

# Communal Tenure Policy and the Struggle for Forest Lands in the Bolivian Amazon

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**Abstract:** Over the past decade Bolivia has recognized the forest property rights of indigenous and traditional peoples using a variety of novel communal titling mechanisms. The country's agrarian reform process was intended to strengthen rural livelihoods by securing local rights to forests and privileging customary practices, and as a result offered innovative opportunities for social justice and, ideally, sustainable forest management. However, given the heterogeneity of the country's eastern lowlands and the dynamic processes of frontier change taking place along corridors where these communal properties exist, outcomes have been diverse, often exposing the institutional weakness of communal tenure right introduced by the state and also, in some cases, illustrating the resilience of local people in adapting their forest livelihoods to change.

This paper will examine cases along two frontiers in eastern Bolivia, Guarayos, and Pando, where forest dependent people have received communal tenure rights but are faced with increasing pressure from timber interests, agro-industry and expanding fronts of smallholder colonization. In Guarayos, indigenous villages from the Guarayos TCO (*Tierra Comunitaria de Origen*) have struggled to maintain their territorial integrity as the slow titling process has allowed non-indigenous landowners and loggers to take advantage of the region's natural resources. In Pando, traditional extractivist communities have received communal title to rich swaths of rainforests, but ambiguity in the titling process has introduced competing agrarian models of land occupation that threaten to undercut customary property rights based on tree tenure. While the intensity of external pressure on these communal properties strongly influences local success in maintaining forest livelihoods, characteristics of the communal property models and the manner in which they are implemented influence how well residents can adapt and defend their interests. It is also apparent that the degree to which communal tenure models reflect customary use and institutions contributes to the resilience of traditional systems. This paper will draw lessons learned from sites that could contribute to future policy decisions as well as programs to support forest dependent people.

## **INTRODUCTION**

Over the past decade Bolivia has instituted a range of innovative policy changes to promote agrarian and forestry reform. These reforms have been particularly relevant for Bolivia's eastern lowlands which contain most of the country's forest reserves. Prior to the changes, the region's diverse rural population was largely excluded from formal property rights and lacked a legal basis for their forest-based livelihoods. General objectives of the 1990s reforms included attempts to democratize access to resources, refine and streamline regulations, and promote sustainable resource management for economic development but also to address issues of social justice. The delineation of communal property rights has been a major strategy for addressing the needs of poor and marginalized peoples. However, given the social and environmental heterogeneity in the lowlands, the diverse mix of competing stakeholders, the intensity of resource competition, and periodic shifts in political support for reform agendas, the outcomes from agrarian and forest reform have varied and frequently have failed to deliver the increased clarity and broad benefit initially expected. Given this history, Bolivia's eastern lowlands present an interesting laboratory for examining varied impacts of these reforms on the livelihoods of forest dependent peoples, as well as the diverse environmental, social and economic factors that influenced these outcomes.

Since the mid-1990s, the Bolivian agrarian reform has created a variety of communal tenure models intended to respond to diverse groups of rural people. These property rights models address the needs of indigenous peoples, residents of agro-extractivist communities, organizations of colonist smallholders and even community-level logging associations. Some communal models were initially contemplated by the original law but others were added in a process of further reform, responding to grassroots pressure, and the need to expediently finalize titling programs for rural people by a government agency under tight fiscal, temporal and political pressure. Parallel forestry reforms opened opportunities for the same rural stakeholders to gain legal recognition of their forest use. However, the options for management plans, the required characteristics of management organization and practice, and ultimately the sustainability of resulting forest management by these community level stakeholders have been influenced by the new property rights.

The nature of the rights they receive, as well as the institutional arrangements that appeared in response, create conditions that either allow recipients to maintain their forest based livelihoods and control over resources, or set in motion trends that undercut community efforts to defend forest lands from others. This paper explores these issues by analyzing the outcomes resulting from the application of distinct tenure models in two Bolivian regions: the Guarayos province in the department of Santa Cruz, and the department of Pando in Bolivia's Northern Amazon. Each site is noteworthy for the predominance of forest cover, the importance of forest-based production to the economy and the prominent struggles between local people attempting to maintain access for forest resources and competing interests attempting to exert control over the same regions.

This paper consists of six sections, the first being this introduction. The second section will examine the conceptual framework used by the authors to examine communal tenure models in each region. The third section will describe relevant policy reforms and explain the principal communal tenure models that have been created by these reforms. The fourth section introduces the two regions selected for this study, summarize main characteristics as well as explain the justification for selecting each. The fifth section will analyze the outcomes observed in the regions. The sixth section will provide concluding remarks.

## **CONCEPTUAL FRAMEWORK AND METHODS**

Research on existing communal tenure systems has focused much attention on how they function and the conditions that allow members to maintain these systems over time (Ostrom, E. 1990; Ankersen & Barnes 2004; Fitzpatrick 2005). Institutional characteristics are key to the function and management of common property. Ostrom (1994) identified a series of 'design principles' for effective local organizations in common property management. Besides clear definition of members and boundaries recognized by government, the design principles include specific rules and obligations adapted to local conditions, the ability of members to modify rules, monitor their application, enforce them, and mediate conflict.

In examining conditions in which people act collectively to manage communal properties, McCulloch, Meinen-Dick, Hazell (1998) emphasized the importance of local characteristics such as small homogenous groups with greater cohesion in terms of their goals and level of economic dependence on the resource; property sizes that are small enough to be effectively governed by the group; proximity to the resource to facilitate control and exclusion of outsiders; the use of resources with 'low subtractability' (i.e. use by one member has little impact on availability to others), and systems that provide benefits that are sustainably and equitably distributed. In general, discussions of the function and maintenance of communal property stress both external aspects such as types of rights granted and capacities of state agencies to enforce regulations, and internal characteristics such as the ways group members coordinate within the property to affect its viability and respond to external pressure.

Many systems of communal property and access originated as customary systems based on traditional practices and behavior developed by residence over time without state guidance. However, these systems are now undergoing transitions as legal reforms bring formal recognition and regulation to previously marginalized frontier areas. Often, there is significant incongruence between the formal rights granted and the complex pre-existing patterns of traditional rights, use and local perceptions found in customary systems. Such differences can be overcome through process of adjustment and adaptation if residents have sufficient time. However, sometimes such contradictions can undercut expected benefits to rural people by clouding collective interests, allowing individuals to emphasize rules that favor their interests over others, introducing incentives for behavior that degrades resources, or by granting legal rights with scant local legitimacy limiting the ability of members to defend their interests. Ultimately, the imposition of formal rights

over existing customary resource governance systems can strain them and create, as one author noted, a “. . .worst-case scenario: the partial disintegration of a viable resource governance mechanism without the provision of effective substitutes by the State. . .”, leading to degradation normally associated with open access regimes (Fitzpatrick 2006). The resulting breakdown in collective action and collaboration among members not only degrades the resource base supporting local livelihoods, but weakens the capacity of members to defend common property from external pressure and incursion from other stakeholders.

This paper examines Bolivian communal tenure models to identify institutional strengths and weaknesses that influence how and why some forms are able to provide property right security necessary for members to maintain their forest livelihoods. Understanding how well the communal models work to allow rural people to maintain forest livelihoods requires examining the characteristics of each and the manner in which they were implemented, but also comparing how well they reflect local context and customary practice of recipients. Key issues to consider with the policies and processes are: Do the rights granted and the characteristics of the resulting properties support the livelihood strategies of recipients? Key questions to consider for understanding how rural people are affected include: Do residents have the organizational and management institutions necessary to administer the communal property? How does change introduced by the new arrangements impact resource use and the equitable distributions of benefits from that resource use? By describing two different regional cases, this paper will be able to identify titling practices that seem to be more successful and to point out conditions in which some types of communal tenure models may be more appropriate.

The analysis in this paper is based on several months of fieldwork carried out in 2007 and 2008 by researchers and consultants from CIFOR and the Bolivian NGO CEDLA in two regions: Guarayos, and Pando. Research consisted of a thorough review of secondary data, a review of official statistics from Bolivia's agrarian reform institute INRA and the country's Forest Superintendence, semi-structured and structured interviews with key informants and residents of case study communities in each site. Discussions and reflections of findings also draw on several years of research in these sites carried out by the authors and members of the field technicians.

## **BOLIVIAN POLICY REFORM AND COMMUNAL TENURE**

Access to forest property by rural people in Bolivia has undergone a major transition in the last decade due to changes in statutory rights to forests that are based primarily on two laws enacted in 1996: the new forestry law<sup>1</sup> and an agrarian reform law known as the INRA law<sup>2</sup> for the agency it created to carry out the reform. Both laws were negotiated during a period of broader reforms in the country and provided parallel frameworks affecting the status and use of Bolivia's

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<sup>1</sup>Ley Forestal 1700, July 12, 1996.

<sup>2</sup>Ley de Servicio Nacional de Reforma Agraria –SNRA 1715, October 18, 1996

forests (Pacheco 2005, 2006). These laws attempted to bring clarity, organization and equity to convoluted systems for property rights and resource access. For indigenous and peasant smallholders these frameworks generally revolved around communal access and collective use of resources.

The forestry law, which was ratified first, was an attempt to restructure the forest sector by mandating the use of sustainable forest management practices, and reorganizing the government's oversight mechanisms. The changes included creating a Forest Superintendence (SF) and refining administrative tools and norms for accessing forest management. However, the forestry law is particularly significant for this discussion because of the dramatic precedent it set for devolving rights over forests to a greater range of stakeholders (Mancilla and Andaluz 1996; Pavez and Bojanic 1998). Prior to this law, indigenous peoples and peasant smallholders had no recognized formal rights over forests and were technically prohibited from commercializing forest products. At that time, rights to harvest and commercialize forest products were reserved to a small number of forest industries that were given exclusive access through a contract system to harvest extensive areas of forest, rights that trumped other property claims whether legal or customary. With the ratification of the new forestry law, indigenous communities and non-indigenous smallholders with forest properties were granted rights for withdrawal, management, exclusion, and, with formal authorization through an approved management plan, alienation. The key, however, was the formalization of property rights for these rural stakeholders so that they could take full advantage of these rights.

