LOCAL INSTITUTIONAL DEVELOPMENT FOR LAND TENURE AND RESOURCE GOVERNANCE IN THE NORTHERN BOLIVIAN AMAZON

By

GEORGINA DAVIE CULLMAN

A THESIS PRESENTED TO THE GRADUATE SCHOOL OF THE UNIVERSITY OF FLORIDA IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE

UNIVERSITY OF FLORIDA

2009
For my families: the one I was born into, and
the one I have met along the way
ACKNOWLEDGMENTS

First and foremost, I would like to thank the members of the communities from El Sena, Pando, Bolivia who participated in my research. Without their help and acceptance, none of this would have been possible. They welcomed me into their homes and tolerated my strange Spanish and stranger questions. From my partner institution, the Center for International Forestry Research (CIFOR), I gratefully acknowledge Marco Antonio Albornoz and Peter Cronkleton, who were instrumental in the success of my field research as well as in the development of my research proposal. Amy Duchelle, Ph.D. student in the School of Forest Resources and Conservation (SFRC), imparted essential advice and important moral support while I was in the region. I must also thank my committee members, Grenville Barnes of SFRC and Stephen Perz of Sociology, for providing important feedback on my questionnaires. I thank especially Dr. Barnes for reading and commenting on early drafts of Chapters 2 and 3. Thanks go also to Rich Wallace, who helped with conceptualizing how to analyze the position data for Chapter 4. Both at UF and in Brazil, Peru, and Bolivia, it has been a privilege to be a part of the circle of scholars working the MAP region. I am grateful to the Tropical Conservation and Development Program for supporting both my field research as well as the second year of my Master’s study. Finally, I thank my major advisor, Marianne Schmink. This finished product would never have materialized without her insightful comments, close and careful reading, and unfailing encouragement.
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This research investigated the interaction of local institutions for land tenure and self-governance with national level decentralization policies in the Northern Bolivian Amazon. Specifically, the research focused on Bolivia’s second agrarian reform and the Law of Popular Participation and how they affected existing land tenure arrangements and nascent institutions for self-governance. Using interviews, focus groups, and participant observation, I examined the structure and processes for land tenure arrangements and self-governance.

With regard to land tenure arrangements (Chapter 3), I found that formalizing tenure is difficult, especially when the formal framework is overlain on top of complex informal arrangements. Community members in the study communities of La Paz and Navidad conceived of various resources, rather than the land, as adhering to different tenure models: individualized, communal, or some variant in between. Overlain on top of these informal ways of controlling land rights was the formalization process of the 1996 agrarian reform, which was poorly implemented in these cases and caused as many problems as it solved. Although both communities had the tenure security that comes with formal title to their lands, formal institutions in Bolivia did not have the capacity or on-the-ground presence to deal with the ongoing, quotidian maintenance of formal land rights. Overall, I argue that formalization
initiatives should work with informal systems, finding ways to legitimate informal strategies that citizens undertake to document land transactions, and providing conflict resolution services where necessary.

The other part of the research (Chapter 4) was concerned with analyzing the nascent institutions for self-governance in the study communities and the effect of the Law of Popular Participation on their development. The situation in the Northern Bolivian Amazon was somewhat unusual in that decentralization reforms were occurring at the same time that local-level institutions were developing; independent communities that had only recently begun to take hold, and most were made up of only recently assembled groups due to massive migrations following the collapse of the rubber economy. I used a common property framework to analyze these new institutions, and found that communities’ situations matched.

Navidad and La Paz, although similar in size and the livelihood strategies of their members, were very different in other characteristics. La Paz closely resembled an archetype of the traditional small rural community: closed, homogeneous, and dominated by kinship relations. Navidad was its cosmopolitan mirror image: more heterogeneous; kinship relations were relatively unimportant; and about half the members had recently joined the community. I predicted that Navidad would have greater formalization in its community organization than La Paz, that La Paz would have higher levels of trust than Navidad, and that La Paz would respond to conflict with more unity than Navidad. Only the first expectation was upheld. The other two were contradicted. La Paz and Navidad exhibited comparable levels of trust and while both communities struggled in their response to conflict, Navidad responded with a bit more unity than La Paz. Overall, in a short period of time, La Paz and Navidad had creatively designed institutions for running their communities.
CHAPTER 1
INTRODUCTION

Decentralization and devolution are major policy trends in the last few decades. Dissatisfaction with the outcomes from expert-driven initiatives has made many non-governmental organizations and governmental agencies change their approach to include the local people who are the development target and are closest to the resources to be protected. This thesis examines the effects on local communities of two policy interventions that reflect this trend of devolution.

