



Graduate School of Development Studies

**Community - Based Forest Management as a
determinant for development of indigenous people in
Northern La Paz - Bolivia**

A Research Paper presented by:

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in partial fulfillment of the requirements for obtaining the degree of
MASTERS OF ARTS IN DEVELOPMENT STUDIES

Specialisation:
Economics of Development
(ECD)

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The Hague, The Netherlands
November, 2008

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Dedication

This document represents a tangible proof of a personal dream that has come true. It is probably the end of a journey full of precious experiences and vast knowledge earned, but it also represents the start point for future goals and new challenges.

This is why I want to dedicate this work to the DREAMERS, to the people who feed their soul and mind everyday with the idea of a better world; for those who BELIEVE in change, social justice and inclusion; those who WORK hard to make these dreams come true...

"Hay hombres que luchan un día y son buenos. Hay otros que luchan un año y son mejores. Hay otros que luchan muchos años y son muy buenos. Pero hay quienes luchan toda la vida, esos son imprescindibles."

Bertolt Brecht

Acknowledgements

The present research paper would not be possible without the support of many people, who generously contributed with their time, experience and knowledge. First of all, I want to thank the TACANAS, especially the CIPTA members (Jesús Leal, Celín Quenevo and Guido Zúñiga), for letting me witness the livelihood of their communities and be part of this process of change. Special thanks to Freddy Howard and Benigno Guizada, from San Pedro CFO, for giving me a warm welcome to their community and for sharing all their experience and future plans, essential for the present study.

I would like to express my gratitude to my supervisor, Dr. Peter de Valk, and to my second reader, Dr. Lorenzo Pellegrini, for their unconditional support and invaluable comments in all this process.

Special thanks to the following people and institutions: Elvira Salinas, Guido Miranda and Kantuta Lara (WCS); Wilson Rocha and Zulema Lehm (BOLFOR II); Jaime Choque (Forest Superintendence); Jaime Villanueva (Direction of Bolivian Forest Resources); Ronald Calderón and Javier Cruz.

I am greatly indebted to my family, for their unconditional love and support; to José Carreón for being a fundamental piece in making this dream come true; to my sister Ximena Mejía for editing the text and contributing with her advice and *special power*; to Marko Machicao, the man who share my dreams and walked by my side during all this journey, cheering every step I took and enriching this study with his precious comments, wise advice and experience. Thanks vidita for letting me fly... for all your love, support and patience... I love you very much!

Finally, many thanks to the ISS and the NUFFIC, for letting me have such an amazing experience; to all my friends in Bolivia and to those who have been part of my life this fourteen months, you will remain forever in my heart.

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List of Acronyms

AAA:	Annual Allowable-Cut Area
AFIN:	National Forest Indigenous Association
AFRM:	Municipal Reserve of Forest Area
BOLFOR:	Project Bolivian Forestry I and II
CADEFOR:	Amazonic Centre of Forest Development
CBFM:	Community-Based Forest Management
CFO:	Communitarian Forestry Organization
CICOTI:	Indigenous Directive of Tacana Communities in Ixiamas
CIFOR:	International Centre of Forest Research
CIDOB:	Indigenous Confederation of the Bolivian Amazon
CILAP:	Central of Indigenous Communities of La Paz
CIPTA:	Indigenous Directive of Tacana Communities
CORDEPAZ:	Regional Development Corporation of La Paz
DANIDA:	Danish International Development Agency
FONABOSQUE:	National Fund for Forestry Development
FSC:	Forest Stewardship Council
GFMP:	General Forest Management Plan
IDRC:	International Development Research Centre
LSA:	Local Social Association
MFU:	Municipal Forestry Unit
NGO:	Non-Governmental Organization
NP-NAIM:	National Park and Natural Area of Integrated Management (Madidi)
PDB:	Productive Development Bank
ORFITI:	Tacana Indigenous Organization for Iturrealde Province
SERNAP:	National Service of Protected Areas
TCO:	Indigenous Community Owned-Land
TNC:	The Nature Conservancy
UNDP:	United Nations Development Project
WCS:	Wildlife Conservancy Society

Community - Based Forest Management as a determinant for development of indigenous people in Northern La Paz - Bolivia

1. Introduction.-

Based on the international context that recognizes the aspirations of indigenous people to assume control over their ways of life (ratification 1991 of the 169 Convention of International Labor Organization), a new cycle of State Reforms started in Bolivia during the decade of the 90's (Decentralization, Popular Participation, Agrarian Reform and a new Forest Regime), which has increased the role of indigenous communities in the policy making process regarding land distribution, natural resource management and participation in development projects. This process is being reinforced with the new policies and projects implemented by the current government of Evo Morales.

Considering this context, the present research paper aims to *analyze the effect of Community-Based Forest Management (CBFM), a development approach recently introduced by the New Bolivian Forest Regime, on Tacana communities' development, specifically in their structure and cultural identity.* Based in two different methodologies I will identify the positive and negative results of CBFM and determine if forest sector policies, created to reduce poverty and preserve the environment, are achieving satisfactory outcomes.

To support this analysis, I also pretend to: a) *identify the main conflicts derived from the struggle of interests among the different stakeholders that are involved in CBFM,* and b) *show the potential that Tacanas communities still have regarding forest management to go further in their development process.*

The conclusions are mainly positive, showing that CBFM has a potential to bring development to indigenous communities, while preserving the environment, but there are still many obstacles and new aspects to be considered for future policy implementations, as well as a long way ahead for communities to obtain the expected benefit, without their culture and livelihoods being negatively affected.

1.1 Background of the Study.

Bolivia is an extremely rich country with an enormous array of landscapes and cultures. However, the country has a long history of political and economical

instability, with 60% of the total population living under the poverty line (76.5% in rural areas) and 37.7% living in extreme poverty¹.

Since the colonial period, Bolivia has suffered the loss of important territories and the uncontrolled exploitation of natural resources, which has enriched just certain powerful groups. These difficulties have prevailed until now; the local inhabitants of the land, most of them poor and from an indigenous origin are the ones who have been marginalized from the development process and continue complaining of insufficient benefits they receive from the extractive activities of natural resources.

Around 60% of the Bolivian territory is covered by forests (118 million acres²), making it the world's sixth country in tropical forest extension, yet it has a serious problem of deforestation. In 2006, the Bolivian Forest Superintence calculated that 307.210 hectares of forest were depleted every year (Cuevas, 2008).

During the last decades, the government has been changing its strategy and has been enforcing projects related to landscapes preservation and developing other productive sectors such as those concerning forest resources, communitarian ecotourism and bio-commerce, among others, which are alternative ways to achieve development and reduce poverty without leveraging pressure over the environment. Most of these projects have their roots in the community-based forest management (CBFM) approach.

This process is a result of recent changes in the Bolivian Forest Regime (Forest Law 1700), land ownership (INRA Law) and forest decentralization³, and it has involved the participation of indigenous communities, at the same time that represents the enforcement of commercial activities such as regulated timber exploitation for communities that have inhabit those forestlands for centuries, and who have survived from less productive activities in the past. These communities depend greatly on forest products for their livelihoods and have traditional practices of forest management.

Since the approval of the Forest Law 1700 in July of 2006, a Forest Superintence has been created to control and regulate the forest sustainable management; another result from the new law was the establishment of Communitarian Forestry Organizations - CFOs⁴ belonging to Indigenous Community-Owned Land (TCOs⁵ in Spanish). The

¹ Source: UDAPE (2006), "Statistic Dossier of Socio-Economic Indicators"

² Source: The Nature Conservancy in Bolivia.

³ For more detail about the Bolivian Legal Framework regarding forestry please refer to Appendix A.

⁴ In spanish OFC: "Organización Forestal Comunitaria".

⁵ TCO: "Tierras Comunitarias de Origen"

municipalities of regions with forest vocation received a 20% of fiscal lands to be used in sustainable forest management, which also gave place to the formation of Local Social Associations - LSAs⁶. One of these municipalities is Ixiamas, in northern La Paz.

The natural forest potential of the region, with more than 80% of the municipality's territory covered by forests and forestlands, allows it to be considered as a means of local and regional socio-economic development.

As shown in the following table, the new forest regime has helped increase the national surface of territory authorized for commercial logging under Forest Management Plans in behalf of local communities:

Table 1

BOLIVIA: AUTORIZED SURFACE FOR FOREST USE THROUGH ANNUAL FOREST OPERATIVE PLANS BY DEPARTMENT, 1998 - 2005

(In hectares)

DEPARTAMENT	1998	1999	2000	2001	2002	2003	2004	2005 ^(p)
TOTAL	151,022	170,771	91,226	92,335	205,592	125,635	197,892	198,354
Chuquisaca		89		80	90	12	244	646
La Paz	7,597	15,476	3,585	10,575	6,797	2,759	10,405	16,121
Cochabamba	54	669	103	432	41	2,162	2,266	1,658
Tarija	717	180	42	26	424	88	651	609
Santa Cruz	70,941	94,128	63,380	39,403	106,473	64,890	99,058	99,963
Beni	17,368	23,466	6,184	13,214	23,029	15,644	17,926	17,662
Pando	54,345	36,763	17,930	28,604	68,738	40,079	67,343	61,695

Source: Superintendence of Forest
National Institute of Statistics
(p): Preliminar

However, reality shows that most of the profits made from timber extraction are being captured by settlers⁷ and private timber companies working in transformation and commercialization in the region, and not by the communities who own the resources. Even though indigenous people have established communitarian enterprises, they remain within the first link of the value chain, working as suppliers of raw materials and receiving low income from the sale of their wood without value-added. This situation increases the risk of illegal logging in the region by poor people.

In addition, these communities have been changing their socio-economic structures due to the influence of external actors, and in some ways they are starting to lose their cultural identity and traditions, which is a very negative social impact and an issue in the development process that deserves attention.

⁶ In Spanish ASL: "Asociación Social del Lugar".

⁷ Name given to people who don't belong to the community (outsiders) but have been living in the region for a long period of time, motivated by the income earned in some economic activities.

1.2 Importance of the forest sector in Bolivia.

As mention before, 60% of the Bolivian territory is covered by forests and is part of the largest tropical rain forest in the world, the Amazon. Inside this region lies one of the most biologically diverse rain forests on the planet, the Madidi, which the Bolivian government established as a National Park since 1995.

Of the country's 17 ecoregions, Madidi harbors no less than 5: Montane Moist to Perhumid Evergreen Forest, Seasonally Moist Lowland Tropical Forest, Palm Savannas, Puna, and Dry Inter-Andean Valleys. It could be the most biodiverse protected area in the world, as it ensures a large variety of inhabitats, with 1,875 plant described to date out of an estimated total of 5,000. This is matched by an exceptional animal diversity composed of at least 1,370 vertebrate species, including 156 mammal, 867 bird, between 192 and 296 fish, between 79 and 109 reptile, and between 84 and 88 amphibian species (SERNAP, 2003).

The Northern Bolivian Amazon region has been characterized by a very vigorous extractive economy, linked to rubber production until the mid 80's. Nowadays, the main economic activities in the region are commercial logging and Brazilian nut gathering (especially in Pando), and they have generated income and employment to local people. Since the early 80's, the annual timber harvest was about 20.000 m³. In 1992, it tripled to 64.000 m³.

In 1997 there where 19 timber companies with concessions granted over a 1.5 million hectares territory. Today there are 13 forestry concessions over a region of 1 million ha. In 2006, wood production reached 91.000m³. (Forest Management National Plan of the Bolivian Government, 2008)

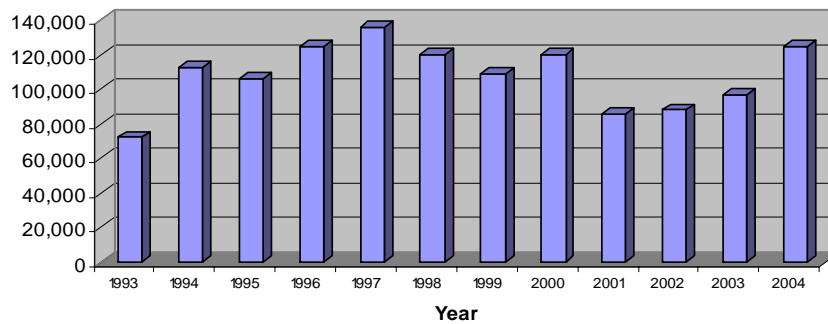
The forest sector is a potential direct and indirect employment creator, and is responsible for income generation in the region through the exports of high value-added products resulting from sustainable management activities. The contribution of the forest sector to the Gross Internal Product (GIP) is about 3.39% and it has been estimated that it generates 90.000 direct jobs⁸.

Since 1985 forest exports have shown an increasing trend; the incomes have grown

⁸ Source: National Development Plan of the National Government of Bolivia, 2007-2010.

from 72 million dollars in 1993 to 124.7 millions in 1996. However, the Bolivian forest exports, after having registered a maximum of 135 million dollars in 1997, have declined their value year after year. Nevertheless, in 2004 the high prices of wood at the international market helped the sector’s recovery, especially in the non-wood production area (Brazilian nuts and palm heart). In 2004, the Bolivian forest exports where around 130 million dollars (BOLFOR, 2005).

**Fig. 1: Total Bolivian Forest Exports (in thousands of dollars)
1993-2004**



Source: BOLFOR II

According to the National Institute of Statistics, the forest exports for 2005 reached 117 million dollars, of which 61 million corresponds to non-wood products⁹.

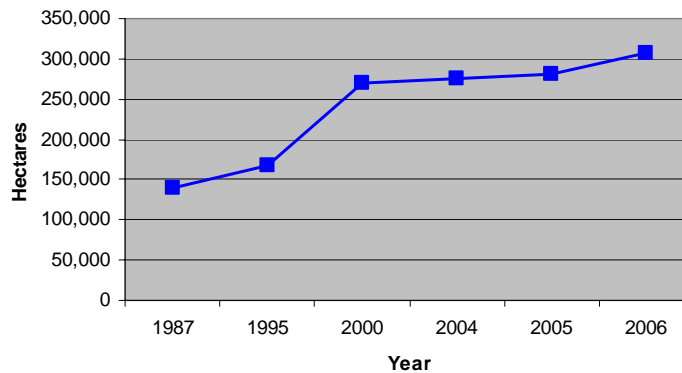
The increasing global demand for value-added products and sustainable management certification shows the potential that timber market has. That is why the country’s position in green certified forests is an advantage that must be strengthened, considering that less than 2.5 million ha of tropical forest were certified as “sustainable managed” by the Forest Stewardship Council (FSC) in 1999 (UDAPE, 2007).