The INRA law was intended to bring clarity and organization to the country's complex, overlapping and inequitable property rights situation but also had the more ambitious goal of redistribution by 'identifying the technical or legal reasons for annulling or confirming land ownership' (Kay and Urioste 2005 p.5). The law defined several size classes of private property but also recognized collective community lands and a type of communal property for indigenous people known as a TCO (*Tierra Comunal de Origen*). A few years later, in response to pressure from grassroots collective action, the government modified the INRA law through a series of governmental decrees to enact new rules for delineating communal territories for agro-extractive families in Bolivia's northern Amazon.

The focus on these new types of property was partially in response to growing indigenous and peasant activism, particularly in the eastern lowlands where indigenous and peasant smallholders' territorial needs had long gone unresolved or ignored. Emphasis on the titling of communal properties was driven by a number of factors including the desire to respect the customary use and practice of recipients, but also ideological assumptions about resource use by traditional peoples. More importantly, communal titles offered an expedient means for responding to the multitude of demands from rural families encompassing huge areas. Furthermore, communal titles could lessen distortions caused by land speculation that can erupt under such ambitious land regularization programs. As defined by the INRA Law communal properties are inalienable, indivisible, non-

reversible, collective, and non-mortgageable and tax-exempt. Within the TCOs and agro-extractive communities the internal distribution and use of resources is left to be determined by residents' '*usos y costumbres*' (uses and customs) although they are still required to follow relevant agrarian and forestry regulations.

In delineating the communal properties, INRA takes into account the area occupied by beneficiaries and then determines the full area that should be allocated to the group in question. The process of titling the proposed area has to be reconciled with other claims made by individual private property owners. Competing claims are evaluated through a process of clarification and regularization called *saneamiento*. To determine whether a property is legitimate and justified, INRA requires property owners to demonstrate that they legally acquired the land and are using the land for productive purposes. If the answer is no to either, they could lose their claim or have it reduced. To determine whether land is being used productively, INRA must determine if a property is meeting its "economic social function" known by its Spanish acronym FES<sup>3</sup> defined as "the sustainable use of the land for the development of agriculture, ranching, forestry or other productive activities, as well as conservation and protection of biodiversity, research and ecotourism based on the lands capacity for the benefit of society, the common good and that of the property" (Ley INRA, Article 2, II). FES is based on the idea that land should not sit idle but instead be distributed to those who work it. However, the vaguely broad definition is open to subjective interpretation and manipulation. It is hard to conceive of activities that would not be defined somehow under these terms and at different times and locations the interpretation of FES has varied. In fact, the process is biased against forest management as it encourages land clearing as a means of demonstrating 'productive' land use.

In theory, these reforms privileged the rights of those occupying the land, in large measure indigenous and peasant peoples. However, in practice stakeholders with more economic and political power have been able to influence or slow processes to their benefit, which has led to distortions in the delineation of communal lands but also encouraged grassroots collective action by rural people to maintain some influence on the process.

### **Bolivia's communal property models**

Before examining the two cases described in this paper it is necessary to first examine in detail the characteristics of these communal property models, but also the rights and opportunities they provide for managing forest resources. The discussion will focus on the tenure models first and then consider how forest regulations and frameworks influence these user groups.

#### *Tierras comunitarias de origen*

TCOs are communal properties for indigenous people and were intended to remedy past injustice that had long denied the territorial claims of indigenous people in Bolivia. The territorial concept underlying TCOs actually predates the

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<sup>3</sup> For "*función económico social*".

Ley INRA originating from indigenous grassroots pressure (in the form of two separate mass marches on the capital) that resulted in the creation of eight indigenous territories through presidential decrees (Roldán 2004). The INRA law confirmed these decrees and established a process that allowed other groups to petition and receive recognition of rights to their territory. By 2003 there were 51 demands covering 17,494,677 hectares (Cronkleton and Albornoz 2004a).

In their application TCOs have been created for individual communities, for entire ethnic group in multiple settlements or even several ethnic groups together. To determine and validate the territorial needs of the group making the request, the government, through the Vice-ministry for Indigenous and Original Peoples Affairs<sup>4</sup> (VAIPO), carries out a territorial needs assessment taking into account, among other things, the group's historical occupation of the region, livelihoods characteristics and also the potential for growth by the indigenous population. Once the proposed size and shape of the TCO have been presented, INRA immobilizes the area, which is intended to prohibit the entrance of 'third parties' establishing new claims. During the *saneamiento* INRA considers whatever legitimate documentation is held by competing claimants (i.e. titles, tax payments or certification by indigenous people that the property predated the TCO demand), and also whether their use of the land is meeting a social and economic function, FES.

### **Communal agro-extractive communities**

The property needs of agro-extractive communities in Bolivia's northern Amazon were not specifically contemplated among the common property models delineated by the law. Common property for non-indigenous peasants was considered but usually providing them 50 hectares per family. However, agro-extractive communities grew out of the boom bust cycles of forest extraction of valued non-timber forest products (NTFPs) like rubber and Brazil nut that have defined the region since the beginning of the 20<sup>th</sup> century. For these livelihoods based on the extraction of NTFPs 50 hectares would be insufficient to provide enough forest resources. Through grassroots pressure and resistance to regional elite that had controlled large forest estates, the region's rural families were able to expand the total area granted to 500 hectares per family but within communal titles (explained below).

In practice, the communal properties granted to agro-extractive communities are very similar to the rights granted to TCOs but focus is on specific communities not entire ethnic groups. To land for individual communities, the process of defining of the community polygons concentrated on the forest area used by resident families. INRA demarcates the outer boundaries of these communal properties but leaves internal divisions practices up to residents.

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<sup>4</sup> *Viceministerio de Asuntos Indígenas y Pueblos Originarios*

### **Forestry Use and Management on Communal Lands**

Once communal lands are titled to TCOs and communities, residents have exclusive rights to the forests on their land and are allowed to utilize forest products for subsistence and domestic uses. However, the commercialization of forest products requires approval of a general forest management plan. The law and accompany technical norms focused on regulating timber. Technically, extraction of NTFPs for commercial purposes should occur only with authorization but effective norms do not exist and little effort is made to police such activity.

The law's technical norms recognized different types of management plans depending on the type of forest user. The centerpiece of the legal framework is the technical norm for forest management on concessions and private properties larger than 200 hectares (originally NT 062/97 later replaced by NT 248/98). The norms contemplate industrial scale forestry operations but to a certain extent, all other norms for commercial management are modifications made to that model. General timber management plans are complex, costly and time consuming to prepare and must be developed and supervised by professional forest engineers. To cover the costs of the investment and so it is best to have either a large area providing an economy of scale or significant volumes of valuable timber..

There are special norms for the development of management plans within TCOs (NT136/97) that use similar technical standards to the industrial norms but have additional requirements and legal procedures. The SF's Coordination Unit for Indigenous Peoples<sup>5</sup> (UCPOI 1/98) requires that indigenous management plans to document discussions and consensus among residents about the development of the plan define formal management organizations, and other social aspects such as the strategy for distributing benefits. Without outside support, preparing a general forest management plan is a complex and costly undertaking beyond the means of most rural communities. As a result, most forest management plans in communities have been supported and subsidized by NGOs promoting forest management or more recently, logging companies attempting to gain access to forests.

While the government emphasized general forest management plans, in practice there are several other legal mechanisms that allow timber sales, including sale of timber cut when clearing agricultural lands and small harvest permits introduced to discourage land clearing solely to access timber and illegal logging. Recognizing that some owners of forest properties will lack expansive management areas or have relatively narrow interests in forest use, the legal framework included norms and mechanisms for these activities. The activities defined under these norms are not required to follow the same stringent requirements to assure sustainability nor are they subject to the same rigorous bureaucratic review, probably because activities seen as secondary. Such harvest permits reflected an acknowledgement of the realities of swidden agriculture practiced by most smallholders. The application process for these 'management plans' and use permits are greatly

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<sup>5</sup> *Unidad de Coordinación con los Pueblos Indígenas*



simplified and they can be approved relatively quickly compared to general forest management plans.

The forestry law concentrates primarily on timber and pays little attention to the management of non-timber forest products. The forestry law stated that areas rich in Brazil nut were to be ceded to traditional users without competition, specifically mentioning peasant communities. However, to do this would require the delimitation of the management area, the preparation, approval and implementation of a management plan as well as annual operational reports, steps that were impossible without completion of the agrarian reform and development of the necessary technical norms explaining management requirements. It would be almost a decade before the government issued technical norms for managing NTFPs. These include norms for managing Brazil nuts (NT 077/05) and non-timber forest products (NT 22/06); however, these have had little impact and have largely been ignored by producers.

### **CHARACTERISTICS OF THE SELECTED FOREST REGIONS**

Research focused on two different forest frontiers in Bolivia's eastern lowlands: Guarayos and Pando. Each represents a different dynamic where forest dependent people receiving common property titles face varied levels of frontier pressure, and different mixes of competing stakeholders. Together these sites reflect the range of processes occurring in the country's lowlands and offer examples of common property models that seem to be function relatively well and others that face serious problems as weak models are subjected to high levels of pressure.

