fish, wood and other construction materials, whilst women are responsible for gathering firewood, water and medicinal plants. Children are the main collectors of forest fruits. At the community level, the economic value of non-timber products gathered from forests outweighs cash income derived from wage labour<sup>30</sup> (C. Vallejos 1997, pers. comm.).

Occupational groups include mothers' clubs, housing clubs, work associations, herders' groups, hunters' groups, and traditional healers (Stocks *et al.* 1996). Many occupational groups overlap to a certain extent with gender groups; for example, herding and hunting are predominantly male activities. Forests are important in some way to all occupational groups, but especially so for hunters. This group has perhaps the most to lose from commercial forest management, particularly if silvicultural work and harvesting damage forest habitats and threaten key food species. Forest management may also restrict the expansion of herding, and there is some concern amongst communities that forest management may reduce the future supply of land for cultivation<sup>31</sup> (Stocks *et al.* 1996).

Commercial forest management by the communities has brought them additional direct and indirect benefits, albeit in exchange for time and labour costs, as well as the opportunity costs of setting aside community land for long-term forest management (see above). As yet, communities make no direct financial contribution to project expenses or to CICOL's operating costs.

Tangible benefits from forest management include the stumpage fees paid by the sawmill for community timber resources (see Table 1), sawnwood provided by the sawmill<sup>32</sup>, wages paid to community work teams for forestry and road-building work and, for about 40 community workers, salaried employment in the sawmill.

SPECIES	1995		1996		1997	
	(per tree)		(per tree)		(per log)	
	Bs	US\$	Bs	US\$	Bs	US\$
Jichituriqui, picana negra, verdolago, sirari, ajunaó, and cuchi.	15	3	20	4	32	6.4
Tajibo	35	7	25	5	32	6.4
Morado, roble, and cedro.	40	8	40	8	32	6.4

**Table 1.** Stumpage rates for community timber resources, 1995-1997. Prices paid in 1995 and 1996 were per tree; prices paid in 1997 are per log, and therefore may be double for large tree specimens (exchange rate 5 bolivianos/US\$1). Source: Gretzinger *et al.* 1995, CICOL 1997a, V. Saavevedra 1997, pers. comm.

<sup>30</sup> See section 15.3 for further discussion of the evaluation of community non-timber forest benefits.

<sup>31</sup> Agriculture remains the principal livelihood activity, despite the increasing importance of forestry (Stocks *et al.* 1996)

<sup>32</sup> Under the system known as *asseraje a medias*, the sawmill processes and returns to a community one log for every two logs provided by the community. The only charge made to the community is a nominal one to cover transport costs (Gretzinger *et al.* 1995). This system has now been discontinued, however (see section 13.4).

In absolute terms, the income derived from stumpage fees is low. However, it depends on the extent and quality of a community's forest resources, and can be high in relation to other cash sources. For example, in 1995, the community of Las Trancas (which has some of the least disturbed and most commercially valuable forests in Lomerío) obtained an estimated 12,000 *bolivianos* (approximately US\$2,400) from the sale of timber on one 384 ha block<sup>33</sup> (Gretzinger *et al.* 1995).

The division and distribution of timber income varies between communities, although in every case it is the mayor who has the responsibility for receiving and distributing revenues. In some communities, the income is distributed amongst all families. In others, the income is only distributed to those who have been involved in forestry operations. Because the number of families, and the number of forestry workers, vary widely between communities, it is difficult to give figures for average family incomes from timber sales. As an isolated example, Schwarz (1995) quotes a figure of US\$280 per family from one year's harvest in the community of Puquio, but does not state which year<sup>34</sup>.

In some communities, the distribution of income to individual families is viewed as diluting the potential impact of the income (Gretzinger *et al.* 1995). These communities prefer to invest in communal infrastructure, for example school buildings or electrical generators (Kress 1996, Stocks *et al.* 1996). Community development strategies that would guide the long-term investment of timber revenues are lacking, however (Gretzinger *et al.* 1995).

The daily wage paid by CICOL to forestry workers and by the sawmill is pegged to the regional daily rate, which currently averages 25 *bolivianos* (approximately US\$5). Food is not provided to workers. This has encouraged hunting in managed forest areas, with negative consequences for wildlife populations<sup>35</sup> (see section 12.1). Nevertheless, forest management has become an important source of paid employment for men (though less so for women), and has reduced the pressure on men to leave the community in search of seasonal work, a common practice that has severely affected families in Lomerío and rural Bolivia as a whole (Byrne 1995).

## 5.2 CICOL

Until the establishment of CICOL, and the communal General Assembly, the Chiquitano of Lomerío had no tradition of intercommunal organisation (Chase-Smith 1993, Gretzinger *et al.* 1995). Thus, mechanisms for communication and participation in decision-making were poorly defined when CICOL embarked on forest management with APCOB in 1983. A false impression of CICOL's representativeness, allied with its convenience as a 'point of entry' into Lomerío, also meant that

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<sup>33</sup> According to inventory data in Gretzinger *et al.* (1995) the volume of commercial timber in the 384 ha Las Trancas block was 3.6m<sup>3</sup>/ha, which would mean a total yield of 1382.4 m<sup>3</sup>. Actual yield figures are not available, however, because records were not kept.

<sup>34</sup> These figures are based on timber sales of 50,000 cubic feet sold at an average price of 1.20 *bolivianos* per cubic foot. The total income of approximately 60,000 *bolivianos* (or US\$14,000 at the prevailing exchange rate) was distributed amongst 50 families (Schwarz 1995).

<sup>35</sup> Although some of those involved in forestry field operations have been accused by other community members of exploiting the opportunity to carry out additional hunting (Stocks *et al.* 1996).

external organisations such as APCOB concentrated their efforts at the supra-communal level, rather than working more closely with communities.

These institutional weaknesses created a number of obstacles to the successful development of the project. More importantly, perhaps, they also served to isolate CICOL from its popular base of support. Over the course of the project this situation has given rise to a number of internal conflicts, most of which have concerned CICOL's role in the administration of the sawmill enterprise, as well as the distribution of enterprise revenues.

Despite initial objectives relating to agroforestry and agricultural improvement, the main focus of the project has settled on timber harvesting and marketing through the communal sawmill. However, the poor economic performance of the sawmill (related to its limited marketing capacity) has had a detrimental effect on forest management, particularly with respect to species selection and harvest volumes. There has been a tendency for harvest volumes to be determined by the demands of the sawmill, rather than by an evaluation of the sustainable capacity of the forest (Simeone 1994). And, until 1995, only about four to six species with guaranteed, high-value markets were being utilised (Gretzinger *et al.* 1995).

The poor economic performance of the sawmill has also affected the planned distribution of benefits between the sawmill enterprise and the communities. Since 1993, when APCOB reduced its level of financial and technical support to the sawmill, stumpage payments to communities have become increasingly irregular. The reasons behind the poor economic performance of the sawmill are varied, ranging from limited marketing capacity to poor co-ordination with harvesting operations. The latter factor has caused significant wastage of timber both within the forest and within the sawmill.

However, the main reason for the poor performance of the sawmill has been financial mismanagement by the administrator of the sawmill, in collusion with members of CICOL's board. Until 1996, when he was replaced, the first sawmill administrator made free use of the sawmill's funds to provide informal cash loans to select individuals and communities. This abuse of property also extended to the vehicles and other equipment owned by the sawmill, which were lent out for personal use. Together with certain board members of CICOL, who aided and benefited from his actions, the sawmill administrator managed to build a substantial power base within Lomerío (Gretzinger *et al.* 1995, C. Vallejos 1997, pers. comm., G. Zolezzi 1997, pers. comm.). In doing so, both the financial status of the sawmill enterprise, and relations between CICOL and the communities, were severely damaged.

The behaviour of the sawmill administrator (a Chiquitano) can be explained in part by the structure and customs of Chiquitano society. The traditional 'gift' economy of many indigenous societies (including that of the Chiquitano) obliges each person to give away their wealth generously in order to enhance their status (Chase-Smith 1995). In contrast, market-oriented economic initiatives emphasise the accumulation of capital and reinvestment of earnings. Caught between these two imperatives, members of modern indigenous communities are often confused as to which obligation to fulfil. In the case of Lomerío, the sawmill administrator was under some pressure to redistribute the resources under his control to his peers. Similar

episodes have occurred in other indigenous forestry projects in the Amazonian region, for example the Yanasha Forestry Co-operative (YFC) in the Palcazu Valley of Peru (Chase-Smith 1995).

Despite these problems, the Chiquitano of Lomerío recognise that they need some form of supra-communal organisation to deal with common issues of resource management, economics and marketing, and that CICOL is currently the only viable option. This is particularly true of the younger Chiquitano generation, who identify most closely with CICOL and its modernising agenda (Baumkamp 1995, cited by Kress 1996). The key to improving CICOL's credibility in the eyes of the communities would be to increase the transparency of sawmill administration and facilitate the flow of benefits from timber processing. For its part, CICOL requires administrative and technical support to strengthen internal procedures and realign itself more closely with the communities it was established to help.

### 5.3 APCOB

APCOB was founded in 1980 by a small group of anthropologists and linguists (both Bolivian and foreign) who wanted to support the independent development of indigenous groups in the eastern lowlands of Bolivia. The organisation is based in Santa Cruz, and currently has a staff complement of around fifty people. APCOB operates according to four main policies:

1. Territorial consolidation;
2. Empowerment and self-determination;
3. Gender; and
4. Culture and communication.

Apart from field programs that have so far involved around 40 indigenous groups (including the Chiquitano of Lomerío), APCOB maintains a documentation centre for indigenous studies and has an active programme of education and information dissemination involving regular publications, videos, and television broadcasts<sup>36</sup>.

In addition to supporting social and economic development at the level of individual groups, APCOB has played a key role in the political development of eastern Bolivia's indigenous population. The creation and consolidation of CIDOB was catalysed and supported by APCOB (who provided advice and support to the organisation in the years immediately following its foundation). Indeed, the closeness of APCOB's relationship with CIDOB led to a commonly-held view that they were one and the same organisation (Heijdra 1996). Although this relationship weakened as CIDOB grew and became more independent, the two organisations still maintain close ideological and operational links, and CIDOB continues to hold a seat on APCOB's Advisory Board.

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<sup>36</sup> These details are based on information provided at APCOB's Internet web site: (<http://latinwide.com/apcob/homepage.html>).

The Lomerío project is one of three such initiatives being supported by APCOB under its programme 'Participatory Management of Forests and Natural Resources by Indigenous Peoples'. The two other project sites are Concepción and Izozog: the former is situated north of Lomerío and also has a large Chiquitano population; the latter is situated south of Lomerío in the Bolivian Chaco<sup>37</sup>, and is populated by the Izozog Guaraní tribe (Davies 1994). The Participatory Management programme is due to continue until 2001, with financial support provided by HIVOS, SNV, Oxfam America, and the Bolivian National Fund for the Environment (FONOMA).

APCOB's roots in social development and political advocacy have meant that the organisation lacks the depth of expertise in forest management, business administration and timber marketing possessed by other, more specialised organisations. Much of the technical support for APCOB's forest management programmes, including that of Lomerío, has been provided by Dutch advisers from SNV (APCOB's main foreign supporter). In the case of Lomerío, APCOB has also been able to secure the support of BOLFOR (see below) for research, marketing and, ultimately, certification.

Although significant, the technical challenges faced by APCOB at Lomerío have been eclipsed by those of capacity development at the supra-communal level. The effort expended in building an indigenous tradition of organisation and strengthening the institutional capacity of CICOL has restricted the planned course of project development. Whilst APCOB has never underestimated the scale of these organisational challenges, it may, in its efforts to sustain project momentum, have assumed too great a proportion of the duties and responsibilities that rightly belonged to CICOL. Certainly, it was APCOB, rather than CICOL or the Chiquitano, which was seen as the main driving force and 'owner' of the project during its early stages. However, any flaws in APCOB's approach have been counterbalanced by strengths such as the ability to mobilise funding from external donors and, most importantly, the ability to mobilise the Chiquitano of Lomerío in a communal effort to secure indigenous autonomy and self-determination.

#### 5.4 BOLFOR

The Bolivia Sustainable Forest Management Project (BOLFOR) is a US\$20 million, seven-year initiative that began in 1993 with funding from the Government of Bolivia, PL480/FONOMA<sup>38</sup> and the United States Agency for International Development (USAID). The project is implemented by a number of public and private sector organisations under the leadership of the Bolivian Ministry for Sustainable Development and Environment (MDSMA). Technical assistance is provided by an international consortium led by Chemonics International, a US-based environmental consultancy. Collaborators in the Chemonics consortium include Tropical Research and Development, Conservation International, and the Wildlife Conservation Society (Pattie 1996).

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<sup>37</sup> The Bolivian section of the Gran Chaco (see footnote 1).

<sup>38</sup> FONOMA's role in BOLFOR is to disburse and monitor the use and impact of funds derived from the PL 480 programme. The latter implements US Public Law 480, under which proceeds from certain sales of US agricultural commodities can be redirected towards overseas development assistance.

The twin aims of BOLFOR are to reduce soil, water and forest degradation, and to protect the biological diversity of Bolivia's forests (BOLFOR undated). The project is heavily oriented towards commercial natural forest management (by both private companies and community groups) and is committed to developing new markets for sustainably-produced timber and non-timber forest products. BOLFOR has three main technical components:

1. Policy and institutional analysis and development;
2. Natural forest management; and
3. Product development.

A key element of the product development component is 'green' marketing, with a particular emphasis on voluntary forest certification under the FSC model. The development of a national, FSC-recognised certification mechanism is one of BOLFOR's main expected outputs (Pattie 1996)<sup>39</sup>. Another expected output is the certification of 25 percent of the forest area under concessions in the Department of Santa Cruz by the year 1999.

The first contacts between BOLFOR and Lomerío took place in 1993, during the project's initial stages. Lomerío was subsequently selected as one of three BOLFOR research sites, and in 1994 a memorandum of co-operation was signed between BOLFOR, CICOL and APCOB (Centurión & Kraljevic 1996). Under this agreement, BOLFOR undertook to strengthen the capacity of CICOL and the communities to implement sustainable forest management practices by providing technical support for forest management planning, research and monitoring, and timber marketing. One of the main goals of these interventions was to achieve compliance with international certification standards, as well as to support a more general evaluation of the basic requirements for a programme of certification in Bolivian forests (Simeone 1994).

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<sup>39</sup> BOLFOR sponsored the creation of a national FSC Working Group, the Bolivian Council for Voluntary Forest Certification (CFV), in October 1994. The objectives of CFV include: 1) To guarantee the credibility of the Bolivian voluntary forest certification system at national and international levels; 2) To supervise the development of standards for forest certification; 3) To act as a mechanism for conflict resolution regarding the interpretation of national certification standards; 4) To promote certification and to provide information at a national and international level; and 5) To act as a bridge between public and civil societies in voluntary certification matters on national and international levels (Quevedo 1996). BOLFOR provides logistical support to CFV, which has completed the drafting of national certification standards for timber and has embarked on a programme of capacity-building workshops. Standards for non-timber forest products, for example Brazil nuts (*Bertholettia excelsa*) are also currently being developed (Aryal 1997, L. Quevedo 1997, pers. comm.).



## 6 Project impacts and achievements prior to certification

Despite the problems associated with the project, a number of notable achievements were realised prior to certification in 1996. From a political perspective, one of the most important was the final expulsion of private logging companies from Lomerío by CICOL and the Chiquitano communities in 1992 (Gretzinger *et al.* 1995). This act demonstrated that indigenous control over natural resources could be effective: a sign of hope not only for Lomerío but also for other indigenous groups facing similar threats throughout the Bolivian lowlands<sup>40</sup>.

In general, government support for CICOL's forest management efforts prior to certification was poor. Despite repeated applications, a forest concession had still not been granted by the time of the certification evaluation in late 1995. And it was not until the end of 1994, or almost seven years after it began functioning, that the sawmill enterprise was officially registered by CDF.

Given these obstacles, the establishment of a forest management programme and communal sawmill enterprise were in themselves major achievements. Under the forest management programme, a total area of 9,000 ha in 10 communities was managed and harvested from the start of timber processing in 1988 (Olivera & Zolezzi undated). Furthermore, approximately 100 ha of agroforestry plantations were established in 15 communities, supplied by a forest nursery with an average capacity of 30,000 seedlings per year (Olivera & Zolezzi undated).

The project managed to extend the concept of community forest management to the Chiquitano, and in addition began to demonstrate the potential benefits offered by sustained exploitation of communal forest resources. The majority of these benefits were channelled by communities either to individual families or into communal acquisitions such as buildings and generators. And, for men in particular, the existence of a local source of paid employment meant less pressure to leave families and communities in search of seasonal work.

In terms of sustainability, the training of Chiquitano counterparts in forest management techniques, nursery management and timber processing laid the foundations for a permanent tradition of community forest management. Twelve local promoters were trained and employed by the project, while the sawmill provided employment for about 40 community workers<sup>41</sup>. Finally, two Chiquitanos were given scholarships to forestry courses; one at the Superior Forestry Technical School in Cochabamba and the other at the René Gabriel Moreno Autonomous University in Santa Cruz (ITTO 1996).

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<sup>40</sup> The fact that private logging companies were expelled in 1992 does not mean that all of the threats facing Lomerío were removed. Other threats continue to appear, including drug-trafficking and mining surveys for gold, semi-precious stones and other mineral deposits (Olivera & Zolezzi undated).

<sup>41</sup> Due to a high turnover of staff, the total number of community members trained and employed in forestry activities and timber processing has been higher. Female participation has been poor, however. Only one field promoter is female (the nursery promoter), and only one female worker has been employed by the sawmill, to deal with accounting and administrative tasks (Olivera & Zolezzi undated).