However, this important region of the country has been threaten by different activities, such as the construction of roads, gold mining, illegal logging, oil drilling, which has caused deforestation.

Since 1993 deforestation has become a very critical problem in Bolivia, product of big concessions granted by the government to timber companies, illegal logging and large swaths of forest cleared for soybean or coca cultivation, and to be converted into fields and pastures.

⁹ Source: Estrategic Institutional Plan of the Ministry of Rural Development, Agriculture and Environment, 2006-2010.

Fig. 2: Deforestation in Bolivia (1987-2006)



Source: Forest Superintence of Bolivia

Illegality is related to many activities, such as wood extraction in forbidden areas, the use of forestry resources without authorization and the authorized use but in areas or volumes that exceed the permitted level.

As mentioned before, since the last decade the Bolivian government has been trying to control deforestation and has certified more than two million hectares of its forests, becoming the world leader in tropical forest certification, but the efforts seem not enough as just 13% of the deforestation in 2006 was legal, as indicated by the Bolivian Forest Superintence (Cuevas, 2008).

1.3 Community-Based Forest Management in Northern La Paz: *Timber as "gold" of the region.*

Most of the Bolivian forests are inhabited by indigenous communities, who are deeply rooted in their ethnical identity. The Vice-ministry of Culture's Development has recognized 36 different indigenous groups living all over the country, 7 of them inhabit the Madidi National Park and it's Natural Area of Integrated Management (NP-NAIM), one of the most important areas of conservation in the country and one of the world's largest bio-diversity reserves.

Many CBFM projects have been developed in Northern La Paz (Abel Iturralde province), inside and surrounding the NP-NAIM Madidi, and they are related to the sustainable use and management of wood and non-wood forest products, reinforcing activities such as commercial logging, fruit and seed gathering, as well as the use of some herbs and plants in the production of traditional medicines. CBFM projects are

also related to the development of new activities such as the communitarian ecotourism, which is very popular in the area.

The municipality of Ixiamas is part of the NP-NAIM Madidi and it lodges enormous natural and landscape resources, typical of the Bolivian Amazon, and therefore its development is based mainly in the managed exploitation of natural resources, especially forest wood and non-wood products. As the region is full of many species of trees, forestry activities generate economic benefits for its inhabitants¹⁰.

Although the region's forests are rich in biodiversity, they contain relatively low volumes of marketable timber species, particularly in relation to overall available volume (and compared to other moist forests). This highlights the importance of careful forest management (Bojanic & Bulte, 2002).

In addition, Ixiamas is home to several communities of indigenous people with ancestral cultures as the Aarona and the Tacana groups, the latter count with an entitled territory of 371.000 hectares approximately, 33.000 ha in process of entitlement and 432.000 ha with an accepted demand for entitlement; this territory lays between the municipalities of San Buenaventura and Ixiamas.

Recent empirical investigation shows that the changes produced in the Bolivian public policies increased the motivation of the indigenous communities to develop a commercial forest production and to get involved in forest management projects; this motivation is supported by the communitarian land entitlement processes, the recognition of traditional authorities, the new forest regulation and the increment of participation, as an output of the Popular Participation Law¹¹ (Pacheco, 2004).

In 1996 the right over land and forest for groups of indigenous communities has been recognized by the INRA law, through the incorporation of the concept of *Indigenous Community-Owned Land - TCOs*. In some cases the TCOs partially overlap some protected areas, as the case of the Tacana TCO I, a group of 20 communities which inhabits in the Northern La Paz and has many communities inside the Madidi National Park. This kind of overlapping causes some problems to the indigenous communities regarding the use of natural resources (constraining access to them), but some local organizations as the Indigenous Directive of Tacana Communities (CIPTA¹²) and the

¹⁰ Source: Productive Municipal Forestry Plan for Ixiamas, 2006.

¹¹ The Popular Participation Law was approved in 1994, expanding the municipal governments' jurisdiction beyond urban centres to all territory covered by the department's sections that correspond to a municipal jurisdiction.

¹² CIPTA: Consejo Indígena de Pueblos Tacana.

Central of Indigenous Communities of La Paz (CILAP) made some agreements with the National Service of Protected Areas (SERNAP) to regulate the use and management of some resources related to agriculture activities, fishery, and others.

As a result of the negotiation, the Management Plan of the NP-NAIM Madidi includes a very important issue regarding the use of natural resources in the area: **zoning**. Six types of zones inside the protected area have been identified:

- a) Restricted protection
- b) Especial use
- c) Extractive extensive use
- d) Non-extractive extensive use
- e) Extractive intensive use
- f) Non-extractive intensive use

Both, c) and e) give green light to the development of some projects of natural resource management like forestry, regarding timber and non-timber production, in benefit of the local communities.

This plan also refers to external buffering zones surrounding the protected area, as potential regions for productive investment in projects of community-based forest management, especially in communities of the Tacana TCO who inhabit outside the protected area.

The accelerated forest degradation as well as the growing global concern about biodiversity preservation led the Bolivian government to implement an ecological zoning system accompanied by soil use plans and projects to extend the protected areas (Pacheco, 2003).

The region has different land systems, ranging from private ownership to community systems. Indigenous people, small farmers, settlers and a diverse group of small-scale loggers and non-wood forest product collectors are the social groups that subsist to some degree on forest resources. Medium and large-scale farmers and ranchers, as well as forest concessionaires and sawmill owners, who mainly reside in the region's principal cities, are part of an influential group within the rural society.

Within Abel Iturralde province, LSAs count on 28,97% of the total management area habilitated, having approximately 15.000 ha each one. A 18, 57 % corresponds to the CFOs of the region ("El Carmen" and "San Pedro") and a 52,46% to concessions for timber companies.

From more than 2,616.73 hectares of forestland in Ixiamas municipality, sustainable forest management activities take place just in 357.51 ha, which represents the 13% of the total forest area.

Ixiamas is also a place for sawmills, commercializers and carpentries, some of which are working at their higher capacity, as are the cases of the sawmills “CONMINMA”, “San José” and “CONMANDER”. Each of them are dedicated to wood’s primary transformation and have formal deals with LSAs and CFOs that sale their wood under the modality of “*pie tocón*”¹³, due to their production limitations.

During the last years, even though timber production has been reinforced in the region through the creation of communitarian enterprises and sustainable forest management, communities have maintained themselves as simple suppliers of raw materials in the process and have obtained really poor incomes from the sale of wood to the different sawmills and timber companies, who after the first transformation (sawn-wood), commercialized it in both the national and international markets at higher prices and do not contribute to the community’s development in a substantial way.

The present analysis focusses on the Tacana and takes the San Pedro community as a case study; in 2001 San Pedro conformed its own Communitarian Forestry Organization (CFO), dedicated to wood exploitation under forest management plans approved by the Bolivian Forest Superintence. This CFO aims to go further one link in the wood value chain in behalf of San Pedro community.

This paper is divided into five chapters. The first chapter provides a background on forests and CBFM in Bolivia, more specifically in northern La Paz. The second chapter consists on a literature review on CBFM, from both a global and a local perspective. The third section describes the methodology that I use to provide the socio-economic analysis. Chapter four starts with a historical overview of the Tacanas in northern La Paz and gives a socio-economic analysis of these communities, based in a comparison of two periods of time using the New Forest Regime as a reference point; this chapter also identifies the main conflicts between stakeholders and explains the role of local authorities in the forest sector. Section five develops the case study of San Pedro, assessing the role and potential of its Communitarian Forestry Organization in the community’s development. Finally, section six presents the main conclusions and policy recommendations arising from this paper.

¹³ *Pie tocón* is a Spanish expression that represents the sale of a tree without any transformation in the extraction area.

2. Literature Review.-

2.1. Community-Based Forest Management (CBFM).

The Move Towards Participative Community-based Development in Forest Management:

In the last two decades, many developing countries have seen the emergence of a community-based approach in relation to participatory processes as means for development assistance. This new approach was a result of the process of decentralization, increasing responsibility and participation of local governments and communities in the implementation of development projects, especially in the natural resource management sector.

This popular trend towards increasing decentralization of natural resource management is very clear in the case of forest management. As Arun Agrawal (2007) has expressed in his work, the increasing importance of forests management is related to two of the most important global environmental threats: climate change and biodiversity loss. Forests also play a significant role in the livelihood of the rural poor in the context of competing claims from multiple parties.

Decentralization is the process by which central governments transfer responsibilities and more autonomy in decision making to local authorities. In the forest management sector, it is well known that this process can increase democratization of natural resource management by allowing local people to make decisions on the control and use of local resources. As Anja Nygren argues (2005), development of natural resources may also provide local communities with new revenues and contribute to the more equitable distribution of benefit; people may feel greater sense of ownership of rules for resource use and be more engaged in their implementation, monitoring, and enforcement. However, the process can derive in bad causes and negative results, which I will analyze later on the paper.

In the context of decentralization, the CBFM has been reinforced in many developing countries, leading to the implementation of many development projects that involve the active participation of local inhabitants, community-based organizations, local authorities, as well as another actors such as NGOs and timber companies. There is evidence showing that local actors have the capacity to protect and use forest resources sustainably and at a lower cost than governmental agencies (BOLFOR, 2005). But is important to notice that “decentralization does not automatically resolve issues of

equity and accountability, nor does it necessarily promote democratic participation” (Ribot, 1999, op. cit. Nygren, 2005; pp. 641). This depends on local power structures and especially if we consider the heterogeneity within communities. Heterogeneous communities, where people have multiple and conflicting interests and identities, could represent a challenge. Local inequality in relations of power and authority may allow program benefits to be captured by non-target groups, worsening local inequality and perpetuating local power relations (Mansuri and Rao, 2004).

Assessing the Impact of CBFM

Many studies have found positive effects of CBFM in environmental matters (Lasco, 2006; Ravindranath & Murali, 2006; Poffenberger, 2006). For example, Rodel Lasco (2006) found environmental effects of forest management technologies in the Philippines, in response to watershed and forest degradation are largely positive. CBFM has led to the conservation of natural forests and biodiversity, and the incorporation of trees in farms and landscapes has led to soil and water conservation and carbon sequestration.

The work of Ravindranath and Murali (2006) demonstrates that community forestry has a very important ecological impact in other countries of South and Southeast Asia, resulting in a significant increase in plant diversity and biomass production, as well as in increase in timber productivity, in benefit of local communities who can meet their economic and ecological needs. It has been shown also that various practices of the local community in enhancing regeneration, diversity and productivity have improved forest status.

Mark Poffenberger (2006) has examined the cases of Indonesia, Cambodia, Philippines, Thailand and Vietnam in the forest management sector. He found that the communities are protecting, managing and restoring forests across the region, playing a critical role in the preservation of biodiversity and the maintenance of hydrological functions, but their authority remains limited under the legislative frameworks that govern the formal sector, as well as the political economy that sets informal policies in these nations. Even though the situation is gradually changing, the limited rights and responsibilities delegated to community over forest resources continues to limit their ability to effectively manage local resources.

In the socio-economic aspects, CBFM has shown a lot of positive results. For example, it has increased incomes and employment possibilities among local residents, and it has also increased forest revenues for the municipality, and therefore the possibility to

participate in development projects, including maintenance of roads and improvement of municipal water supply, school and health care services (Nygren, 2005).

In her study of Honduras, Nygren (2005) also argues that decentralized forest governance has created more space for social mobilization; the empowerment of local residents has encouraged them to challenge the traditional forms of authority and to address the problems of unequal access to resources.

However, as it has been mentioned before, decentralization does not automatically resolve issues of equity and accountability, especially taking into account community's heterogeneity. In this sense, Nygren (2005) found out that Honduran communities are socially differentiated in terms of land access, size and quality of parcels, degree of participation in different income-generating activities, age, gender, social position and political power, which provoke a variety of tensions that influence access to natural resources.

Without doubt, a decade of community forestry has generated increased incomes and employment possibilities in many developing countries; however, some studies show that the distribution of costs and benefits has not been equal. Concerning this point, Nygren writes, "forestry generates sporadic earnings for a great number of local inhabitants, but substantial earnings for only a select few" (2005; p. 646).

The case of Nepal is another good example of the question raised above. In 2003, Buchy and Subba proved that communities in Nepal are very diverse and at times divided entities, therefore mechanisms of "participatory exclusion" have put women and the poor in a disadvantaged position. These two groups are excluded from decision-making processes, and tend to be the ones who bear higher costs of resource management changes, specially because projects related to forest preservation (without consultation) represent the loss of their traditional source of firewood and fodder.

The struggle of interests within communities and outside them is a very common aspect of CBFM. Alashi explains, "each group has its own interest in how the community should use/manage its forest resources". (1999; p. 143)

Another issue that could explain why participatory management is not succeeding was raised by Silas Alashi, who argues that "local communities have their own ideas about empowerment and participation, which differ from those of interested outsiders as governmental entities, privates and donors" (1999; p. 140). This difference and the

management lack of information about community agendas is the major reason for CBFM failure.

The Role of Institutions in CBFM projects:

As Oscar Ugalde observed (2003), individuals organized in local social groups can contribute to the achievement of collective goals, and in particular conservational goals, through the creation of institutions.

In 2004, Mansuri and Rao found several qualitative studies indicating that the sustainability of community-based initiatives depends crucially on an enabling institutional environment. Ministries need to be responsive to the needs of communities, and national governments need to be committed to transparent, accountable, and democratic governance, through upward commitment.

In many developing countries, corruption and clandestine use of forests erode the legitimate of the institutions that are expected to enforce the law. For example, Nygren writes that in Honduras, “some authorities who are responsible for controlling illegal forest extraction are themselves part of the business, which diminishes the credibility of the patrols and makes the rules hypocritical in the eyes of the public” (2005; p. 647).

The lack of transparency in accounting and reporting procedures is another important problem that discredits the legitimacy of forest governance. As Nygren mentions in her work, “the lack of institutional accountability undermines local control over resources and inhibits local residents from voicing their concerns in political arenas” (2005; p. 648).

A similar pattern occurs in other countries, for example Poffenberger points out that “no Southeast Asian nation has yet developed an effective national system for monitoring and evaluating the social, economic and environmental of community forestry initiatives” (2006; p. 66).

2.2. Literature on Community-Based Forest Management (CBFM) in Bolivia.

Bolivian CBFM has its roots in the new forest regime, introduced by the General Regulation and technical norms of the Forest Law 1700, established in 1996.