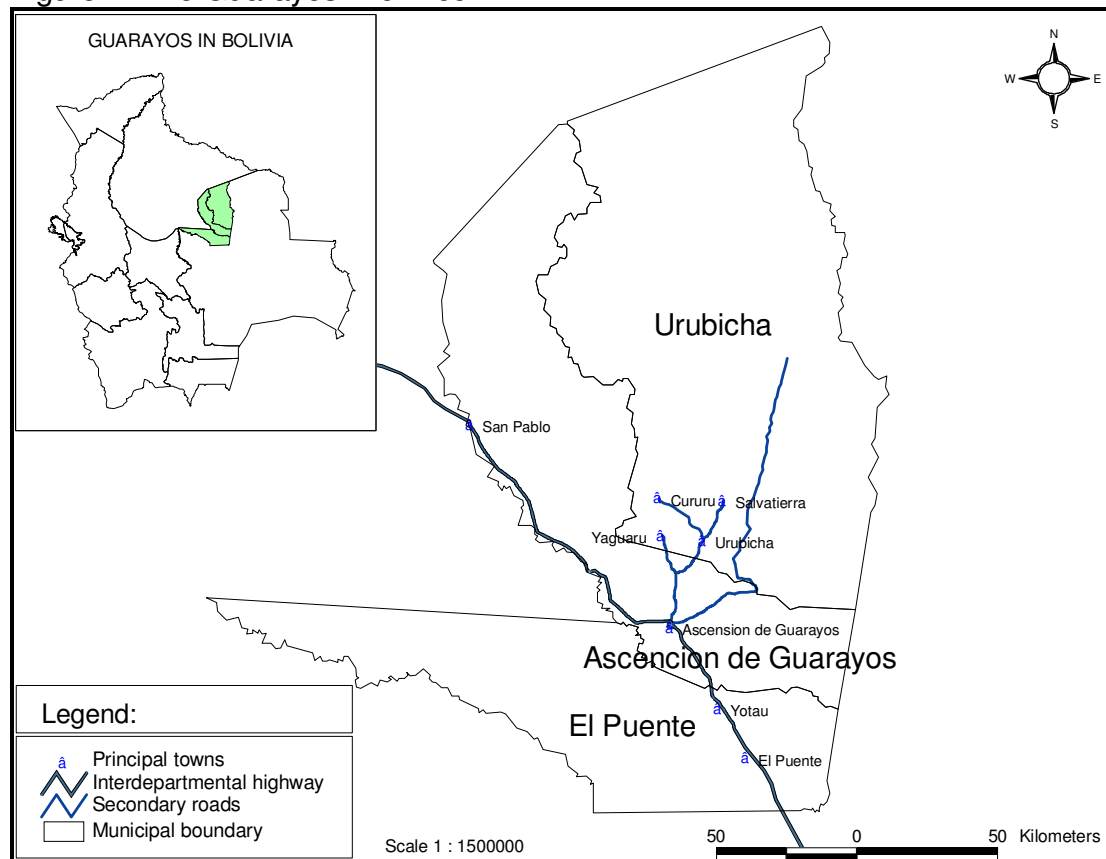
#### Guarayos

Guarayos, home to the Guarayo indigenous people, is a province of Bolivia's Santa Cruz department that is a rapidly changing forest frontier. The declaration of a Guarayos TCO almost a decade ago promised to bring greater property rights security to the region's indigenous population and increase stability for their livelihoods. In practice, the establishment of the new property rights associated with the TCO has not been as successful as hoped. Strong competition by non-indigenous stakeholders, an inadequate implementation strategy by the government and internal divisions among the Guarayos people themselves have created a situation teetering on the brink of an open access crises that threatens to undercut the livelihoods and wellbeing of a segment of the indigenous population.

The province, covering an area of 29,433 km<sup>2</sup>, is composed of three municipalities: El Puente, Ascensión de Guarayos, and Urubichá (see figure 1). The principal town is Ascensión, capital of the municipality, followed by the other two municipal capitals; El Puente and Urubichá. Formerly a remote backwater, in recent decades the construction and later paving of an interdepartmental highway that transects the province, passing through El Puente and Ascensión, opened the region to outsiders, leading to a creeping frontier from the south as timber industries, large scale agricultural interests, and smallholder colonists began

entering the region. Only Urubichá, which is approximately 40 kilometers off the highway, remains remote.

Figure 1. The Guarayos Province.



The province is lightly populated. According to the 2001 census the total population of the province was 31,577, meaning a population density of only 1.07 inhabitants per km<sup>2</sup> although the density in rural areas is even more sparse given that 39% of the population was concentrated in the provincial capital Ascension (INE 2001). Between 1992 and 2001 the populations of El Puente and Ascension grew at rates of 5.9% and 4.7 % respectively, while in Urubichá the rate was only 2.6% (INE 2005). Since 2001 when the highway was paved, the influx of outsiders has increased even more in the two southern municipalities further diluting the indigenous population with the influx of non-indigenous outsiders. Known as an indigenous region, much of the population is of mixed ethnic descent. The highest concentration of indigenous people is found in the least accessible municipality of Urubichá where almost 93% of the population is indigenous (out of 5,960 inhabitants) (UDAPE 2003). The influx of outsiders has had more impact on the accessible municipalities creating an ethnically mixed population in Ascension de Guarayos where only 41% of the population was indigenous (out of 16,984 inhabitants) and in El Puente, where only 36% of inhabitants auto-identify as indigenous (out of 8633 inhabitants) (UDAPE 2003). By the late 1990s there was

growing tension in the province as indigenous people began to feel the pressure from land claims and resource extraction by other actors.

Many of the competing stakeholders were moving to Guarayos for its fertile soils and expanses of forest. Approximately 90% of the province is covered by forests (MHNNKM 2006), 60% of which have been classified as having high or very high commercial potential (CORDECRUZ 1994). Analysis of forest inventories indicated that there were high volumes of valuable timber, at least in the concession areas (Dauber et. al. 1999). While there are a number of industries and communities with forest management plans, over the past decade, deforestation and uncontrolled informal logging have taken a toll on this valuable resource.

### Competing Stakeholders

Prior to the new forestry law almost all the forests in Guarayos were under the control of timber industries. After the law was passed 11 of these companies requested that their access rights be converted into concessions. Because the law established a one dollar per hectare fee for concessionaires, the timber companies decreased their demands by 70% but still amounting to 562,604 hectares (Vallejos 1998). However, much of the land they gave up had already been logged selectively removing valuable stocks of mahogany and cedar.

There are several smaller logging companies, saw mills carpentry shops in the province that depend on timber harvests for their livelihoods. These stakeholders did not have the resources to gain control of a timber concession of their own and because most of the region has been immobilized by INRA cannot gain access to concessions on municipal forest land. They could collaborate with the community forest management plans and organizations, but instead rely on land clearing permits and other alternative mechanisms to gain access to raw materials. Because much of the wood harvested comes from non-sustainable sources without bureaucratic restrictions, they have lower costs make them major competitors for indigenous communities attempting to manage forests.

The influx of economically powerful actors laying claim (legally and illegally) to large areas of land for ranching and other agro-industries has risen sharply and has been an important point of conflict. Initially many arrived to establish cattle ranches but, increasingly, soy bean production is becoming more important. It is difficult to get an exact total on the number of such properties. However, examining preliminary data from INRA, the authors estimate that these actors control just over 20% of the province, mostly concentrated in El Puente and Ascención de Guarayos along the highway.

As the road improved smallholder peasant colonists began moving into Guarayos from the south. Bolivian peasant colonists form organizations called sindicatos (unions) and moved onto land in mass, dividing it among members. Each settlement is composed of roughly a couple dozen families. Each member family gets an individual plot treated as private property but the land is held collectively by

an organization called a *sindicato*, the size of the area claimed depends on the number of resident families. The family plots are cultivated individually and are usually approximately 50 hectares. These groups are highly organized and form hierarchies with *centrales* and *subcentrales* linking individual sindicatos. There are two distinct groups in Guarayos: The Special Federation of Rural Workers and Guarayos People<sup>6</sup> (FETCIG) and The Lone Central Union of Rural Workers in the Guarayos Province<sup>7</sup> (CSUTCPG). The FETCIG is composed of 25 *sindicatos*, while the CSUTCPG is composed of 24. Settlements of Peasant colonists are found only in the municipality of Ascensión de Guarayos and El Puente.

### **Guarayo Organizations**

The organizational pattern in Guarayos consists of traditional indigenous governance organizations and formal civil organizations in which indigenous people participate. The traditional indigenous organization is based on a *cabildo* system introduced by Franciscan missionaries in the 19<sup>th</sup> century, consisting of several leaders called *caciques* or chiefs assigned by local priests. Today *caciques* hold power that is largely ceremonial but they do exert moral leadership and can be important for influencing local decisions. Decision making power over natural resources is held at the village level by communal assemblies headed by an elected president. These village level organizations provide the basis for the system of indigenous political power. Larger settlements form organizations called *centrales* which include representatives of sub-units of the community called agrarian zones (described below). There are six *centrales* and 12 indigenous communities in Guarayos. In 1992 the Guarayos *centrales* and communities united to form an umbrella activist organization to represent their interests to the government called COPNAG (The Central Organization of Native Guarayos People<sup>8</sup>). COPNAG is affiliated with the regional indigenous organization CIDOB (Confederation of Indigenous People of Eastern Bolivia<sup>9</sup>), which is Bolivia's principal indigenous organization composed mostly of lowland indigenous peoples.