### 7 Antecedents

The antecedents of certification at Lomerío can be traced back to 1994, with the integration of the Forest Stewardship Council's Principles and Criteria into the new community forest management plan. However, even before this plan was drafted, the concept of certification had been introduced to Lomerío by CIDOB's Green Labelling Project (*Proyecto Sello Verde*, or PSV). This initiative, which began in 1993 with support from SNV, was designed to promote the idea, and ultimately practice, of certification among CIDOB's indigenous member organisations. PSV promoted certification as a way of increasing income derived from forests, thus increasing the incentives to manage them sustainably and strengthening the legitimacy of territorial claims (Bebbington *et al.* 1997).

During the initial phase of PSV (1993-1996), CIDOB identified member organisations that had the appropriate resources and organisational capacity for sustainable commercial forest management. Preliminary evaluations were made of three indigenous forests and organisations (including CICOL in 1994). Of these, only CICOL was identified as having the necessary institutional and technical capacity to begin certification-based forest management (Bebbington *et al.* 1997, Kopp & Domingo 1997).

Notwithstanding PSV's preliminary evaluation of Lomerío, the first comprehensive attempt to assess the standing of the project in relation to certification standards was sponsored by BOLFOR in October 1994. The objectives of this 'pre-certification' evaluation were two-fold: firstly, to identify the requirements for achieving certification and, secondly, to establish a process and work plan for fulfilling these requirements (Simeone 1994). Both forest management and the sawmill enterprise were evaluated by an external assessor against the Forest Stewardship Council's Principles and Criteria, and the standards of the FSC-accredited Rainforest Alliance Smart Wood certification programme and Scientific Certification Systems' (SCS) Green Cross certification programme<sup>42</sup>.

On the basis of existing plans and overall performance, the evaluation concluded that forest management operations were certifiable in their present form (Simeone 1994). However, the sawmill enterprise was deemed non-certifiable, largely because of the decline in standards of administration and financial management that followed administrative independence in 1993. This, it was noted, had affected not only the commercial performance of the enterprise, but also its ability to attract external private financing for quality and production improvements.

The evaluation made a number of recommendations for improving project performance in areas such as the settlement of land claims, refinement of management planning, harvesting and environmental impacts, enterprise administration and processing, and community relations. In general, the key theme promoted was a fuller exploitation of the forest resources of Lomerío, and in particular all species with a commercial volume greater than 0.5 m<sup>3</sup>/ha, rather than just a limited

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<sup>42</sup> Now known as the SCS Forest Conservation Programme.

group of commercially valuable species (Simeone 1994). It was further emphasised that the harvest of commercially valuable species would be determined by the sustainable capacity of the forest, rather than the exigencies of the sawmill and its markets.

The BOLFOR-sponsored evaluation presented four main recommendations, together with a time frame for their realisation and the activities they would encompass (Simeone 1994):

1. *Demonstration by CICOL of its capacity to administer the sawmill enterprise: (6 months).* Activities to include meetings between CICOL, BOLFOR and the external funders of the project.
2. *Development of a marketing strategy and new production lines for the sawmill: (18 months).* Based on an ecologically sustainable and economically viable integrated marketing plan, incorporating new inventory data, new strategies for value-added processing, product diversification and, ultimately, certification. Potential joint investors would be identified to provide the technological and financial support necessary for realising these objectives.
3. *Development of a strategy for bringing future production and marketing in line with community capacities and expectations for forest management. (12 months).* Activities to include a series of community workshops designed to discuss the implications of various marketing and production options and the course of future management.
4. *Refinement of the management plan: (Long-term/on-going).* One of the primary activities in this context was an assessment of the validity of the 1984 inventory (already shown to be inaccurate), and the execution of a new inventory if necessary. On the basis of accurate information concerning the status of the Chiquitano forest, silvicultural strategies could be developed and research plans implemented to test their effectiveness.

The first, second and fourth of these recommendations were pursued in 1995 by CICOL, APCOB and BOLFOR. All three organisations collaborated in the development of a sawmill restructuring plan aimed at improving administration and creating an efficient, sustainable Chiquitano enterprise. The main goals of this plan were as follows:

1. A scheme for industrial restructuring designed to improve efficiency and quality;
2. A scheme for administrative restructuring designed to strengthen financial accountability; and
3. A new, export-oriented marketing strategy.

As recommended by the pre-certification evaluation, the conceptual basis of the new marketing strategy was on making the optimum use of existing species and volumes in the Chiquitano forest. This was to be accomplished by linking production with identified market demand (as opposed to seeking markets for existing lines of production) and increasing the value added by processing.

The mechanism that underpinned the new marketing strategy was certification (Olivera 1995). Certification was seen as a means of gaining access to, and a share of, high-value, environmentally-

conscious, export markets. More importantly perhaps, certification was also seen as a tool for marketing the lesser-known timber species that dominated the Chiquitano forest and thus increasing the efficiency with which available forest resources were exploited.

BOLFOR and CICOL also co-operated in the preparation of a new inventory and management plan for the northern zone of Lomerío. This area incorporates 21,726 ha of forest (distributed amongst six communities<sup>43</sup>), of which 21,081 ha are classified as productive forest. In a significant departure from previous management plans, BOLFOR's plan for the northern zone focused on 18 species occurring in commercial volumes, including a number of lesser-known species. Of these, the inventory had shown that the most abundant was *curupaú*, which occurred in average volumes of 5.2 m<sup>3</sup>/ha (Guillén 1996). Under a polycyclic rotation of 35 years, the plan forecasted an overall yield for all species of 4,814 m<sup>3</sup> per year, or 10.3 m<sup>3</sup>/ha (BOLFOR 1995). This yield figure is approximately five times greater than previous yields, but still only half of that predicted by the original 1984 inventory (20 m<sup>3</sup>/ha).

The emphasis on species such as *curupaú* (which at that time had little or no commercial value<sup>44</sup>), initially met with some resistance from CICOL and APCOB. However, BOLFOR was confident that new markets could be found for these hard, durable species, especially if forest management was certified (W. Cordero 1997, pers. comm., Guillén 1996).

Given average yields of 1.5-2 m<sup>3</sup>/ha, and the poor performance of the sawmill, it was obvious to BOLFOR that a future annual production level of almost 5,000 m<sup>3</sup> would be far higher than could be sustained by the enterprise in the short, or even medium, term. The burden would be even greater if the management plan was extended to cover the remaining productive forest area of Lomerío (as BOLFOR and CICOL had planned). In response to these concerns, three options were suggested (BOLFOR 1995):

1. A reduction in the annual cut, which would lessen environmental impacts but not make optimum use of forest resources;
2. An increase in the capacity of the sawmill, which would demand levels of investment and administrative resources higher than currently available; and
3. The sale of raw logs harvested by CICOL and the communities to external timber companies, which would make full use of forest resources.

It is worth considering these options in light of the recommendations of the pre-certification evaluation discussed above, and particularly the recommendation for balancing future production with community capacities and expectations. According to BOLFOR, the most appropriate course of action would be a combination of the three options, articulated with the full co-operation and participation of the communities (BOLFOR 1995). However, at no time prior to certification were the recommended community workshops convened to discuss these options. In fact, CICOL and its partners embarked on certification without a clear idea of how production methods and enterprise

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<sup>43</sup> Cerrito, Las Trancas, Puesto Nuevo, Todos Santos, Fátima and San Martín (Florida).

<sup>44</sup> The Chiquitano have traditionally used *curupaú* as a source of firewood and housing timber (Centurión and Kraljevic, 1996).

development strategies would be reconciled with community needs and expectations under a certified, export-oriented market regime. As will be seen later, the sawmill enterprise is now having to face the consequences of this oversight.

## **8 Stakeholder expectations of certification**

### *8.1 The Chiquitano communities*

As might be expected, the expectations of certification amongst the communities of Lomerío were shaped largely by the information they were given. Their first points of contact for this information were the presidents of community councils who, as representatives of CICOL, were responsible for communicating CICOL's plans concerning certification. For some communities, the available information on certification was supplemented by contacts with field promoters and forest management technicians from APCOB.

Interviews conducted by the author in four different communities in Lomerío<sup>45</sup> indicated that contacts with project staff had provided community members with a reasonable understanding of the aims, requirements and possible benefits of certification, although these were viewed quite simplistically. The three main expectations of certification amongst community members were (ranked in descending order of importance):

1. Higher prices for timber
2. Increased market security for community timber resources
3. Improved relations with government

As these were considered significant benefits, there was general support amongst all community groups for CICOL's decision to seek certification. Minor reservations amongst some communities, for example the concern that all timber would be exported, thus leaving nothing for internal use, were allayed by explanations that the project would continue to balance the demands of local, national and international markets (R. Suárez 1997, pers. comm.).

### *8.2 CICOL*

CICOL's motives in seeking certification were strongly linked to its potential commercial benefits, as well as the possibility that it might facilitate Lomerío's territorial demands. In the minds of CICOL's executive board, previous attempts at territorial consolidation had proven unsuccessful. Certification was therefore viewed as the basis for a new stage in project development designed to overcome earlier legal set-backs. Seen in this light, the decision to seek certification was inevitable (R. Suárez 1997, pers. comm.).

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<sup>45</sup> Puquio, Todos Santos, Las Trancas and Puesto Nuevo.

Whilst it was expected that certification would facilitate a solution to CICOL's legal problems, there was also the understanding that certification would imply certain rigorous commitments and challenges. CICOL was aware that the sawmill enterprise had a limited capacity to process and package timber in a form suitable for export markets. Technical assistance would be needed in the areas of secondary processing, quality control and marketing. As the main sources of this expertise prior to certification were APCOB and BOLFOR, CICOL expected that these two organisations would provide the technical assistance and training necessary for the project to take advantage of any opportunities in export markets (M. Ipamo 1997, pers. comm.).

### 8.3 *BOLFOR*

For BOLFOR, certification was a crucial test of the objectives and approaches adopted at the outset of the project in 1994. As already noted, one of the strategic foci of BOLFOR's work was on the requirements and implications of a programme of certification for Bolivian forests. Almost all of BOLFOR's activities at Lomerío were aimed, either directly or indirectly, at bringing about compliance with internationally-acceptable standards of management. Furthermore, BOLFOR's work in management planning and market development heavily emphasised the role of certification in securing profitable markets for the full range of species in the Chiquitano forest. In this context, the success of certification would not only sanction BOLFOR's approach and methodologies at Lomerío, but also contribute to the overall purpose of the project.

### 8.4 *APCOB*

APCOB's stake in certification was similarly important. Although the Lomerío project had been in existence for almost a decade, the keystone of the project, the sawmill enterprise, was in a difficult financial situation. For APCOB's project managers and field staff alike, certification was seen as an opportunity to secure better prices for timber, while at the same time generating publicity for the project and the achievements of the Chiquitano. Furthermore, it was expected that certification of Lomerío, and the publicity that surrounded it, would demonstrate to the Bolivian forestry authorities that their refusal to grant a forest concession to the project had no technical, economic or social justification (Zolezzi undated).

### 8.5 *CIDOB*

As already discussed, Lomerío was the 'flagship' project for PSV, the initiative designed by CIDOB to promote certification of sustainable forest management amongst indigenous organisations in Bolivia. PSV also assumed the subsidiary aim of promoting state and private sector partnerships in certification and forest management (Bebbington *et al.* 1997, Kopp & Domingo 1997). By this means, CIDOB was instrumental in bringing together a number of different institutional actors to support certification, including BOLFOR, APCOB and CICOL.

Following the initiation of BOLFOR in 1993, CIDOB and its partners, particularly APCOB, sought BOLFOR's support in creating the institutional environment necessary for establishing timber certification in Bolivia. One of the results of this process was Bolivia's FSC-recognised certification working group, the CFV (see discussion in footnote 39). A further result was that BOLFOR began providing assistance to CIDOB in research, training and the development of international contacts.

CIDOB therefore held a stake in the success of certification at Lomerío at two levels:

1. The project level with PSV; and
2. The national level, where the organisation played an important role in the development of a national certification mechanism and placed its faith in certification as a tool for promoting sustainable forest management across every sector of the Bolivian forest industry (Bebbington *et al.* 1997).

At the project level, the success of certification at Lomerío would enable CIDOB to show its member organisations that forests can be managed sustainably for both economic and political objectives. At the national level, the success of certification would vindicate CIDOB's attempts to galvanise civil society action for commercially-viable sustainable forest management.

## 8.6 *Secondary processors and wholesalers*

Secondary processors and wholesalers both in Bolivia and abroad played (and continue to play) a key role in the certification process at Lomerío. The main actor was Sylvania Woods, a timber wholesale company based in Wisconsin, USA. The director of Sylvania Woods, Robert Simeone, had been associated with the Lomerío project for a long time, both in business and advisory capacities. Simeone carried out the pre-certification evaluation in 1994, as well as subsequent consultancy studies, and continually pressed for the project to expand into international, environmentally conscious markets where the wide range of species produced from Lomerío would be more readily accepted than in Bolivia.

The export potential of Lomerío's timbers was proved in 1995 with a trial shipment to Sylvania Woods. The successful sale of this first shipment, in the period before certification when BOLFOR was carrying out early market development work, raised the possibility that the sawmill could become self-financing under certification. However, this same trial shipment also highlighted the limitations of the Lomerío sawmill, and in particular the lack of suitable secondary processing facilities. In order to dry and mill timber according to export standards, Lomerío was obliged to contract processing facilities elsewhere in the region. Two of these secondary processors, Jolyka and La Chonta, have subsequently become important buyers of timber from the sawmill. The current role of these companies, as well as that of Sylvania Woods, is discussed in section 13.4.

## 9 Certification standard and field methodology

### 9.1 *The certification standard*

The standard used for the Lomerío certification evaluation was a synthesis of two closely-related sets of criteria and indicators: Smart Wood's generic guidelines (Rainforest Alliance 1993b), and Bolivian criteria and indicators developed under a national consultation process and based on the FSC P&C. At the time of the evaluation the Bolivian criteria and standards were still in draft form, and have since been extensively re-worked in the final version of February 1997 (see CFV 1997).

The fact that both sets of standards are founded on the FSC P&C means that they share many similarities. As might be expected, any differences that do exist are related to the locally-specific clauses of the Bolivian standard. These place a much greater emphasis on the social impact of forest management, particularly with respect to indigenous or peasant colonist communities. Important issues covered by the Bolivian standard include long-term, local commitment to forest management, fair and equitable distribution of both benefits and responsibilities amongst community members, and the existence of strong, stable community structures for supervising and monitoring forest management activities.

The Bolivian standard also emphasises the need for forest management activities to comply with all relevant labour legislation. Although an important condition for any country, this criterion is given added significance in Bolivia by Law No. 1257 of 1991, which ratifies Convention 169 of the International Labour Organisation (ILO) concerning indigenous and tribal peoples in independent countries. Convention 169 is a statement of minimum rights including equal rights and opportunities under national laws, a sharing of social and economic benefits, protection of social, cultural, religious and spiritual values, participation in decision-making and due regard for customary law (Quaile & Smith 1997).

### 9.2 *Field methodology*

In common with all other assessments carried out by Smart Wood, the methodology followed in the Lomerío evaluation was based on Smart Wood's Source Certification and Audit Procedures. For the implementation of an assessment, these include the following steps (Rainforest Alliance 1993a):

1. Review and revise Smart Wood's generic certification guidelines to incorporate country- or region-specific issues, and ensure coverage of relevant government legislation;
2. Meet with government forestry specialists, environmental and community development non-government organisations and all other interested and affected parties;
3. Visit field operations;
4. Visit office operations to review the forest operation procedures and systems in place for maintaining detailed records; and



5. Conduct a final briefing with the field and office-based staff to discuss future steps in the certification process.

The five-member team assembled to carry out these tasks at Lomerío represented the following mix of expertise and institutional affiliations: 1. Head of team/forester (Smart Wood, USA); 2. Forester (CATIE, Costa Rica); 3. Sociologist (CIDDEBENI, Bolivia); 4. Forester (CIMAR, Bolivia); and 5. Ecologist (IPHAE, Bolivia)<sup>46</sup>.

The evaluation of field operations was based on a sample of six community forests, each selected to demonstrate a range of different forest management operations. Within each of the forest blocks visited, a transect was surveyed to assess the degree of compliance between field activities and the specifications of management and operating plans, as well as the nature and extent of environmental impacts. A further sample of nine communities was selected to form the basis for the social evaluation. Each of these communities was drawn from one of the following categories, identified by the evaluation team in collaboration with CICOL (Gretzinger *et al.* 1995):

1. Communities with which CICOL had implemented management activities and had a good relationship;
2. Communities with which CICOL had implemented management activities but had a poor relationship;
3. Communities with which CICOL had not implemented management activities and had a good relationship;
4. Communities with which CICOL had not implemented management activities and had a poor relationship; and
5. Communities that had commercial relationships with other sawmills in the area.

The justification for this typology is not given in the report of the evaluation, nor are the criteria by which CICOL/community relations were defined as good or poor. Furthermore, the lack of community participation in this exercise raises questions over its validity. Given these factors, it is difficult to assess whether the social evaluation was based on a truly representative sample of communities. In light of the questions subsequently raised over the accuracy of the social evaluation (see section 14.2), there may indeed be reason to doubt the appropriateness, and effectiveness, of this approach.

For the field component of the social evaluation, group meetings were organised in all except three of these communities (where individual interviews with community authorities and members were held instead). Visits were made to the sawmill to interview community workers there, and meetings were held with CICOL's forestry and nursery promoters (Gretzinger *et al.* 1995).

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<sup>46</sup> CATIE - *Centro Agronómico Tropical de Investigación y Enseñanza* (Tropical Agronomy Teaching and Research Centre); CIDDEBENI - *Centro de Investigación y Documentación para el Desarrollo del Beni* (Research and Documentation Centre for the Development of Beni); CIMAR - *Centro de Investigación y Manejo de Recursos Naturales Renovables* (Centre for Research and Management of Renewable Natural Resources); IPHAE - *Instituto para el Hombre Agricultura y Ecología* (Institute for Man, Agriculture and Ecology).