In the mid-1990s, Bolivia instituted a series of policy reforms that both embodied the dominant neo-liberal ideology of the time and departed from it in important ways. The Law of Popular Participation of 1993 (Ley no. 1551) devolved power and money to the municipal level of government and provided avenues to enrich and empower local (sub-municipal) civil-society institutions through government funds and government-sponsored projects (Faguet 2004; Kohl 2003a). This decentralization reform reflects neo-liberal values of reducing bureaucracy and increasing efficiency (Samoff 1990). The other policy intervention that this thesis focuses on is the second agrarian reform, instituted under the INRA Law (Ley no. 1715) in 1996. The INRA Law was more of a compromise between neo-liberalism and more populist ideologies, in that it maintains an active role for the government, interfering in the land market for values other than economic efficiency, such as equity, preserving ethnic identity, and protecting citizens’ livelihoods (Ankersen & Ruppert 2006; Assies 2006; Urioste & Pacheco 2000).

After this introduction, the second chapter provides an overview of the historical socio-economic context of the research region, the Northern Bolivian Amazon. The remote, forested region has been linked to international markets since the mid-nineteenth century and has undergone a series of economic shocks with the vagaries of these international markets. The
situation in 2006 reflected the interplay between the intrinsic geographical and biological characteristics of the region and the influences of exterior forces, such as the growing international demand for Brazil nuts.

The third chapter looks at challenges in formalizing customary land tenure systems, focusing on the traditional systems for resource management in the two communities and how they were undermined or bolstered by the land adjudication and titling process of Bolivia's second agrarian reform. Land tenure arrangements had been informal (organized and enforced without government support) before the second agrarian reform was initiated in the region in 1998. The adjudication process to formalize land tenure in the region was fraught with challenges, not only due to the difficulty of reconciling the informal system with the expectations and limitations of the formal system, but also due to poor implementation of the adjudication process in the case of the two study communities. The chapter analyzes these conflicts and presents a participatory mapping methodology as an example of a strategy to manage these and other land-related conflicts.

The fourth chapter focuses on nascent institutions for self-governance in the two communities that participated in my study, within the context of Bolivia's decentralization reforms. I analyze their institutions according to a common property framework, as common property scholarship provided the main intellectual argument for decentralization (Lemos & Agrawal 2006; Ostrom 1990). The two communities were representative of two very different types of communities. One closely resembled an archetype of the traditional small rural community: closed, homogenous, and dominated by kinship relations. The other community was more cosmopolitan: heterogeneous, kinship relations were relatively unimportant, and about half the members had recently joined the community. This contrast in community characteristics
enables a rich exploration of how institutional development is affected by varying contexts. The third and fourth chapters were written as independent articles. Finally, the fifth chapter provides a short synthesis of the main themes of the thesis.
CHAPTER 2
CONTINUITY AND CHANGE IN A FOREST-DEPENDENT REGION:
THE NORTHERN BOLIVIAN AMAZON

In a rapidly urbanizing world, why do populations remain in rural areas? While dominant conservation thinking advocates for the separation of people from landscapes in order to conserve biodiversity, recent research (Nepstad et al. 2006) implies that peopled protected areas are more effective at maintaining forest cover than are more traditional protected areas in which human habitation is prohibited. If peopled landscapes are more likely to maintain forest cover, a focus on areas where people and forests co-exist is warranted. This chapter focuses on such a peopled landscape, the northern Bolivian Amazon – a region that has absorbed multiple shocks while maintaining certain characteristic features – among them, a central dependence on forests for livelihoods.

I use the duality of continuity and change to explore the history and present day realities of the northern Bolivian Amazon. In examining over one hundred years of history, I will highlight the interplay between structure and agency in maintaining continuity and generating change, drawing on previous scholarship as well as my own experience in Pando. Socioeconomic and tenure relations under the rubber boom are first described and then factors relating to continuity and innovation in the present system are outlined.