Since its creation, the new forest law has gone through many substantial modifications;

forest resources and indigenous communities have been introduced to the productive process of use and sustainable management of these resources; some people affirm that the access process to forests has been democratized. (BOLFOR II)

In 2003, Pablo Pacheco identified opportunities and limitations of decentralizing forest management in Bolivia. With that purpose, he evaluated the country's decentralization model and its implications, in association with other factors such as the system of civic participation and the existing forestry regulations within which municipalities carry out the forestry functions delegated to them in the mid-nineties.

Decentralization was promoted through the Law of Popular Participation¹⁴ (No. 1551), and the Administrative Decentralization Law¹⁵ (No. 1654), both approved in 1994. The first one modified the functions of municipal governments and introduced community control over municipal governments by recognizing Base Level Organizations¹⁶ in each community; the latter modified the functions of the prefectures or departmental governments. Under this new decentralization model, local governments were responsible of planning part of the public investment, oriented by plans formulated with the participation of different local stakeholders.

The transfer of natural resource management responsibilities was partly an indirect consequence of a broader decentralization process, in part a result of regional struggles to ensure that forested regions would benefit from timber use and, to a lesser extend, a response to the growing international consensus in favor of greater local participation in resource management and administration of protected areas (Kaimowitz *et al.* 2000)¹⁷.

Pacheco observes that important steps have been made to construct a democratic decentralization process in Bolivia, being one of the regions' countries that have made the greatest progress distributing forest management functions to municipal governments. However, the municipal governments' functions and discretionary decision-making capacity are still limited despite the leadership role they have acquired in forest management (Pacheco, 2003).

¹⁴ The Popular Participation Law made municipal governments responsible for health and education services, highways and potable water. To do this, the national government assigned 20% of its budget to the municipal governments, distributed on the basis of their population size.

¹⁵ The Administrative Decentralization Law abolished regional development corporations and transferred their functions and most of their assets to the prefectures, which at that point became responsible for regional development planning.

¹⁶ In Spanish OTB: "Organización Territorial de Base".

¹⁷ The Popular Participation Law does not give municipal governments any new duty related to natural resource management.

To support the previous idea, Pacheco argues that while new functions were transferred to the municipalities, central government maintained responsibility over the decision-making process on assigning and distributing forest resources, formalizing forest permits and defining forest management and use regulations.

The funds from forest use and clearing license fees provide the resources for implementing all the functions distributed between the different governmental levels. According to the Forestry Law (art. 38), use license fees are distributed as follows: 35% to the prefectures, 25% to municipalities, 10% to Fonabosque¹⁸ and 30% to the Forest Superintendence. Of the fees for clearing licenses, 25% is allocated for prefectures, 25% for municipalities and 50% for Fonabosque.

Under the new Forest Regulation, municipalities may request and administer up to 20% of the total public forests under their jurisdiction, creating Municipal Reserve Forest Areas (AFRM) that must be turned over to Local Social Associations (LSAs) as forestry concessions. In practice, this is the mechanism planned to formalize small-scale loggers' rights, previously denied to them to operate legally.

As mentioned before, municipalities receive 25% of the forest use and clearing license fees to be "distributed in accord with the use areas granted in their respective jurisdictions for supporting and promoting sustainable forest resource use and implementing social works of local value, as long as the municipality complies with the objective of this contribution" (Forestry Law, art. 38b).

Within six months after receiving these funds, each municipal government or association of municipalities must establish a Municipal Forestry Unit (MFU), following the minimum implementation level determined by the Forest Superintendence's Technical Directive. The MFUs require financial resources to effectively implement the tasks of inspecting and controlling forest management and clear-cutting. In addition, they demand certain knowledge of the forests' bio-physical, socioeconomic and institutional characteristics in order to prepare management plans, as well as conflict negotiation skills to lead with all the stakeholders involved.

In his analysis Pacheco found that forestry units have concentrated on classifying forest areas and supporting the formation of LSAs by local logging groups, as well as

¹⁸ Fonabosque is an independent institution created by the law to promote and finance forest management and sustainable conservation. However, in reality it is minimum what it has achieved, and it has received many critics regarding its administration.

drawing up management plans. They have given less priority to activities such as controlling exploitation operations without forest permits and inspecting illegal clearing. The drafting of soil use plans is also less important to municipal governments and their relationship to the protected areas has been ambiguous (Pacheco, 2003).

In 2006, some researches from CIFOR and IDRC analyzed the process of decentralization and its relationship with the exclusion and inclusion of some actors from the Latin American forestry (Larson, Pacheco, Toni, Vallejos, 2006). For the Bolivian case, they've found that since 2004 the participation of non-politic candidates in municipal elections has been permitted, titled lands have been assigned to communitarian groups and indigenous people, as well as the number of concessions granted to LSAs has been increasing. In some municipalities, the Forest Superintendence has started to delegate important functions to some MFUs, including power in the decision-making process over different types of small-scale authorizations (Larson, *et.al*, 2006).

The authors observe that the forest sector does not allow small-producers to obtain high economic benefits, unless there are specific policies with that purpose. In other words, even though they obtain the right over the land and the forest resources, marginal groups face serious problems regarding credit access and commercialization, which make them dependent of timber companies and sawmills of the region to obtain financial resources, and their income diminishes in high proportion. However, they highlight that the Bolivian policy of creating local reserves for the LSAs has benefited groups of small-scale producers.

In addition, the authors point out that the women in the Bolivian communities are generally marginalized from forestry activities and therefore they do not receive an important part of the benefits arising from these activities.

Other investigators such as Kaimowitzs, Pacheco and Lopez have concluded that laws have created new opportunities for indigenous people, small farmers, and small-scale timber producers to gain access to forest resources and influence forest policy, although they do not always take advantage of those opportunities (Kaimowitzs, *et.al*, 1998).

Today, among CBFM projects implemented in northern La Paz, CIPTA has established that the following projects are being implemented in different Tacana communities with the support of international organizations such as WCS, UNDP, International

Conservancy, ACCA Bolivia, CARE International and BOLFOR II (CIPTA, 2007):

- Implementation and improvement of wild cacao crops for its commercialization in 5 communities¹⁹.
- Sustainable forest use and management for wood products, through the establishment of 12 productive local groups²⁰.
- Sustainable forest use and management for non-wood products in 5 communities²¹.
- Communitarian ecotourism projects implemented in 2 communities²².

As shown in this chapter, many authors found positive and negative impacts regarding CBFM projects implemented in many developing countries. Some researches who studied the specific case of Bolivia (Larson, Pacheco, Toni, Vallejos; 2006) arrived to similar conclusions, especially regarding the effects of decentralization. All these points will be taken into consideration in further analysis in Chapter 4.

¹⁹ Napashi, Carmen del Emero, Santa Fe, San Antonio de Tequeje and Tumupasha.

²⁰ San Pedro, Macahua, Carmen Pecha, Maravilla, San Silvestre, Altamarani, Tres Hermanos, Buena Vista, Villa Fátima Carmen Emero, and two in Tumupasha: APIAT and AGROFORT.

²¹ There is one project implemented in Bella Altura, and 4 of them are still non-implemented projects regarding Brazilian nuts production.

²² San Miguel del Bala and Macahua.

3. Methodology.-

3.1. Methodological Framework.

The present research uses two methodological frameworks. The first one is based in a *socio-economic impact analysis* proposed by Mary Edwards (2000), as part of the "Community Guide to Development Impact Analysis". Taking into account that this methodology is very general and considering the time limitation, some adjustments have been done, leaving some aspects of the methodology aside.

The methodology consists in assessing the changes in the lives of indigenous communities brought by a project or policy implementation. This paper analyses the New Bolivian Forest Regulation (implemented in 1996) and assesses its social impact on indigenous communities.

The new Forest Law 1700, supported by other regulations and norms, has introduced CBFM, offering new opportunities for indigenous people and, to a lesser extent, to small farmers and timber producers. The law has also helped communities access forest resources, has incorporated local knowledge and has increased the participation of indigenous actors in forest management and in policy making processes.

In order to understand the economical, social and cultural changes within the Tacana communities brought by the new Forest Regime, this paper analyzes and compares the conditions before and after the law. For this purpose some quantitative and qualitative measures were used. Among the first type of measurements, the following *quantitative* indicators were used to assess the social impact: demographic information (density and distribution of people living in the community, changes in the composition, migratory aspects), employment (main activities, wages, composition of communitarian forestry organizations) and income (family income derived from forestry, income distribution, main expenses).

The *qualitative* measurement relies on the perception of the residents about how the new forest policy has affected their quality of life. Another important issue is related to the influence that the policy could had in the community's cohesion and cultural differences among stakeholders (large and small loggers, large and small farmers of different ethnic origins, ranchers, indigenous people's organizations, environmental and development NGOs, merchants and government officials, among others).

The second methodology is based on Diego Pacheco's work (2004), "*Analysis of commercial community forestry management in indigenous communities that inhabit the Bolivian tropic*". This approach complements the first methodology because it includes a market perspective of forestry and analyses the potentialities of this activity for further income generation. Some adjustments had been made to this methodology taking into account the scope of the present research paper.

In his paper, Pacheco first selected the communities considering some level of vertical and horizontal integration in the forest sector. During the selection of the households, he also considered different levels of participation in the forestry sector within the communities. Each group was selected randomly.

Pachecho used a survey oriented to rural households to collect economic information, as well as social and human information regarding the size of the family, education and others. The surveys were administrated to the heads of the household (men and women). The survey had also the aim to measure the level of participation of the heads of the household in forestry activities.

He also used the *International Forestry Resources and Institutions* methodology – IFRI to collect information regarding problems of collective action and institutional changes to discover the variables that allow communities to achieve an effective organization in the management and commercial wood production.

In this sense, I will try to identify the main socio-economic indicators that could help us understand the importance of forestry among Tacana communities and the way it has been incorporated as an alternative means to achieve development.

For both methodologies, I used information collected from the surveys and interviews made to the core stakeholders of the forest sector during the fieldwork. In addition, taking into account the availability of secondary data, I worked based on previous studies regarding forest management in northern La Paz done by institutions that have worked with Tacana communities in the past, such as WCS, BOLFOR II, CADEFOR and TNC, to analyze the socio-economic impacts of forestry at different stages of time in the life of the community members, and to identify strenghts, weaknesses, opportunities and threats for the development of future community-based forest management initiatives.

Regarding the secondary objectives of the present research:

- a. I used a mapping of conflicts arising between the different groups of stakeholders;
- b. I have collected information related to the wood productive chain in northern La Paz (levels of participation, prices at different stages, commercialization channels and potential markets) to identify the potentialities of communitarian forestry organizations, especially for the case of San Pedro's CFO.

3.2. Fieldwork.

The fieldwork of this paper is focused on Tacana communities in general, but considering the time limitation, the research consisted on visits to two communities: Tumupasha and San Pedro, which have established Communitarian Forestry Organizations (CFOs) dedicated to wood exploitation under Forest Management Plans approved by the Forest Superintendence since 1999 and 2001, respectively.

The material in this research paper is based largely on an exploratory visit to both communities in August 2008, to collect relevant data for the current investigation, through interviews and surveys designed to identify the most important socio-economic indicators related to community-based forestry in the region, as well as interviews with key informants from government agencies, non-governmental organizations, international missions, research centers, municipal governments, and indigenous and small-farmer organizations from La Paz, which are involved in funding, implementing and monitoring diverse projects of CBFM regarding wood-products in the region.

For the case study I decided to concentrate only in San Pedro's experience, because many studies have been developed about it in the past and they are very useful to base the present analysis. Another reason for choosing San Pedro is because its CFO is one of the few that is trying to go further in the wood value chain and I believe it is important to understand and support this initiative with my research.

Appendix B gives detailed information of the interviews held during the fieldwork, Appendix C shows a model of the surveys and questions made to stakeholders within communities and Appendix D has some pictures regarding forestry in Northern La Paz and some images to show the livelihood of Tacana communities.

Limitations of the Fieldwork:

A formal authorization from the CIPTA was obtained to access Tacana communities and collect primary information. However, due to lack of time in the region some CIPTA members asked me to reduce the number of surveys and use personal interviews instead, oriented to the main CFO members, household' heads and community leaders. Another factor that was responsible for certain obstacles is that during my fieldwork (August 2008) it was the harvest season, thus people who are involved in forestry were very busy and far away from the community (working in AAAs and sawmills). CIPTA also expressed its preference that my analysis was to be based in just one specific case study: San Pedro.

Futhermore, given the national political and social turmoil during my visit to Bolivia, I was not able to travel to Santa Cruz, where many national and international institutions involved in the wood sector are established. Nevertheless, I made contact with them through e-mail and received important information.

It is important to mention that the quality and reliability of the information obtained might have been affected by the fact that I was not able to establish a relationship of trust with the community, given the short time of my stay. Therefore, it is possible that some information does not reflect the real situation of the communities.

Another factor to consider is that some data obtained might be biased. For example, the communities might have reported that their situation was worse than what it is in reality in order to obtain more financial support. On the other hand, some public institutions might have hidden problems in order not to show internal deficiencies.

4. Analysis of CBFM on Tacana Communities' development.-

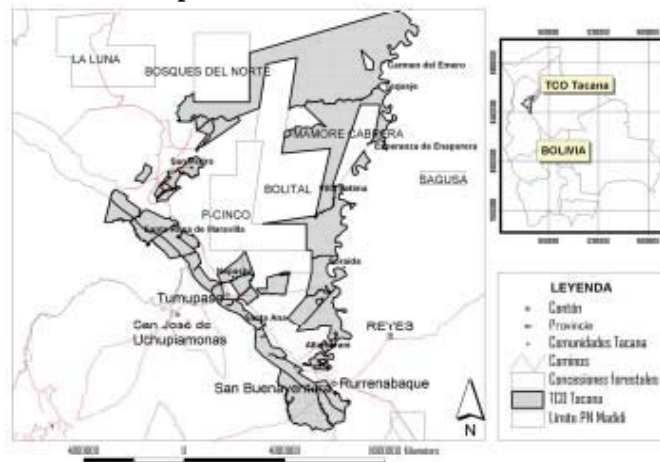
To analyse the impact of CBFM on the development of Tacana communities is important to understand first, from a historical perspective, the situation of these indigenous people along the years.

4.1. Historical Development of Tacana communities.

The Tacana is a group of communities with ancestral ethnic roots, who inhabit in the departments of La Paz (Abel Iturralde province), Beni (Ballivian province) and Pando (in Manuripi and Madre de Dios provinces), settled between the rivers Beni, Madre de Dios, Madidi and Tuichi. They preserve their culture and traditions and their main economic activity is agriculture, but they also rely on secondary activities such as hunting, recollection and handicraft making using rubber²³.