The economic evaluation of the project was based on the annual balances drawn up by the sawmill enterprise, together with external financial reviews and related documentation<sup>47</sup>. Interviews were conducted with sawmill personnel, community members, the directors of CICOL, technicians from BOLFOR and APCOB, and representatives from the timber processing companies La Chonta and Jolyka.

Once the evaluation had been completed, the Smart Wood team scored each applicable criterion in the certification standard on a scale from 1 (very unfavourable) to 5 (very favourable). These scores were then summed and averaged to give an overall classification for the project.

## 10 Project performance under evaluation

According to the Smart Wood guidelines, the final certification decision can take one of five different forms (Rainforest Alliance 1993a):

1. Certification as a 'sustainable' source (which operates in strict adherence to the Rainforest Alliance's principles and guidelines);
2. Certification as a 'well-managed' source (which can demonstrate a strong operational commitment to the Rainforest Alliance's principles and guidelines);
3. Certification as one of the above, with specific conditions that have been identified for improvement prior to the first annual audit;
4. No certification, with an explanation and stipulation of conditions that must be met in order to qualify in the future; and
5. No certification because there is not enough information. Information gaps must be specified by Smart Wood and an agreement made to reconsider when the information has been provided.

Lomerío scored an overall total of 3.2, out of a maximum of 5. Because a number of negative points (some extremely serious) were identified during the evaluation, the decision was taken to certify the project as 'well-managed' under option 3 (see above). According to the terms of the three-year certification agreement signed between Smart Wood and CICOL/APCOB<sup>48</sup>, a set of ten conditions was imposed on the project; some of which had to be met prior to the first annual audit, and the remainder by the end of the second and third years of the contract (see below). As the project officially received its certificate in February 1996, the first annual audit was scheduled for February 1997<sup>49</sup>.

As can be seen from Table 2 below, the project scored highly in the areas of environmental impact, security of forest, optimising of forest potential, and employee relations (Gretzinger *et al.* 1995).

<sup>47</sup> Given the scale of financial mismanagement in the sawmill enterprise (see section 5.2), it seems unlikely that an accurate financial evaluation was possible at the time of certification.

<sup>48</sup> Since the certification of Lomerío, the term of Smart Wood certification contracts has increased to five years. Once Lomerío's contract expires in 1999, Smart Wood will determine whether an extension to five years is feasible (based on an intensive audit) or, alternatively, whether a full re-assessment is necessary (J. Jickling 1997, pers. comm.).

<sup>49</sup> This date was subsequently put back to June 1997 (K. Pierront 1997, pers. comm.).

However, some of the lowest scores were awarded for community relations and economic viability, arguably two of the most crucial areas for communal enterprises such as Lomerío.

## **11 Conditions of certification and stakeholder responses**

Table 3 below provides an abridged listing of the ten conditions attached to the Lomerío certification agreement. The source for this listing is the public summary of the Lomerío evaluation report published by Smart Wood in March 1997.

A brief analysis of the conditions shows that they are almost equally divided between technical recommendations on one hand, and social/organisational recommendations on the other. As might be expected, the technical recommendations, for example VI.A and VII.A, are fairly precise and oriented towards a particular product or output. On the other hand, the social and organisational recommendations, for example II.A, are broader in nature and more process-oriented. Taken as a whole, the conditions imply the need for a substantial amount of work, even for a three-year period.

Awareness of these conditions appears to be low amongst the communities of Lomerío. Although the results of the certification evaluation were disseminated by CICOL, again through the presidents of community councils, none of the community members interviewed at Lomerío by the author had a clear recollection of any particular condition or conditions. However, community members were aware that the evaluation had identified certain weaknesses, and that a number of aspects of the project, for example relations with CICOL, required improvement.

The response of CICOL to the conditions of certification has been equivocal. Interviews by the author with members of the board who had been involved in the certification assessment revealed a general acceptance of the conditions, although with some reservations. The technical recommendations were considered valid and feasible, as long as CICOL could continue to count on the support of organisations such as ACPOB and BOLFOR. On the other hand, the social recommendations were considered to be extremely rigorous in some cases, and not entirely appropriate for the social conditions prevailing at Lomerío (R. Suárez 1997, pers. comm.). Nevertheless, members of the board felt that, having submitted to certification, they were obliged to accept the conditions attached to the agreement and adapt to the challenge of new social arrangements.

SUBJECT HEADING	SCORE	RANGE	SUMMARY OF COMMENTS
Environmental impacts	3.9	1.4-5.0	No chemicals; harvesting operations well planned and controlled. Conservation management poor and over-hunting affecting wildlife population levels.
Forest security	3.6	3.0-4.0	No long-term exploitation permit but land fully titled and protected against encroachment.
Employee relations	3.5	3.4-3.5	Wages competitive with regional rates but food costs not reimbursed. Safety excellent in the sawmill but poor in the forest.
Management planning	3.4	1.8-5.0	Management plans and annual operating plans available but community participation in decision-making poor. Environmental protection plans lacking.
Optimising forest potential	3.4	2.9-3.8	Harvesting and market development of lesser-known species being promoted. Few non-timber forest products with commercial potential. Quality control lacking in sawmill and some wastage due to poor co-ordination between sawmill and harvesting operations.
Sustained yield management	3.2	1.9-4.1	Annual allowable cut set and followed; measures taken to conserve tree populations and guarantee future harvests. However, rationale behind silvicultural prescriptions poorly documented and site-specific research lacking.
Community relations	2.8	1.7-3.7	Problems include non-payment for timber, administrative weakness, and absence of clear agreements between CICOL and communities. Significant benefits obtained from forest management but external subsidies high and little incentive to reinvest in forest management.
Chain of custody	2.8	2.7-2.9	System of log monitoring and recording in place but requires adjustment and improvement. No formal system for separating timber from managed and unmanaged sources (e.g. land cleared for agriculture)
Economic viability	2.2	1.5-2.8	Stumpage fees consistent with regional levels but long-term communal commitment to forestry still uncertain. Current income from sawmill cannot support management, and payments to communities frequently late.
<b>TOTAL AVERAGE</b>	<b>3.2</b>	<b>(2.2-3.9)</b>	

**Table 2.** Lomerío: Overview of project performance under Smart Wood evaluation, October 1995. Subject areas (taken from the certification standard) are ranked in order of scoring. Source: Gretzinger et al. 1995.

CONDITION	SUBJECT HEADING(S)	TIME SCALE
I. Formulate and implement a plan for identifying and managing <b>protected forest areas</b> .	Management planning Environmental impacts	1 year
II. Strengthen <b>CICOL's legitimacy</b> and representativeness through: A. Design and implementation of a strategy for increasing community participation in decision-making and conflict-resolution. B. Establishment of a participatory system for control and supervision of forest management and processing.	Management planning Community relations	1 year (A = 10 months)
III. Establish an <b>administrative structure</b> that maximises economic and management efficiency in a transparent manner through: A. Agreements between communities and the sawmill governing planning and execution of forestry operations. B. Development of a strategy for recovering sawmill debts. C. Optimisation of procedures at each stage of management. D. Establishment of efficient and transparent systems for accounting and information dissemination. E. Improvements in organisational structure and personnel management.	Economic viability Community relations Employee relations	1 year (B = 3 months)
IV. Prepare guidelines for <b>inter-agency co-ordination</b> covering areas of responsibility and scheduling of activities.	Management planning Community relations	6 months
V. Guarantee <b>forest security and legal recognition</b> for forest management through: A. Presentation of a strategy for guaranteeing forest security. B. Written agreements between communities and CICOL dedicating forest areas to long-term management. C. Preparation of maps delineating management areas, community boundaries and private property boundaries. D. Demarcation of boundaries between communities under management and private properties. E. Demarcation within communities of forest management areas, and areas destined for other uses. F. Legal action to obtain long-term forest management and exploitation rights.	Forest security Community relations	(A-C = 1 year; D-E = 2 years; F = Long-term)
VI. A. Complete <b>inventory</b> of entire certified area (53,000 ha). B. On the basis of complete inventory data, prepare management plan covering entire certified area.	Management planning	(A = 1 year; B = 2 years)
VII. A. <b>Measure</b> precisely harvest volumes and compare results with inventory and commercial census data. B. Seek improvements in systems for <b>monitoring</b> impacts.	Sustained yield management Optimising forest potential	3 years
VIII. Develop appropriate <b>silvicultural systems</b> for implementation at an operational level by the end of Year 3 through: A. Analysis of available information. B. Incorporation of indigenous forest knowledge. C. Preparation of reference documentation. D. Implementation of intensive ecological research programme.	Management planning Sustained yield management	3 years
IX. Create an <b>integrated system of records</b> for tracking the chain of custody of timber between the forest and the market.	Chain of custody	6 months
X. Reduce progressively the proportion of timber sourced from <b>unmanaged areas</b> , from 30% by the end of year 1, to 10% by the end of year 3.	Chain of custody	10% within 3 years

**Table 3.** Lomerío: Abridged listing of Smart Wood certification conditions with compliance time scales. Subject areas taken from the certification standard have been added for clarity. Source: Rainforest Alliance 1997.

The analysis of the impacts of certification is divided into five main themes:

1. Forest management practices;
2. Enterprise administration, finances and marketing;
3. Institutions and social relations;
4. Distribution of costs and benefits; and
5. National forest policy and legislation.

In each of these areas, an attempt has been made to identify and assess both the direct and indirect impacts of certification:

- *Direct impacts:* These relate to the process of certification itself, as well as any actions that have been taken pursuant to the conditions of the certification agreement, and the direct consequences of those actions.
- *Indirect impacts:* These relate to effects such as market expansion or price increases, which are potential, rather than guaranteed, outcomes of certification.

In the case of national forest policy and legislation, the analysis focuses on the project's legal standing and relations with the national forestry authority following certification, as well as more general developments in Bolivian forest policy and legislation related to forest certification.

## 12 Impacts on forest management practices

### 12.1 Overview of management standards

As a result of its origins, objectives and the substantial external assistance it has received, the Lomerío project has achieved a high technical standard. Notwithstanding the high level of subsidies, a number of observers have cited Lomerío as the only example of sustainable community forest management anywhere in Bolivia (see for example Olivera 1995, ITTO 1996). However, whilst the certification evaluation showed that certain aspects of management, for example harvesting operations, were well planned and controlled, it was also clear that other aspects, and in particular environmental protection and conservation management, had received less attention.

The evaluation team noted the absence of environmental criteria in management planning, and the lack of integrated measures for fire control, soil conservation, watershed protection and biodiversity conservation. Existing protection measures, for example the decision not to fell trees on slopes exceeding 35 degrees, were seen to be based more on economic than environmental considerations (Gretzinger *et al.* 1995).

Although environmental measures are lacking, the direct environmental impact of forest management operations has been slight. Commonly expected side-effects of harvesting such as soil erosion and the contamination of water courses appear to be limited by pronounced seasonality (harvesting takes place during the dry season), well-drained soils, and low harvesting intensities (Simeone 1994, Gretzinger *et al.* 1995). The main negative environmental impacts of the project have arisen through the failure to control and regulate human disturbances such as burning and hunting.

Annual dry season fires, set to clear forest land for cultivation and herding, have a major impact on the fauna of the Chiquitano forest and their food sources (Townsend 1996). Wildlife populations weakened in this way are subject to further pressure from hunting, which has intensified following CICOL's decision not to provide food to forestry and sawmill employees. This pressure will undoubtedly increase in the future, given that the population of Lomerío is expected to double in the next thirty years (APCOB 1993, cited by Kress 1996).

Taken together, the effects of fire, hunting and earlier destructive logging have significantly diminished the conservation status of the Chiquitano forest (BOLFOR 1995, Townsend 1996). However, a number of rare and endangered animal species listed in Appendices I and II of CITES<sup>50</sup> and the Bolivian Red Book of Vertebrates still inhabit the forest<sup>51</sup>, and the importance of Lomerío as a refuge for forest wildlife is likely to increase in the future given the massive scale of deforestation in the surrounding region<sup>52</sup>.

Adequate management of Lomerío's remaining biodiversity has been hampered by a chronic lack of information. Little or no research has been conducted into the ecology and management of the wildlife of the Chiquitano forest. However, the necessity of conservation has been established by the project and is recognised by the communities. Communal awareness has been heightened by long-term declines in the populations of some of the larger food species, for example the *anta*, or tapir (*Tapirus terrestris*) (Vallejos *et al.* 1996b).

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<sup>50</sup> The Convention on International Trade in Endangered Species of Wild Fauna and Flora.

<sup>51</sup> These include the *tigre*, or jaguar (*Panthera onca*).

<sup>52</sup> Estimates of deforestation within the Department of Santa Cruz vary from 400 km<sup>2</sup> per annum (CUMAT 1992, cited by Davies 1994) to 900 km<sup>2</sup> per annum (Visser 1996). The lower estimate given by CUMAT (Centre for Research into Land Use Capacity) is still half of the total area cleared annually in the whole of Bolivia. Although subsistence agriculture and selective logging account for much of the forest degradation in Santa Cruz, the main cause of forest clearance is the expansion of the commercial agricultural and livestock 'frontiers'.

In an effort to assess the status of wildlife populations and their response to human pressures, BOLFOR has initiated a programme of participatory monitoring of wildlife and hunting, directed at the preparation of community hunting plans. Response to this programme has been equivocal: although community members accept the need to conserve food stocks, they are sensitive to the notion that outsiders might want to control or even curb hunting<sup>53</sup> (Townsend 1996). The long-term sustainability of the monitoring programme is also threatened by internal conflicts (both within and between communities) between hunters and cattle herders. As noted above, the fires set by the latter to promote pasture growth frequently burn out of control and damage important wildlife habitats.

## 12.2 *Conservation management*

Smart Wood's response to conservation management is contained in condition I of the certification agreement. This calls for the formulation and implementation of a plan for protecting unique and fragile habitats, including representative areas of forest under management. The project was given one year to comply with this condition.

Progress on the plan prior to the first annual audit was slow, although this was due partly to circumstances out of the project's control. Project activities came to a temporary halt in September 1996 as the Chiquitano of Lomerío participated in an indigenous 'March for Rights' organised by CIDOB<sup>54</sup> (APCOB 1997a). Nevertheless, other demands on the project meant that the plan was not completed within the required time limit. Positive achievements made by project staff prior to the first annual audit included the preparation of topographical, hydrological and vegetation maps which will provide an empirical basis for the plan. A field investigation to verify the map data and consult with communities on the demarcation and management of protection areas has yet to be carried out (APCOB 1997a, Rainforest Alliance & CIMAR 1997).

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<sup>53</sup> The issue is complicated by the fact that indigenous peoples such as the Chiquitano are granted special dispensation under Bolivian law to hunt on their traditional territories for subsistence purposes (BOLFOR 1995). All other forms of hunting are illegal under Bolivian law.

<sup>54</sup> The march, from Santa Cruz to Samaipata, was organised in support of the Law of the National Land Reform Institute (INRA Law). Amongst other things, the law is aimed at eliminating overlapping land rights in areas where the rights of indigenous groups are supposed to have priority (ITTO 1996). It was eventually passed on 18 October 1996 (see section 16).



With the completion and implementation of the plan<sup>55</sup>, the future conservation status of the Chiquitano forest should be substantially strengthened. Whether or not each community will participate in conservation management is uncertain, however. Many communities do not have enough forest to set aside a conservation area, particularly one in which hunting is prohibited. Furthermore, the viability of those conservation areas that have already been established<sup>56</sup> is uncertain given the lack of autoecological information. Without such information, which is only gradually being gathered under BOLFOR's research programme, it will be difficult for communities to plan effectively either for their own future hunting requirements, or for the conservation demands of the project as a whole.

### 12.3 Management planning

Conditions VI, VII and VIII of the certification agreement deal with technical aspects of forest management at Lomerío and, in particular, inventories, management plans, silvicultural systems, and sustained yield management. Condition VI is dealt with in this section, conditions VII and VIII in the following section.

One of the problems identified during the certification evaluation was the existence of two separate management plans - prepared by APCOB in 1994 and BOLFOR in 1995 - with a number of inconsistencies. Of the two plans, only BOLFOR's was based on revised, accurate inventory data. The APCOB plan was based on inventory data collected in 1984, as well as subsequent commercial censuses. For this reason, condition VI.A calls for BOLFOR's inventory of the northern zone of Lomerío to be extended to cover the entire certified management area of 53,000 ha, within a period of one year. Under condition VI.B, this inventory is to be used as the basis for a consolidated management plan covering the entire certified area in the second year of the certification agreement.

Progress on completion of the inventory prior to the annual audit of June 1997 was slow. Unresolved conflicts between CICOL and some communities delayed the extension of the inventory beyond the forests of the northern zone for much of 1996 (W. Cordero 1997, pers. comm.). Some progress was made in the first half of 1997, but the task had not been completed by the June 1997 deadline and Smart Wood was forced to extend the period of compliance to the end of 1997 (Rainforest Alliance & CIMAR 1997). Preparation of the consolidated management plan was also expected to commence by the end of 1997.

The pressure from Smart Wood to develop a new management plan has been compounded by legal requirements under Bolivia's new forestry law (see section 16). With the introduction of the new Law, all forest concessionaires have been required to submit revised management plans to Bolivia's new national forestry authority, the *Superintendencia Forestal* (Forestry Superintendency, or SF).

<sup>55</sup> Smart Wood extended the period of compliance to the end of 1997.

<sup>56</sup> For example, the community of Todos Santos has set aside a forest reserve of approximately 3 km<sup>2</sup>. This is situated in a low-lying, swampy area that is difficult to access. No hunting is allowed in the reserve (J. Parapaino 1997, pers. comm.).

Although Lomerío submitted a revised version of BOLFOR's 1995 plan, this did not cover the full 53,000 ha forest area and only received provisional approval to 31 December 1997 (M. Soriocó 1997, pers. comm.). Lomerío was legally required to present a completed inventory and management plan for the entire productive forest area to SF by the end of 1997. Without this plan, the project would have been unable to obtain timber extraction and commercialisation permits.