Introduction to the Region: History, Society, and Economy

Situated at the intersection of the borders with Brazil and Peru, the northern Bolivian Amazon is the most remote region in the country (see Figure 1-1). Despite its geographic isolation and poorly maintained roads, international markets and financing have driven

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1 Fieldwork was conducted May-August 2006 in El Sena municipality, Pando with the support of a Tinker Foundation Travel Grant and a Tropical Conservation and Development Field Research Grant from the University of Florida.
succeeding waves of extraction of forest products since colonization in the early 19th century.

The economically integrated Northern Bolivian region includes the Department of Pando and the provinces of Vaca Diez and Iturralde from Beni and La Paz Departments. In 2001, the region had a population of about 169,000 people, with a population density of two people per square kilometer, a low population density in comparison with the rest of Bolivia, with an average density of 7.56 people/km² in the same year (INE 2003; Llanque 2004). Moist tropical forests cover the region, with an annual precipitation of about 1700mm and a pronounced dry season from May to September (Zuidema & Boot 2002). The region retains the vast majority of its forest cover. Estimates of deforestation vary between 7% and 10%, although most authors recognize that these statistics are underestimates (Fuentes et al. 2005; Ruiz 2005).

At the beginning of the twenty-first century, land tenure and social organization in the region reflected the central history of forest extraction – first for quinine, then rubber, and now Brazil nuts. The rural residents lived according to the financial, institutional and transportation infrastructure that remained from the rubber boom and were sustained by the revenue they commanded from the sale of Brazil nuts. Following the collapse of the rubber economy (rubber had successive price collapses after 1913, and rubber production ceased altogether in the region in 1992), many residents moved to cities in search of economic opportunities (Assies 2003; Helbingen 2001; Stoian 2005). The recent increase in the price of Brazil nuts has created seasonal migration patterns in the region, where both urban and rural residents migrate to Brazil nut extraction areas to participate in the harvest (Stoian 2005). The livelihoods of full-time urban residents are also linked to the Brazil nut economy: in 1996, Brazil-nut processing factories (beneficiadoras) provided full- and part-time employment for 5,499 in Riberalta and Cobija (Stoian 2005). Figure 2-2 shows the increase in production and sharper increase in price between
1995 and 2005. In 1995, Bolivia was exporting less than 900,000 kilograms of Brazil nuts, with a trade value of $2.25 million; in 2005, the quantity had risen to 16 million kilograms and the trade value to $73.9 million (UN 2007). Bolivia became the largest exporter of Brazil nuts in the world.


The Bolivian rubber boom was characterized by integration and competition with Brazil; all transport was restricted to rivers, which flowed northeast into Brazil. Thus, Brazil provided access to international markets. The changing and disputed boundaries between Bolivia and Brazil during the period also incited competition between the two countries, as Bolivian rubber prospectors struggled to establish rubber estates in the areas of dispute to strengthen Bolivian claims to the area (Fifer 1970, Assies 2003). In the end, these strategies were not successful and Bolivia ceded the state of Acre to Brazil following an unevenly matched and short conflict in 1903 (Fifer 1970).

A major limitation to the expansion of rubber extraction in the region was a dearth of labor. Indigenous people were pressed into slavery for the portage of the rubber down rapids or falls sections of the rivers, but were known to rebel (Fifer 1970). Men were recruited – sometimes forcibly – to work in barracas (rubber estates) from Santa Cruz and other areas of the southern Bolivian Amazon (Assies 2003; Fifer 1970).

While the main segment of the rubber boom was the period from 1881 to 1913, there were two rubber “boomlets” in 1942-1946 and then in the late 1970s and 80s – due first to the disruption in cross-Pacific trade caused by World War II and then to the energy crisis that rendered the transport of Asian-produced rubber unviable (Assies 2003; Fifer 1970). These successive waves in the profitability of rubber enabled continuity across two centuries in the relations of production. Rubber collection in the region ceased altogether in 1992 (Stoian &
Henkemans 2000), following the loss of Brazilian price supports in 1986 (although targeted to benefit Brazilian rubber tappers, they also benefited Bolivians) and the hyperinflation of the Bolivian currency during that time (Llanque 2004; Stoian & Henkemans 2000). Despite the long decline of rubber production in the region, the history and organizational structures from the rubber boom era remain important points of comparison with present-day economy and society in the northern Bolivian Amazon.