Today, Tacana TCO I consists of 20 communities living within and surrounding the Madidi National Park, with 610 nuclear families and a population of 2970 inhabitants. 93.8% is identified as a Tacana, the majority speaks Spanish and only 16% speaks the Tacana language (WCS, 2006).

Map 1: Location of the Tacana TCO



Source: Wildlife Conservation Society, 2006

The following historical information has been extracted mostly from the “*Sustainable Development Strategy for the Tacana TCO, based in Natural Resource Management 2001-2005*”, elaborated by the Indigenous Directive of Tacana Communities (CIPTA) in coordination with WCS in 2002.

²³ Source: http://www.bolivia.com/empresas/cultura/Pueblos_Indigenas/tacana.asp

Before the Spanish Colonization:

During the pre-Inca and Inca civilizations, the Tacanas occupied part of the *Antisuyo* territory of the Incas; they were commercial intermediaries between the Incas and the amazonic people, thus they were linking highland villages with lowland people.

Some historians affirm that the Incas were trying to conquer the amazonic natives by force; however the Tacanas, Lecos and Aguachiles were strong enough to resist. The evidence of the relationship between the Incas and the Tacanas prevails in archaeological sites and on Tacana handicrafts' designs.

During Colonization:

During the XVI and XVII centuries the Spanish started a search for "*el Dorado*" or "*Paititi*", a city of a golden king somewhere in the Amazon basin. In 1539, Pedro Anzures' expedition found the Tacana community for the first time. However, there is no indication of any direct Spanish military rule in the area.

However, in 1616 a Spanish army entered the Tacana territory, but the natives organized a big assembly to define their position regarding the Spanish intervention. They reacted in a peaceful way, using negotiation as their means to guarantee freedom and their land ownership which, according to Chiovoloni (1996), was the most precious thing they had. In this manner, the Tacana were able to keep the access and use of the natural resources of the region.

Later on, the communities dispersed due to the presence of Franciscan missionaries, who started gathering indigenous people for their missions. It's important to mention that the Franciscans were working mostly with Tacanas but there were other different ethnic groups and cultures in the missions, which affected the people's original languages.

In this period indigenous population was reduced, due to severe illnesses transmitted by the Spanish, as well as deaths caused by firearms introduced in the communities.

During this period the Tacanas arose as an ethnic group with just one language and a unique culture. As Wenzel (1991) points out, the mission's organization was strictly regulated and caused a fundamental transformation in the economy, social structure and ideology of the Tacanas.

Since 1780, the Tacana missions had to pay tribute to the Monarchy with cacao, as there

were integrated into the colonial economy and state. The missions also introduced changes into subsistence practices of indigenous people, stimulating the production of rice, vegetables, fruit, as well as the planting of trees and the rise of domestic animals.

Republican Period:

After two centuries of civil, religious and military intervention, the independence of Bolivia as republic gave place to new changes in the Tacanas' settlement and economic patterns. Yet in 1837 the government returned the communities to the Franciscans.

In this context, the republican life did not bring better conditions to indigenous people, as they were expecting. Instead, it brought the exploitation of their resources, such as quina (1850-1860), rubber (1880) and the Brazilian nut (1930), which increased the employment of Tacana people in the exchange process. But the recruitment of Tacana people as labour force was sometimes violent, making some groups runaway inside the jungle.

Since 1898, rubber production became so important for the national economy that the activity grew enormously, and the Tacanas were forced to involve themselves in the activity, under unfair rules especially related to the economic exchange of their products.

From 1907 to 1910, the government granted 35 rubber concessions for private exploitation. During this period and more, the Tacanas were victims of cruel treatments; even they were commercialized as slaves.

In 1912, rubber price plummeted and the extractive activity contracted, reducing the government's interest in the region. In response to the crisis, in 1930, the Brazilian nut gathering became the new main activity in Pando and Riberalta, creating migration of Tacanas in rainy season. Many Tacanas were recruited for the Rubber War in 1902 and for the Chaco War in 1932. After the end of the disastrous Chaco War, the Tacanas discovered that they too had rights as Bolivian citizens.

In 1938, Abel Iturralde province was founded, and one year later, the state established public schools in rural areas, initiating the decline of the Tacana language and a process of racial discrimination.

In 1944, the construction of an airport in Rurrenabaque and one in Ixiamas 4 years later, promoted the insertion of Tacana communities within the national market,

affecting their culture and their economical patterns in great manner. The Bolivian government considered at that time the Tacanas to be rural farmers, and not indigenous people, in spite that the Tacanas maintained some spiritual rituals and traditions, which are still alive today.

After the economical crisis of 1960, the Tacana contribution to the economic system was limited to labour force as an alternative for income generation, depending on sawmills and timber companies.

Since the early 70's:

In the early 70's, the region suffered an economic reactivation and commercial logging became important. Forest exploitation grew with the arrival of private companies from Santa Cruz and was intensified with the construction of the road La Paz - San Buenaventura – Tumupasha - Ixiamas in 1990, which contributed to another process of colonization, without any strategic planning. Aymara and Quechua indigenous people migrated to the region attracted by the implementation of a sugar industrialization project in the municipality of San Buenaventura.

This initiative was a product of a change in regional development policies, enforced with the creation of CORDEPAZ in 1971, looking forward to transform La Paz into a new development pole, without taking into account the negative socio-economic, as well as environmental impacts to the indigenous communities. The project of sugar industrialization failed and after that, some short periods of bonanza came, especially regarding the temporal presence of oil companies in the region or the intensive extraction of high-value wood species between 1990 and 1996.

During the Bolivian dictatorships, the northern territory of La Paz was victim of many State policies implemented to distribute land and give big forest concessions to timber companies, violating the rights of indigenous people that inhabited the region.

Once again, forest activities provided temporal income for the Tacanas during the harvest season. Most of the Tacanas were employed in the extraction process, but some of them were incorporated into sawmills settled in the area, promoting short-term migration of some family members.

In most cases, Tacana men left their families for a period between 2 and 6 months (during the harvest season), leaving the women and children in the communities. In some cases, few women worked as cooks in the extraction areas (camps).

Under these situations, activities regarding agriculture were a total responsibility for female members of the community²⁴.

Even though in 1989 forest concessions were temporarily revoked in the north of La Paz, until 1991 five timber companies kept working in the area.

In the decade of the 90's, a new cycle of State Reforms started (the Agrarian Reform, Decentralization and Popular Participation, a New Forest Regime, among others), which in part favored indigenous communities by recognizing and respecting their rights, giving them more opportunities and increasing their participation. The base of this process was the ratification 1991 of the 169 Convention of the International Labour Organization (ILO) that recognizes the aspirations of indigenous people to assume control over their ways of life and their own view of development.

On November 8th 1993, the Tacanas created their own organization, called Indigenous Directive of Tacana Communities (CIPTA), to consolidate their territory, preserve the Tacana traditions and customs and maintain solidarity among all the communities.

Since 1996, a new institutional process was initiated with the creation of the New Forest Regime, in favor of indigenous people and small groups of farmers and timber producers.

It is important to mention that Tacana communities have passed through many different historical stages, being affected by the influence of many external factors such as the arrival of new cultures searching for territory conquest, Spanish colonizers, Franciscans missions, outsiders, new policies, and other externalities that have contributed to shaping and changing their social structure, economic behavior and even their cultural identity and views of development. These changes are going to be analyzed in the next section.

4.2. Socio-Economic Analysis:

Since their origin, the Tacanas have been blessed with many natural resources that have provided them with all the means they needed to survive and have a decent life. For example, wood forest products have been very important since ancestral times, as they used them for house building, canoes and oars, among others. The same

²⁴ Nowadays this situation remains, considering that wood extraction is done just by Tacana men.

happened with non-wood forest products such as fruits and plants to be used as food and for traditional medicine production, as well as for making house roofs and handicrafts, as in the case of palm leaves.

All the activities regarding forest management have been done with traditional techniques that are part of the Tacanas culture and practices. But some of these traditions and cultural aspects have been changed throughout time.

The present chapter aims to analyze, in a general perspective, the main socio-economic changes in Tacana communities, arising from the implementation of some public policies before and after the New Forest Regime of 1996, which introduced the CBFM approach. It is important to notice that this analysis will be oriented to obtain a first diagnostic, especially regarding cultural aspects. For this purpose I will use mostly secondary information from national and international organizations, as well as the interviews conducted with different stakeholders involved in CBFM in northern La Paz during the fieldtrip to the region. The case study of San Pedro's community will be developed in chapter five, to understand these socio-economic changes from a more specific perspective, using quantitative and qualitative measures mentioned in the Methodological Framework (chapter 3).

Assessing the effects of public policy in the Tacana culture before the New Forest Regime:

All the changes in public policy have affected the Tacanas in different ways. Some of them were oriented to search for economic growth without considering indigenous communities and social inclusion, as in 1971 with the creation of CORDEPAZ and the implementation of a project of sugar industrialization in the region, or during the Bolivian dictatorships, when the north of La Paz fell into the hands of many policies implemented to distribute land and grant big forest concessions to private timber companies.

As a consequence of these policies, new actors arrived to the region and therefore, conflicting interests started competing, being indigenous people who lost more in the process as they could not participate in decisions regarding natural resources use and had no right over them.

The Tacanas received a lot of external influence from the interaction with these new stakeholders, who arrived from different cultures and regions (as the Aymaras and Quechuas from La Paz and Cochabamba) and suffered the discrimination of more powerful groups, such as businessmen and government officials.

The Tacanas were inserted into the market as labour force, sometimes working under very hard and unfair conditions, and receiving very low payments for it.

During this period, the Tacana communities were dismembered as many people were recruited to work in extractive activities, promoting the temporal migration of some family members.

All these factors caused a big negative effect on the Tacanas' identity, and the loss of many cultural values and traditions.

During the fieldtrip, I had the opportunity to meet some Tacanas from the communities of Tumupasha and San Pedro. They are very kind people, characterized for being very peaceful and respectful with other cultures. Some of the elder people welcomed me into the community and explained the meaning of many Tacana words, such as *Tumupasha*, which means "white stone".

They recognized with sadness in their heart that the Tacana culture has lost its essence, especially regarding their identity. One example of this is that the Tacana language is no longer spoke by many.

Tacana communities have been gradually losing their native language due to a generalized use of Spanish for most activities, especially those regarding product commercialization. Only older people speak Tacana nowadays.

Young people hardly understand and speak their original language. One of the reasons is related to education; when public schools were built in the region, teachers prohibited Tacana students to speak their native mother-tongue, creating a mistaken atmosphere of discrimination and prejudice among the children. (CIPTA-WCS, 2002)

The introduction of new technologies and modern practices has put in risk the preservation of some Tacana traditions, such as women's knowledge for the production of some sub-products such as jam, handicrafts and others.

The Tacana identity gradual loss was basically caused by a strong social discrimination for having indigenous origin and by their need to merge into a local, regional and national adverse context, characterized by a society that stigmatized them.

In summary, based on the historical overview and personal interviews during the fieldwork, we can highlight the following facts regarding Tacana communities before the mid 90s:

- a) The Tacanas had been excluded from decisions regarding the region's development.
- b) They had suffered a disintegration process in which they did not perceive any social benefit.
- c) Tacana culture and organization has not been respected by other stakeholders and it has affected the loss of cultural values (traditions, language, etc.)
- d) They have been categorized as "underdeveloped"; therefore a new view of development was introduced, let's call it a *capitalistic view* related to economic growth through natural resource exploitation (quina, rubber, wood, etc.).
- e) They had received very low incomes and had been integrated to an unfair economical system.
- f) Natural resources were basically depleted in favor of some elite groups, and reforestation wasn't considered by any policy.

The effect of the New Forest Reform in the Tacana livelihood:

In the decade of the 90's, a new cycle of State Reforms started with the promulgation of the Popular Participation Law and Decentralization process in 1994, the INRA Law as part of the Agrarian Reform in 1996 and the New Forest Regime established in the same year. These new institutional framework recognizes and respects indigenous people rights, promoting the preservation and integration of their cultural values and traditions into the National System, and have increased their opportunities and participation in resource management process, among other things.

The changes produced in the Bolivian public policies have incremented Tacana's motivation to get involved in forest management projects, considering their land ownership achieved in 2002. In 2006, the Forest Superintendence revealed there were 7 Communitarian Forest Organizations (CFOs) and 8 Local Social Associations (LSAs) legally established in the municipality of Ixiamas.

The new Forest Regime has also changed the Tacana structure and organization, as it has enforced the creation of institutions that support the CIPTA, such as ORFITI²⁵ (Tacana Indigenous Organization for the Iturralde province), which represents all the CFOs of Tacana TCO, and AFIN (National Forest Indigenous Association) at the national level.

²⁵ It works as an operative support for the CIPTA's Natural Resource Secretary.

The social structure within the communities has also changed, combining traditional political authorities²⁶ with new institutions introduced as a product of the Popular Participation process. The community organization has the following general structure: “Corregimiento”²⁷, a Base Level Organization and a School Association. There could also be other complementary institutions such as the Water Committee, Sports Club and Mothers Association. (CIPTA-WCS, 2002)

A very positive impact that we can highlight from this change in the institutional framework, is a process of reintegration and self-valuation among Tacana communities, which have received collective rights and responsibilities over natural resources management. This process reinforces the cultural identity recuperation, which is immersed in the CIPTA principles: *strength, maintain and enforce solidarity among all Tacana communities, fighting for better opportunities and life conditions, and protecting their cultural and natural patrimony*²⁸.

An evidence of CIPTA’s effort is the creation of a rotary fund, consolidated with the annual contribution of each community to finance the creation of new CFOs or to support small development projects. Other remarkable facts are related to the creation of a Tacana Cultural Centre in Tumupasha in 1999 and the establishment of an Amazonic Multiethnic Educational Program to improve education and revalorize Tacana language²⁹.

Reality shows that some conflicting interests remain. For example, there is criticism to the Tacana indigenous movement in the Iturralde province, for being considered a brake in the region’s development. These positions will be analysed in the next section.

The new institutional framework has also changed the Tacana’s perception of development, adding new ideas of the human approach introduced by Amartya Sen and the UNDP in 1990 (regarding empowerment, participation, capabilities and respect to human rights) to the existing capitalistic view.

Among the negative effects of the new Forest Regime we can highlight the following:

²⁶ In the past, the community was represented by the “Corregidor”, a “cacique” and “huarajes”, all of them annually elected among the male population (CIPTA-WCS, 2002).

²⁷ The *corregimientos* respond to the Subprefecture of Iturralde province.

²⁸ CIPTA – WCS (2002).