#### *12.4 Silviculture and sustained yield management*

One of the main aims of conditions VII and VIII is to improve the suitability and effectiveness of silvicultural interventions within the Chiquitano forest. As was noted by Smart Wood, and previously by Simeone (1994), few attempts have been made to experiment with different fire, light or other disturbance regimes, with the result that current silvicultural practices have no real ecological justification. The absence of any attempt to develop or include indigenous Chiquitano forestry knowledge also means that the project's silvicultural practices have little cultural justification.

As a first step towards improving silvicultural systems, condition VII.B requires strengthening of the system for monitoring ecological impacts. Some ecological data is already available from BOLFOR's permanent sample plot network in the northern zone of Lomerío, but has yet to be included in management planning. At the time of the annual audit in June 1997, no other actions had been taken by APCOB or CICOL in support of this condition (Rainforest Alliance & CIMAR 1997).

With respect to condition VIII, CICOL and APCOB are continuing with the same silvicultural treatments in use at the time of the initial certification evaluation (Rainforest Alliance & CIMAR). However, collaborative studies have been initiated with BOLFOR to define an appropriate silvicultural system. These studies are currently exploring regeneration in forest gaps, directed burning treatments and soil scarification. The results of these studies are expected some time in 1999 (Rainforest Alliance & CIMAR 1997).

Attempts to analyse indigenous forest knowledge have yet to begin, although project technicians recognise the importance of this condition (V. Chuvé 1997, pers. comm.). Smart Wood has indicated that assessments of indigenous knowledge should be in progress by the time of the next annual audit in 1998 (Rainforest Alliance & CIMAR 1997).

### **13 Impacts on enterprise administration, finances and marketing**

Many of the recurring weaknesses in the operation, administration and financial management of the sawmill enterprise were identified during the certification evaluation. A number of these, for example the abuse of funds by the sawmill administrator, the lack of co-ordination between the sawmill and harvesting operations, and the lack of systematic recording and classification of timber stocks, impinged directly on the performance of the enterprise.

Other weaknesses were more closely related to the requirements of certification, for example the absence of a formal system for tracking and separating timber from managed forests and timber from unmanaged sources, such as land cleared for agriculture or forests outside the management plan<sup>57</sup>.

The conditions imposed under the certification agreement call for significant restructuring within the enterprise, aimed primarily at increasing the efficiency and transparency of administration. Conditions II.B, III.B, and III.D-E require the establishment of new, participatory mechanisms for supervision and decision-making, incorporating such measures as the recovery and termination of all cash loans, revised accounting procedures, and greater investment in human resources development. The importance placed on all of these conditions by Smart Wood is reflected in the limit of one year given for compliance, or just three months in the case of loans recovery.

Conditions IX and X also directly affect the sawmill enterprise. These call, respectively, for improvements in chain of custody monitoring and a progressive reduction in the proportion of timber derived from unmanaged sources.

### 13.1 Administration and human resource development

Significant changes have been made in the administration of the sawmill enterprise to address the conditions of certification. The first of these has been the replacement of the previous Chiquitano administrator with a new administrator from Chile. The second, and most important, development has been the establishment of an Administrative Council (*Consejo Administrativo*) to oversee sawmill management.

The Administrative Council, which has representatives from CICOL, APCOB and BOLFOR, as well as each of the communities currently involved in harvesting, meets every month with the administrator of the sawmill to review details of sales, expenditures, and other relevant issues. Although the Council cannot take decisions on sawmill expenditure, it has the authority to approve the report of the administrator for submission to the President of CICOL. Furthermore, the Council can approve the use of machinery, trucks, or any other equipment belonging to the sawmill.

The Administrative Council acts as a buffer between CICOL and the sawmill, thus preventing the overt influence of CICOL in day-to-day management. The Council also buffers the sawmill administrator from financial or other material demands from communities and individuals<sup>58</sup>. These changes have increased the efficiency and transparency with which sawmill resources are used and administered.

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<sup>57</sup> The sawmill typically derives between 10 and 40 percent of its raw material from unmanaged forests, thus allowing it to meet special orders or overcome occasional shortfalls in harvests due to inaccurate yield predictions, errors in communication, conflicts with communities, or other factors (Gretzinger *et al.* 1995).

<sup>58</sup> Of course, being Chilean, the sawmill administrator is not bound by the mores of Chiquitano society and is therefore better able to refuse inappropriate requests for cash, equipment or other goods.

A system has also been instituted within the enterprise whereby community counterparts are named for each managerial position, i.e. administrator, finance manager, harvesting manager, production manager, marketing manager, engineering and maintenance manager, etc. This is a promising practice which should add value to existing training programmes within the project. However, the instability of personnel remains a problem, both in this system, and in the sawmill as a whole<sup>59</sup>. For this reason, continued efforts are needed to retain a skilled pool of labour. Smart Wood has indicated that further progress in this area will be required by the time of the 1998 annual audit (Rainforest Alliance & CIMAR 1997).

### 13.2 *Financial management*

In response to the condition stipulating the recovery of all loans made by the sawmill, the General Assembly of 11 March 1996 formed a special committee to assess the debts owed by, and to, the sawmill, and decide means of repayment (APCOB 1997a). Although not all personal debts had been documented or accounted for by the sawmill, the committee was able to determine that outstanding timber payments of over 26,000 *bolivianos* (approximately US\$5,200) were owed by the sawmill to eight communities, and that 12 communities owed over 35,000 *bolivianos* (approximately US\$7,000) to the sawmill (APCOB 1997a).

For its part, the sawmill managed to comply with debt repayment to all communities within one year of the certification agreement being signed. Communities were allowed to repay their debts with timber and private individuals were allowed to repay their debts with labour in the sawmill; but full compliance has yet to be achieved. This is despite the fact that the sawmill has agreed to write off 50 percent of all debts (Rainforest Alliance & CIMAR 1997).

CICOL and APCOB have hired an accountant to improve and restructure the accounting system of the enterprise. All accounts have now been computerised, which should increase the transparency of fund management and allow cost analyses to be carried out in the future (Rainforest Alliance & CIMAR 1997).

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<sup>59</sup> The current counterparts were named at a General Assembly early in 1997, but there have been personnel changes due to low wages, lack of time, and the difficulty of adapting to office work (Rainforest Alliance & CIMAR 1997). In response to the first of these problems, wages have been increased by 15 percent, with further increases projected for the future.

### 13.3 Chain of custody

At the time of assessment, a chain of custody certificate was not issued to the sawmill enterprise because separate chain of custody certificates for certified forestry operations were not required by FSC (J. Jickling 1997, pers. comm.). Now that this has become a requirement, Smart Wood has begun the process of preparing the necessary documentation (based on information gathered during the initial evaluation and the first annual audit) in order to issue a chain of custody certificate (J. Jickling 1997, pers. comm.). The conditions necessary for securing chain of custody certification were evaluated in 1996 by an external consultant and a series of recommendations placed before CICOL (Simeone 1996)<sup>60</sup>.

In response to the demands of chain of custody certification, APCOB and the sawmill have developed and published written guidelines for chain of custody monitoring (APCOB 1997b). These guidelines specify a system of inter-linked records covering seven different stages in the chain of custody (see Table 4). An integral part of this system is the marking of each log with its number and a code specifying its community of origin.

This system has been in place for no more than six months but, although sawmill and forest management personnel have received training in its application, it will be some time before it can be applied consistently and accurately at all stages in the chain of custody<sup>61</sup>.

STAGE	RECORDING GUIDELINES
1 Tree felling	Chainsaw operator records the community of origin, species and number of each tree harvested; these records are expected to correspond with those in the pre-harvest commercial census
2 Collection at log landings	Origin, species and number of each tree is again recorded
3 Transport to sawmill	Records again made as above
4 Reception at sawmill	Records again made as above, but including dimensions of logs
5 Processing	Species and log number recorded
6 Post-processing	Records made of species and sawnwood dimensions
7 Storage of stock	Records made of species, dimensions, volumes, etc.

**Table 4.** The seven stages in chain of custody monitoring at Lomerío. Source: APCOB 1997b.

Under the conditions of certification, a limit of 30 percent was placed on the proportion of unmanaged timber processed by the sawmill, to be reduced in stages to 10 percent by the year 1999. In 1996, the sawmill was well on the way to complying with this condition, having obtained

<sup>60</sup> In general, existing points of control in the sawmill are adequate (Simeone 1996). However, one of the greatest risks lies in the passage of timber through secondary processing. The companies contracted by CICOL and other secondary processors to kiln-dry, plane, pack and transport Lomerío's timber to Arica in Chile (one of Bolivia's main sea links) do not deal exclusively in certified material, and the possibility of mixture with non-certified material is high.

<sup>61</sup> One of the tools being used to educate project staff and community members about chain of custody procedures is a large, colourful mural painted on the side of the sawmill offices. This mural, which is visible to anyone who enters the sawmill, depicts each stage in the chain of custody from the forest to the sawmill.

significantly less than 30 percent of its timber from unmanaged sources (Rainforest Alliance & CIMAR 1997).

However, now that chain of custody certification is imminent, Smart Wood has indicated that the proportion of timber derived from unmanaged sources should be reduced to zero (V. Saavevedra 1997, pers. comm.). This means that, in any one year, the sawmill will be restricted to timber harvested under current management plans. According to the administrator of the sawmill, this will be a difficult condition to comply with, particularly for certain species in high demand (V. Saavevedra 1997, pers. comm.). This difficulty should perhaps be seen as a legacy of previous poor communication between the sawmill and forestry operations, which resulted in orders being taken that could not be met from planned harvests. It is to be expected, therefore, that the new conditions will encourage greater co-ordination between the sawmill's marketing wing and those responsible for harvest planning.

#### 13.4 Marketing

The changes taking place within the sawmill enterprise would be difficult, if not impossible, to accomplish without some form of financial compensation. Fortunately, BOLFOR has been able to exploit the marketing potential of Lomerío's certificate quite effectively. *Curupaú* and other lesser-known species are being intensively promoted in international certified markets. A rapidly expanding network of timber buyers has been assembled, and enquiries are now being fielded from buyers in England, Holland, Sweden, USA and elsewhere (A. Guillén 1997, pers. comm.).

One of BOLFOR's current marketing initiatives is product grouping, whereby timber species with similar physical properties are grouped into classes and marketed under a common trade name. This strategy has worked well in the case of Southeast Asian dipterocarp species, but much testing and evaluation will have to be carried out by BOLFOR before equivalent results can be expected for the lesser-known species of Lomerío (A. Guillén 1997, pers. comm.).

Within Bolivia, trading links have been established with Jolyka, a German-owned company based in the neighbouring Department of Cochabamba which manufactures solid wood, laminated and parquet flooring products for sale in international markets. Jolyka's chain of custody was certified by Smart Wood in 1996, and it now markets a proportion of Lomerío's output in Germany, USA and elsewhere in South America (K. Pierront 1997, pers. comm.).

Outside Bolivia, the main buyer of Lomerío's timber has been the American company Sylvania Woods (see section 8.6). Sylvania Woods currently markets a total of 12 species from Lomerío, in the form of musical instrument blanks, hand-carved architectural columns, furniture components and other high-value products (see Table 5) (CICOL 1997b, Sylvania Woods undated). All of the timber purchased by Sylvania Woods is sub-contracted for secondary processing in Santa Cruz, after which it is transported to the port of Arica in Chile and shipped to America. Sylvania Woods

also provides market information and brokers international orders for the project's timber (R. Simeone 1997, pers. comm.).

SPECIES	PRODUCT	PRICE (US\$/m <sup>3</sup> )	VOLUME (m <sup>3</sup> )
Curupaú, morado, soto, and others	Parquet flooring blanks	530.00	100-1500
Curupaú, morado, soto, and others	Turning blanks	551.20	200
Morado, tarara amarilla, tarara colorada, tipa	Musical instrument blanks	848.00	100
Cedro	Window frame blanks	551.20	400
Curupaú, cuchi, tajibo	Outdoor decking blanks	551.20	100
Curupaú, cuchi, tajibo, sirari, momoqui, tarara amarilla, tarara colorada, soto, cuta	NHLA-graded, kiln-dried lumber	381.60	100-200
Curupaú, sirari, tajibo, momoqui	Garden furniture components	466.40	80-120

**Table 5.** Sawmill "La Esperanza", Lomerío: Orders received from Sylvania Woods, 1997. Source: CICOL 1997b.

As can be seen from Table 5, the market interest generated by certification has been accompanied by some extremely high prices. Indeed, the buying prices for some of the lesser-known species are now more than four times the Bolivian prices for equivalent construction-grade timber, and some prices are more than double the price of mahogany in Santa Cruz (approximately US\$424/m<sup>3</sup>) (Guillén 1996). Table 6 below provides a comparison between average certified and non-certified timber prices in 1996. In future, increased sales of certified timber may lower these existing price differentials, or force timber traders to raise the traditionally low local prices for non-certified timber. Neither of these effects has yet been observed.

QUALITY GRADE	CERTIFIED (US\$/m <sup>3</sup> )	NON-CERTIFIED (US\$/m <sup>3</sup> )	PRICE PREMIUM (%)
First	466.40	254.40	83
Second	296.80	169.60	75
Third	106.00	106.00	0

**Table 6.** Average timber prices f.o.b. (free on board) Santa Cruz, Bolivia, July 1996. Grade 3 timber is not exported. For an explanation of the grading system, see footnote 23. Source: Hanrahan et al. 1997.

Assuming these prices can be sustained beyond the short term, the profitability of the sawmill is expected to improve considerably. Financial predictions for 1997 are positive and compare favourably with the preceding 2 years (see Table 7 below).

SPECIES	LOG VOLUME (m <sup>3</sup> )	OUTPUT (m <sup>3</sup> )	SALES VOLUME (m <sup>3</sup> )	GRADE	AVERAGE PRICE (US\$/m <sup>3</sup> )	INCOME (US\$)
Tajibo, curupaú, sirari, morado, tarara colorada, roble, verdolago.	1,888	660.8	528.64 132.16	1, 2 3	421.38 80.56	222,759.53 10,646.80
					<b>Total Sales Income (1997)</b>	233,406.33
					<b>Net Profit (1997)</b>	<b>25,808.24</b>
					<b>Total Sales Income (1996)</b>	20,386.29
					<b>Net Profit (1996)</b>	<b>13,034.90</b>
					<b>Total Sales Income (1995)</b>	64,351.39
					<b>Net Profit (1995)</b>	<b>-27,302.16</b>

**Table 7.** Sawmill "La Esperanza", Lomerío: Financial estimates for 1997, with equivalent results for 1995 and 1996 provided for comparison. Net profit refers to the sum of all income (including sales and transport/processing services) minus the costs of harvesting, processing, administration and marketing. Estimated output is based on a processing efficiency of 35 percent. Timber grades 1 and 2 account for 80 percent of sales; grade 3 for the remaining 20 percent. (Note: Net profit for 1996 does not include harvesting costs and is therefore artificially high). Source: CICOL 1996, 1997a, 1997b.

The increased emphasis on export markets does not appear to have significantly affected existing relationships with local buyers, for example the Church. The *parroquia*, or parish church, of San Antonio has long been a major buyer of timber from the sawmill. Given the important developmental role played by the parish church in Chiquitano society<sup>62</sup>, and the need to maintain healthy relations, the sawmill sells it Grade 1 timber at a price of only US\$0.70/b.f. (approximately US\$297/m<sup>3</sup>). Although this practice fosters good relations, it is not commercially viable. Other local buyers pay a higher price of US\$0.90/b.f. (approximately US\$381/m<sup>3</sup>) for Grade 1 timber, which is the break-even price (V. Saavevedra 1997, pers. comm.).

For the communities themselves, the means by which they obtain timber from the sawmill have changed. The General Assembly has replaced the old system of *asseraje a medias* (see footnote 32) with a commercial arrangement whereby communities pay a flat rate of 1 *boliviano*/b.f. (approximately US\$85/m<sup>3</sup>) for sawn timber. The sawmill is currently bearing the costs of this scheme, but would prefer these to be charged to a special community account in the future (V. Saavevedra 1997, pers. comm.).

## 14 Social and institutional impacts

### 14.1 Overview of social and institutional weaknesses

Apart from its impact on management practices, enterprise administration and marketing, certification has been responsible for fundamental changes in relations between CICOL, its

<sup>62</sup> The parish church of San Antonio funds a number of development projects within Lomerío, covering areas such as housing, health and education. A substantial amount of sawn timber from species such as *tajibo*, *cedro*, and *verdolago* is used in the construction of the modern housing provided by the parish church (Toledo 1996).



supporting organisations, and the communities themselves. This process of change has also highlighted some important limitations in the social component of the certification evaluation.

A number of significant weaknesses in the social and institutional aspects of the project were identified during the certification evaluation. Communities played a largely passive role in the decision-making process, and their agreements to reserve forests for long-term management were uncertain. There was a pronounced lack of communication between APCOB, CICOL and BOLFOR, and little dissemination of information to communities on the benefits of forest management, and forests in general. Overall, the communities lacked a sense of joint 'ownership' of the project, viewing it as a technical concern with mainly outside leadership (Gretzinger *et al.* 1995, Stocks *et al.* 1996).

Given the scale of these deficiencies, it is perhaps surprising that Lomerío was immediately awarded a certificate, albeit one accompanied by significant conditions. Nevertheless, the conditions imposed on the project by Smart Wood appear to be having a positive, if gradual, effect on social relations and inter-agency co-ordination. In these respects, the key condition has been number II.A, which calls for the design and implementation of a strategy for increasing community participation in decision-making and conflict resolution. Under this condition, Smart Wood recommended that an expert in social analysis be contracted to evaluate the conflicts affecting the project and prepare a work plan for addressing the main problems (Rainforest Alliance 1997).

This recommendation was implemented by BOLFOR, who contracted Anthony Stocks, an anthropologist from the University of Idaho, USA, to carry out the study in July 1996<sup>63</sup>. The recommendations subsequently made by Stocks (see Table 8 below) were sent by APCOB to Smart Wood in February 1997, slightly over the 10 month deadline given in the certification agreement<sup>64</sup>.