These indigenous organizations are also overlain by civic organizations created by Bolivia's 1994 Popular Participation law. The decentralization measure under this law created space for local representative groups called OTBs (*organizaciones territorial de base*) formed at the village or neighborhood level to participate in municipal governance. As representative organizations, the OTBs provide a role for local people to negotiate with municipal governments and participate in municipal planning. In smaller indigenous settlements, the indigenous village assembly and OTB are practically synonymous with the same leadership. In larger mixed settlements, the OTBs are more inclusive with non-indigenous representatives and from distinct entities parallel to the indigenous organizations. For example, in the town of Ascensión de Guarayos, the municipal government's planning process

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<sup>6</sup> *Federación Especial de Trabajadores Campesinos Indígenas Guarayos*

<sup>7</sup> *Central Sindical Única de Trabajadores Campesinos Provincia Guarayos*

<sup>8</sup> *Central de Organizaciones de Pueblos Nativos Guarayos*

<sup>9</sup> *Confederación de Pueblos Indígenas de Oriente Bolivia*

includes several OTBs formed by neighborhoods, and also includes indigenous representation from the town's Central and from COPNAG.

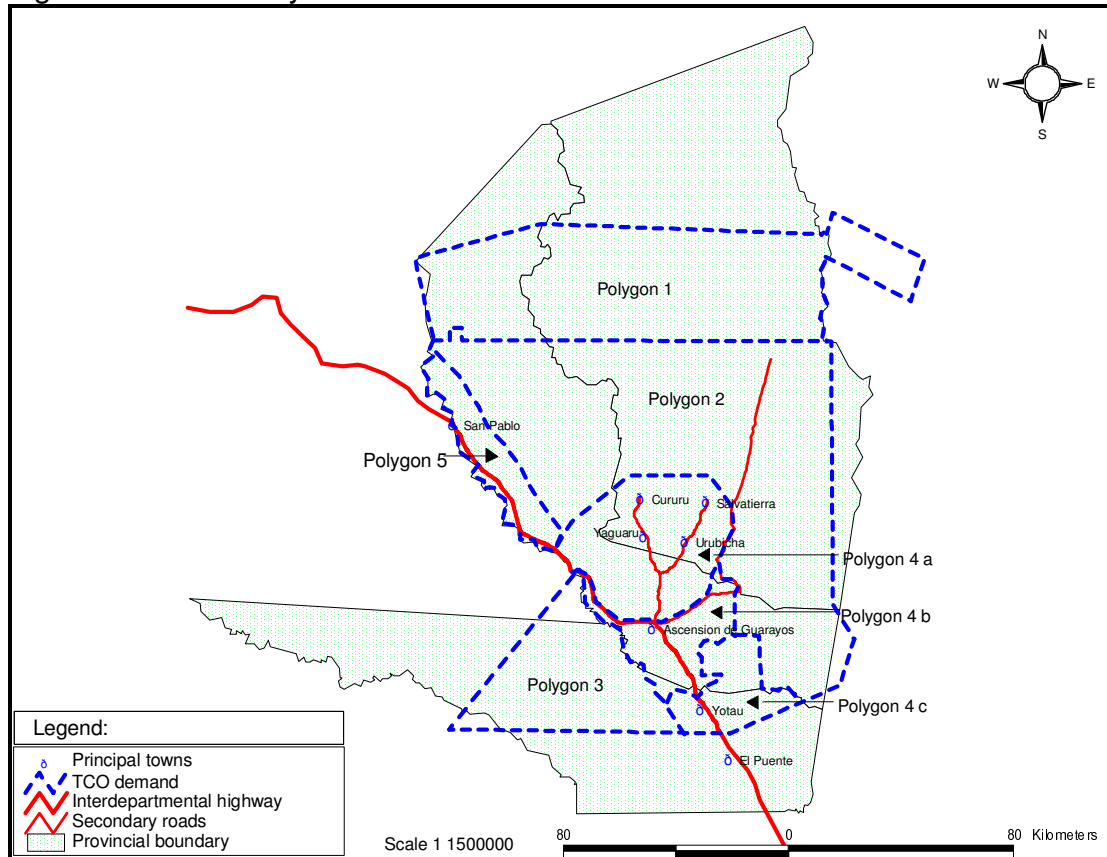
Traditional land use and allocation function at the village scale with organizational authority held by the village assembly or central. Lands immediately around settlements are divided into 'agricultural zones' and beyond that, forest lands, and wet lands are considered zones of influence, loosely defined to distinguish territory of each community's usually extending 15 or 20 kilometers, depending on the size of the community. The agricultural zones are authorized or sanctioned by the village 'central' at the request of group of local indigenous families looking for land to cultivate. The number of zones depends on the total population of the community (for example, small community like Cururú has only one zone, while a larger town like Ascención has 17 zones and Urubichá has 32.) The agricultural zones are communal areas with an assigned president. The size of the zones varies depending on number of member families, although there are typically less than a couple dozen families. Each family is granted ownership of a plot that typically is about 50 hectares and contains swidden agriculture fields, fallows and forest areas. Ownership is based on use and can be passed to descendents. However, customarily, families cannot sell their rights and if abandoned, the president can assign the plot to another local family. Beyond the agricultural zones is the larger communal area called the zone of influence. These zones are generally forest areas used by community members for subsistence (hunting, extraction) but are also areas for the expansion of agriculture if necessary. Neighboring villages would not be permitted to place agricultural zones within the area of another village, but less effort is made to exclude others from forest if use is for subsistence purposes (i.e. hunting).

Outside of indigenous communities the agricultural zones had no formal or legal standing other than being manifestations of the *de facto* occupation of land. During earlier rounds of agrarian reform in the 1980s and 1990s, some indigenous families received formal titles to their plots, although many only partially completed the bureaucratic process receiving the initial paperwork authorizing their occupation of the land. Most families did not receive any formal recognition.

#### The Creation of the Guarayos TCO

In 1996, COPNAG presented a TCO demand for 2,194,433 hectares to the government. When the INRA law was ratified, it established a non-extendable deadline of 10 months for the titling of the 16 TCOs, including the Guarayos TCO (Tamburini and Betancur 2000). In July of 1997, INRA immobilized a 2,205,537 hectare area while VAIPO carried out the spatial needs study. INRA divided the immobilized area into 5 polygons to begin the *saneamiento*. In August 1999 VAIPO presented the results of their special needs study, which diminished the Guarayo TCO demand to 1,349,882 hectares (VAIPO 1999).

Figure 2. The Guarayos TCO Demand



INRA's strategy for the *saneamiento* process concentrated on the most remote and least inhabited polygons in the far north of the TCO demand during the first phase instead of attempting to confirm indigenous land holdings near settlements. By focusing the *saneamiento* on remote areas with low population, INRA was able to avoid zones where land claims were contested and conflict was more prevalent, which allowed them to advance at a quicker pace. However, this meant that problem areas where the region's population is concentrated (in the south and in a band roughly 50 kilometers on each side of the highway) were not addressed, leaving most Guarayo families without clear tenure.

INRA's immobilization of the TCO demand was supposed to freeze land transactions while sorting out contested property rights; however it did not protect the indigenous claim effectively. One issue of interest to indigenous people was to regain control of their forests. In 1997, COPNAG filed a legal challenge to keep the Forest Superintendence from awarding timber concessions to the industries that previously had exclusive access to the region's forests. The contracts of these companies were for 20 years (set to expire in 2010), and COPNAG argued that the 40 year concession rights awarded under the new forestry law constituted new rights in an immobilized area (Vallejos 1998). However, later that year, the Forest Superintendence rejected that position by determining that the industrial rights were pre-existing. As a result 562,604 hectares of production forest, most of it

overlapping with the TCO demand, were granted as concessions to the 11 timber industries.

The competing land claims of non-indigenous residents were a thorny issue as these claims included economically and politically powerful individuals. There were legitimate 'third party' claims to land within the TCO demand; landowners with long histories in the region or who had purchased land and received title prior to the initiation of the latest round of the agrarian reform process that needed to be addressed, but there were many others that did not fit this description. The long delay in the *saneamiento* of the territory and focus on uncontested areas allowed illicit land transactions to take place. Some unscrupulous actors could pay to generate forged titles or other documents, including the purchase of certification from corrupt COPNAG leaders 'proving' the existence of property prior to TCO demand (López 2004; Moreno 2006). Even though land transactions in contested areas should have halted with the TCO demand was immobilized by INRA, the agencies was unable to exert control over the region, creating a limbo in which the indigenous people could still lose out on their land claims.

In the midst of the slow and opaque *saneamiento* process, the TCO's indigenous population became increasingly interested in community forestry management. as a means of occupying territory and demonstrating their use of forest resources. In theory, an approved management plan would buttress indigenous land claims by providing legal recognition of forest use that would hopefully facilitate the exclusion of outsiders. Communities were also interested because community forest management could potentially provide a much needed sources of income to the impoverished population. Although the Guarayos people had been excluded from commercial forestry and lacked experience with timber operations and the new administrative requirements for developing management plans, both NGOs and logging companies offered assistance: the NGOs to promote sustainable forestry and to reduce poverty, and the companies to curry favor with local people and gain access to their forests.

Taking a pragmatic approach, the NGOs focused on developing management plans at the community scale, even though the TCO was technically 'indivisible'. From 2000 to 2004 six indigenous community groups in Guarayos gained approval for management plans in forests around their communities. A seventh plan is currently being evaluated by the Forest Superintendence. In total 211,178 hectares of forest were being placed under management plans by the Guarayos people, with individual plans ranging from 2433 hectares up to 60,000 hectares (see table 1).

The problem was that in reality, as a strategy for demonstrating their hold on the land, the development of forest management plans faced significant limitations. Due to the complexity, and cost of developing forest management plans combined with the requirement that the effort be guided by a trained forest engineer, all of the management initiatives were developed with substantial outside assistance and investment, most coming from NGOs. Although the NGOs promoting forest

management were interested in expanding the activity, to justify the costs and maximize their limited staffs, they sought out cases where indigenous people had large areas of production forests to place under management. Large expanses of forest are available in the north of the TCO, areas among the first to be titled. However, forests near most communities are often fragmented by agricultural expansion, and degraded by earlier logging so were not attractive targets for the foresters leading the development of management plans. Also, along the highway and in the south of the TCO, even if large patches of forests remained, ownership was often contested by other stakeholders, discouraging investment in management plans. As a result, sometimes, even when communities express interest in forest management, development initiatives did not get off the ground because of the lack of suitable forests.