²⁹ By 2007, with the support of CIDOB and DANIDA, this program has trained School Associations, given some scholarships and increased the number of bilingual teachers to teach in Tacana and Spanish (CIPTA-WCS, 2007).

- a) This law promotes and favors wood extraction, leaving aside non-wood forest products, ecotourism and forest plantations; “it doesn’t guarantee the preservation of high value forest species”³⁰ (Olarde, 2005; pp 78).
- b) The excessive financial and technical support of some projects and institutions, such as BOLFOR, was important in the beginning but injurious at the end considering that communitarian organizations became dependent on them and couldn’t develop alternative ways to face alone market competition and high production costs.
- c) Some people believe that indigenous people situation, expectations and cultural perspectives were not considered in the generation of business activities; even worst, all the initiatives to promote CBFM couldn’t create a sense of enterprise ownership in the communities, considering that the project (BOLFOR) participated in the design of CFO and LSA intern regulation and statutes, which sometimes were very difficult to understand for community members.
- d) In some cases, NGOs and public entities helped communities to change their legal position from “community” to “civil association” in order to make their participation in the wood market easier, without considering all the effort and time invested in achieving the recognition of their rights as indigenous communities³¹.
- e) The creation of public institutions to regulate forest sector (Forest Superintendence and MFUs) was not effective in the sense that they don’t collect enough annual revenues from forestry to invest in more technical personal to work in the field, increasing the activity of illegal loggers in the region.
- f) Some people from the communities also argue that forestry is taking time from agriculture, which is the main activity among Tacanas.

In summary, we can say that the new Forest Regime has caused many positive and negative changes in Tacana communities. From their perception and my personal opinion, positive effects overweight negative ones, especially regarding social structure, integration and identity self-valuation, which have been threatened before 1996 by other policies. This gives us an optimistic perspective regarding the main objective of this paper.

³⁰ It assumes a 20 year period for a tree to be cut again, but some high species take longer to recover their commercial diameter.

³¹ Some indigenous organizations criticized their transformation from communities to simple business asossiations.

4.3. Conflicts and clash between stakeholders:

There are several actors that participate directly and indirectly in community-based forest management (CBFM). Each of them has his own interests and sometimes these compete directly with other stakeholders, creating different type of conflicts. In order to analyse them is important to consider two different arenas: within and outside the community. The following table shows the interaction of stakeholders, the five main conflicts arisen and the institutions created to reduce and solve these problems:

Table 2: Stakeholder Interaction and Conflict

CONFLICT	MAIN STAKEHOLDERS		
	Within Community	Supra Communal	External Entities
a) Political & Administrative Jurisdiction	<div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: fit-content; margin-bottom: 5px;">"Corregimiento"</div> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: fit-content; margin-bottom: 5px;">Indigenous people (TACANAS)</div>	<div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: fit-content; margin-bottom: 5px;">CICOTI</div> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: fit-content; margin-bottom: 5px;">CIPTA</div>	<div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: fit-content; margin-bottom: 10px;">Departamental Government (La Paz)</div> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: fit-content; margin-bottom: 10px;">Regional Government (Abel Iturralde)</div> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: fit-content;">Municipal Government (Ixiamas)</div>
b) Regarding Identity Interaction	<div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: fit-content; margin-bottom: 5px;">Regional Farmers</div> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: fit-content; margin-bottom: 5px;">Urban/Rural immigrants</div>	<div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: fit-content; margin-bottom: 5px;">Abel Iturralde Farmer's Federation</div> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: fit-content; margin-bottom: 5px;">Civil Committes</div>	
c) Land Ownership/ Distribution	<div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: fit-content; margin-bottom: 5px;">Base Level Org.</div>		
d) Regarding Market Share & Competition	<div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: fit-content; margin-bottom: 5px;">CFOs</div> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: fit-content; margin-bottom: 5px;">LSAs</div>	<div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: fit-content; margin-bottom: 5px;">ORFITI</div> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: fit-content; margin-bottom: 5px;">AFIN</div>	<div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: fit-content; margin-bottom: 5px;">Private Timber Enterprises</div> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: fit-content; margin-bottom: 5px;">Environmental & Dev. NGOs</div> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: fit-content; margin-bottom: 5px;">Forest Superintendence</div>
e) Natural Resources Use & Management	<div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: fit-content; margin-bottom: 5px;">Illegal Loggers</div>		

Source: Work of the author based on Care-WCS documentation (2002).

The table above gives us a brief summary of the main conflicts arisen in Ixiamas municipality. As we can notice some of them are interrelated, letting us separate them into two big groups. However, to understand better the causes and interests behind each of these conflicts we are going to analyze them separately:

a) Political and administrative jurisdiction conflicts: There are many tensions regarding boundaries and jurisdictional relationships between 2 municipalities: Ixiamas and San Buenaventura. In this sense, there is a clash between CIPTA and some

people from Ixiamas represented by CICOTI³². There is a perception that the TCO regime harms Ixiamas political and administrative jurisdiction.

b) Conflicts arising from different identities interaction: A very polemic topic in Bolivia is related to actor's ethnic identity³³. Based on this variable one can separate them in 3 social categories: indigenous who identify themselves as Tacanas (represented by CIPTA), local farmers who don't identify themselves as indigenous people (represented by Abel Iturralde Farmer's Federation) and rural or urban immigrants (represented by Civil Committees). The interethnic conflict is strongly influenced by land ownership, as it can lead to identity manipulation to take advantage of benefits granted to indigenous people by the Agrarian Law.

c) Land ownership conflicts and TCO entitlements: These are related to a lack of understanding of the land distribution process³⁴ or to the lack of property rights. This kind of conflict is also articulated to different visions of development, considering the contrasting positions of stakeholders involved³⁵.

d) Economic conflicts worsen by free market competition: As we mentioned in previous chapters, CFOs, LSAs and illegal loggers compete in the market to sell wood to private timber companies and intermediaries. This situation reduces the price of their products. Unfortunately the role of the institutions created among communities to represent CFO and LSA interests (ORFITI and AFIN, respectively) is insufficient, as well as is the government control through the Forest Superintendence.

e) Conflicts of natural resources use and management: They are related to the use of natural resources in protected areas, indiscriminated exploitation by some stakeholders, territory delimitation problems and poor control by the Forest Superintendence. NGOs such as WCS, CARE, CADEFOR and TNC work with some communities to promote conservation and sustainable management of natural resources.

As the evidence shows, there are still many conflicts that need to be solved; therefore institutions created with that purpose should play a more active role, or perhaps be substitute by new entities.

³² CICOTI: Indigenous Directive of Tacana Communities in Ixiamas.

³³ Ethnic identity is referred to a particular way of identity expression, related to the way in which actors identify themselves and how others identify them considering their past (CARE-WCS, 2002; p.55)

³⁴ For example, some people confuse the property regime for TCOs with the one for protected areas.

³⁵ Some groups think that TCO constitution is very negative for the region's development, as it exclude some rich land owners and entrepreneurs from the productive process.

4.4. Role of local authorities in the forest sector.

Since the decentralization process started, local governments assumed a new role in the decision-making process and regarding policy implementation in some sectors. In this sense, the role of local governments in forest management has been strengthened and can lead to greater equity and even more sustainable resource use, nevertheless these outcomes are by no means assured. (Kaimowitz *et al.* 2000)

Most rural municipalities have been criticized for having weak administrative capacity, corrupt institutions and very few officials really concerned about forestry issues and preservation.

In 2006, Ixiamas received approximately US\$ 24.650 in the distribution of forest patents. (Forest Superintendence, 2006) This resources should be invested in *supporting and promoting sustainable forest resource use and implementing social works of local value*, as mentioned in the article 38b of the Forestry Law.

Many Tacanas argument that the local government involvement is still poor. However, compared with other municipalities, Ixiamas has done many things for the community's development regarding infrastructure and forest management, especially now that the local authority has indigenous origin.

One example of Ixiamas willingness to promote forest management, reforestation, nature conservation and land use planning in the region, is the implementation of the Productive Municipal Forestry Plan for Ixiamas in 2006.

5. Case Study.-

This chapter will develop the analysis of San Pedro's Communitarian Forestry Organization to identify the effects of CBFM in the community's development, using the socioeconomic indicators mentioned in Chapter 3.

5.1. General characteristics of San Pedro's Community.

Location and demographic information:

The community is located in the TCO/Tacana I (northern La Paz), belonging to the Iturralde province, Ixiamas municipality.

In 2004, CIPTA and WCS made a population census, finding that the community was composed by 20 households (most of them nuclear families), with a total population of 110 members, 57.3% male and 42.7% female. There was also found that 21 extra people is considered part of the community, but they live in Ixiamas, as it represents the nearest commercial centre to which many people migrates. These people, especially men, move to the community during wood harvest season.

Compared to a previous census of 2000, WCS (2004) estimated an increase of 8 people in the community, from which 87.5% corresponds to female population.

The average age of San Pedro's population is 20 years, but the number of young people is decreasing. In average, the economically active population (between 7 - 64 years) is constituted by 73.4% of the total population.

During the 2004 census, 89% of the population identified themselves as Tacanas, but there were also Apoleños, Aymaras, Borjanos and Guarayos (1% each). From these people, the large majority speaks Spanish, and very few maintain the Tacana language.

Community Structure and Social Organization:

All Tacana communities respond to the CIPTA as their main institution. Their system combines traditional politic authorities, such as the "*corregidor*" with new institutions introduced by external factors, which respond to the requisites of the Popular Participation process, introduced by the Central Government (WCS-CIPTA, 2002).

The structure of San Pedro's community consists on a "*corregimiento*", a Base Level Organization and a School Association. In addition, the base of the social structure is the nuclear family (father, mother and children).

Education, Health and Basic Services:

San Pedro’s community has one school³⁶, with only a basic education level (until fifth grade) and just one teacher. For higher education levels, students move to Ixiamas.

Around 89% of the population knows how to read. Disaggregating by sex, CIPTA and WCS found that in 2000, 93.5% of men and 84% of women were literate. (CIPTA-WCS, 2002)

Regarding health, San Pedro does not count with infrastructure and people have to go to the Ixiamas’ hospital or to the sanitary post (both around 5 km away from the community).

CIPTA has donated a first aid kit for each community, but many people still use traditional medicine to cure various maladies.

In 1996, AGUATEC installed a public water pipe for the community near the school. The community also counts with electric energy created with a small generator but is not available the entire day.

Main economic activities:

Agriculture is the main activity in the community of San Pedro, but they are also dedicated to livestock husbandry, hunting and forest management. All these activities respond to the following calendar:

Table 3: Calendar of Activities

ACTIVITY	SEASON
Agriculture	March/June – August
Livestock husbandry	August/September
Hunting	All year
Forest Management	July – October

Source: CIPTA – WCS 2002

Agriculture is based in a traditional sequential system of “*roza – tumba - quema*” (spray – cut - burn), to establish the area of cultivation, called “*chaco*”.

The main products are: rice, corn, yucca and banana, to be used for self-consumption and the rest to be sold in the market. Tacana women have a great traditional

³⁶ Kantuta Lara, representant of WCS in the CIPTA, mentioned that “San Pedro has contributed to the construction of the school, a church and a water pipe in the community, as they have a good capacity of negotiation to interact with local authorities” (Interview, August 2008)

knowledge to make other sub-products, such as *chicha*³⁷, fruit jam, cakes, and others. Unfortunately, this practice is getting lost among new generations of young Tacana women.

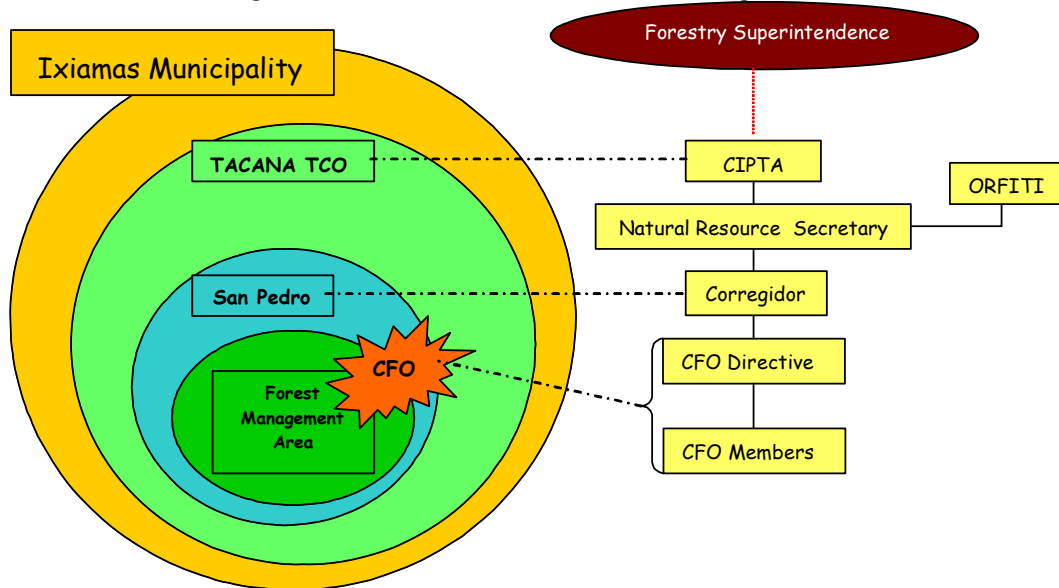
Considering that Ixiamas is rich in natural pastures, the communities dedicate their time to livestock husbandry (cattle, birds and pigs), for their self-consumption, commercialization, exchange (“*trueque*³⁸”) and reproduction.

Establishment of San Pedro’s Communitarian Forestry Organization:

Community forest management started in 2000 with the Forest Superintendence’s authorization for an Annual Allowable-Cut Area (AAA) of 787 hectares. In 2001, the community established formally the San Pedro’s Communitarian Forestry Organization, which presented the first General Forest Management Plan (GFMP³⁹) to be approved by the Superintendence in October, 2002.

For its conformation, the CFO requested the CIPTA the designation of a particular forest management area; this process involved the participation of the CIPTA’s Natural Resources Secretary. At the same time the CIPTA requested authorization to the Forest Superintendence (BOLFOR II, 2006). The following graph represents the structure:

Fig. 3: San Pedro’s Communitarian Forest Organization



Source: BOLFOR II, 2006

³⁷ “Chicha” is a traditional alcoholic beverage of the region, made of corn.

³⁸ “Trueque” is a traditional system of exchanging products with neighbours or other communities.