## 14.2 Findings and recommendations of the conflict evaluation

To a large extent, the weaknesses identified by the certification team were borne out by the subsequent conflict evaluation of July 1996. However, this evaluation also revealed that the social and institutional problems of forest management at Lomerío went much deeper, and were actually more critical, than those identified during certification (Stocks *et al.* 1996).

The true extent of these problems was illustrated by events that took place immediately following certification. In May 1996, the entire board of CICOL was replaced at a General Assembly specially convened for the purpose (Stocks *et al.* 1996). The poor relations between CICOL and its communal

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<sup>63</sup> Stocks was originally to have carried out the study on his own, but was asked by BOLFOR to collaborate with staff from APCOB in an effort to increase interagency co-operation in the assessment (C. Vallejos 1997, pers. comm.).

<sup>64</sup> It is worth highlighting that Smart Wood did not fully address the social problems of Lomerío on the basis of the certification evaluation alone, but recommended that a more detailed evaluation be carried out by an outside expert. With the support of BOLFOR, CICOL were able to realise this evaluation. Other community organisations in a similar position, but with perhaps fewer resources, may be unable to meet such a condition.

base, provoked in part by non-payment for timber harvests and conspicuous spending and travelling by the board members, had reached a point where the *status quo* could no longer be supported and a complete break with the past was needed. In fact, the break made by the General Assembly was so complete that the Vice-President of the old board, who had been canvassing for the presidency of the new board, was forced to step down and make way for a candidate with no prior connections to CICOL or the forestry project (C. Vallejos 1997, pers. comm.).

As there was no transition period between the old and the new leadership, CICOL effectively suffered an organisational collapse (Stocks *et al.* 1996). Without the effective participation of CICOL, it was left to APCOB and BOLFOR to secure external funding for the 1996 harvest and introduce administrative changes aimed at strengthening the enterprise. For their part, the new leaders of CICOL embarked on a process of internal reconstruction<sup>65</sup> (Stocks *et al.* 1996).

It appears that neither the full details of the old board's financial and administrative mismanagement, nor the depth of conflict between certain communities and the old board, were uncovered during Smart Wood's evaluation. Had they been uncovered, it seems unlikely that a certificate would have been awarded only two months before the complete replacement of CICOL's leadership<sup>66</sup>. However, two factors compromising the effectiveness of the social component of certification were its short duration (seven day's field work as opposed to one month for the subsequent social evaluation), and lack of manpower (one expert as opposed to two experts plus one graduate student). As discussed in section 9.2, the methodology adopted by the certification assessment team is also open to question.

The recommendations made following the 1996 social evaluation are outlined under their broad subject headings in Table 8 below. In general, their aim is to consolidate the position of the community, rather than CICOL or an abstract area of forest, as the primary social and political unit of forest management (Stocks *et al.* 1996). A subsidiary aim is to strengthen CICOL's institutional structure and, in particular, to provide support to the new board as it takes control over project activities. The recommendations (which have been adopted in their entirety by CICOL, APCOB and BOLFOR) form the basis for a work plan that is currently being implemented. Progress in each of the areas dealt with in the work plan, and the associated impacts, are discussed in the next section.

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<sup>65</sup> The change in CICOL's board was accompanied by a complete restructuring of the organisation into nine separate Secretariats: Defence of Land and Territory; Sustainable Management and Environment; Gender; Education, Language and Culture; Projects and Planning; Organisational Strengthening; Economics and Administration; Social Communication; and Health (APCOB 1996).

<sup>66</sup> In retrospect, it could be argued that Lomerío's certificate should have been suspended following the change in the leadership of CICOL, pending demonstration of the new board's ability to manage forestry operations. Apparently, the support provided by APCOB and BOLFOR at this point was instrumental in maintaining the certificate.

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**RECOMMENDATIONS**

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- 1 Social communication
    - A. Increase frequency of visits and communications with communities.
    - B. Make better use of promoters in communication.
    - C. Improve supervision of projects and communication with supporting NGOs.
  - 2 Traditional institutions
    - A. Increase participation by political mayors and role of community meetings.
    - B. Take written minutes of meetings.
  - 3 Provide detailed, written agreements and contracts to cover all aspects of management
  - 4 Participatory processes
    - A. Undertake participatory studies and land-use planning within communities.
  - 5 Institutional strengthening
    - A. Investigate possibility of community contributions to CICOL's costs.
    - B. Consider whether CICOL should charge for services.
    - C. Consider whether CICOL should charge for operating costs in all projects.
    - D. Implement measures for operational support.
    - E. Strengthen office administration.
    - F. Establish archives of correspondence and other project-related documentation.
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**Table 8.** Summary of recommendations from the conflict evaluation carried out in July 1996 under condition II.A of the certification agreement. Source: Stocks et al. 1996.

### 14.3 Impacts of the conflict evaluation

- *Social communication*

This is the first, and perhaps the key, component of the work plan. As has already been detailed, communication between the communities and CICOL, and between CICOL and other organisations, has historically been poor. This has often led to misunderstandings and conflicts, none more damaging than those that led to the replacement of CICOL's leadership in May 1996. Poor co-ordination between APCOB and BOLFOR, due in part to institutional rivalries and conflicts over responsibilities, has also contributed to the information deficit and confusion of the communities.

In an effort to improve communication, CICOL (with support from the project promoters) now prepares and follows a schedule of monthly visits to all communities currently involved in forestry operations. Notwithstanding logistical problems related to a lack of transport, these visits are beginning to increase community confidence in CICOL's commitment and application.

With respect to inter-agency communication<sup>67</sup>, a workshop on planning methodologies was held at Lomerío in October 1996 with participation from CICOL, APCOB and BOLFOR (the workshop organiser). One of the products of this workshop was a joint work schedule designed to respond to some of the certification conditions (BOLFOR 1996). In addition, the role and responsibilities of APCOB and BOLFOR have been clearly redefined, with the former now responsible for all forest management activities, and the latter responsible for research, production and marketing activities (Rainforest Alliance & CIMAR 1997).

- *Traditional institutions*

The work plan has refocused attention on the role of traditional community institutions in planning, implementing, and funding management and extraction activities. In the past, project ownership has been weakened by the communities' lack of control over these activities within their forests. It is now recognised, for example, that payments to forest workers must be made through community institutions rather than directly to the individuals concerned (C. Vallejos 1997, pers. comm.). However, beyond this recognition, little has been done in respect of this recommendation (Rainforest Alliance & CIMAR 1997).

- *Agreements and contracts*

In previous dealings between the communities and CICOL, or the sawmill, verbal agreements have often supplanted formal written contracts setting out the roles and responsibilities of each party (Stocks *et al.* 1996). In order to avoid the misunderstandings and conflicts caused by this practice, greater emphasis has been placed on the drafting of agreements based on a standard formula. It is hoped that this measure, which is only gradually being implemented under condition V.B<sup>68</sup>, will promote greater consistency in relations between project stakeholders.

- *Participatory processes*

Given the range of economic activities within a community, it is clear that communities require support for a process of land-use planning in which the forest reserves they have agreed to set aside are integrated with agriculture, cattle herding and other land uses. In 1996, in support of this recommendation, APCOB began a five-year programme of participatory mapping of land-use categories within community boundaries, allied with the development of integrated community land management plans (B. Rozo 1997, pers. comm.).

- *Institutional strengthening*

A number of measures have been suggested for strengthening CICOL's internal procedures and allowing the organisation to take a more proactive role in the monitoring and direction of projects.

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<sup>67</sup> Condition IV also applies here. To recap, this condition calls for the preparation of guidelines for inter-agency co-ordination, covering areas of responsibility and scheduling of activities (see Table 3).

<sup>68</sup> At the time of the annual audit in June 1997, only one agreement between CICOL and a community had been drawn up, but as it was still in draft form it had not been signed (Rainforest Alliance & CIMAR 1997).

One of the main constraints is a lack of funding: despite the notion (widely-held amongst communities) that CICOL derives sufficient resources from external organisations, most funds entering Lomerío are earmarked for projects, rather than CICOL's activities or operating expenses (Stocks *et al.* 1996).

An obvious source of income for CICOL is the sawmill although, given previous financial mismanagement involving the old board of CICOL, any agreement to divert part of the sawmill's profits to CICOL would require sensitive negotiation. By the time of the annual audit in June 1997, no fund-raising options had yet been explored (Rainforest Alliance & CIMAR 1997).

## 15 Impacts on the distribution of costs and benefits

The preceding discussion demonstrates that significant changes have occurred at Lomerío following certification. Almost all of these changes have involved costs, and some have brought compensating benefits. In the following sections, an attempt is made to assess the nature and distribution of these costs and benefits, and their impacts on project stakeholders. However, a full economic analysis of certification is beyond the scope of this study. Information on the costs of certification at Lomerío has been drawn largely from previous economic studies, two of which compare benefit-cost ratios under different certified and non-certified production scenarios (see Hanrahan *et al.* 1997, Morales 1997).

### 15.1 Direct and indirect costs of certification

Three direct cost elements can be identified in the certification of Lomerío: 1. Pre-certification evaluation/scoping analysis, 2. Inspection, and 3. Annual audit(s). Included in these are the communications and other sundry expenses related to the logistics of certification. Estimates for each of these elements are given in Table 9 below.

COST ELEMENT	MANPOWER REQUIREMENTS	COST (US\$)
1. Pre-certification evaluation/scoping analysis	One international consultant	7,200
2. Inspection	Two international consultants Two national consultants One local support staff	31,750
3. Annual audit(s)	One international consultant One national consultant	8,575 (each audit)
<b>Overall Costs (to end of Year 1)</b>		<b>47,525</b>
<b>Cost/ha (to end of Year 1)</b>		<b>1.58</b>

**Table 9.** Lomerío: Estimated direct costs of certification, based on a certified area of 30,000 ha and incorporating the first annual audit at the end of Year 1. Source: Hanrahan *et al.* 1997, Morales 1997.

If the actual certified area of 53,000 ha is taken into account, the cost per hectare of certification drops from US\$1.58/ha to US\$0.90/ha. In terms of impacts on project stakeholders, however, the issue of direct costs is academic: the costs of inspection and auditing have been paid in full by external donors. And, as neither CICOL nor any of the communities have been asked to contribute to these costs, it is difficult to gauge the extent of their willingness to pay for certification.

The high level of external support to Lomerío is only one of three factors that subvert a meaningful analysis of the indirect costs of certification (i.e. the incremental costs of raising management standards to meet the certification standard). The other two are:

1. The long history of the project (which means there are substantial sunk costs in forestry operations and the sawmill enterprise); and
2. The costs of complying with new forest legislation.

In addition, there is the wider question of whether any incremental management costs can be ascribed to certification, particularly in countries (such as Bolivia) that are already committed to international goals for sustainable forest management (Baharuddin & Simula 1996)<sup>69</sup>. Taken together, these factors reduce the practicability and potential value of estimating the indirect costs of certification at Lomerío.

## 15.2 Community timber benefits

As discussed in section 8, two of the main expectations of certification amongst both communities and CICOL were higher prices for timber, and a wider range of marketable species. Indeed, certification has significantly increased the market value of many of the timber species of the Chiquitano forest, including previously non-commercial species such as *curupaú*. However, the system of production in place at Lomerío means that price differentials from marketing certified timber accrue directly to the sawmill. Higher prices can only be passed on to communities through an increase in the stumpage fees paid by the sawmill. The decision to increase (or decrease) stumpage fees cannot be taken unilaterally by any community, the sawmill, or even CICOL: it is the responsibility of the General Assembly.

Due to the current poor financial status of the sawmill enterprise, the extra revenues generated by certification are being absorbed almost entirely by the increased costs of labour, machinery and administration. However, stumpage fees have been revised to reflect the commercialisation of a wider range of species. In April 1997, the General Assembly approved a flat rate of 32 *bolivianos* (approximately US\$6.40) per log for all species in the management plan. Compared to previous rates (see Table 1), this represents a decrease of eight *bolivianos* (approximately US\$1.60) for high

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<sup>69</sup> Bolivia is party to several international and regional agreements that concern sustainable forest management, including the International Tropical Timber Agreement (ITTA) and the Amazon Co-operation Treaty. These latter two agreements have produced principles, criteria and indicators of sustainable forest management that are to be adopted and implemented by member countries (see Amazon Co-operation Treaty 1995, ITTO 1990, 1992) .

value species such as *roble* and *cedro*. However, because fees are now paid per log, rather than per tree, communities can earn up to 64 *bolivianos* (approximately US\$12.80) from large tree specimens that produce two logs.

The situation regarding the level and modalities of timber payments to communities is currently in flux. Although communities appear to be satisfied with the new stumpage fees (particularly now that they are paid per log), there is some concern among project staff that they are still not high enough to guarantee long-term commitment to forest management. The possibility of further revising fees will be considered at future General Assemblies, but project technicians are already calling for payments to communities to be tied to timber volumes. For those communities with significant forest resources, this option may substantially increase income. There is always the question, however, of how to measure timber volumes in the field. Previous moves towards selling by board feet were halted because it was considered too difficult to calculate volumes accurately (J. Parapaino 1997, pers. comm.).

### 15.3 *Community non-timber benefits*

Although it has had no direct impact on the volume or distribution of non-timber forest benefits, certification has had an important effect on community awareness and appreciation of non-timber forest values. Condition V of the certification agreement calls for measures to increase forest security at Lomerío. In part, this condition responds to the uncertain commitment of communities to long-term forest management noted during the certification assessment. Because the focus of management at Lomerío has been almost exclusively on timber, little work has been done to assess the contribution that non-timber products make to the local economy. This not only means that the value of forest conservation cannot be compared to alternative land uses, but also that an important opportunity to develop systems of forest management that recognise and incorporate local resource use has been ignored.

In an attempt to respond to condition V, and to support communities in the long-term planning of forest management, a study of non-timber forest benefits was carried out by BOLFOR during the latter half of 1996. The study took place in two communities situated in the northern zone of Lomerío and, together with the community workshop that followed it, made a preliminary attempt to assign monetary values to the volume of non-timber forest products extracted by the communities (Vallejos *et al.* 1996a, 1996b). Ecosystem services were not included in the study.

Over a period of three months, BOLFOR's study estimated that the gross value of forest products gathered by each community was equivalent to 12,670 *bolivianos* (approximately US\$2,534). However, once the costs of gathering were taken into account, the net value was only 1,355 *bolivianos* (approximately US\$271)<sup>70</sup>. The three most important products by value were firewood, bushmeat, and honey (Vallejos *et al.* 1996a). In every case, communities noted that the abundance of non-timber resources had been steadily declining in recent years.

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<sup>70</sup> See Vallejos *et al.* (1996a) for a description of the methodology used in this study,.

In providing the impetus for this study, certification has had an indirect, yet positive, effect on community attitudes towards forest conservation. Community members interviewed by the author in Puesto Nuevo and Las Trancas, the two communities involved in the study, stressed that BOLFOR's work had given them a better understanding of the full value of their forest resources. In particular, for key resources such as water and firewood, the communities were now aware of the volumes they used, and their cost equivalent if purchased in local markets. This new awareness should go some way towards strengthening the long-term communal commitment to forest management and protection.

## **16 The wider context: Impacts on national forest policy and legislation**

### *16.1 Legal impacts at the project level*

For the Chiquitano of Lomerío, sustainable forest management has always been seen primarily as a means of consolidating and defending their demands for territory and natural resources. As already noted, the Chiquitano have successfully used community-based forest management to force out, and keep out, private logging companies. For this reason, one of the main expectations of certification was that it would facilitate CICOL's petition for a forest concession, by demonstrating to the Bolivian state the superior standard of forest management at Lomerío compared to competing private enterprises.

Of course, under a strict interpretation of the FSC P&C, forestry operations without secure, long-term exploitation rights cannot be certified. FSC Principles 1 and 2 include criteria that specify, respectively, compliance with all applicable legislation, and the existence of legally established long-term tenure and use rights to land and forests (FSC 1996). In the case of Lomerío, however, it may have been counter-productive to apply these criteria too rigidly, particularly if there was a chance that certification could promote CICOL's claims (and thereby set an important precedent for other indigenous organisations to follow).

Under the certification agreement, therefore, condition V addresses the necessity of forest security and legal recognition for forest management. Several of the activities carried out under this condition have already been discussed in section 14. Condition V.F of the agreement, which calls for legal action to obtain long-term exploitation rights, is crucial to both forest security and maintenance of Smart Wood's certificate.



CICOL and APCOB (with support from CIDOB) have been engaged in judicial procedures related to forest exploitation rights for many years. These actions have formed part of a wider campaign for the designation of Lomerío as a *Tierra Comunitaria de Origen* (TCO), or Indigenous Territory. Under Bolivian law, the exclusive rights to all renewable natural resources within TCOs are granted to their indigenous inhabitants<sup>71</sup>. Bolivia's forestry law of 1996 also guarantees exclusive forest harvesting rights to indigenous peoples on duly-recognised community lands (i.e. TCOs).

The demands of CICOL and APCOB for an indigenous Chiquitano territory were strengthened by the establishment of the Law of the National Land Reform Institute (INRA) in October 1996. The INRA Law mandates the Bolivian government to delineate and title indigenous communal lands (Kaimowitz *et al.* 1997). Between October 1996 and June 1997 (the time of the first annual audit), CICOL and APCOB concentrated on meeting the conditions of the INRA Law in order to obtain TCO status and, ultimately, long-term forest exploitation rights. Some of these conditions, for example the mapping and demarcation of community boundaries, were already called for under condition V of the certification agreement<sup>72</sup>. Despite the on-going work in this area, however, immediate government recognition for Lomerío's TCO demand appeared unlikely.