Table 1. Communities with General Forest Management Plans in Guarayos

Community	Indigenous Forestry Organization	Year Plan approved	Surface area in hectare
Urubichá	Asociación Indígena Forestal de Urubichá (AIFU)	2000	41,123
Santa María	Manejo Forestal Indígena Santa María (MAFI –SM)	2001	2,433
Yotaú	Manejo Forestal Indígena Yotaú (MAFI - Y)	2002	28,586
Cururú	Asociación Indígena Maderera de Cururú (AIMCU)	2002	26,421
Salvatierra	Asociación Indígena Forestal Salvatierra (AFIS)	2003	40,886
Momené	Manejo Forestal Indígena Momené (MAFIM)	2004	11729
San Juan	Asociación Indígena Forestal San Juan		60,000

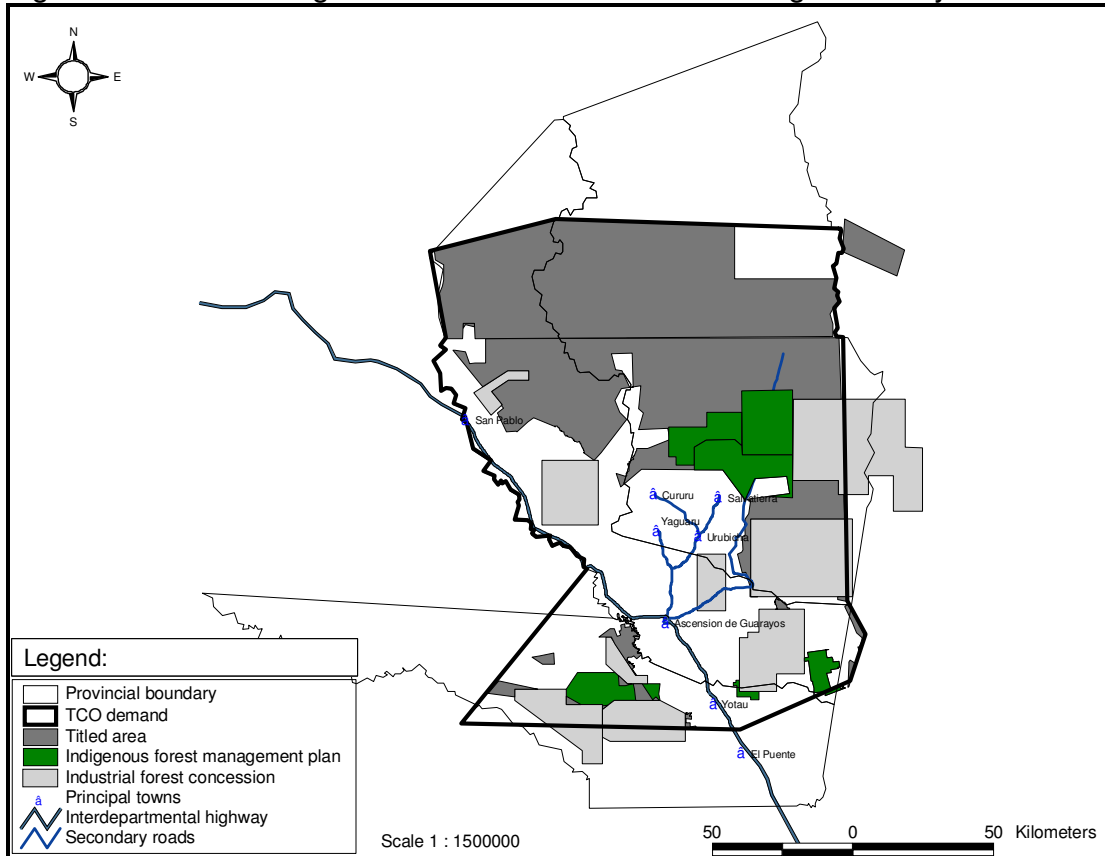
Timber management plans have provided more control over forest resources for villages in the north of the TCO in the Urubichá municipality. These forests are more remote; accessible only through the villages (Urubichá, Salvatierra and Cururu) or via a private road maintained by timber companies with concessions. The official recognition for their plans has helped the communities to demonstrate their use over their zones of influence.

On the other hand the three Guarayos indigenous management plans located in the untitled polygons in the south have suffered invasion and competing claims from other land owners raising questions about whether the plans will survive, let alone strengthen indigenous land claims. For example, one of the first indigenous communities to develop a management plan in the region, Santa María near Yotaú, had their forest invaded by colonists a couple years after the plan was



approved. The colonist *sindicato* that occupied the area and cleared agricultural plots because they believed the forest was unoccupied. Repeated requests by Santa Maria residents to have the government remove the colonists have gone unanswered over the past several years, and it appears that INRA may validate the *sindicatos* claim even though it is superimposed on an indigenous forest management area recognized by the Forest Superintendencia.

Figure 3. Forest Management and Communal Land Titling in Guarayos.



The ill-defined tenure status for most lands near towns and the highway has created opening for local loggers use small-scale harvest permits to access timber in the areas that have not been titled (Cronkleton and Albornoz 2004b). The availability of cheap wood harvested from these operations certainly brings down prices and limits market opportunity for those communities that have attempted to implement communal forest management plans.

#### Titling Status of the Guarayos TCO.

Although INRA has worked on the Guarayos TCO demand for almost ten years, the results have been patchy and are still incomplete. By the end of 2003, 970,202 hectares had been titled from the first two polygons in the north of the demand. Later in 2006 an additional 17,958 hectares had been titled in the third polygon located in the far south of the demand, although, this amounted to only 7% of the polygon's area because of property claims from non-indigenous property owners..

While INRA has initiated the *saneamiento* in polygon 4 which encompasses the provincial capital, Ascención de Guarayos and the southern segment of the highway, it has not issued any results. In polygon 5, that borders the northern segment of the highway, the *saneamiento* process has not begun. At the end of 2007 INRA had finished the *saneamiento* in 3 polygons titling 988,160 hectares, about 46% of the area immobilized at the start of the process (see table 2). The titled area amounts to about 73% of the spatial needs for the Guaryaos people defined by VAIPO in 1999.

Table 2. The Guarayos TCO Demand and INRA Polygons.

Polygon	Original area identified for <i>saneamiento</i> in hectares	Area titled in favor of the Guarayos TCO	Date titled
Polygon 1	551,003	413,019	11/30/1999
		37,927 <sup>10</sup>	11/14/2003
Polygon 2	915,811	519,256	4/27/2001
Polygon 3	230,220	17,958	9/28/2006
Polygon 4	425,009		
Polygon 5			
<b>Total</b>	<b>2,122,043</b>	<b>988,160<sup>11</sup></b>	

The titling process for the TCO has been inconclusive. In 2004 the process halted as charges surfaced that in 2001 there had been 44 fraudulent transaction in polygon 2 involving private land owners, indigenous leaders and INRA technicians (Lopez 2004). These accusations and the suspicion of fraud have generated turmoil in COPNAG and the Guarayos indigenous political movement. In 2007 the organization actually split in two, with the expelled leaders tainted by accusations of corruption forming a parallel group they refer to as the 'authentic' COPNAG. This group was not recognized by CIDOB but is supported by Santa Cruz's Departmental government and by the *Comité Cívico*<sup>12</sup> of Santa Cruz as the legitimate representative of the Guarayos TCO (indicating how national politics and underlying disputes over agrarian reform were influencing events on the ground on this frontier).

### Pando

The Pando department has been one of Bolivia's more remote frontiers with 63,827 km<sup>2</sup> mostly covered by humid tropical forests. Forestry has been the basis of the region's economy although, historically dominated by non-timber forest products NTFPs rather than timber. Initially, in the late 19th century, occupation

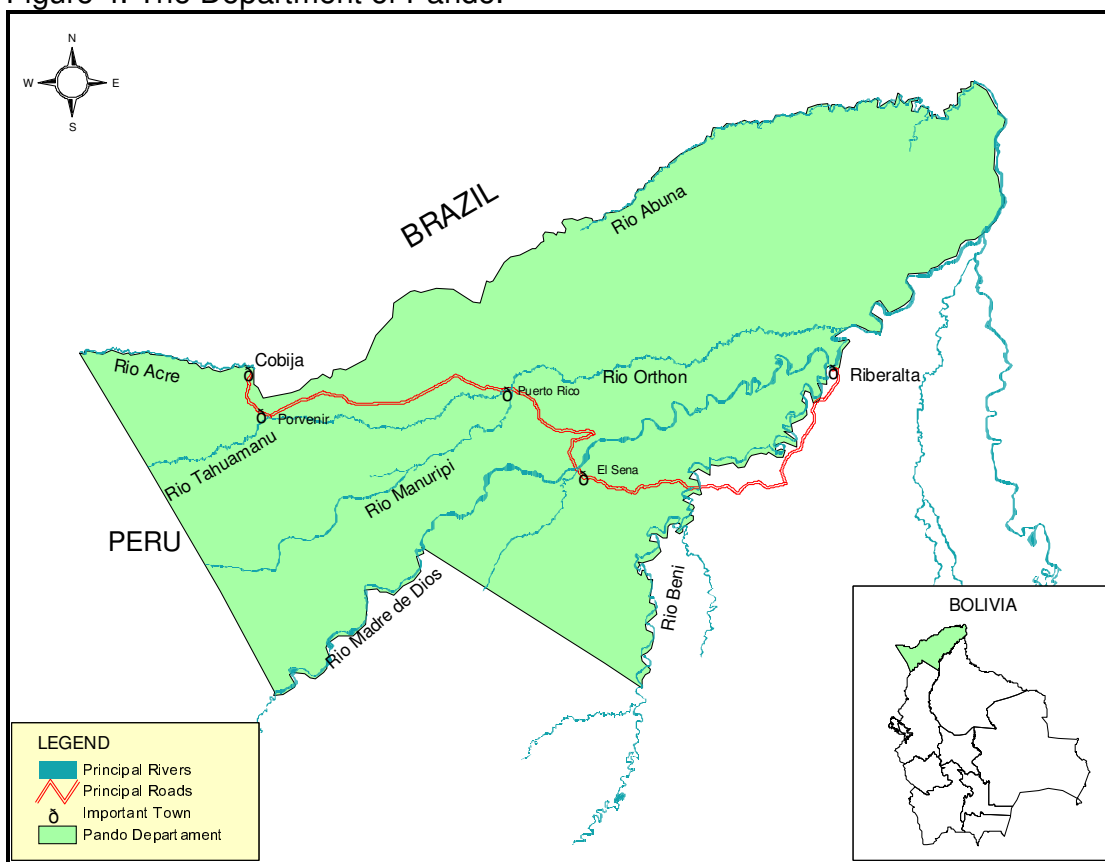
<sup>10</sup> The area was added to polygon 1 after INRA rejected the claims of some third party landowners in the territory.