³⁹ In spanish “Plan General de Manejo Forestal – PGMF”

San Pedro's CFO is constituted by 23 members⁴⁰, from whom 4 belong to the Directive: one as coordinator, a manager - treasurer, a census responsible and a forest management responsible. They are supported by a forest engineer.

From July to October, they extract wood from their AAA and sell it to a Sawmill called "CONMINMA", which operates in the region. The average volume produced annually is around 9.500 m³ and the CFO's annual income is approximately US\$ 7,000.

The surface of the territory under forest management is 21,411.4 has, from which 860ha are designated for protection. Among the most abundant tree species of the area are the Ochoó (*Hura Crepitans*), Yellow Verdolago (*Amazonic Terminalia*), Mapajo (*Ceiba Petandra*), Guayabochi (*Calycophyllum Spruceanum*) and Chamane (*Paulsenia Armata*). In less significant quantities it is also possible to find species with high commercial value, such as the Mahogany⁴¹ (*Swietenia Macrophylla*) and Spanish Cedar (*Cedrela Fissilis*), which have been almost depleted before the new forest regime. The GFMP aims to manage around 22 species. (GFMP, 2002)

For 2003, the AAA was conformed by 16 species, with a total of 2,601 trees for cut (80%) and 668 for conservation (20%). (San Pedro's GFMP, 2003)

The benefits from the activities regarding forest management are distributed as it follows: 40% among the members, 40% for the community (as indirect investment), 10% for the CIPTA and 10% to be saved in benefit of the CFO⁴².

During the fieldtrip, Freddy Howard⁴³, manager of San Pedro's CFO, explained that is very difficult to save in favor of the enterprise, because most of the members demand the benefit distribution, especially for festive seasons⁴⁴.

5.2. Socio-Economic Analysis of the CBFM in San Pedro.

Quantitative indicators:

a) Demographic changes

Regarding *demographic information*, a comparison of two periods of time can be established using statistic data from the Indigenous Census of 1994 and the data

⁴⁰ Only one of the members is a woman: Ms. Irma Buchapi.

⁴¹ This specie is better know as Mara or Caoba, in spanish.

⁴² Some members of the CFO Directive argued that in 5 years the enterprise had saved around US\$ 30.000.

⁴³ Freddy Howard has Tacana precedence and belongs to the community of San Pedro. Today he lives in Ixiamas.

⁴⁴ They prefer to consume in the present, instead of saving for future investments in capital and new machinery.

available for 2004. The following table shows the changes in San Pedro's population in a period of 10 years.

Table 4: Changes in San Pedro's Population 1994-2004

Population	1994	2004	Variation (%)
Female	38	47	23.7%
Male	54	63	16.7%
TOTAL	92	110	19,6%

Source: SAE 1994, WCS 2004

As it is evidence, there has been an increase of 19.6% in the total population, from which female population increased more than male (23.7% compared to 16.7%).

In 2004, WCS observed a permanence of 76% of the population compared to a previous census of 2000. While male permanence was 50%, female's permanence was 60%, showing that women tend to stay in the area and men often migrate.

Migration is one of the main problems identified among Tacana communities; however San Pedro does not represent a community with high levels of migration. The main reason is related to work search and children's education.

Considering that San Pedro counts with a primary education school, many young people move to Ixiamas to attend high school and for higher levels of education (university and technical school) they have to leave the region into the cities. The migration of numerous families has a negative impact on the local education because there is a minimum number of students required to maintain a teacher in the area. (CIPTA-WCS, 2002)

Another important issue is related to 21 people considered part of the community, but living in Ixiamas. These people, especially men, move to the community during wood harvest season. However it represents some imbalances regarding duties and rights, when those who are not in the community for a long time try to get some social benefit, without assuming their responsibilities.

The influx of outsiders to inhabit the community is not significant, perhaps due to the difficult access to the community from Ixiamas. However, considering that San Pedro is one of the communities with one of the largest AAA approved by the Superintendence, commercial logging is a good incentive for outsiders to migrate in. This fact can explain the increase in adult population. Finally, a short-term migration

outside the community has to be considered during wood harvest season, in which Tacana men involved in forest management leave their families for a period between 2 and 6 months, leaving women and children in the community.

b) Main economical activities:

The people of San Pedro work mainly in agriculture, but they also invest their time in animal husbandry, hunting, non-wood product gathering and forest management.

Between 1990 and 1996 most people were integrated to commercial logging and intensive extraction of high-value wood species such as Mahogany and Spanish Cedar.

Forest activities implied the access to temporal salaries for indigenous people who were employed in the extraction process during harvest season and for those who were incorporated into private sawmills. Without doubts, commercial logging generated big profits for timber companies, but very low levels of income for the Tacanas.

With the New Forest Law, San Pedro's Communitarian Forest Organization was established as an independent enterprise for timber extraction. It started with 24 members, from which nowadays 23 remain today. It is one of the most constant forest management organizations in the region.

It involves the participation of many people from the community during harvest season. Freddy Howard, CFO member, commented during an interview that 25 people participate annually in the forest census and around 13 in the extraction process.

San Pedro's CFO signed a 5-year contract with CONMINMA, a sawmill settled in the region, and has been generating increasing incomes in benefit of the community, especially during the last years. A deeper analysis of the incomes generated from forestry is part of the next section.

c) Income:

In 2005, BOLFOR II estimated that the average per-capita income in San Pedro CFO was 485 US\$/year, based in data from 2004 collected by a household survey. During its analysis, BOLFOR II obtained the income composition of San Pedro's CFO per activity. The findings are shown in the following table:

Table 5: San Pedro's CFO - Household Income Composition for 2004

Activity	Income generated (Bs./year)	%
Agriculture	2,821	20.4
Farming	1,548	11.3
Wood forest products	2,465	17.9
Non-wood forest products	609	4.4
Paid work outside	2,985	21.6
Commercial business	772	5.6
Sub-product sell	375	2.7
Transfers	1275	9.2
Hunt and fishery	960	6.9
TOTAL INCOME	13,809	100

Source: Household Income Survey, BOLFOR II, 2005

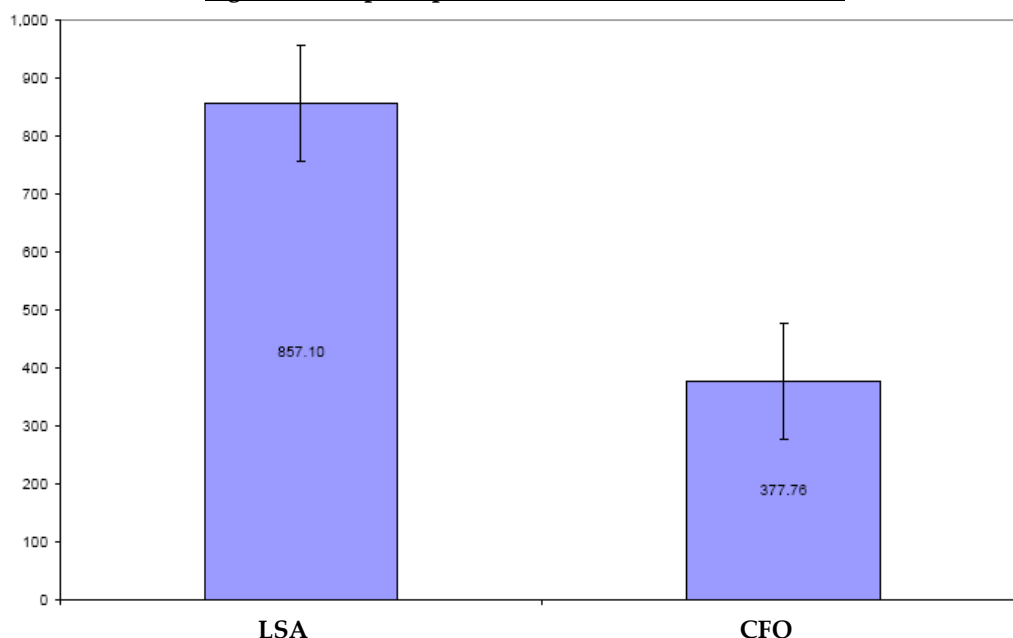
As mentioned above, the incomes generated from forestry are very significant as they represent 17.9% of the total household income. In the other hand, non-wood forest products contribute to just 4.4% of the income generated annually.

BOLFOR II also found that the average income of San CFO is much less than the National per-capita income (485 and 870 US\$/year, respectively). This difference is higher if we analyze it separating the incomes of the CFOs and LSAs⁴⁵, because it has been shown that the latter type of organization earns higher incomes derived from forestry (BOLFOR II, 2005).

Per-capita income was 127.4% higher in LSAs than in CFOs (Fig.5). BOLFOR also found that the LSAs obtain most of their income from paid work outside the household; in general CFOs receive most of their incomes from agriculture (except in San Pedro's CFO specific case, which receives most of its income from paid work outside the household as noticed in Table 4). In both cases wood and non-wood forest activities are a significant source of income. Both, CFOs and LSAs receive almost the same level of income from wood forest products (12.9% and 14.7% respectively). Finally, they noticed that LSAs don't get any income from non-wood forest products (BOLFOR II, 2005).

⁴⁵ LSA: Local Social Associations.

Fig 4: Income per capita in 2004 (in US\$): LSAs vs. CFOs



Source: BOLFOR II, 2005

In 2006, BOLFOR II made another survey to analyze the income evolution in CFOs that received their assistance. They found that, from 2004 to 2006, 14 of the 20 CFOs that received support had a 23% increase in their wood forest income, which contributed 15% to the total household income. However, BOLFOR II estimated a reduction of 9.3% in the average total household income, even though per-capita income has increased in 30%. This can be explained considering a reduction of 13.9% in the number of family members in 2006.

San Pedro's CFO has the highest level of wood forest income in 2006, and it has increased the average household total income as well. The following table shows the income evolution from 2004 and 2006:

Table 6: San Pedro's CFO - Household Income Composition for 2004-2006

Type of Income	Income in 2004 (Bs./year)	Income in 2006* (Bs./year)
Wood Forest Products	2,465	4,472
Non-wood Forest Products	609	36
Hunting and Fishery	960	1,585
Agriculture	2,821	670
Farming	1,548	670
Sub-product sell	375	1,114

Paid work outside	2,985	5,191
Commercial Business	772	0
Transfers	1,275	435
TOTAL INCOME	13,809	14,170
INCOME PER-CAPITA	3,931	4,741

Source: Household survey 2004 and 2006, BOLFOR, 2007

* Income in 2006 has been deflected with an annual inflation rate of 4.8% between 2004 and 2006.

As we can notice, the income of wood forest products has increased in 81.4%, the total income increased in 2.6% and the income per-capita in 20.6%, showing the great importance of forestry in San Pedro's economy.

Qualitative indicators⁴⁶:

Among the positive impacts perceived by San Pedro's people, the following are the most important:

- New sources of employment, which allow them to earn higher incomes and have access to better education, health and infrastructure, and also to have the opportunity to contract a third person for agricultural work.
- Training in forest management issues, empowering San Pedro's people and developing negotiation skills among the community.
- More participation and stronger organization, which is also related to the consolidation of their territory.

There are also negative impacts perceived by the people, for example:

- Conflicts with illegal loggers, settlers and some local authorities, who give incentives to external actors to get involved in forestry in the region.
- The reduction of agricultural activities, due to the lack of men's time who are involved in forest management; this situation increases women's responsibilities as well as their working time.
- Lack of forest management training for women, taking into account that just one family member (household head) can participate in forestry.
- Internal conflicts arising between CFO members in the decision-making process.

Most of San Pedro's people recognizes and highlights the positive impacts of forest management. Even though they also mentioned some negative impacts, they value them in a lower scale (WCS, 2004). It's important to mention that welfare expectations differ among men and women; the former concentrate their attention in productive

⁴⁶ This information is based on WCS (2004) and BOLFOR (2006) reports and it has been complemented by the information collected in the interviews during the fieldwork.

issues and the latter are more concerned about achieving some improvements in social services, health, education, communication, etc. Thus, some gender issues need to be addressed.

5.3. Evaluating the potentiality of San Pedro's CFO.

In 2005, BOLFOR estimated that 60.8% of San Pedro's CFO household income depends on activities regarding renewable natural resource management (forestry, agriculture, domestic animals husbandry, hunting and fishery).

In the last decade, most CFOs have started working very seriously in forest management, increasing their activities regarding wood and non-wood forest products. In this sense, it is possible that in the future participation of these activities in the household income composition will grow significantly until it reaches a maximum determined from the natural limit of forest regeneration.

Although is true that forest management activities are replacing agriculture in most communities, in 2005 BOLFOR demonstrated that the marginal changes over the total income have a positive effect in the preservation of natural resources. That is why is needed to strength the productive, organizational and administrative capacity of all the Bolivian CFOs, in search for higher national income and forest conservation.

During the visit to San Pedro's CFO, members of the enterprise highlighted the importance of forest management to the community's development. In approximately 5 years the CFO has obtained high revenues for their wood sale to the sawmill CONMINMA, that allowed the organization save around US\$ 30,000. The CFO members estimate an average income for the enterprise of US\$ 7,000 per year.

However, this profit is very insignificant compared to big timber companies' profit, such as CONMINMA, considering the big difference in prices along the wood value-chain. This difference could be understood considering the value-added to the product in the transformation process (to obtain sawed wood from the first transformation, and furniture and other products later on); it is also important to consider transport, inputs and other operative costs.

The following table shows a relationship of prices of species commercialized by San Pedro's CFO at different levels of production:

Table 7: Comparison of wood prices at different levels of production – La Paz (Bs/m³) 2008

Tree Specie	Wood – “Pie tocon” (Bs/m ³)	Timber in Ixiamas (Bs/ m ³)	Timber in La Paz (Bs/ m ³)	Timber abroad (Bs/ m ³)
Ochoo	50	1,060	1,483	2,076
Mahogany	3,100	6,780	8,900	20,765
Spanish Cedar	420	1,780	4,153	6,526
Mapajo	52	1,356	1,695	2,150
Verdolago	90	2,310	2,650	3,480
Palo Maria	90	2,310	2,650	3,480
Yesquero	55	1,780	2,120	2,550
Cachichira	55	1,780	2,120	2,550

Source: Elaborated with information from San Pedro CFO members, forest engineers, wood transport responsables and Forest Superintendence.

* 1 m³ of wood represents 233.20 Board Feet (BF) and 1m³ of timber represents 424 BF.

Wood prices are very volatile and those mentioned in the table above have been estimated with help of CFO members, forest engineers and institutions such as the Forest Superintendence, in August 2008.