It came as some surprise, therefore, when the National Land Reform Institute acceded to Lomerío's TCO demand in July 1997. In what is the first stage of the TCO formalisation process, INRA 'immobilised' an area of 290,787 ha, the total claimed by CICOL and APCOB. Now that Lomerío has been immobilised, all land claims are frozen pending an assessment of Chiquitano territorial requirements. This, in turn, will be followed by an assessment of the distribution and validity of existing land rights (a process known in Spanish as *saneamiento*). The length of this process is uncertain but, if and when all stages have been completed successfully, a Presidential decree will be issued sanctioning Lomerío's TCO status.

It is difficult to assess the role that certification has played in these developments. Although there is no direct link between certification and Lomerío's TCO demand, there is a perception amongst the board of CICOL that, through certification, their work has been publicised and widespread respect achieved for their objectives (F. Ribera 1997, pers. comm.). Both of these effects are seen as having facilitated Lomerío's TCO demand.

## 16.2 *New regulatory instruments and the future role of certification*

The regulations that accompany Bolivia's new forestry law call for compulsory minimum standards of management planning to be defined and implemented at an operational level. These standards (in Spanish, *normas técnicas*) apply to instruments of forest management such as inventories and management plans, and differ according to the size and type of forest operation in question.

<sup>71</sup> Oil and mineral rights are, however, retained by the state. In addition, any harvesting of natural resources within TCOs by non-indigenous people is banned, as is the granting of harvesting rights by the indigenous peoples themselves (CIDDEBENI 1997).

<sup>72</sup> BOLFOR has provided support for boundary mapping, the results of which were expected by the end of 1997 (Rainforest Alliance & CIMAR 1997).

The standards for indigenous forestry enterprises in TCOs were developed by BOLFOR at the beginning of 1997 (see BOLFOR 1997) and formally adopted by ministerial resolution on 9 June 1997. Although less demanding than those for large private enterprises, the TCO standards nevertheless specify a level of technical performance that compares favourably with that of FSC-based certification standards. Furthermore, the standards for TCOs are founded on principles of social equity and, as such, contain provisions for community participation in decision-making, monitoring of impacts, and mechanisms for the transparent and equitable distribution of the benefits of forest management (BOLFOR 1997).

Compliance with these standards is monitored by the national forestry authority, SF, and all forest operations are required to undergo an evaluation of their performance every five years by independent auditors accredited to SF. In this type of regulatory environment, the role for certification to improve forest management is uncertain. One of the main principles of certification is that forestry operations must abide by national legislation. Where this legislation specifies strict standards of planning and execution, as it now does in Bolivia, the incremental impact of certification on forest management quality may be minimal.

Of course, there are areas in which FSC-based forest certification is likely to remain more stringent, for example community and employee relations (although the certification of Lomerío has not demonstrated such stringency). And, although new legislation will improve forest management, it provides no guarantee of new markets or better prices. This is an area in which the high market profile of the FSC label offers a significant advantage.

A further argument in favour of a role for certification is that the regulations to Bolivia's new forestry law allow for the substitution of quinquennial management audits with credible, internationally recognised certification schemes (L. Quevedo 1997, pers. comm.). Thus, concessionaires may be able to forego the quinquennial management audit if they have already received certification under an FSC-accredited or similar scheme<sup>73</sup>.

The role played by Lomerío in these developments has been only a minor one. The debate concerning the role of certification under the new forest legislation began well before the certification of Lomerío, and was informed more by the political agendas of key national players such as CIDOB and BOLFOR than by the development of one project. However, the experience of Lomerío is having an impact in other directions, most notably the development of certified, indigenous forest management as promoted by CIDOB and PSV. The lessons learnt at Lomerío will be relevant to a wide range of indigenous groups in the Bolivia lowlands currently experimenting with, or considering, commercial forest management. Fortunately, this nascent 'extension' effect has been considerably enhanced by the commercial success of certification at Lomerío.

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<sup>73</sup> In this context, it is interesting to note that certification will be complementing the traditional regulatory role of government and not (as some have predicted) competing with it.

### 17 Overview

There can be little doubt that, without certification, the communal forest enterprise of the Lomerío Chiquitano would now be in an extremely weak state, or possibly even moribund. Certification has been instrumental not only in focusing attention on internal conflicts in forest management and weaknesses in enterprise management and administration, but also in promoting the development of mechanisms to resolve these deficiencies.

The verification of good forest management through certification has also opened up important commercial opportunities for the project to increase the efficiency and profitability of timber processing. Although external support for the sawmill enterprise will continue to be necessary in the short to medium-term, the impact of certification should go far towards preventing a fate similar to that of the Ayoréode sawmill enterprise at Zapocó (see section 2), which collapsed in the late 1980s due to organisational weaknesses and internal conflicts.

In the wider context, the successful certification of Lomerío will have positive repercussions for forest management by indigenous peoples in Bolivia as a whole. The experiences of CICOL have justified, to a large extent, the aims and approach of CIDOB's PSV project. The lessons learned during the course of certification at Lomerío can now be applied to other indigenous forestry projects in lowland Bolivia with similar management objectives. Furthermore, certification has given CICOL (and by association other indigenous groups) a certain 'moral' superiority (Kopp & Domingo 1997). Significantly, it was an indigenous organisation, not a private company, that became the first certified enterprise in Bolivia. The certification of Lomerío, therefore, has sent a clear signal to the Bolivian state and private sector that indigenous communities cannot be ignored if national goals for quality forest management are to be realised.

Care must be taken in drawing too many conclusions from the case of Lomerío, however. A number of the project's salient features, for example the high level of external support, a foreign sawmill administrator, and the revenue system based on stumpage fees, mean that it is not a typical example of other community/indigenous forest management projects in lowland Bolivia.

A further caveat applies to the findings of this report. Lomerío currently is passing through a period of considerable change. At the moment, commercial expectations of certification are balanced almost equally by expectations of improved relations with the government and the facilitation of territorial claims. Assuming that these claims are eventually recognised under the current INRA/TCO process, the priorities of the Chiquitano may change in the future. Secure territorial rights may promote the expansion of certified forest management but, equally, they may remove an important motive for sustainable forest management (Laban *et al.* 1996). It is crucial, therefore, that further research is undertaken to provide a more definitive picture of the incentives and disincentives supplied by certified forest management.

## 18 The social and institutional roles of certification

Perhaps the greatest direct impact of certification at Lomerío has been on social and institutional relations. Certification, or more specifically the conflict evaluation carried out under condition II.A, has been responsible for fundamental changes in project management and relations between different project stakeholders. Analysis of conflict resolution within the communities of Lomerío suggests that, without certification, the social problems engendered by forest management would have received far less attention (C. Vallejos 1997, pers. comm.).

However, the merits of certification as an external conflict resolution mechanism must be weighed against those of traditional, internal mechanisms. As already noted, the Chiquitano have long been dependent on external support, whether from the state, the Catholic Church, or local and foreign development agencies<sup>74</sup>. Taken too far, such dependency could undermine the Chiquitano's pursuit of self-determination and cultural autonomy. It is important, therefore, that the solutions to any social conflicts are sought from existing institutions and mechanisms. A solution provided by an external agent, even one that is impartial and objective, may not empower the Chiquitano, but merely encourage passivity and further dependency.

In this context, it is important that certification programmes offer an appropriate balance of incentives. Ideally, certification should stimulate local institutions into tackling conflicts themselves by helping to establish objectives and presenting options and trade-offs. These effects would be enhanced if local institutions were required to invest their own labour or capital in the process of conflict analysis and resolution. In contrast, and especially if it was externally subsidised, certification might be accepted by local communities as a simple 'donation' requiring no effort or response on their part. In such cases, passive acceptance of the certification process might not necessarily translate into a long-term commitment to change and improvement.

The situation at Lomerío falls somewhere between these two points. The social problems identified during certification were tackled not by community institutions with their own resources, but by a foreign anthropologist funded by BOLFOR. The recommendations made by this expert are generic, and have been adopted in their entirety without any apparent debate or modification by CICOL or the communities. However, these same recommendations also recognise the pivotal role of traditional Chiquitano institutions, and appear to be having a positive, if gradual, effect.

An important corollary to the question of internal versus external driving forces is the effect of certification on social rates of change. Sustainable forest management is a complex process that does not respond to rapid and/or external solutions. Experience has shown that local forest management initiatives must be allowed to develop at an appropriate pace (ODA 1996). However, the nature of the certification process is such that forest managers are expected to adopt, plan and begin implementing any recommendations within the space of one year (i.e. before the first annual audit).

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<sup>74</sup> This situation is not just limited to the Chiquitano - indigenous peoples throughout the Amazon basin are similarly dependent (Chase-Smith 1995).

For community-based projects such as Lomerío, where change is a gradual process based on participation and consensus, the time scale of certification has already proved problematic. Admittedly, Smart Wood has responded in many cases by extending the period of compliance, but this approach has obvious limitations. If changes are to be made without overloading local capacity or compromising certification procedures, they must be introduced at a pace that is consistent with learning approaches and can be matched by project stakeholders and their institutions. The responsibility for tailoring the demands of certification to local conditions should rest with certifiers themselves.

## 19 Long term commercial viability under certification

Although certification has increased the profitability of timber marketing, the long-term ability of the sawmill to meet the demand for certified timber is uncertain. Restructuring of the enterprise has not been completed, and it is still too early to judge the true effectiveness of the administrative changes following certification. Under present conditions, the sawmill is still having difficulty in meeting targets for production and quality<sup>75</sup>. This, in turn, is starting to affect the market credibility of the enterprise. Export orders are routinely delivered late; usually five to six months, but sometimes 18 months or more (R. Simeone 1997, pers. comm.). Because deliveries cannot be guaranteed, the customer base has been restricted to those who are prepared to wait, or to accept their order in batches.

Such problems may be overcome once the enterprise begins to mature, but there are already doubts within Bolivia that the sawmill will be able to survive commercially, at least in its present form. Apart from anything else, the cultural obstacles faced in developing a market-oriented business ethic amongst the Chiquitano are formidable. Religious festivals, communal work obligations and agricultural cycles have always affected the regular supply of labour (Olivera 1995). As discussed in section 13.1, labour instability has had a negative impact on the system of local counterparts within the enterprise. Taken together, these factors detract from the ability of the sawmill to assemble and retain a skilled and experienced management team<sup>76</sup>.

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<sup>75</sup> Despite a strong recommendation from Simeone (1995), the sawmill has still not constructed an enclosed and roofed storage area for processed timber. Sawnwood continues to be stored in the open, where certain species, for example *curupaú*, are particularly affected by exposure to sun.

<sup>76</sup> Attempts are being made to adapt working conditions within the enterprise to local conditions. For example, sawmill workers are now allowed one in every four weeks off to meet personal and communal obligations (V. Saavedra 1997, pers. comm.).

Such constraints were less important when the sawmill was restricted to local timber markets. Under certification, however, they may limit the enterprise's ability to expand in international markets. Assuming that price premiums remain rewarding<sup>77</sup>, the natural response of any enterprise would be to increase the amount of timber supplied (Kiker & Putz 1997). Without the necessary business acumen, however, an increase in volumes could merely lead to increased wastage and inefficiency. In the case of Lomerío, it may also place pressure on the fragile communal commitment to forest management, which depends so heavily on efficient and equitable management of the sawmill enterprise.

It is clear that certification is placing a great deal of pressure on the sawmill enterprise to adapt to new business imperatives. It is uncertain whether the existing structure of the enterprise will be able to accommodate these demands without contradictions arising between the industrial, social and political aspects of the project. In effect, the sawmill enterprise, and the project as a whole, have reached a new stage in their development. Certification has changed the environment in which market-oriented community forestry operates by adding a new subset of international stakeholders. If the project is to meet the expectations of these stakeholders, as well as those of its traditional constituency, it will have to engage in a process of evaluation and design of new ways to organise production.

In the short term, the sawmill enterprise must plan for the departure of BOLFOR in 1999. This process has already begun. Apart from capacity-building work within the enterprise itself, a dialogue has started with organisations in Santa Cruz which could be contracted to provide technical and marketing services to the project in the future (R. Simeone 1997, pers. comm.). The Bolivian Council for Voluntary Forest Certification (CFV)<sup>78</sup> will pass product information to the enterprise once BOLFOR has finished (A. Guillén 1997, pers. comm.), although CFV itself does not yet have the capacity to provide training or assistance in the technical aspects of product and market development.

In the medium to long term, more radical changes in the structure and functioning of the enterprise may be required if full advantage is to be taken of certification. Two possible options that could be considered are:

- *Privatisation* of the enterprise (to take advantage of the perceived efficiency and performance benefits offered by the private sector);
- *Partnerships* with other certified communal enterprises (either on the basis of individual agreements, or as a legally-constituted marketing co-operative, association or similar entity).

As there is no precedent for the privatisation of a communal sawmill enterprise in Bolivia, the possible effects of the first strategy are uncertain. It is likely, however, that the adoption of such an

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<sup>77</sup> The stability of high price premiums over time is open to question. Lomerío may be benefiting from its position as the only certified source in Bolivia. As more sources are certified (particularly in Bolivia) and the volume of certified tropical hardwoods entering international markets increases, prices may be driven downwards. The extent to which current price premiums are due to improved marketing strategies (for example product grouping), rather than certification *per se*, is also open to question.

<sup>78</sup> See footnote 39.

extreme profit-maximisation strategy would detract from the social and political functions served by the sawmill. At the moment, profit maximisation is not the primary motivation for the Chiquitano of Lomerío; rather, it is territorial defence and consolidation (Stocks *et al.* 1996, Bebbington *et al.* 1997). In this respect, the sawmill serves as a tangible reminder to the Bolivian authorities that the Lomerío project is a serious, commercial concern organised and run by Chiquitanos. Furthermore, it generates solidarity amongst the Chiquitano by providing a focal point for their efforts to gain control over their territory and natural resources.

The privatisation of the sawmill may undermine these functions by reducing community participation and control in the management of the enterprise. Indeed, the increased business and technical specialisation implied by privatisation may serve to isolate the enterprise from its communal base entirely<sup>79</sup>.

Given the social and political roles played by the enterprise, the more appropriate course of action may be to link up with other certified communal enterprises in the region, and take advantage of the economies of scale offered by such aggregation<sup>80</sup>. A number of commercially-oriented forestry projects involving indigenous communities or *campesino* colonists are being developed in the Department of Santa Cruz. At least two of these (WWF-supported projects in Monte Verde<sup>81</sup> and the Choré Forest Reserve) have certification as one of their goals (L. Quevedo 1997, pers. comm.). Provided that information needs are adequately addressed, there may be scope for these, or similar, projects to combine their product development and marketing activities with those of Lomerío<sup>82</sup>.

One form of partnership attempted elsewhere in Latin America and the Caribbean has been the creation of a commercial intermediary for indigenous peoples or other groups involved in timber production. In Dominica and Honduras, for example, marketing organisations have been established to buy and sell timber from local producer groups, as well as provide drying, processing and storage facilities<sup>83</sup> (Bass 1997a, Richards 1993). Although neither of these initiatives has been a complete success, they have both shared the same aims: to buffer market vagaries and provide economies of scale under a management model that emphasises participation and control by the producers themselves.

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<sup>79</sup> It could be argued, of course, that certification will have a similar effect. If the enterprise is to compete effectively in certified markets, a high degree of professionalism will be required. It remains to be seen whether this business expertise will be sought amongst the Chiquitano or, as in the case of the sawmill administrator, drawn from outside.

<sup>80</sup> One of the main constraints faced by small-scale forest enterprises in Bolivia is transporting timber overland to Arica in Chile. By linking with other producers, a community group could more easily support the transaction costs of delivering timber to, and shipping it from, Arica.

<sup>81</sup> Monte Verde is situated to the north of Lomerío, close to the municipality of Concepción. The population of Monte Verde is Chiquitano, and dominated by landless immigrant families from the Concepción area. Both CICOL and the *Central Intercomunal de las Comunidades de Concepción* (CICC), the co-ordinating organisation for the Chiquitano of Concepción, hold claims to the territory of Monte Verde.

<sup>82</sup> The linkages between community forest enterprises need not be restricted to marketing alone. The Forest Stewardship Council is developing procedures for group certification which will allow separate small-scale enterprises to unify forest management and production under a single 'umbrella' certificate. Despite the attractiveness of this solution for community groups, there are likely to be significant difficulties in developing a single management regime for geographically isolated forest communities with widely differing social, cultural and ecological characteristics (as is the case in lowland Bolivia).

<sup>83</sup> In Dominica, the non-profit organisation Cottage Forestry Industries Ltd. was created in 1989 to process and market timber from itinerant, small-scale sawyers (Bass 1997a). In Honduras, the marketing co-

The establishment of a commercial intermediary to deal with certified groups in eastern Bolivia may be feasible, but will depend on a number of institutional and political factors. One of the central issues will be regulation of the relationship between the commercial intermediary and its constituent producer groups, particularly if the intermediary has links to the mainstream timber trade. Previous experience of commercial relations between the timber trade and community groups in Bolivia has highlighted the need for an 'honest broker' to ensure that business transactions are open, transparent, and aimed at benefiting producers rather than buyers or traders (C. Vallejos 1997, pers. comm.).

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operative COATLAHL (Colón-Atlántida Honduras Regional Co-operative Limited) was created in 1978 to market timber from pitsawyer groups on the country's northern coast (Richards 1993).



### 20 Key issues for further research

The findings of this study point to some wider issues that appear to condition the viability of community forest certification, and which will merit particular attention in future impact assessments. These can be divided into the four principal themes below:

**Theme 1:** The *demands* of certification on local resources (time, labour, etc.)

The conditions imposed on Lomerío under the terms of the certification agreement entail significant costs and information requirements. Projects such as Lomerío, which can readily count on external support, may be able to comply more easily with such conditions than those with perhaps little or no external support. A related issue is that of timing, and in particular the pace of change demanded by certification. If this is too rapid, the pressure placed on local stakeholders may limit the scope for negotiation and consensus-building, thus generating internal conflicts and possibly threatening the stability of local institutions. Where substantial change would be required on an abbreviated time-scale to meet the demands of certification, the decision to certify should be considered carefully. In such circumstances, it may be better (and fairer) not to certify at all.