<sup>11</sup> INRA, 2007.

<sup>12</sup> This is an organization of businessmen and landowners in Santa Cruz that backs the departmental government in opposition to the left leaning national government.

was driven by the rubber boom later shifting to other NTFPs, especially Brazil nuts (*Bertholletia excelsa*). In 1990 only 2.6% of the region's lands had been deforested (Llanque 2006), although rates have increased over the last decade and a half. Until the mid-1980s, Pando's capital, Cobija, had no viable year-round land link to the rest of the country. Today there are only about 30 kilometers of paved roads in Pando, so the department's highly seasonal precipitation, averaging around 1.8 meters annually (Balcázar et. al., 2002), makes dirt roads impassable during the rainy season from November through March. As a result, transportation within the region has been dominated by a vast network of rivers. Until recently, Pando's isolation has meant that development change has had relatively little impact in the region.

Figure 4. The Department of Pando.



Human settlements are widely dispersed along rivers and the few roads in the region. Pando's population is small: only 52,525 people in the last census (INE 2001) and people are sparsely distributed across the department. The department represents about 5.8% of the national territory but has less than 1% of the country's population. In fact, Pando has one of the lowest population densities in the country with less than one inhabitant per km<sup>2</sup> (0.82 inhabitants per km<sup>2</sup>) (INE 2001). Sixty percent of Pando's population is rural, and seasonal migration related to forest extraction produces dramatic shifts in rural population that give the region a distinct dynamic (Stoian 2004).

Throughout Pando, forest resources have provided the basis for rural livelihood strategies for generations. Forests are the dominant land cover in the department as over 90% of Pando is covered with tropical rainforest (FJMP 2002). Brazil nuts (*Bertholletia excelsa*) have been one of the principal NTFPs extracted from Bolivia's northern forests since the mid-20<sup>th</sup> century and more recently have become the foundation of the regional economy (Stoian 2000). In recent decades large capital intensive enterprises operating processing plants have appeared and have greatly contributed to the Bolivia's forest export earnings. In 2000 there were 23 processing plants working in Bolivia (Callao 2005). In fact, since 2003 Brazil nuts have been Bolivia's #1 forest export (Cámara Forestal 2007). During the first five years of this century, Bolivia has accounted for over 50% of the worlds Brazil nut exports and over 70% of world exports during that period if only the processed shelled nuts are considered (FAOSTAT 2007). Although Brazil nuts are found in most of Bolivia's northern Amazon, 80% of Bolivia's production comes from the department of Pando (Cámara Forestal 2006). Until recently, forest property rights underlying the country's Brazil nut sector were weak and shifting despite the importance of Brazil nuts to local livelihoods, the regional economy and forest exports in general,. The reform process was particularly contentious and has led to a tense climate between competing interests groups (Ruiz 2005; de Jong et. al. 2006).

#### Competing stakeholders

There are several stakeholder groups competing for the forest resources in the region. The two primary groups are rural communities and forest estate owners, but more recently expanding to include timber industries, and ranchers. Rural communities began to form shortly after the collapse of the rubber boom, and depending on their proximity to urban centers, difficulty of access and relations with former landlords, have different levels of forest dependence and organizations (Stoian and Henkemans 2000). With the advances of the agrarian reform since 2000, most of these communities have received title as agro-extractive communities in Pando.

Forest estate owners, known as *barraqueros*, have holdings based on traditional access rights but without legal title. *Barraqueros* formerly dominated the region but in recent years have lost considerable power as a result of economic and political reforms. According to Ruiz (2005), in 2000 there were 221 *barracas*, whose owners claimed over 3 million hectares of forest, although 71% of this area was controlled by just 44 *barracas*.

Although NTFPs have dominated the regional economy, since the mid 1990s, timber has become more important. In 1995, despite the unresolved complexity of property right demands of communities and *barracas*, the government granted long-term contracts to 17 different timber industries which were superimposed on existing traditional forest claims along the borders with Brazil and Peru (Pacheco 1998). Later, after the ratification of the new forestry law, these contracts were subdivided into 19 different concessions. Besides the large timber industries, there is a growing number of small and medium sized logging companies and sawmills

that must look for sources of raw materials in other areas, either private properties, *barracas* or communities.

### **Customary land use in agro-extractive communities**

Pando's extractive communities have traditional property rights that evolved over time beginning with the occupation of forest areas abandoned by *barraqueros* after the collapse of world rubber prices in the early 20<sup>th</sup> century (Stoian and Henkemans 2000). The form taken by rural settlements in Pando has been driven by the demands of forest extraction. The basic production unit is the household, so initially rural families were dispersed throughout the forest to facilitate the daily extraction of wild rubber (*Hevea brasiliensis*). Later, after the collapse of rubber prices and the emergence of greater dependency on Brazil nuts, communities began shifting to more nucleated settlements with seasonal occupation of forest holdings during the harvest from January through March.

The customary property rights claimed by these families are based on a type of "tree tenure" (Fortmann et al. 1985) which recognizes access rights to individual trees and related infrastructure to individual households or family groups (previously rubber trees and trails, and now more commonly Brazil nut trees and connecting trail networks). Access rights to Brazil nut trees are organized by "*castaña*", which is a cluster of trees through which the corresponding trails run in the forest and simple base-camps, called "*centros*". Typically, a *castaña* can have anywhere from a few dozen to over several hundred trees, spread over hundreds of hectares. The system does not emphasize control of contiguous territory but only the key resource (Brazil nut trees) and related infrastructure (trails and storage areas). Within this mosaic there are also open spaces between *castaños* where Brazil nuts trees are not present, usually seasonally-inundated areas where the trees do not survive. In newer communities, the system may be less defined, but in established communities the customary tree tenure is well developed and quite specific even though no formal written record of these rights exists (Cronkleton et. al. 2007). Though lacking a clear legal foundation, the system has been sufficiently resilient to allow NTFPs to drive the regional economy and allow people to sort out forest property issues to maintain a very lucrative and important forest industry.

### The recognition of agro-extractive communities

The INRA law did not bring immediate change to the region as its implementation was hampered by the tense stand off between *barraqueros* and community level producers and their representative organizations. INRA did not open an office in Cobija until 1999. The *saneamiento* began in 2000. The *barraqueros* initially attempted to use back channels in the Bolivian capital to have decrees issued (*Decreto Supremo* DS #25532 and DS 25783 both from 1999) that would have created 3 to 3.5 million hectares of NTFP concessions benefiting about 200 people (Aramayo 2004). News of these decrees catalyzed opposition and a coalition of regional *campesino* and indigenous organizations, together with support from NGOs, began to formulate a grassroots response to pressure the national government, which was increasingly interested in populist measures to appease

rural tension. The government reacted by annulling both decrees, and then issued an alternative one that became known as the “500 hectare” decree (Ruiz 2005). The new decree (*Decreto Supremo* DS25848, 2000) stated that in Pando and portions of the La Paz and Beni departments --territories that produce Brazil nuts-- the minimum area provided to *campesino* and indigenous communities would be 500 hectares per family. The 500 hectare measure corresponds roughly to the territory traditionally used by extractivist families to harvest NTFPs, and effectively recognized their *de facto* hold over expansive forest properties. However, rather than attempting to title individual 500 hectare properties, the policy was interpreted so that communities would receive communal properties more or less equivalent to 500 hectares per family.

Implementation of this decree was slow due to continued political opposition by *barraqueros* and their allies. As the *saneamiento* it was becoming clear that there would be enough land in the region to accommodate the demands of all registered communities and still respond to the demands of the *barraqueros*. In 2004, during the administration of President Carlos Mesa, the government issued a compromise decree (*Decreto Supremo* DS27572, 2004) that confirmed the 500 hectare measure for communities, and included a provision for the definition of NTFP concessions for *barraqueros* once all community property had been titled.