**Barraca Organization**

A typical *barraca* consisted of the patron’s house at the nucleus, with the rubber trails radiating out from it. The rubber tappers’ lodgings were located in the central area as well, which was typically situated on an avenue for transport – either a river or a road. Some of the rubber tappers would also farm some land for the benefit of the patron (subsistence farming for the benefit of the rubber tappers themselves was not permitted during the height of the rubber boom). The whole of the *barraca* was the patron’s private land (although the tenure was not officially sanctioned by the government); the workers lived and worked on it at the patron’s discretion (Assies 2003; Fifer 1970).

While the *barraca* system was inequitable, it did provide ‘a place in the world’ for rubber tappers (Ellsworth 2002). In the beginning of the boom, rubber tappers were separated from their families when they worked in *barracas*. As the boom matured, however, workers’ families joined them in the *barraca*, and whole lives were lived on *barracas*. Despite the exploitative elements of *barraca* organization, there were clear expectations of the rights and responsibilities of the patrons in addition to those of the rubber tappers (Assies 2003). For instance, patrons provided medicine and medical services for the rubber tappers on their estate and while rubber tappers were not able to gain income during the time of their sickness, they were not penalized
for the lost time. Overall, the *barraca* system enabled a means and a location for making a living in the isolated rural areas of the northern Bolivian Amazon.

**Habiliro System**

The *habilfito* system, or advance-payment system, was another institutional pillar of the rubber economy. Workers were advanced credit at the beginning of their contracts with patrons to cover transportation costs and to pay for food and other staples that the patron provided. At the end of the year or the contract, the patron settled the account, and oftentimes, little or no cash accrued to the worker. Sometimes the balance at the end of the contract was still negative and the worker was obligated to remain in the *barraca* to pay off his debt. Thus the *habilfito* system constituted a form of debt peonage to the patron. The typical contract between a worker and *patron* was very rigid and it was difficult for the (mostly) illiterate rubber tappers to renegotiate their contracts on more favorable terms. To further undermine the worker’s position, the patron often overcharged for foodstuffs or undercounted the amount of rubber collected (Fifer 1970; Helbingen 2001).

Although the *habilfito* system was exploitative, it enabled the extraction of a widely dispersed natural forest product for international export. Without the patrons’ acting as intermediaries to access foreign and non-local sources of credit, the rubber tapping enterprise would not have been feasible. Rubber tappers would not have been able to concentrate all their labor on collecting latex without the provision of foodstuffs and other subsistence needs by the patron. In addition, the *habilfito* system created incentives for self-supervision of solitary and widely dispersed workers because it was in each worker’s interest to collect as much rubber as possible in order to more quickly pay off his debt.

The *habilfito* system was also the avenue by which the Suárez family, the only Bolivian rubber barons, rose to prominence (Assies 2003; Stoian & Henkemans 2000). By 1910, Suárez
Hermanos held over 75% of the region’s land (6.5 million ha) and 60% of its rubber production (Assies 2003; Stoian & Henkemans 2000). Suárez Hermanos, originally an import and outfitting enterprise, advanced credit to patrons so that they could provide food and other goods for their workers. Over time, many patrons could not repay their debt and the Suárez family took possession of their lands. The Suárez empire fell apart in 1940, allowing for more diversity in land ownership. In the 2000s, the pattern was repeating itself, with the vertical integration of the Brazil nut processing plant enterprises, which extended loans to small barracas and later took control of these lands upon default of the loans (Stoian & Henkemans 2000).

**The Northern Bolivian Amazon in the 21st century**

During the long decline of rubber production, there was a massive rural-urban and rural-rural migration. The percentage of the region’s population living in urban areas grew from 43.6% to 70.1% in the years between 1976 and 2001 (Llanque 2004). The annual rate of population growth for urban areas in the region has been 5% for the same period, while rural areas have only grown by an annual rate of 0.6% (Llanque 2004). Small rural centers, which lie at the confluence of rivers and at the intersection of roads, have also experienced a substantial amount of in-migration. Population growth in these rural sub-centers grew annually by about 21% in the period between 1992 and 1997, while during the same period the population growth in the three urban centers (Cobija, Guayaramerín, and Riberalta) was only 6% per year (Stoian & Henkemans 2000).