**Theme 2:** The *implications* of certification for community enterprise development

The Lomerío sawmill, which has faced technical and administrative difficulties for much of its lifetime, has been placed under even greater pressure by the demands of international export markets. In part, this pressure reflects Lomerío's position as the first certified producer in Bolivia. More importantly, however, it reflects the lack of a coherent strategy for dealing with the business and marketing implications of a certified production regime.

The lack of consideration for the implications of certification has also extended to the distribution of benefits. Although every community at Lomerío received strong signals that certification would bring higher prices, they did not receive a compensatory warning that the financial demands of the sawmill would initially absorb most of the revenue from certification. Although stumpage fees have been raised for some species (and are now paid per log), the increases do not equal every community's expectations.

The case of Lomerío illustrates the importance of frank, accurate assessments of the likely costs and benefits of certification. For example, it will not be enough simply to forecast price increases: an attempt should also be made to estimate the magnitude of these increases and their associated impact on local incomes. The business and marketing implications of certification should also be discussed and evaluated with stakeholders and, if necessary, a strategy prepared to deal with them. Most importantly, stakeholders should be involved in an open assessment of how certification will benefit them, what trade-offs they will have to make, and on what time-scale. Failure to do so may

artificially inflate expectations and reduce the willingness of stakeholders to accept any subsequent difficulties or setbacks.

**Theme 3:** The *relevance* of certification to local land management strategies

There appears to be a contradiction at Lomerío between the conditions of chain of custody certification and those of forest management certification. The former emphasise sustainable 'forest' management by prohibiting the use of timber from sources outside the area of the management plan such as the cultivation plots of the Chiquitano. On the other hand, the latter (in part) promote sustainable 'landscape' management by emphasising integrated land-use planning at a community level. On the basis of this wider view, it could be argued that timber from anywhere within a sustainably managed landscape should be considered eligible for certification.

This argument raises a number of issues concerning the sustainability of traditional land management strategies. Although these have been beyond the scope of this initial study, there is mounting evidence that subsistence agriculture such as that practised by the Chiquitano is a sophisticated and productive use of the forest ecosystem, which has had a constructive, rather than destructive, effect on forest growth and regeneration (Schreckenberg & Brown 1997). Admittedly, the traditional techniques of the Chiquitano have been changing in recent years, but it is possible that this process could be modified and adapted to maintain the beneficial role of traditional agriculture in forest management.

By moving the conceptual focus of community forest certification from the 'forest' to the 'landscape', it is more likely to mirror local perceptions of space and territory. The integrated approach towards land management implied by such a move would also increase the relevance of certification to communities seeking to balance competing demands for scarce land resources.

**Theme 4:** The *social and developmental roles* played by certification

Forest certification presents a number of logical dilemmas. The first and foremost of these is how abstract concepts such as social justice and equity can be captured within a small set of criteria and 'verified' in the field. In truth, they cannot, which is why social judgements are as much subject to the values and ideology of the certifier as they are to the terms of the certification standard.

The inclusion of social criteria in forest certification, and resulting subjectivity, raise a second dilemma: whether certification should be restricted to formal verification of management standards (thus acting as a tool of forest policy), or whether it may also be used to promote improvements in people's livelihoods and relations (thus acting as a tool of social, or development, policy). In the case of Lomerío, certification has tended strongly towards the latter function. Although the effects appear to have been positive, the experience at Lomerío has thrown light on the wider implications of a developmental role for certification.

Of course, certification will have little impact in situations where there are serious social injustices or conflicts. Circumstances such as these will automatically disqualify an enterprise or forest management unit from certification. Although certifiers may impose certain preconditions for achieving certification, these will have little leverage unless external incentives (e.g. market access) are strong.

Where certification is possible, but only under certain conditions, certifiers face the difficult task of adapting their demands to underlying rates and processes of change. As noted above, any attempt to achieve too much within the limited term of a certification agreement may overload local capacity and destabilise local institutions. The second challenge facing certifiers is to supply the appropriate balance of incentives for securing lasting improvements. Ideally, certifiers should draw on existing mechanisms for participation, communication and conflict resolution, rather than attempt to build or mould new mechanisms according to external (and possibly biased) concepts of 'best-practice'.

One of the main implications of a gradual, process-oriented approach to social development is that progress cannot be measured by discrete outputs. Thus, certification agreements should incorporate intermediate, qualitative indicators of progress, particularly those that reflect local values and priorities. This approach may conflict with the formal, standards-based nature of certification but, equally, it may signal an important shift in the roles of certifiers and local communities. Logically, the inclusion of locally-appropriate process indicators would mean a more proactive role for communities in monitoring implementation of the certification agreement. This, in turn, would increase the importance of the advisory services provided by certifiers, at the expense of their traditional supervisory and enforcement functions<sup>84</sup>.

## **21 The analytical framework**

The methodology adopted for the current study is outlined in Appendix 2. As certification has modified an existing activity at Lomerío, the focus of the analysis is on the incremental impacts of certification. In order to define incremental impacts, the current status of the project has been assessed against a baseline composed of the following elements: 1. Forest management practices, 2. Enterprise finances, administration and marketing, 3. Institutional and social development, and 4. National forest policy and legislation.

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<sup>84</sup> In some respects, this scenario is analogous with the approach towards certification adopted by the International Organisation for Standardisation (ISO) through its ISO 14000 environmental management system (EMS) standard. Although not strictly a forest certification programme, the ISO approach focuses on building the capacity of enterprises to deliver continual improvements in environmental performance. Several commentators have already pointed out that the ISO focus on management capacity could help to encourage capacity-building in small-scale and community forest enterprises (see for example Bass 1997b).

STAGE	KEY VARIABLES	SUGGESTED BASELINE QUESTIONS
1. Planning and preparation	A) Awareness and sources of information	<ul style="list-style-type: none"> <li>• Whose idea was it to consider certification?</li> <li>• Was information on certification exchanged between different stakeholders?</li> </ul>
	B) Understanding of cost/benefit implications	<ul style="list-style-type: none"> <li>• Were stakeholders given quantitative and qualitative information on the potential costs and benefits of certification?</li> <li>• Were the market/business implications of certification given formal consideration?</li> </ul>
	C) Magnitude and timing of expectations	<ul style="list-style-type: none"> <li>• What did stakeholders actually want from certification, and when?</li> </ul>
	D) Role played in planning process	<ul style="list-style-type: none"> <li>• Who was consulted; who took the decisions?</li> <li>• Were stakeholders asked to mobilise their own resources or contribute materially to the planning process?</li> <li>• Did any of the stakeholders contribute to the development of the certification standard?</li> </ul>
2. Field assessment	A) Role played during assessment	<ul style="list-style-type: none"> <li>• Who was consulted; who actively participated?</li> </ul>
	B) Level of consultation	<ul style="list-style-type: none"> <li>• How and when did the assessment team actively seek out local opinions and concerns?</li> <li>• Did the assessment disrupt local activities in any way?</li> </ul>
	C) Knowledge gains	<ul style="list-style-type: none"> <li>• What did stakeholders learn from the assessment?</li> </ul>
	D) Changes in attitudes	<ul style="list-style-type: none"> <li>• Have local attitudes to sustainable forest management or certification changed in any way as a result of the assessment?</li> </ul>
3. Results and recommendations	A) Response to recommendations	<ul style="list-style-type: none"> <li>• Were the results of the assessment disseminated to all stakeholders?</li> <li>• Were stakeholder concerns acted upon by the certifiers?</li> <li>• Were stakeholders given a chance to correct any errors in reporting or interpretation?</li> <li>• Do any of the recommendations duplicate existing demands from government or donors?</li> </ul>
	B) Relation of recommendations to: 1) local capacities and 2) local rates of change	<ul style="list-style-type: none"> <li>• Do the recommendations help to clarify local objectives for forest management and other land uses?</li> <li>• Do the recommendations provide stakeholders with options for meeting their objectives?</li> <li>• Do the recommendations provide stakeholders with guidance on implementing any changes?</li> <li>• Are the recommendations on a realistic time-scale, given personal or communal commitments?</li> </ul>
4. Planning and implementation of recommendations	A) Division of responsibilities	<ul style="list-style-type: none"> <li>• Who has been given an active role in planning or implementing the recommendations?</li> <li>• How have stakeholders been involved in monitoring progress under the certification agreement?</li> </ul>
	B) Division of costs and benefits	<ul style="list-style-type: none"> <li>• Have stakeholders been asked to mobilise their own resources or contribute materially to the process of implementation?</li> <li>• What percentage of stakeholders' time has been spent on implementing recommendations?</li> <li>• What benefits do stakeholders expect from participation in this process?</li> </ul>
	C) Changes in key social, institutional and economic aspects of forest management	<ul style="list-style-type: none"> <li>• What changes or improvements have been perceived in markets, incomes, relations with other stakeholder groups, etc.?</li> </ul>
5. Internal review and evaluation	A) Stakeholder satisfaction	<ul style="list-style-type: none"> <li>• Do the magnitude and timing of any changes or improvements correspond to expectations?</li> </ul>
	B) Cost-effectiveness	<ul style="list-style-type: none"> <li>• What are the costs and benefits of certification?</li> <li>• Who are the winners and who are the losers?</li> </ul>
	C) Retrospective views of process	<ul style="list-style-type: none"> <li>• Would anything have been done differently?</li> </ul>
	D) Future views	<ul style="list-style-type: none"> <li>• Have attitudes to sustainable forest management/enterprise changed in any way?</li> <li>• Who is in favour of continuing with certified forest management, and why?</li> <li>• Who is against certified forest management, and why?</li> </ul>

**Table 10.** Analytical framework for assessing impacts of community forest certification on specific stakeholders (see discussion in text).

As a general analytical framework, the methodology was found to be adequate. However, lessons learnt during the course of the study allow the methodology to be supplemented in critical areas of interest, and in particular the various stages of certification from initial preparations through to the results of the assessment. Key variables and baseline questions for each stage of certification could now be incorporated into the analytical framework to provide a more accurate picture in future of the progressive effects of certification on specific stakeholders (see Table 10 above).

The revised analytical framework will support investigation into the four themes identified in section 20 above, both in future impact assessments of community forest certification by the author, and as a working model for general usage and testing. Its usage in these contexts will enable it to be refined and updated as our understanding of community forest certification develops.

The use of the framework need not be limited to external impact assessments. It is broad enough to form the basis for internal assessments of certification by local stakeholders. To this end, the variables and baseline questions outlined in the framework may be modified or augmented as needed to reflect local conditions, thus allowing appropriate indicators for participatory monitoring and evaluation of certification to be selected.

## REFERENCES

- Amazon Co-operation Treaty (1995) *Regional Workshop to define Criteria and Indicators of Sustainability for the Amazon Forest*. Final Document, Tarapoto, 25 February 1995. Amazon Co-operation Treaty, Lima, Peru.
- APCOB (1996) *Primer informe trimestral a Smart Wood*. APCOB, Santa Cruz, Bolivia.
- APCOB (1997a) *Segundo informe anual a Smart Wood*. APCOB, Santa Cruz, Bolivia.
- APCOB (1997b) *Manual Cadena de Custodia del Bosque de Lomerío para la Certificación Forestal*. APCOB, Santa Cruz, Bolivia.
- Aryal, D. (1997) Status of National and Regional Certification Initiatives. In *WWF Guide to Forest Certification 97*, WWF, Godalming, Surrey, UK.
- Baharuddin, G.Hj. & Simula, M. (1996) *Timber certification in transition*. ITTO, Yokohama, Japan.
- Bass, S. (1997a) *The Dominica Cottage Forest Industries Project. A Case Study*. IIED, London, UK.
- Bass, S. (1997b) *Comparing the FSC and ISO approaches to forest certification*. IIED, London, UK.
- Bebbington, A., Kopp, A. & Rubinoff, D. (1997) *From chaos to strength? Social capital, rural peoples organisations and sustainable rural development*. Paper prepared for the FAO Research, Extension and Training Division in collaboration with the Forestry Resources Division.
- BOKU, Wien, University of Helsinki, University of Freiburg, and University College of North Wales, Bangor (1998) *Potential Markets for Certified Forest Products in Europe*. European Forestry Institute (EFI), Joensuu, Finland.
- BOLFOR (undated) *BOLFOR: Sustainable Forestry Management Project*. BOLFOR, Santa Cruz, Bolivia.
- BOLFOR (1995) *Plan de Manejo Forestal para la Zona Norte - Proyecto Forestal de Lomerío*. BOLFOR, Santa Cruz, Bolivia.
- BOLFOR (1996) *Introducción a metodologías participativas de planeación local/regional y de ordenamiento territorial progresivo*. Memoria del Curso-Taller realizado con representantes de las comunidades de Lomerío agrupadas en la Central Intercomunal Campesina-Indígena del Oriente - Lomerío (CICOL). BOLFOR, Santa Cruz, Bolivia.

- BOLFOR (1997) *Normas Técnicas para la Elaboración de Instrumentos de Manejo Forestal Comercial (Inventarios, Planes de Manejo, Planes Operativos, Mapas) en Tierras Comunitarias de Origen*. BOLFOR, Santa Cruz, Bolivia.
- Byrne, B. (1995) *Gender profile of Bolivia*. Institute of Development Studies, Brighton, UK.
- Centurión, T. & Kraljevic, I. (1996) *Las Plantas Útiles de Lomerío*. BOLFOR, USZ Herbario and CICOL, Santa Cruz, Bolivia.
- CFV (1997) *Estándares para la Certificación Forestal Voluntaria en Bolivia*. Consejo Boliviano para la Certificación Forestal Voluntaria, Santa Cruz, Bolivia.
- Chase-Smith, R. (1993) Indians, Forest Rights, and Lumber Mills. *Cultural Survival Quarterly* **17(1)**: 52-55.
- Chase-Smith, R. (1995) *The Gift That Wounds: Charity, the Gift Economy and Social Solidarity in Indigenous Amazonia*. Paper prepared for Symposium on Forestry in the Americas: Community-Based Management and Sustainability, University of Wisconsin-Madison, 3-4 February 1995.
- CICOL (1996) *Balance General del Aserradero "La Esperanza" 1995*. CICOL, Santa Cruz, Bolivia.
- CICOL (1997a) *Balance General del Aserradero "La Esperanza" 1996*. CICOL, Santa Cruz, Bolivia.
- CICOL (1997b) *Plan Operativo del Aserradero "La Esperanza"*. CICOL. Santa Cruz, Bolivia.
- CIDDEBENI (1997) *ITTO Project Proposal PD 25/97 (F): Integrated Forest Resource Management and Rehabilitation Project in the Multi-Ethnic Indigenous Territory*. Research and Documentation Centre for the Development of Beni, Beni, Bolivia.
- Davies, P. (1994) *Socioeconomic sketchmap of Santa Cruz, Bolivia*. Technical Report 16, CIAT/BTAM, Santa Cruz, Bolivia.
- Davis, S.H. (1985) The Ayoréode-Zapocó communal sawmill: A social forestry project in eastern Bolivia. *Grassroots Development* **9(2)**: 2-9.
- Fischermann, B. (1996) Contexto Social y Cultural. In Centurión, T. & Kraljevic, I., *Las Plantas Útiles de Lomerío*. BOLFOR, USZ Herbario and CICOL, Santa Cruz, Bolivia.
- FSC (1996) *Principles and Criteria for Forest Stewardship*. Revised version, March 1996. Forest Stewardship Council, Oaxaca, Mexico.

- Graaf, N.R. de (1986) *A Silvicultural System for Natural Regeneration of Tropical Rain Forest in Suriname*. Series Ecology and Management of Tropical Rain Forests in Suriname. Landbouwhogeschool, Wageningen, The Netherlands.
- Gretzinger, S., Jickling, J., Lehm A., Z., Saravia P., P. & Zonta, A. (1995) *Informe de Evaluación Smart Wood de la Central Intercomunal Campesina del Oriente de Lomerío*. Rainforest Alliance, New York, USA.
- Guillén, A. (1996) *Excellent news about markets for certified wood products: The curupaú example*. BOLFOR, Santa Cruz, Bolivia.
- Hanrahan, M., Grimes, A. & Aguilar, F. (1997) *Benefit-Cost Analysis of Certified and Non-Certified Tropical Forest Management: A Case Study of the Lomerío Community Forest, Santa Cruz Department, Bolivia (First Draft)*. United States Agency for International Development (USAID), Washington DC, USA.
- Heijdra, H. (1996) *Participación y exclusión indígena en el desarrollo: Banco Mundial, CIDOB y el pueblo Ayoréo en el proyecto tierras bajas del Este de Bolivia*. Pueblos Indígenas de las Tierras Bajas de Bolivia, Vol. 6, ed. Riester, J. Santa Cruz, Bolivia.
- ITTO (1990) *Guidelines for the Sustainable Management of Natural Tropical Forests*. ITTO Policy Development Series 1, Yokohama, Japan.
- ITTO (1992) *Criteria for the Measurement of Sustainable Tropical Forest Management*. ITTO Policy Development Series 3, Yokohama, Japan.
- ITTO (1996) *The Promotion of Sustainable Forest Development in Bolivia*. Report No. ITTC(XXI)/9, Yokohama, Japan.
- Kaimowitz, D., Vallejos, C., Pacheco, P. & López, R. (1997) *Municipal Governments and Forest Management in Lowland Bolivia*. Prepared for the 1997 Meeting of the Latin American Studies Association, Guadalajara, Mexico, 17-19 April 1997.
- Kiker, C.F. & Putz, F.E. (1997) Ecological certification of forest products: Economic challenges. *Ecological Economics* **20**: 37-51.
- Kopp, A. & Domingo, T. (1997) *Organizaciones Indígenas en el Manejo de Recursos Forestales: CIDOB - CICOL, Bolivia*. Centro de Servicios Agropecuarios (CESA), La Paz, Bolivia.
- Krekeler, B. (1993) *Historia de los Chiquitanos*. Pueblos Indígenas de las Tierras Bajas de Bolivia, Vol. 2, ed. Riester, J. La Paz, Bolivia.