As shown in table 5, the difference of prices between one stage of production and the next one is huge. The first row shows the prices at which the San Pedro CFO sells the wood in the area of extraction to the timber company (CONMINMA), which transport it to the sawmill to transform it into timber. The second row expresses the price of timber in Ixiamas. The third row indicates the price of timber in La Paz, which considers all the transport costs to La Paz and the profit of the timber company. The last row represents the price of timber to be export abroad, (FOB Arica).

In the case of the CFO, the first process of transformation adds 2 and 4 times of value to the price of hard species (Mahogany and Spanish Cedar, respectively); in the case of semi-hard species⁴⁷ and soft species, the price increases at least in 21.2 times (Ochoo). This situation highlights the disadvantages of CFOs in terms of benefits from wood extraction.

From my perception, the small supply of extraction services, trucks and other means of transport, the lack of capital, restrictions for credit access, among other reasons, makes

⁴⁷ Verdolago, Palo Maria, Yesquero and Cachichira are considered semi-hard species.

it difficult to most Tacana CFOs to go further into a new link of the wood value chain in which they could take responsibility of the extraction, as well as of the process of transformation to obtain better prices and thus higher profits. However, San Pedro's CFO is a potential entity for change.

During the fieldtrip, San Pedro members commented about their intention to increase their productivity and create more capacities to start their own process of transformation and not depend on third private companies, such as CONMINMA.

The main precursor of this idea was Freddy Howard, San Pedro's CFO Manager. He is the only member of the community with a post-graduated education and understands better about economical and administrative matters of the enterprise.

As mentioned before, San Pedro's CFO has saved around US\$ 30,000, but the directive members receive constant pressure from other members (especially the younger) to distribute all the benefits and use those savings for current consumption.

The directive has tried to show to the rest of the community that the organization has potential in forest management, as well as the importance of saving for future investments that could generate higher incomes in behalf of all the community. But many people prefer not to assume the risk and enjoy current benefits of the CFO activities.

In this context, the present chapter aims to analyze the main difficulties identified for San Pedro's CFO, as well as its economical potentialities (considering their annual incomes and costs, potential markets and financial alternatives) that can help them increase their productivity in favor of all the community.

Weaknesses and main difficulties assumed by CFOs regarding forestry:

Among the most important difficulties that CFOs have to face, we can mention the following:

- Low installed capacity for wood extraction.
- Lack of capital for forest management, due to limited credit access.
- Low prices for wood sale paid by timber companies in the local market.
- Disloyal competition among CFOs and LSAs of the region regarding price.
- Most timber companies demand high-value species and there is not a good interinstitutional coordination among productive stakeholders.
- Insufficient participation of local authorities in forest management regulation and

defence of community rights.

- Low participation of CFO members in administrative matters, due to lack of qualification in technical and administrative areas⁴⁸.
- Fear of some CFO members to assume future investments to increase their productivity.
- Some timber companies breach contracts and agreements with the community.
- Lack of qualification in tributary subjects and local government competences.

As shown, there are several issues that need to be addressed in behalf of the CFOs. In chapter 6 I will develop some recommendations and possible solutions for these problems.

Economic analysis of San Pedro's CFO:

The main activities derived from forest management in the region are mentioned in the following table:

Table 8: Forest Management Activities

Activity	Responsible
Planning and Census	Directive members and forest engineer
Road building, transport and rent of machinery	Timber company
Wood extraction ("apeo")	CFO members and paid labour force
Commercialization (Contract negotiation with Timber Company)	Directive members of the CFO

Source: BOLFOR II, 2006

San Pedro's CFO has started its operations in 2001, with one of the biggest areas of forest management approved by the Forest Superintendence (21,411 ha). Despite all the problems that emerged in its consolidation, especially regarding organization and administrative issues, it has a very solid base and it has received financial and technical support of the project BOLFOR I.

They have been selling their wood to only one timber company, CONMINMA, and the CFO members commented that they have always maintained a good relationship, except one time, when the company decided to buy higher-value wood from other CFO and breached the arrangement.

The following table shows the detail of forest management costs, as well as the income derived from wood sale and its distribution in 2007:

Table 9: Forest Management Costs for San Pedro's CFO - 2007

⁴⁸ This situation increases the distrust among members who feel there is not an adequate social control.

DESCRIPTION	TOTAL	
	US\$	Bs.
Forest Inventory*	17,129	119,904
Forest Census**	11,018	77,126
Forest Management	13,571	95,000
Administrative Expenses	17,914	125,400
TOTAL INVESTMENT COSTS	59,633	417,430
TOTAL INCOME FOR WOOD SELL	129,136	907,450
NET UTILITY	69,503	490,020
<i>Income Distribution:</i>		
40% Community (Indirect Investment)	28,001	196,008
40% CFO members	28,001	196,008
10% CIPTA	7,000	49,002
10% Savings for Reinvestment	7,000	49,002

Source: Elaborated with information from San Pedro's CFO members and forest engineers

* The Forest inventory is done every 5 years for the GFMP.

** The Census is done annually to calculate the AAA.

San Pedro's CFO has achieved covering the annual planning costs, and they even have hired a permanent forest engineer and the temporary services of an administrator for the planning stage and the elaboration of annual reports.

As many CFOs, it has its own regulations respond to the requirements of ORFITI and CIPTA. Transparency is promoted through the submission of financial annual reports. The community also receives a detailed explanation of the incomes, costs and benefits derived from forestry.

Regarding their installed capacity, San Pedro's CFO rents two electric saws and its workers bring their own saws if they have. It does not have any heavier machinery (skidders, trucks, shovel, etc.), which explains its dependence on CONMINMA to build roads to get to the AAA for wood extraction and then transport it to the sawmill.

However, today it has approximately 30.000 US\$ in savings to be invested in capital to increase its productivity and go one link ahead in the wood value-chain. The main conflict emerging from this decision was the large opposition of one group of members, who did not want to assume the risk and preferred to distribute the utilities.

The idea is to invest in their own sawmill to transform wood and sell it with higher value. This sawmill should be built near the community to take advantage of the electric generator. Another option is to rent services from a sawmill which is working

under its installed capacity and would be interested in the business.

They have evaluated the option of making a strategic alliance with CONMINMA, but the timber company is not interested. Other choices are being analyzed but they haven't achieved any deal with another company yet.

Regarding human capacities and skills, the directive members are sure that people from the community have already created those capacities, working for the CFO as well as for CONMINMA in the sawmill during all these years. They believe in the commitment of the community to support this new initiative.

The following table shows the machinery costs needed for wood extraction, estimated by BOLFOR in 2007:

Table 10: Investment Budget

ITEM	COST (US\$)
Skidder	7,200
Shovel	5,700
Truck	3,200
Tools	200
TOTAL INVESTMENT	16,300

Source: BOLFOR II, 2007

Considering the high costs of the machinery needed and the infrastructure cost to build a new sawmill⁴⁹, the directive members are looking for external finance from public institutions or international organizations. An interesting opportunity has arisen from the central government, which has created a new financial institution to give credit to rural entities. This situation is explained in detail in the next section.

Regarding potential markets, one has to consider that most of San Pedro's GMFP consist on soft species, which are very useful for house building, but not to attractive for exports. As Jaime Villanueva, director of the General Direction of Forest Resources in Bolivia, mentioned during an interview, there is a high internal wood demand, especially in capital cities, which is not being fulfilled with the current production, because most of it is sold abroad. That's why the national market should be considered a potential market, especially for soft species.

⁴⁹ Kemel Fessy Gonzales, member of the CIPTA's Natural Resource Secretary and president of APIAT CFO in Tumupasha, estimated this cost in around US\$ 300.000 (Interview in Escape Magazine – "La Razon" Newspaper, 07/09/08, La Paz-Bolivia).

The new position of the Central Government to promote CFO's development:

As mentioned in previous chapters, the current Bolivian central government has created a new institutional and legal framework to include indigenous communities in the decision-making process and to recognize their legitimate right to self-determination. For example, the National Development Plan introduces Communitarian Forestry and aims to link productive complex through the sustainable management of the Bolivian forests.

Indeed, the government has approved a new decree (DS # 29315⁵⁰) to promote the creation of mixed-enterprises with the capability of value-added generation, in charge of the communities (CFOs) with support of local governments as counterparts for finance, legal and technical advice. The idea is to create vertical productive entities, responsible for the forest management planning, extraction, transport to a sawmill, first transformation (timber), wood-drying/timber seasoning and commercialization to local or international markets, if possible.

In this context, the Productive Development Bank (PDB⁵¹) has been created as a second level finance institution⁵², to give credit to rural entities without conditioning the loan too much. In the case of CFOs, their approved General Forest Management Plan could be considered a guarantee to access credit.

However, the PDB's big disadvantage is to depend from other institutions that doesn't have social objectives and make it difficult to rural clients and communitarian enterprises to have credit access⁵³.

During the fieldtrip, Jaime Villanueva, informed me about two pilot projects implemented today in Lecos TCO (Guanay) and in communities of the northern Amazon.

Apparently, these communities have received some monetary resources from the government to start building their infrastructure and technical capacities to produce and commercialize timber without the intervention of a third entity. In this sense, these communitarian enterprises administer their resources and manage their own decisions

⁵⁰ This decree authorizes the creation of 4 units, dependent on the Ministry of Rural Development, Agriculture and Environment; Two of them are responsible of financing projects and programs to promote the productive development of rural areas, as well as preservation and sustainable forest management.

⁵¹ In spanish "Banco Productivo de Desarrollo" .

⁵² A second level institution doesn't have its own agencies, and works through another financial institutions.

⁵³ The PDB operates through commercial banks and Financial Private Funds such as PRODEM.

to increase their productivity, achieve development and be competitive in the timber market.

The results are not clear yet, considering the short period of time that has passed since the pilot projects were implemented.

San Pedro's CFO, as well as other communitarian organizations that have generated some savings, capabilities and capital, is a potential entity to receive economical support from the government, through a loan from the PDB or other financial institution interested in promoting Bolivian CBFM in behalf of indigenous people, as well as for the environment.

Therefore this case study could be used as an example of what could be achieved by other communities and what factors are required to achieve successful outcomes. Nevertheless, one cannot generalize all the results arising from this experience, considering the heterogeneity among communities regarding several aspects such as location, social structure, territory, natural resources, endowments and other social characteristics.

6. Conclusion.-

The present research paper aimed to *analyze the effect of Community-Based Forest Management (CBFM) on the development of indigenous communities, specifically in the Tacana community's structure and cultural identity, considering all the power forces that have shaped their behavior and internal view of development during the last decades.*

In this sense, the analysis has been developed from two different perspectives: a general one and a specific based on a case study. The first one, analyzed in chapter 4, brought the following conclusions:

- Most of the public policies implemented in the North of La Paz before the New Forest Regime had created five main problems:

Table 11: Main problems for the Tacanas arising from policies implemented before 1996

Area of Analysis	Problem
Social	The Tacanas had been excluded from decisions regarding the region's development and had suffered a disintegration process in which they had not perceived any social benefit.
Political	The Tacana culture and organization has not been respected by other stakeholders, and it has affected their integration and the loss of cultural values (traditions, language, etc.)
Economical	They had received very low incomes and had been integrated to a new unfair economical system.
Environmental	Natural resources were basically depleted in favor of some elite groups, and reforestation was not considered by any policy.
View of Development	A capitalistic view was introduced, related to economic growth through natural resource exploitation (quina, rubber, wood, etc.).

Source: Work of the author

- Since 1996, with the approval of Forest Law 1700, a new institutional framework was established, recognizing and respecting indigenous people rights, promoting the preservation and integration of their cultural values and traditions into the National Forestry System. These changes brought higher incomes and better opportunities to the communities.
- It has also changed the Tacana structure and organization, as it has enforced the creation of new institutions. In addition, the social structure has combined

traditional political authorities with new institutions introduced as a product of the Popular Participation process.

- A very positive impact that we can highlight from this change in the institutional framework, is a process of reintegration and self-valuation among Tacana communities. This process reinforces the reclaiming of cultural identity.
- The Tacana's perception of development has also changed as new ideas of the human approach introduced by Amartya Sen and the UNDP in 1990 were included in the existing capitalistic view.
- Among the negative effects and critics to the Forest Regime we can mention that:
 - a) It promotes and favors wood extraction, leaving aside non-wood forest products, ecotourism and forest plantations;
 - b) The excessive financial and technical support of some projects and institutions was injurious considering the dependency created;
 - c) Some indigenous expectations and cultural perspectives were not considered in the generation of business activities and a sense of enterprise ownership in the communities wasn't created;
 - d) The legal transition from "community" to "civil association" supported by some NGOs was very criticized by some indigenous organizations;
 - e) Public institutions created to regulate forest sector fail in their mission, increasing the risk of illegal logging in the region.
 - f) For some people forestry is taking time from agriculture, affecting negatively their economy.
- In order to answer the secondary objective regarding conflict, a mapping of stakeholders interaction was done (Table 2), identifying 5 main conflicts: a) political and administrative jurisdiction conflicts; b) those arising from different identities interaction; c) land ownership conflicts; d) economic conflicts worsen by free market competition; e) those regarding natural resources use and management.
- It has been shown that many formal institutions have been created to deal with these problems, and even though they have had some positive results there is still a lot to be done to solve all the problems arising from conflicting interests. It is also possible that new interests will be introduced in the arena, demanding the creation of new institutions.

Regarding the specific perspective, the case study of San Pedro's CFO has been developed, considering also the secondary objective oriented to *show the potential that Tacanas communities still have regarding CBFM to go further in their development process*. This analysis led to the following findings:

- Their incursion in forest management had many socioeconomic effects in the community, for example:
 - a. There has been a 19.6% increase in the total population (especially adults) considering that commercial logging is a good incentive for outsiders to migrate in.
 - b. Among the CFOs of the region, San Pedro has one of the highest level of wood forest income in 2006, because its General Forest Management Plan consist of 21,411.4 has, from which 860 has are designated for protection.
 - c. Between 2004 and 2006 the income of wood forest products has increased in 81.4%, the total income increased in 2.6% and the income per-capita in 20.6%, showing the great importance of forestry in San Pedro's economy.
 - d. Most of San Pedro's people recognizes and highlights the positive impacts of forest management: new sources of employment, higher income, training, higher participation, empowerment and better conditions of life.
 - e. Among the negative effects perceived by the population, there are: conflicts with other stakeholders (illegal loggers, settlers, authorities, etc.); reduction of agricultural activities; gender inequity regarding the involvement of women in forestry.