The increase in prominence of Brazil nut extraction replaced one economically important extractive forest product with another. The institutional context did not, however, remain the same. Some of the changes were exogenous to the system, due to legal reforms of the 1990s, which included the Popular Participation Law and the Agrarian Reform Law. Other changes arose from the different temporal characteristics of a livelihood strategy based solely on Brazil
nuts in comparison with that based on rubber and other extractive products; Brazil nuts have a pronounced and intensive harvesting season during the wet season, while rubber was collected during the dry season, and rubber tappers often collected other forest products, including Brazil nuts, during the wet season. In addition, entrepreneurial enterprises for processing Brazil nuts created more opportunities for income diversification for the people of the Northern Bolivian Amazon, and road access linking the region with the rest of Bolivia cut out the dependence on Brazil for access to international markets. Table 2-1 summarizes the changes and the continuities in the system between the rubber boom and the Brazil nut economy that are detailed in the following sections.

**Continuity**

The northern Bolivian Amazon remains remote. The fundamental fact of the region’s geographic isolation did not change in the 21st century, and integration with the rest of the country has been slow. In 2006, there were two principal roads in the region, from Cobija southeast to Riberalta, and from Cobija south to El Chive. The only paved road was the 60-km stretch from Cobija to Porvenir. The lack of paved roads severely delayed transport during the rainy season and at times completely isolated Pando from the rest of the country. During the dry season, when unpaved roads are in the best condition, it was a seven-hour bus ride from Cobija or Riberalta to El Sena, a centrally located municipal seat. Rivers were still a major route of transportation for areas not serviced by the two principal roads, with travel times to municipal centers sometimes in excess of 24 hours. Although there were airports in Cobija and Riberalta, air travel was not a major avenue for transportation into and out of the region due to cost. This created a major obstacle for product commercialization from the mostly rural and remote region. The only products that could overcome this obstacle were those with a strong international market. In 2006, that product was the Brazil nut. Palm heart enjoyed a brief boom, but the
resource became degraded and also incurred heavy competition from cultivated palms (Henkemans 2001).

Due in part to the persistence of poor infrastructure in 2006, the *habilito* system continued to function, although with greater empowerment for nut collectors. Overall, there was more of a diversity of lenders and borrowers, breaking with the exploitative monopolistic relationships that characterized the *habilito* system during the height of the rubber era. In addition, the price per box of Brazil nut was set at a standard rate annually for *barracas*, through negotiations between labor organizations, landowners associations, and the Brazil nut processing plants, (Stoian & Henkemans 2000). The benefits of this price-setting mechanism did not reach far-flung communities, however, as their harvest was usually exchanged for goods from itinerant merchants. The seasonality of the Brazil nut harvest (during the wet season, just after or during the planting for subsistence agriculture) created an increased demand for credit at the beginning of the harvest, when food ran low and school fees needed to be paid. In this way, the *habilito* system filled an important function during this lean time (Assies 2003; Helbingen 2001).

Both the rubber and the Brazil nut based economy sustained livelihoods intimately connected to natural forests. The relatively low levels of deforestation for the region reflected the value of standing forests for the region’s economy. In addition, rural residents depended on forests for multiple subsistence products, including food (especially wild game), medicine and construction materials.

In 2006, there were *barracas* of various sizes, independent communities, and indigenous areas in the Northern Bolivian Amazon. Although *barracas* were not run in the same way as they were during the rubber boom, the land continued to be controlled by a single individual, family, or enterprise that hired others to work during the harvest season. The independent communities
represented a new tenure arrangement, which mostly gained its footing due to patron abandonment of *barracas* following successive rubber busts. Both independent peasant and indigenous communities (TCOs) were receiving unprecedented government recognition and legitimization with the new Agrarian Reform of 1996\(^2\).

Both the *barracas* and independent communities suffer from poorly developed organizations for self-governance. *Barracas* are still controlled by patrons who make many of the decisions for the people who live on the estate (although the majority of *barracas* now only have seasonal populations). Independent communities are still new and are experimenting with self-determination following generations of patron-led rural life. This low organizational capacity among rural residents contributes to their disenfranchisement, their inability to capture government benefits, and their inability to organize for better prices for Brazil nuts or for their wages.