For agro-extractive communities in the northern Amazon, INRA focuses on all communities that have registered for *personalidad juridica* and formed representative organizations known as OTB that give them a voice in local government. INRA uses the OTB list of resident families to determine the approximate size of their territorial polygon based on the 500 hectare per family rule established by the 2000 and 2004 decrees. Boundary markers are placed with the assistance of community members to delineate the forests they use but also taking into account the claims of other communities and private property owners. However, if the residents do not understand the process or the INRA technicians rush the process, the resulting polygon do not always reflect the traditionally used forest area (Cronkleton et.al. 2007). Because families in these communities typically rely on natural boundaries for divisions rather than the imaginary lines created by the polygon, they can remain unaware that their forest resources have been left outside the property. If the excluded area is granted to a neighboring community, affected households quickly learn when confronted by the new ‘owners’ during the Brazil nut harvest. While in most areas communities had reached agreement on traditional boundaries that were seen as legitimate, the polygon boundaries have created new conflict and when that is the case, depending on how these conflicts are eventually resolved could undercut the legitimacy of the new legal boundaries.

Because there were communities that were much smaller than the 500 hectare per family standard, and because some communities grew naturally during the years of demarcation and *saneamiento* process, some communities were allowed to receive additional lands called compensation areas. However, the manner in which INRA has defined compensation areas has limited the benefits for communities.

Ideally compensation areas would enlarge the communities' polygons into contiguous areas, which would be easy for the residents to access. However, under pressure to finish, it was apparently been easier for INRA to identify land in remote areas. The agency has even defined combined areas for groups of small communities. An example can be seen in the case of one small community near Cobija, San Jorge. The community, together with three neighboring communities, was granted rights to an area of about 20,000 hectares several hours northeast of their current homes as a compensation area. After receiving the title, the community members learned that there were already families living in the forests with customary claims over the Brazil nut groves. Initially they expected that the government would remove these families but this has proven unfounded. Even though they have a title, some young families from San Jorge have had to purchase rights from families occupying the land to gain access. Such options are not open to families with fewer resources. If the families do eventually occupy the property, it is not clear how resources would be distributed among the three communities as they do not have a tradition of working together.

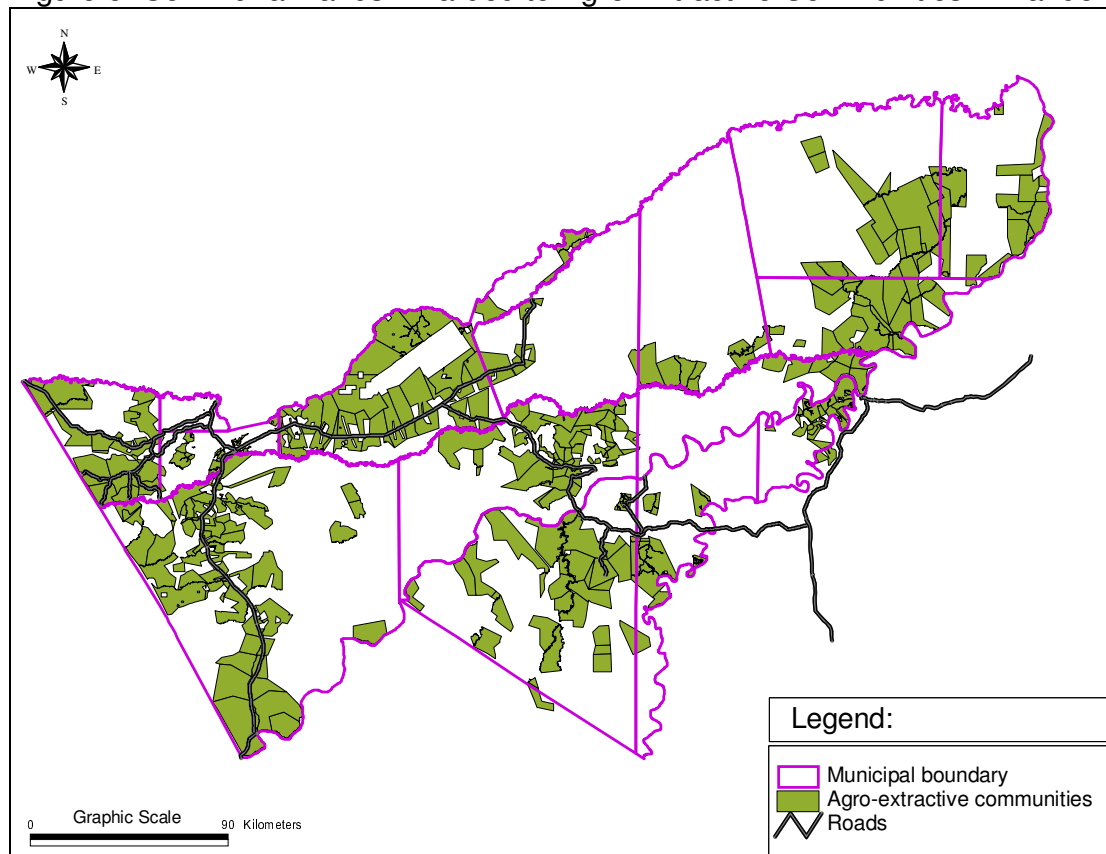
The new tenure rights closely conform to the customary practices and use rights embedded in the extractive livelihoods of rural people in extractive communities. Internal decisions and resource distribution are left to residents to determine, and the organization responsible for the community was the OTB. The new tenure gives residents the right to exclude outsiders. Properties cannot be divided, although some residents expect (incorrectly) that INRA will return and define their 500 hectare specific plot. Community members are not allowed to sell their rights to others. However, in practice, families that wish to leave communities are able to sell out, although selling their 'improvements' (i.e. their house, cleared fields, pasture). The buyer can then occupy and work in the forest area traditionally used by the original owner.

The new tenure rules grant them the rights to commercialize forest products, but this has not brought great change. Technically, households should have approval from the Forest Superintendence for commercializing NTFPs but these traditional production systems and related market linkages are well developed so recent management norms are ignored and the state lacks the capacity to insist on their use. The government places more emphasis on controlling timber extraction, and as a result, communities need formal permission to market wood. Over the past two years regional NGOs have started to promote timber management plans but before that there were few initiatives to assist communities in Pando to develop timber management plans so permission has been beyond the reach of most communities.

A review of unpublished INRA data from the end of 2007 shows impressive results in the titling of lands in favor of agro-extractive communities in Pando. In a total of 245 communities, 139 have been titled receiving a total of 1,807,320 hectares (see figure 5). An additional 24 communities are having their claims processed which, once finished, will add another 112,384 hectares of forest. Until INRA finalizes the titling of communities it can not begin formalizing NTFP concessions for

*barraqueros*, however it has registered 237 demands in Pando for a total area of 1,535,790 hectares. Although *barraqueros* are generally pictured as the owners of very large estates, 146 of the concession demands are less than 5000 hectares. So far, the titling of community lands has impacted the timber concessions granted to industries under the new forestry law. Five concessions have had all or most of their forest area titled in favor of communities. This leaves only 14 concessions with a total area of 1,236,793 hectares (from an original total of 1,568,281 hectares).

Figure 5. Communal Lands Awarded to Agro-Extractive Communities in Pando.



### Comparing the Communal Tenure Models

To compare the two property rights models represented by the cases described in this paper, it is necessary to return to the questions introduced in section 2 of this paper. Those questions were: Do the rights granted and the characteristics of the resulting properties support the livelihood strategies of recipients? Do residents have the organizational and management institutions necessary to administer the communal property? How does change introduced by the new arrangements impact resource use and the equitable distributions of benefits from that resource use?



Do the rights granted and the characteristics of the resulting properties support the livelihood strategies of recipients?

In theory both models should be very supportive of livelihoods of resident members. The law was intended to prioritize property rights the claims of indigenous and rural people. The titles grant exclusive rights to forest resources. In both cases these property rights are inalienable, indivisible, non-reversible, collective, and non-mortgageable and tax-exempt. Furthermore, both models responded to grassroots pressure from residents for the recognition of property rights so should, to a certain degree reflect local interests. However, while both models are similar, the outcomes in each of the sites examine here are very distinct due, to a certain extent, to how the parameters for the property were defined in practice and how they were implemented. In the Guarayos case the process and resulting communal property have violated many of the principals mentioned in the second section that are needed for communal property to function and to enable collective action for resource management. The situation indicates that Guarayos residents will have a difficult path to achieve a well functioning TCO. In Pando, the process and resulting properties are more conducive to communal management. Communities in the region do face challenges but not as drastic and given that external pressure on the communities is not as intense as in places like Guarayos, there is reason to be optimistic for the agro-extractive communities.

There are several major factors inhibiting the function of the Guarayos communal property. The Guarayos TCO is an immense territory, which has been a key problem limiting the effectiveness of property rights institution. It includes multiple communities spread over a large area, too often far removed from forests that are titled in their favor.

Another factor weakening the TCO is that it is difficult to clearly define who are the members of the property. The TCO is titled to COPNAG as communal property for all Guarayo people but the Guarayos are not a unified group and it is difficult to know who these people are or where they are located in the territory beyond general terms. The TCO includes a substantial non-indigenous population, who would not have rights in the TCO but do occupy and have claim to portions of the territory (both legitimate and fraudulent). By including an ethnically mixed population within the boundary confuses issue of membership in property.

The TCO has not become an entity providing clear boundaries and rights to residents. The process of titling the TCO that was supposed to take 10 months has been drawn out for almost one decade and is still incomplete. During this time INRA provided limited information to the public about the process and did they generate and widely distribute maps explaining progress, probably due to concern over conflict. Titled areas in the north are extremely remote and the titled areas in the south are fragmented in an archipelago of scattered patches difficult to identify on the ground. With such large area and limited information the TCO remained an abstract concept more than a concrete reality. The nebulous boundaries denied locals reference points that they could defend. The long delay under such

conditions gave 'third party' landowners within the demand time to consolidate their holdings.