- Kress, A. (1996) *Diseño de Procesos de Extensión Participativa para Comunidades de Lomerío, Departamento de Santa Cruz, Bolivia*. Technical Document 44, BOLFOR, Santa Cruz, Bolivia.
- Laban, P., Lette, H. & Van der Werf, E. (1996) *Desk study on certification of tropical wood (Volume II): Observations on SNV/HIVOS field studies and building blocks for a strategy paper on certification of tropical wood*. ETC Netherlands, Leusden.
- Louman, B. (1990) Social forestry in Eastern Bolivia: can it be successful in the case of management of natural forest for production and conservation purposes? *BOS Nieuwsletter* **9(2)**: 3-27.
- Louman, B. (undated) *Manejo de los Recursos Forestales y El Indígena en la Amazonía Boliviana*. APCOB, Santa Cruz, Bolivia.
- Morales, J. I. (1997) *La Certificación y los Costos de Certificación en el Manejo Forestal en la Zona de Lomerío - Santa Cruz*. Tesis para la obtención del Grado Académico de Licenciatura en Economía. Universidad Católica Boliviana, La Paz, Bolivia
- Navarro, G. (1995) *Clasificación de la Vegetación de la región de Lomerío en el Departamento de Santa Cruz, Bolivia*. Technical Document 10, BOLFOR, Santa Cruz, Bolivia.
- ODA (1996) *Sharing forest management: key factors, best practice and ways forward*. Findings from ODA's review of participatory forest management, Overseas Development Administration, London, UK.
- Olivera, A. (1995) Forestry Project of the Indigenous Chiquitano Communities of Lomerío. In LTC & IES, *Case Studies of Community-Based Forestry Enterprises in the Americas*. Prepared for Symposium on Forestry in the Americas: Community-Based Management and Sustainability, University of Wisconsin-Madison, 3-4 February 1995.
- Olivera, A. & Raessens, G. (1994) *Plan de Manejo Forestal Comunal para La Zona Chiquitana de Lomerío*. Second Draft, APCOB/CICOL, Santa Cruz, Bolivia.
- Olivera, A. & Zolezzi, G. (undated) *Indígenas Chiquitanos Manejan Sus Bosques: La paradoja del proyecto modelo sin concesión forestal*. APCOB, Santa Cruz, Bolivia.
- Pattie, P.S. (1996) *Assessment of Institutional Development Activities: BOLFOR*. Technical Document 39, BOLFOR, Santa Cruz, Bolivia.
- Quaile, G. & Smith, P. (1997) *An aboriginal perspective on Canada's progress towards meeting its national commitments to improve aboriginal participation in sustainable forest management*. Prepared for XI World Forestry Congress, Antalya, Turkey, 13-22 October 1997.

- Quevedo, L. (1996) The Bolivian Council for Voluntary Forest Certification. *FSC Notes* **1(3)**: 8-9.
- Rainforest Alliance (1993a) *Smart Wood Source Certification and Audit Procedures*. Revised draft, Rainforest Alliance, New York, USA.
- Rainforest Alliance (1993b) *Generic Guidelines for Assessing Natural Forest Management*. Revised draft, Rainforest Alliance, New York, USA.
- Rainforest Alliance (1996) *Description of the Smart Wood Program*. Rainforest Alliance, New York, USA.
- Rainforest Alliance (1997) *Resumen Publico de Certificación para la Evaluación de Bosque Natural de Central Intercomunal Campesina del Oriente de Lomerío*. Prepared by the Smart Wood Program and Centro de Investigación y Manejo de Recursos Naturales Renovables (CIMAR). Rainforest Alliance, New York, USA.
- Rainforest Alliance & CIMAR (1997) *Informe de la Auditoria Smart Wood de la Operación Forestal: Central Intercomunal Campesina del Oriente de Lomerío/Apoyo para el Campesino de Oriente Boliviano*. El Programa de Certificación CIMAR/Smart Wood, Rainforest Alliance, Santa Cruz, Bolivia, 14-16 June 1997.
- Richards, E.M. (1993) Lessons for participatory natural forest management in Latin America: Case studies from Honduras, Mexico and Peru. *Journal of World Forest Resource Management* **7**: 1-25.
- Riester, J. (1975) *Indians of Eastern Bolivia: Aspects of their present situation*. IWGIA Document No. 18, Copenhagen, Denmark.
- Schreckenber, K. & Brown, D. (1997) *Revisiting Shifting Cultivation*. Editorial, in Rural Development Forestry Network Newsletter 21, Summer 1997. Overseas Development Institute (ODI), London, UK.
- Schwarz, B. (1995) *Yabaicürr - Yabaitucürr - Chiyabaiturrüp. Estrategias neocoloniales de "desarrollo" versus territorialidad chiquitana*. Ediciones Fondo Editorial FIA/SEMILLA/CEBIAE, Santa Cruz, Bolivia.
- Simeone, R. (1994) *Una Evaluación Preliminar de las Operaciones Forestales Lomerío (CICOL)*. Technical Document 8A, BOLFOR, Santa Cruz, Bolivia.
- Simeone, R. (1995) *Observaciones Sobre el Plan de Manejo de los Bosques de Lomerío*. Technical Document 20, BOLFOR, Santa Cruz, Bolivia.

- Simeone, R. (1996) *Procedimientos para Establecer la Cadena de Custodia para Lomerío / CICOL*. Technical Document 38, BOLFOR, Santa Cruz, Bolivia.
- Stocks, A., Rozo, B. & Okie, A. (1996) *Informe Sobre el Diagnostico Organizativo de Lomerío y Recomendaciones para CICOL*. Technical Document 42, BOLFOR, Santa Cruz, Bolivia.
- Sylvania Woods (undated) *Sylvania Woods Certified Timbers*. Wisconsin, USA.
- Taber, A., Navarro, G. & Angel, M. (1997) A new park in the Bolivian Gran Chaco - an advance in tropical dry forest conservation and community-based management. *Oryx* **31(3)**: 189-198.
- Toledo, M. (1996) Inventario de una Unidad Doméstica. In Centurión, T. & Kraljevic, I., *Las Plantas Útiles de Lomerío*. BOLFOR, USZ Herbario and CICOL, Santa Cruz, Bolivia.
- Townsend, W.R. (1996) *Taller Participativo sobre Manejo de Fauna Silvestre en Lomerío*. Technical Document 45, BOLFOR, Santa Cruz, Bolivia.
- Vallejos, C., Leny Cuéllar, R., Ramos, C. & Ayala, J. (1996a). *Estudio de Valuación del Bosque de Lomerío: Informe preliminar sobre el valor de los productos silvestres extraídos por los comunarios de Las Trancas y Puesto Nuevo*. BOLFOR, Santa Cruz, Bolivia.
- Vallejos, C., Leny Cuéllar, R., Ayala, J. & Ramos, C. (1996b). *Estudio de Valuación del Bosque de Lomerío: Memoria del Taller realizado con representantes de las comunidades Las Trancas y Puesto Nuevo*. BOLFOR, Santa Cruz, Bolivia.
- Visser, P. (1996) Ervaringen met het Lomerío Bosbouwproject in Bolivia. Appendix 7 in Laban, P., Lette, H. & Van der Werf, E. *Desk study on certification of tropical wood (Volume II): Observations on SNV/HIVOS field studies and building blocks for a strategy paper on certification of tropical wood*. ETC Netherlands, Leusden.
- Zolezzi, G. (undated) *El Mérito de la Certificación de un Proyecto Forestal en Manos Indígenas: Manejo Forestal Sostenible en Territorio Chiquitano de Lomerío*. APCOB, Santa Cruz, Bolivia.
- Zolezzi, G. & Raessens, G. (1996) *Community Forest Management by Indigenous Peoples in Bolivian Lowlands: The Case of Lomerío*. Paper presented to the IUCN Working Group on Community Involvement in Forest Management, Geneva, 11 September 1996.

## APPENDIX 1

Latin names of timber species. Source: BOLFOR 1995, Centurión & Kraljevic 1996.

COMMON NAME	LATIN NAME	FAMILY
Ajunaó	<i>Pterogyne nitens</i>	Leguminosae
Cedro	<i>Cedrela fissilis</i>	Meliaceae
Cuchi	<i>Astronium urundeuva</i>	Anacardiaceae
Curupaú	<i>Anadenanthera colubrina</i>	Leguminosae
Cuta	<i>Phyllostylon rhamnoides</i>	Ulmaceae
Jichituriqui	<i>Aspidosperma cylindrocarpon</i>	Apocynaceae
Momoqui	<i>Caesalpinia pluviosa</i>	Leguminosae
Morado	<i>Machaerium scleroxylon</i>	Leguminosae
Picana negra	<i>Cordia alliodora</i>	Boraginaceae
Roble	<i>Amburana cearensis</i>	Leguminosae
Sirari	<i>Peltogyne</i> sp.	Leguminosae
Soto	<i>Schinopsis brasiliensis</i>	Anacardiaceae
Tajibo	<i>Tabebuia ochracea</i>	Bignoniaceae
Tarara amarilla	<i>Centrolobium cf. michrochaete</i>	Leguminosae
Tarara colorada	<i>Platymiscium cf. ulei</i>	Leguminosae
Tipa	<i>Platypodium elegans</i>	Leguminosae
Verdolago	<i>Calycophyllum multiflorum</i>	Rubiaceae

## APPENDIX 2

### Field programme:

#### Santa Cruz, 28 May-11 June 1997

##### *Persons interviewed:*

- Cristian Vallejos, Social Scientist, BOLFOR
- Dr William Cordero, Director of Forest Management, BOLFOR
- Abraham Guillén, Director of Marketing, BOLFOR
- Fernando Aguilar, Economist, BOLFOR
- Lincoln Quevedo, Technical Manager, Superintendencia Forestal (and FSC Bolivia Contact Person)
- James Johnson, British Tropical Agriculture Mission, Santa Cruz
- Katherine Pierront, CIMAR
- Graciela Zolezzi, Vice-Director, APCOB
- Amado Olivera, Forester, APCOB
- Bernardo Roza, Anthropologist, APCOB

#### Concepción & Lomerío, 2-11 October 1997

##### *Persons interviewed:*

- Juan Chuvé Choré, Vice-President, CICOL
- Felix Ribera, Secretary for Defence of Land and Territory, CICOL
- Rosa Cuellar de Cesari, Secretary for Economics and Administration, CICOL
- Miguel Soriocó, Secretary for Sustainable Management and Environment, CICOL
- Agustín Choré, Secretary General, CICOL
- Victor Saavevedra, Administrator, Sawmill "La Esperanza"
- Miguel Ipamo, Representative of Puquio, Sawmill Administrative Council (and ex-CICOL)
- Ruben Suárez, Office of Culture, Municipality of Concepción (and ex-CICOL)
- Victor Chuvé, Forest technician, APCOB
- Juan Parapaino, Mayor, Todos Santos
- Juan Ribera, Mayor, Las Trancas
- Santiago Ribera, community member, Las Trancas
- María Surubí, community member, Las Trancas
- Juan Saucedo, community member, Las Trancas
- Jerónima Quiviqivi, community member, Las Trancas
- Santiago Ribera, community member, Puesto Nuevo
- Rosenda Parapaino, community member, Puesto Nuevo
- Juan Faldin, community member, Puesto Nuevo

### **Field methodology (abridged):**

The primary objective of the case study is to build an accurate picture of how certification has influenced the development of a community forest enterprise, including its impacts on marketing, financial performance, social relations, and environmental performance. In the case of Lomerío, certification has modified an existing activity and, therefore, the focus of the analysis is on the 'incremental' impacts of certification. In order to define incremental impacts, a comprehensive project baseline is built up from the following elements:

#### A) Project background

A detailed study of project history, objectives and activities, compiled using secondary data sources such as project documents and published reports, as well as direct communication with key project informants. Analytical stages:

1. *Map project situation*: List all stakeholders and the nature of their interest, concentrating on the distribution of benefits, the rights and means on which their involvement is based, and linkages with other groups.
2. *Establish objectives*: Establish objectives for the project. Assess whether, and for what reasons, objectives have changed over time, as well as attitudes towards any changes.
3. *Review activities*: Provide a general overview of project activities, e.g. institution-building, training, forest management, processing, marketing, etc.
4. *Analyse constraints*: On the basis of the three previous stages, evaluate key constraints or obstacles facing project development and execution.

#### B) Forest management practices

The baseline, technical standard of forest management is formed by two components: 1) Current government policies and regulations, and 2) Project policies and objectives. In the absence of certification, these two components will determine the local standard of forest management (taking into consideration constraints on meeting objectives). Analytical stages:

1. *Establish forest management baseline*: Define the baseline standard of forest management. Refer to government forestry policies/regulations and project management plans/policies, as well as interviews with project personnel and producers.
2. *Review the certification process*: Review the process of project auditing and compliance. Specify the standard used, and the time-scale over which it has been applied. Identify and corroborate any changes to management with the certifying organisation, project staff, and producers. Distinguish any requirements that have not yet been complied with.
3. *Assess the influence of timber buyers*: Have additional requirements, e.g. relating to timber volumes, been specified by timber buyers?

4. *Define incremental impacts*: Compare the effects of the certification process with the baseline standard of management. In which areas has certification brought about substantive changes in management? Has certification brought forward improvements planned for a later phase of the project (i.e. increased the incremental rate of change) and if so, where? Are there areas where management standards are actually considered to have deteriorated as a result of certification?

#### C) Enterprise administration, finances and marketing

The first stage in the market analysis of certification is an assessment of financial profitability. Subsequent stages of the analysis concentrate on structural changes in timber markets and marketing channels due to certification:

1. *Perform financial cost-benefit analysis (FCBA)*: Prepare a spreadsheet cost-benefit model for the enterprise. Assess financial profitability prior to, and after, certification. Have there been incremental financial impacts attributable to certification?
2. *Assess distribution of costs and benefits*: Certification and, by implication, sustainable forest management, is likely to alter the distribution of costs and benefits over time. Use the FCBA, in conjunction with stakeholder interviews, to identify and evaluate any redistribution of costs and benefits.
3. *Assess changes in local and export markets*: The impact of forest management and chain of custody certification on enterprise procedures, processing, and marketing is crucial. What changes have been made as a result of chain of custody certification? How has certification affected market orientation (export vs. local), market linkages (suppliers and buyers), prices and product differentiation? Has certification caused knock-on effects in local markets, e.g. price rises to compensate for the loss of high-quality (certified) timber to export markets?

#### D) Institutional and social development

An assessment of the impacts of certification on local stakeholder incentives for market-oriented forest management. A key subsidiary issue is the effect of certification on rates of social change; a factor with important implications for the stability of local communities and their institutions. Analytical stages:

1. *Identify interest groups*: Identify interest groups within the community, e.g. women, forest workers, cattle herders, artisans, etc. Rank groups according to their position within decision-making processes and hence understanding, and control over, change.
2. *Assess community awareness*: Focus on interest groups. How do different groups understand the nature and process of certification? What are their sources of information?
3. *Assess community expectations*: Focus on interest groups. What are group expectations, or criteria, for certification? To what extent have these expectations been met?
4. *Analyse rate and impact of changes*: Consider the issues identified above. How and why have

different groups benefited or lost out from certification?

5. *Analyse institutional change*: How has the process of certification affected internal decision-making and conflict resolution structures? Has certification affected the linkages between local institutions, for example improving communication or co-ordination of operations?

#### E) National forest policy and legislation

An assessment of whether project certification has influenced the overall national policy environment for forest management and certification, or whether it has affected the project's relations with government agencies overseeing land and forest management:

1. *Assess changes to overall policy environment*: Consider the effectiveness of current formal policy and legislative networks in allowing certification. Have there been changes in formal policy and legislation attributable to the effect of certification? What evidence is there of interaction between the project and natural resources policy?
2. *Assess changes in forest authority roles*: Has certification altered forest authority roles and responsibilities with regard to the forest enterprise? Have these changes been reflected in local forest authority regulations?



## APPENDIX 3

### Summary of FSC Principles for Forest Stewardship (the associated Criteria are not included).

Source: FSC 1996.

1. Compliance with laws and FSC Principles

Forest management shall respect all applicable laws of the country in which they occur, and international treaties and agreements to which the country is a signatory, and comply with all FSC Principles and Criteria.

2. Tenure and use rights and responsibilities

Long-term tenure and use rights to the land and forest resources shall be clearly defined, documented and legally established.

3. Indigenous peoples' rights

The legal or customary rights of indigenous peoples to own, use and manage their lands, territories, and resources shall be recognised and respected.

4. Community relations and workers' rights

Forest management operations shall maintain or enhance the long-term social and economic well-being of forest workers and local communities.

5. Benefits from the forest

Forest management operations shall encourage the efficient use of forest's multiple products and services to ensure economic viability and a wide range of environmental and social benefits.

6. Environmental impact

Forest management shall conserve biological diversity and its associated values, water resources, soils, and unique and fragile ecosystems and landscapes, and, by so doing, maintain the ecological functions and the integrity of the forest.

7. Management plan

A management plan - appropriate to the scale and intensity of the operations - shall be written, implemented, and kept up to date. The long-term objectives of management, and the means of achieving them, shall be clearly stated.

8. Monitoring and assessment

Monitoring shall be conducted - appropriate to the scale and intensity of forest management - to assess the condition of the forest, yields of forest products, chain of custody, management activities and their social and environmental impacts.

9. Maintenance of natural forests

Primary forests, well-developed secondary forests and sites of major environmental, social or cultural significance shall be conserved. Such areas shall not be replaced by tree plantations or other land uses.

10. Plantations

Plantations shall be planned and managed in accordance with Principles and Criteria 1-9, and Principle 10 and its Criteria. While plantations can provide an array of social and economic benefits, and can contribute to satisfying the world's needs for forest products, they should complement the management of, reduce pressures on, and promote the restoration and conservation of natural forests.

(Note: Principles 1-9 were ratified by the board and members of the FSC in September 1994. Principle 10 was ratified by the board and members of the FSC in February 1996).