**Change**

Many of the innovations evident in the Northern Bolivian Amazon today arose during the power vacuum created by the collapse of the rubber economy. The most visible manifestation of this innovation is the independent communities, made up of agro-extractivists experimenting with self-governance. When rubber stopped being a profitable enterprise, many patrons abandoned their rubber estates, allowing the workers and their families to either move to new settlements or to reconfigure life on the same site, according to their needs and without the interference of the patron (Assies 2003; Henkemans 2001; Llanque 2004). The early years of the 21st century have favored independent communities at the expense of *barracas*: between 2000

\(^2\) *Tierras Comunitarias de Origen*, or Original (indigenous) Community Lands, are a tenure category created by the Agrarian Reform of 1996. They correspond to an area larger than a single community. There are two multi-ethnic TCOs in Pando. They will not be further addressed in this paper due to my research focus on independent *campesino* communities.
and 2005, the area of barracas declined by half (from 3.5 to 1.8 million hectares in extent), while communal lands increased from 60,000 hectares in 1984 to an estimated 3 million hectares following titling (de Jong et al. 2006).

Independent communities are often organized spatially in the same way as barracas. There is a central area, along a road or a river, where families have their houses and their agricultural fields. Surrounding this central area is the forest, to which families have rights to collect Brazil nuts. Independent communities receive communal titles from the government; the use-rights inside this community-tenure “shell,” however, are often broken up, with each family allotted its own forest area. Many communities are also home to families that do not have forest access to collect Brazil nuts in the community lands, either because these families recently joined the community or because they came to the community to work for a wage, harvesting in another community member’s Brazil nut holdings. Some families’ forest plots are much further from the central area than others’. While these communities are more egalitarian than the patron estate, benefits from natural resources are not apportioned equally (Quiggin 1993).

The two independent communities that participated in my research, Navidad and La Paz, illustrate some of the complexities of tenure relations in the northern Bolivian Amazon. Navidad used to be a barraca run by a transnational company, Hecker, which abandoned Navidad in the early 1990s. Navidad’s residents considered their Brazil nut stands as owned by the community as a whole, and thus all areas are open for exploitation by community members. In practice, however, long-term residents often collected Brazil nuts in specific areas. In some cases, these areas were where they were assigned to work by the patron in the time when Navidad was a

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3 I am using Alcorn and Toledo’s term here (“shell”) to refer to the geographic unit that is controlled and defended by a group (Alcorn & Toledo 1998).

4 I have changed the community names to protect the anonymity of the individuals who participated in my study.
barraca. Newer residents have less well-defined Brazil nut extraction areas. Community members hunt in any area where there is good game and can generally make their agricultural field wherever they choose.

La Paz has a different type of history. A Colombian adventurer founded the community when he bought the community’s land from a neighboring barraca during the World War II rubber boom. His children and wife continue to live there today. Each of his six sons has his own section of the forest (centro) for Brazil nut extraction, and his two daughters did not inherit lands. The community in 2006 also included the founder’s brother-in-law and his two nephews, who had their own lands and one family that had recently joined the community. In contrast with Navidad, La Paz’s residents generally hunt in their centros, and families without centros often leave the community lands to hunt. Agricultural fields are also more regulated in their placement than in Navidad – some residents put their fields in their own centros. Some residents without centros or with more remote centros ask permission from the founder’s widow to put their agricultural field in her lands, which are closest to the community’s residential center.

As mentioned earlier, the collapse of the rubber economy initiated mass migrations to the urban centers of the region, as well as to other rural areas, where independent communities were in formation. In 2001, sixty percent of the region’s population lived in urban areas and the trend of urbanization continued (Pacheco & Cronkleton 2005; Stoian 2005). During the period 1992-1997, patron-controlled barracas lost 34.6% of their population, and the population of the region’s more than 500 independent communities increased by 47.5% due to migration (Gottwald 2004; Llanque 2004). The former rubber tappers valued the independence and continuity that they were able to maintain by remaining in rural areas, and due to the rising
market for Brazil nuts, they were able to make a living in the countryside (Henkemans 2001; Pacheco & Cronkleton 2005).