The TCO was not implemented in a way that supported traditional livelihoods of residents that are based on swidden agriculture, nor did the process facilitate the adoption of innovations like sustainable forest management. Although nascent institutional mechanisms in the form of agricultural zones function at the village level to allocate resource, they were not taken into account. Rather than focus at the settlement scale addressing customary properties delineated by agricultural zones, the polygons grouped large expanses of the territory and apparently drew a distinction between distant uncontested areas and the contested lands near the highway and settlements. INRA's strategy seemed focused on avoiding conflict to advance with titling because the agency concentrated on remote, uninhabited lands rather than the more heavily populated areas with competing claims. As a result, substantial areas have been titled but, for the most part, not areas where indigenous people live. Agricultural lands around their settlements are frequently contested and sustainable forest management is not possible without clear property rights.

In Pando, the implementation of agro-extractive settlements was geared more towards supporting the livelihood needs of residents. INRA's strategy focused on titling demands from individual agro-extractivist communities attempting to delineate the areas of forest traditionally used by residents. The 500 hectare measure fairly approximated the forest needs of families dependent on NTFP extraction. Communal properties are not small, some reaching 20,000 hectares or more, however they are a manageable size allocated by population and use. Residents live in close proximity to and have frequent contact with their forests to control and defend them. Because the residents accompanied INRA while defining their polygon and it more or less matched the land they already claimed. As a result, community members had a clearer idea of what they would receive. There are problems with the polygons due to poor matches between titled areas and areas used customarily, and problems need to be resolved to provide strong, legitimate rights. However, such problems usually only affect portions of customarily used forest, in general the polygons are close in reflecting pre-existing land use and livelihoods need of residents. Efforts by communities to negotiate these differences themselves have been observed.

The compensation areas awarded to communities are more problematic. When they are far from communities, combining unrelated communities and occupied by others, there is a lack of shared history and common ground on which to base necessary management institutions. The rush to create these areas allowed INRA to claim that land titling for agro-extractivist communities in Pando was complete. Unfortunately in many cases it is unlikely that recipient communities will be able to take control of these new lands.

Do residents have the organizational and management institutions necessary to administer the communal property?

The distinct outcomes in the two cases is not because of wide differences in local capacity but because of characteristics of the property model that in one case strained existing institutions and capacities, while in the other existing institutions are better able to cope with parameters established by the new property. In both cases, it is unlikely that over the long term residents will be able to expect much support from government agencies in maintaining their rights to the land and forests so their ability to administer, manage and defend their properties on their own will be crucial.

Currently the Guarayos people lack a unified institutional structure capable of allowing dispersed indigenous settlements in a dynamic, ethnically mixed region to effectively administer and manage such an expansive territory. Again, this is partially due to the scale of the property. Customary institutions found in the Guarayos villages are not oriented to using or controlling such large areas. Instead these institutions concentrate on the allocation and use of territories near settlements for subsistence agriculture and forestry. Currently, most titled land is far from the settlements, hampering attempts to monitor what is happening with these forests, let alone control them and exclude others. In the northern section of the TCO, lack of physical access has allowed communities more time to consolidate their hold on lands around their villages, and timber management plans have contributed to this process. However, villages in the south, that are farther from the titled lands have practically been overrun by competing interests advancing on multiple fronts and claiming resources in different ways.

Furthermore, the Guarayo people lack an effective umbrella organization to oversee the territory. COPNAG was not created for territorial management but instead to lobby for indigenous interests. COPNAG leaders lacked the skills and experience to manage the territory when granted responsibility over the TCO. Although it was a representative organization, it was debilitated by a tenuous process for consultation and oversight by constituents due to the distance between remote communities and leadership is based in capital, a problem compounded by weak transportation and communications infrastructure. COPNAG is further weakened because of overlapping organizational jurisdictions. The indigenous organizations managing the TCO occupy the same space as municipal governments and village level OTBs. In addition, COPNAG also faces competing organization of colonist, loggers and ranchers lobbying for their interests in the same territory. With an impoverished population, people are susceptible to be influenced or bought off looking for their own interest rather than collective interests. Unprepared for the tasks and under extreme pressure from external actors in a highly charged environment, the organization was unsuccessful in controlling the process and its members; the resulting conflicts have split COPNAG into two competing groups.

The strategy of developing community level forest management plans has introduced a strategy with potential to help indigenous residents develop alternative institutions for controlling their territory. Taking a functionally pragmatic view, the NGOs promoting community forest management focused at the community scale. Although technical norms require creating another level of organization, at least these are comprehensible to locals because they serve a clear purpose. Unfortunately such organizations face steep learning curves for developing into viable initiatives. This appears to only be a possibility where community groups have time to adapt without being pressured by outsiders in open conflict over the forest lands.

To date state agencies such as the Forest Superintendence and INRA, with their small regional staffs and budgets, have manifest little capacity to defend the communally titled lands. While the INRA law was intended to prioritize indigenous interest (Kay and Urioste 2005), INRA's approach to implementing the TCO by avoiding conflict is indicative of a lack of political will to confront hard choices or opposition. Although the Forest Superintendence has granted approval to management plans, it has not been effective in supporting community efforts to exclude outsiders from these managed forests when invaded. Stronger advocacy and enforcement roles would have been necessary to actually follow through with commitments to indigenous land rights.

In Pando, most communities already had customary access rights that enjoyed a high level of local legitimacy. Customary institutions operate at the same scale as the new properties so it is likely that residents will be able to defend their rights. Resident families live in close proximity to their forests and have much control over access. Exclusion has proven more difficult in accessible communities as Brazil nut prices have risen dramatically in recent years, providing greater incentive for outsiders to enter clandestinely to take nuts during the harvest season, but this problem has not threatened the general system. These customary rights are integrally embedded in the regionally dominant Brazil nut sector and regulate crucial resource access for community members in the region. Because they closely match their livelihood institutions, recipients have a vested interest in supporting the boundaries.

Community collective organizational institutions are weak as the institution defining most interaction, forest production, is organized at the household level. The communities' OTBs are weak because they were introduced relatively recently. However, they are not contested by other organizations, although there are factions within communities they share common interests.

There is a risk that introduction of competing models could undercut customary institutions. For example, attempts at internal distribution of resources using an agrarian model to divide the territory into 500 hectare lots could undercut customary tree tenure systems that create a mosaic of oddly shaped and sized *castaños*. Timber management in communal property superimposed over mosaic of individual rights could also potentially generate conflict if preexisting

patterns of customary resource access is not considered in the planning. However, as long as pressure from external stakeholders remains low, communities should have more chance to adapt to the new arrangements (even with their flaws).

How does change introduced by the new arrangements impact resource use and the equitable distributions of benefits from that resource use?

This study did not delve into environmental assessments or details surveys of economic benefits; however it was possible to observe trends that give some indication of the impact these property rights models will have on residents and the resources they use.

In Guarayos, the TCO demand was superimposed on a dynamic frontier where outside interests have easy access and have been moving into the region over the last several decades. Such conditions do not provide ideal circumstances for developing new property rights. Rather than defend existing indigenous access to land around their communities, administrative action on these lands that indigenous people use was delayed to instead move forward with the titling of areas that were generally uncontested.

As a result, few indigenous families have secure title over the lands they use. Instead these supposedly immobilized regions have been subjected to intense competition to claim land and resources. The process has generated conflict and resource degradation. The resulting conflicts have split indigenous movement. As large-scale, non-indigenous operations invest in soybeans and ranching rates of deforestation have increased. It has also allowed unsustainable logging in untitled areas mostly benefiting loggers in the region.

In Pando, pressure from outside interests has been relatively low compared to other frontiers. Titling has strengthened the rights of agro-extractive communities. There are problems and conflicts and the communities will certainly go through a period of adjustment to the new rules of the game. For the immediate future the strength of the Brazil nut sector and the integral role agro-extractive communities play in supplying raw materials will support the *status quo* defined by the pre-existing customary access rules for NTFPs. This bodes well for the region's forest cover because, for the most part, community level forest use and livelihood systems are relatively benign for forests.

However, there are still potential problems. Pressure will likely increase with improvements in infrastructure, and ranchers and soybean producers could expand even more into the region converting forests around communities to other uses. As commercial timber stocks disappear in other parts of the country, logging pressure will increase in the region as well. Hopefully, such frontier intensification will not occur before strengthened community institutions have evolved allowing residents to better resist these pressures. Deforestation and fire do threaten these forests but mostly from other stakeholders attempting to establish FES.

## **Conclusions**

Bolivia's reforms over the past decade have introduced innovative models of communal tenure intended to improve property rights and access to forests for indigenous and traditional forest peoples. Two of the most important are the TCOs and agro-extractive properties. While this communal property models share broad similarities, there have been substantial difference in the outcome.

For most indigenous people in Guarayos, their tenure situation has not changed or has changed only marginally as few people live in the titled polygons. Most resource use is still based on customary practices that organize access to land through the 'agricultural zone' mechanism but most have not received formal title. In areas near the highway and capital families have found that their ownership of agricultural zones is contested by ranchers or large commercial farmers that have registered their own claims with INRA. Forests around the settlements, for the most part, are still considered as common resource for use by community members, but in accessible areas this has proven difficult to exclude non-indigenous colonists and loggers from entering and commercial grade timber is disappearing. The development of community forestry management plans appeared to hold much promise for supporting indigenous claims to forest lands, however, the cost, complexity and ironically, the need for uncontested forest land create serious constraints that limit this option for many indigenous residents.

In general the agro-extractive communities in Pando appear to have relatively secure tenure. This is because the new tenure rights more closely resemble the traditional system that was in place prior to the reform (with some exceptions). The properties focus on individual communities and tend to be smaller, with more cohesive membership focused on forest extraction. Although communities will need to adapt to the new rights, and respond to increased frontier pressure in the future, the fact that the property rights granted agro-extractive communities support local livelihoods dependent on maintaining forests, there is reason to be optimistic that reforms will benefit the community residents over the long term.

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