- It is clear that the new forest regime has created new opportunities for indigenous people, small farmers, and small-scale timber producers to gain access to forest resources and influence forest policy, but even though they obtain the right over the land and the forest resources they do not always have the chance to take advantage of those opportunities. These marginal groups face serious problems regarding credit access and commercialization, which make them dependent of timber companies of the region to obtain financial resources, and their incomes diminish in high proportion.

- During the visit to San Pedro's CFO, members of the enterprise highlighted the importance of forest management to the community's development. In approximately 5 years the CFO has obtained high revenues for their wood sale to the sawmill CONMINMA, allowing the organization save around US\$ 30,000. The CFO members estimate an average income for the enterprise of US\$ 7,000 per year.

- However, this profit is very insignificant compared to big timber companies' profit, such as CONMINMA, considering the big difference in prices along the wood value-chain, if we consider the value-added to the product in the transformation process, as well as input costs. Table 5 shows this situation considering that CFOs are in disadvantage in terms of wood prices. For example the first process of transformation adds at 2 and 4 times of value to the price of hard species (Mahogany and Spanish Cedar, respectively); in the case of semi-hard species⁵⁴ and soft species, the price increases at least in 21.2 times (Ochoo). These differences are even higher if we consider the wood value in international markets.

- From my perception, the small supply of extraction services, trucks and other means of transport, the lack of capital, the impossibility of having access to credit, among other reasons, makes it difficult to most Tacana CFOs to go further into a new link of the wood value chain in which they could take responsibility of the extraction, as well as of the process of transformation to obtain better prices in the market and to obtain higher profits. However, San Pedro's CFO is a potential entity for change.

- Today, San Pedro's CFO has achieved covering the annual planning costs and it has approximately 30.000 US\$ in savings to be invested in capital to increase its productivity and go one link ahead in the wood value-chain (they want to build or rent a sawmill).

- Considering the high costs involved (machinery and infrastructure), the directive members are looking for external finance. An interesting opportunity has arisen from the central government, which has created a new financial institution to give credit to rural entities: the Productive Development Bank.

- Regarding human capacities and skills, the directive members are sure that people from the community have already created those capacities, working for the CFO as well as for CONMINMA in the sawmill during all these years. They believe in the commitment of the community to support this new initiative.

- In terms of potential markets, especially for soft species, the national market should be considered because there is a high internal wood demand which is not being fulfilled with the current production because most of it is sold abroad.

⁵⁴ Verdolago, Palo Maria, Yesquero and Cachichira are considered semi-hard species.

6.1. Policy Recommendations:

From my perspective, Community-Based Forest Management has an incredible potential to help solve two main problems in Bolivia and around the world: poverty and environment degradation, giving voice and the required means to those who have been excluded from the developing process for so many years and who deserve respect and recognition of their cultural values.

As I have shown throughout this research paper, there have been positive and negative effects in the case of Tacana communities.

To develop better opportunities for the CFOs involved in community-based forestry, and considering the weaknesses mentioned in chapter 5, the following aspects should be considered for future policy implementations in the region:

- Strength ORFITI's actions to unify CFOs efforts and show them that with coordination they could set higher prices in the local wood market, in benefit of their communities.
- Promote the creation of local services related to extractive activities, that could reduce the extraction costs for the CFOs, as wells as their dependence on timber companies.
- Use the experience of pilot projects of mix-enterprises creation to develop new vertical enterprises in other communities, especially in those that do not have chance of creating strategic alliances with local timber companies to increase value-added to their products.
- Create more channels of credit access for indigenous people, small farmers, and small-scale timber producers.
- Increase qualification and training for CFO members, promoting the participation of women in these activities.
- Local governments should participate more actively, through productive investments in infrastructure, road construction, and capital provision.
- The Forest Superintence should improve the control in the area, to prevent deforestation and illegal activities that could harm CFOs incomes.

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APPENDIX A: Bolivian Legal Framework regarding CBFM.

The following laws and accompanying regulations have contributed to the implementation of Community-Based Forest Management in Bolivia, in favor of indigenous people living in rural areas:

Political Constitution of the Bolivian State – 1995:

According to the article # 171 of the Bolivian Political Constitution:

- *“Social, economic and cultural rights of indigenous communities that inhabit in Bolivian territory are recognized, respected and protected by the Political Constitution, especially those related to their Indigenous Community-Owned Lands, establishing the constitutional guarantee regarding the use and sustainable management of natural resources, its identity, values, languages, customs and institutions.*
- *The Bolivian State recognizes the juridical personality of Indigenous Communities, associations and agrarian unions.*
- *Natural authorities of indigenous communities can exert administrative functions and implement owned-norms as an alternative solution for conflicts, in respect to their customs and procedures, if these are not opposite to the Constitution and National laws.”*

Today, the current government of Evo Morales has designed a model for a New Constitution, which highlights the role of indigenous communities in the development process. This document is going to be approved in the next months.

Law of the National Service of Agrarian Reform (INRA) – 1996:

In 1996, the indigenous territory was consolidated as a juridic category related to collective propriety rights of indigenous communities.

In this sense, the objective of the INRA Law was to establish a land distribution regime and guarantee the property rights over it; that’s why it recognizes many types of property, such as Indigenous Community-Owned Lands. For example the third article prescribes:

“III. All the rights of indigenous communities over their communitarian lands are guaranteed, taking into consideration their economical, social and cultural implications, as well as the use and management of renewable natural resources...Indigenous community-owned land titles give indigenous communities the right to participate in the use and sustainable management of renewable natural resources. The use and management of non-renewable natural resources in

Indigenous community-owned lands will prevail according to the Bolivian Political Constitution and the especial norms that regulate them.”

Forestry Law 1700 – New Bolivian Forest Regime – 1996:

In July 1996, Bolivia promulgated a new forest regime based in the Forest Law 1700. The main objective of this new law was to regulate the sustainable use of forestlands, as mentioned in the first article:

“I. The present law aims to regulate the sustainable use and protection of forests and forestlands in behalf of current and future generations, harmonizing social, economic and ecological interests of the country.”

Regarding the authorization for the use and management in private property lands and indigenous community-owned lands, article 32 establishes that:

“II. The exclusivity in forest management in indigenous community-owned lands, legally recognized by the article 171 of the National Political Constitution, is guaranteed to indigenous communities...”

“III. The right given to rural people over the traditional and domestic use of forest resources, with subsistence objectives, doesn't require previous authorization...In addition, this right is guaranteed to owners that want to use resources with non-commercial purposes...”

The most important measures prescribed by the law include:

- A 20-year felling cycle for concessions and a 40-year lease period of forestlands to firms⁵⁵.
- A concession must be divided in 20 equal-sized Annual Allowable Cut Areas (AAAs), and only one of these areas may be exploited in any given year. After exploitation, the area must be left to rest for 19 years implying that firms may only use 1/20th of the entire concession area per year.
- It forces firms to pay an area-based fee or patent (US\$1/ha for timber and 0.30 cents/ha for non-timber forest products), effectively encouraging firms to use a wider array of other less valuable species⁵⁶.

These measures reduce the amount of valuable species that can be harvested compared with extensive selective logging (conventionally practised in the region), and undermines the potential to benefit from scale economies in extraction and transport.

⁵⁵ Previously, most logging areas had been assigned on a short-term basis and could not be sold or transferred.

⁵⁶ Under the old system, in contrast, tax payments were related to the quantity harvested.

APPENDIX B: List of Interviews

Date	Name	Occupation	Institution
14/07/08	Elvira Salinas	Media Coordinator	WCS
14/07/08	Guido Miranda	Environmental Consultant	WCS
19/07/08	Jesus Leal R.	President	CIPTA
23/07/08	Kantuta Lara	Program Coordinator ⁵⁷	CIPTA/WCS
23/07/08	Ronald Calderón	Executive Administrator: Program "Forest and Life"	Jose Manuel Pando Foundation
28/07/08	Guido Zúñiga	Forest Engineer	CIPTA
01/08/08	Javier Cruz	Forest Engineer	Independent
04/08/08	Jesús Leal	President	CIPTA
04/08/08	Celín Quenevo	Directive member	CIPTA
05/08/08	Freddy Howard	CFO administrator	San Pedro's CFO
05/08/08	Benigno Guizada	Forest Engineer	San Pedro's CFO
15/08/08	Wilson Rocha	Political Analyst	BOLFOR II
18/08/08	Jaime Choque	In charge of northern La Paz, Ixiamas municipality.	Forest Superintendence
26/08/08	Jaime Villanueva	General Director	Direction of Bolivian Forest Resources ⁵⁸
29/08/08	Javier Cruz	Forest Engineer	Independent

⁵⁷ Coordinator of the Program: "Strengthening Society's Level Organizations".

⁵⁸ This Derection is part of the Vice Ministry of Rural Development, Agriculture and Environment.

APPENDIX C: Survey Models

Survey for CFO Members

General Information about Communitarian Forestry Organization (CFO)

1) Community: _____

2) CFO's name: _____

3) Starting year of operations: _____

4) Description of activities: _____

5)

Number of members	
Number of Employees	
% local employees	
% external employees	

6) Directive member's duties: _____

7) Time inside the CFO: _____

8) Installed capacity (means of production): _____

9) Season for intensive wood harvest: _____

10) Annual volume of production: _____

11) Income distribution: _____

12) Do you know about the "indirect investment" that needs to be done by normative of the Bolivian Forest Superintendence? How does it work?

13) What percentage of the profit is designated for CIPTA and the community?

14) Future investments: _____

15) Main problems and limitations regarding:

Organization: _____

Administration: _____

Production: _____

Commercialization: _____

16) Conflict with other stakeholders regarding forestry: _____

17) Potential treats for the implementation of future development projects based in Communitarian Forest Management in the region:

18) Contribution of CFO forestry activities in favor of the community:

Household Survey

I. GENERAL INFORMATION

- 1) Community: _____
 2) Name: _____
 3) Age: _____ Gender:

F	M
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 4) Household head:

YES	NO
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II. SOCIO-DEMOGRAPHIC INFORMATION

A. Family Structure

- 5) Number of members:

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- 6)

Relationship	Age	Gender	Language	Place of Birth	Residency
Father					
Mother					
Son/Daughter					
Son/Daughter					
Son/Daughter					
Other:					

B. Housing and Basic Services

- 7) House Ownership:

Own	
Rented	
Borrowed	
Other	
- 8) Water Supply:

Domiciliary Instalation		Affluent	
Public tube		Rain	
Well		Other	
River		None	
- 9) Energy Sources:

Electric	
Gas	
Coal/wood	
Other	
- 10) Sanitary System:

Sewage System	
Toilet	
Latrine	
None	

C. Education

- 11)

Relationship	None	Primary (1-8)	High school (1-4)	Technical	University	Post graduated
Father						
Mother						
Son/Daughter						
Son/Daughter						
Son/Daughter						
Other:						

D. Health

- 12) Do you attend your illnesses in Health Centres?

YES	NO
-----	----
- 13) Health Center near to the community:

Health Center	
Sanitary Slug	
Other	
None	
- 14) Distance from home:

--

 hrs.

III. SOCIO-ECONOMIC INFORMATION

E. Economic Activity

- 15) Family Main Activity (1-10):

Agriculture		Services	
Animal Husbandry		Mining	
Forestry		Turism	
Fishing		Handycrafts	
Textiles		Other	

- 16) Main cultivated products:

Product	Cultivated Surface	Cultivation Season	Harvest Season	Volume (m ³)	Price	Sale place

F. Wood Exploitation

17) Production - dry season:

Species	Quantity (m3)	Price	Income

18) Production Costs:

Item	Unit	Quantity	Price	Total Cost
Saw				
Chainsaw				
Axe				
Truck (fuel)				
Oil				
Journals				
Food				
Other				

G. Commercialization

19) Products sold to:

Private companies	
Communities	
Regional markets	
City markets	
Intermediaries	
Others	

20) Price Establishment:

Market	Intermediaries	Yourself
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H. Land Ownership

21) Property Rights:

Own	Communitarian	Rented	Borrowed	Other
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22) Land Distribution

Animal Husbandry %	Agriculture %	Forestry %	House %	Other %
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I. Family Income

23)

Activity	Monthly Income	Number of months
Main.:		
Sec.:		

24) Do you receive money from other people? YES NO Amount Bs.

J. Family Expenditures

25) Main Expenditures (1-8):

Food		Home	
Education		Clothing	
Health care		Savings/Investment	
Production		Others	

26) Monthly Family Expend.: Bs.

K. Organization

27) What institutions does the community have?

TLO	
Corregimiento	
School Association	
Mothers Club	
Civic Committee	
Others	

28) Does any member of the family participate?

YES	NO	Member	Institution

29) Do you feel that CFOs work for the community?

YES	NO
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30) How do you think is CIPTA's participation?

Good	
Not so good	
Bad	

FRECUENCY

Always	
Sometimes	
Never	

L.Forestry Diagnostic

31) How many members of the family participate in forestry?

32) Who? _____

33) Which are their duties? _____

34) For how long have they been working in the CFO?

Member	Time (months)

35) What is the average monthly wage perceived from forestry? Bs.

36) Who decides about how to spend the money earned? _____

37) In what do you spend it?

Tool purchase	
Family expenditures	
Savings/Investment	
Other	

38) How does forestry and CFO activities affect the community and the families that conform it?

Benefits: _____

Damages: _____

39) Do you think that communitarian forestry is an effective way to reduce poverty and improve life conditions in your community?
 YES NO

Reason _____

40) What other activity would generate similar incomes in the future? _____

APPENDIX D: Photographs

Forestry in Northern La Paz:

Ixiamas municipality is part of the NP-NAIM Madidi and it lodges enormous natural and landscape resources, typical of the Bolivian Amazon.



During harvest season, indigenous people from Communitarian Forestry Organizations (CFOs) cut trees from their Annual Allowable-Cut Area (AAA) and sell them to sawmills and timber companies of the region.

The price depends on the quality of the tree and its volume. In this picture the lady is measuring the diameter of the tree.



Wood is commercialized both in local and external markets, and transport costs are variable and affect the final price.

Tacana Communities:



The Tacana is a group of communities with ancestral ethnic roots, who inhabit in the departments of La Paz (Abel Iturralde province), Beni and Pando, settled between the rivers Beni, Madre de Dios, Madidi and Tuichi.

Nuclear families are the base of the Tacana social structure. For example, Tacana TCO I is conformed by 610 nuclear families, which could be very large.



Tacana women have the knowledge for the traditional production of handicrafts using palm leaves, as well as for other products made of non-wood forest products, such as fruit jam, medicines and others.

The Tacanas are also dedicated to forestry, agriculture, hunting, fishery, animal husbandry, etc.



Tacana's culture and traditions are part of an invaluable treasure that needs be preserved and respected.