Most independent communities are situated closer to urban centers and on roads than the patron-controlled barracas (Stoian & Henkemans 2000). Many people, who moved to cities and were unable to make a living due to their low levels of education, moved again to the nearby countryside. This proximity to urban centers enables most independent communities to produce food for sale in the urban market in addition to that for subsistence (Henkemans 2001; Stoian 2005; Stoian & Henkemans 2000). Independent communities located close to rural sub-centers also produce food for market, although this market participation is more casual and occasional.

Residents of independent communities (comunarios) practiced diverse livelihood strategies. While they received comparable income from the Brazil nut harvest as workers on barracas, they were able to practice subsistence agriculture and did not have to buy their food during the Brazil nut harvest season, and so had better food security than workers on barracas. Overall, comunarios divided household labor between agriculture, forest extraction, and wage labor. Agriculture and extraction contribute the most subsistence benefits. Cash income and in-kind revenues from wage labor, extraction, and agriculture make up the other half of economic activities and benefits in independent communities (Henkemans 2001). In Navidad and La Paz, the two communities that participated in my study, however, the only person who regularly worked for a wage was a carpenter in La Paz.

The transition from rubber tapping complemented by Brazil nut collection to the sole collection of Brazil nuts was another structural opportunity for innovation in the region. The Brazil nut (Bertholletia excelsa, family Lecythidaceae) drops its fruits concurrently during the wet season (November to March) so all harvest was undertaken seasonally. The Brazil nut fruits
are large pods that contain multiple nuts inside (Wadt et al. 2005). The pod is difficult to open to access the nuts; only the small forest rodent, the agouti (*Dasyprocta leporina*) and humans are known to be able to break open the pods. The fruits are comparable to grapefruits in size and are as heavy as bowling balls; thus it behooved the collectors to wait until the fruits fell to venture out to collect them. In addition, as time goes by, the risk of the nuts’ contamination by aflotoxin fungus increases. These two factors created a strong incentive to harvest the nuts and to get them to market as quickly as possible (Henkemans 2001). Brazil nut extractivists in Pando often entered the forest earlier than was prudent from a safety standpoint, however, because of the threat that neighbors or even other community members would enter and collect the Brazil nuts on their lands if they waited too long (Duchelle 2006).

This seasonality of the Brazil nut season freed harvesters during the rest of the year to pursue other forms of income generation. Most preparation of agricultural staples (clearing a field, sowing, etc.) occurred during the dry season. Some agricultural production did, however, overlap with the Brazil nut harvest. For instance, the rice and corn harvest fell during the period of January to April, which overlapped with the peak of the Brazil nut harvest (Henkemans 2001). This overlap in seasonality of work sometimes put strain on households with a low ratio of productive to unproductive members. Families with many small children and no grown children in Navidad and La Paz did not put as much effort in to agricultural production as families with many children of the age to help with farming activities. Conversely, households with a large number of productive members sometimes sent a family member to work during the Brazil nut harvest for a neighboring *barraca* or a neighboring community with extensive Brazil nut holdings (Henkemans 2001). Some 13,000 people participated in the Brazil nut harvest each rainy season in the northern Bolivian Amazon, half of which were urban or peri-urban dwellers
Many community members in Navidad and La Paz had children in their late teens and early twenties living elsewhere to make a living or to take advantage of more advanced learning opportunities.

The market for Brazil nuts was central to livelihoods also in the urban centers of the region. Many urban and peri-urban residents worked in beneficiadoras, the factories that process Brazil nuts for export. In Riberalta’s urban and peri-urban areas, thirty percent of households had at least one household member working in a processing plant (Stoian 2005). The number of beneficiadoras increased dramatically in the 1990s, with fifteen new plants started up in that decade alone (Helbingen 2001). The beneficiadoras represent an important innovation, and one caused by entrepreneurship of regional residents and not by a structural change from outside the region; these factories enable the northern Bolivian Amazon to interact directly with the international market for the first time – rather than having to use Brazil as an intermediary. The concentration of processed nuts in Riberalta, Cobija, and Guayaramerín due to the beneficiadoras, enabled export brokerage houses to link with international buyers. In addition, the processing in-country retains more of the financial benefit of Brazil nuts in Bolivia.

Regional roads also enabled a direct link with the international market. Prior to the construction of roads linking the centers of collection with the regional cities of Riberalta, Cobija, and Guayaramerín, all transport for forest products was on rivers, which flowed East into Brazil. Rivers are still an important avenue for transportation, but mostly to regional sub-centers such as El Sena and Puerto Rico, where the rivers intersect with the roads, which then link to Riberalta, Cobija, and Guayaramerín.

Beneficiadoras employed workers on both piecework and salaried bases. There were two main processes undertaken in the beneficiadoras: shelling and sorting by quality. The shellers, or
*quebradoras*, were paid by quantity and so typically had at least one family member helping them in the factory (Stoian 2005). By contrast, the sorters were most often paid a weekly wage, but did not have the opportunity to earn as much money. The majority (74%) of workers in *beneficiadoras* were women (Stoian 2005). In general, *quebradoras* and sorters worked over 12 hours a day (Stoian 2005). Between working at the *beneficiadores* and participating in the Brazil nut harvest, urban and peri-urban households with low levels of education were able to sustain their livelihoods, while their children were able to benefit from the superior opportunities for education available in town.

These attractions of urban life were somewhat balanced by improvements in rural social organization brought about by recent legal reforms in Bolivia, which improved *de jure* tenure security, increased access to government projects and services, and provided avenues for official recognition of independent communities. Tenure was entirely informal in the region until the second agrarian reform came to the region in 1998; Tenure was thus relatively insecure for independent communities. Forest concessions could be granted on community lands without their knowledge, and former patrons could return and reclaim their land.

The 1996 Agrarian Reform Law (*Ley de Servicio Nacional de Reforma Agraria* No. 1715) provided an avenue for independent communities to gain legal title to the land that they occupied (de Jong et al. 2006; Gottwald 2004). The 1996 Forest Law (*Nueva Ley Forestal* No. 1700) also enabled *campesino* and indigenous communities to legally profit from the timber resources on their lands. When INRA initiated the *saneamiento* process in Pando in 1998, it was one of the

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*Saneamiento* literally means “cleaning up.” This term is used to describe the process of resolving and legitimizing land claims and boundaries as part of agrarian reforms in Latin America. The first Agrarian Reform in Bolivia began in 1953. Agrarian reforms in Bolivia have been instituted in reaction to large inequalities in land holdings. All landholders must prove that their lands are productive and benefiting society in order to maintain control. The landless are given priority for redistribution.
last departments to begin. However, in August 2008, INRA announced that the process had been completed throughout Pando, making it the first department in the country with this process finished (INRA 2006; Rodriguez 2007). By the end of 2007, an estimated 116 campesino communities received their titles, and 6.3 million hectares went through the saneamiento process. With respect to the two communities that I worked with, in July 2006, Navidad had already received title to their land and La Paz expected their title within six months.

Land titling can, however, be a bureaucratic challenge. Communities must apply for legal status before they are eligible for communal title, a process that entails traveling to the departmental center. Next, government representatives come to the community to determine community boundaries. This can cause as much conflict as it resolves. For example, Navidad’s northern boundary with the indigenous community of Santa Elena was customarily a stream. When the INRA agents came and delimited their community lands, however, the boundaries were straight lines between four points. The community now legally held some of the lands to the north of the stream. During the following year’s Brazil nut harvest, some of Navidad’s residents crossed the stream to collect Brazil nuts. The people of Santa Elena, their northern neighbor, did not believe that they had the right to do so. The two communities finally resolved this conflict after intensive negotiations spanning over six months.

Another source of conflict with respect to the Agrarian reform was the step of allotting more land to communities in order to satisfy the 500-hectare-per-family rule. Often communities did not have enough hectares in their lands at the time of saneamiento to meet the minimum of 500 hectares per family. If the community was bordered by a barraca, which under the new law could only control 15,000 hectares, INRA would allocate some of the barraca lands to the community to meet the 500 hectares rule. The patron or enterprise that controlled the
neighboring land may have refused to acknowledge the community’s right to access the augmented lands, or may have tried to sabotage the saneamiento process. In the case of Navidad, the only available land that INRA could allocate the community to fulfill the 500-hectare rule was in another province, in a very isolated area with poor access. Navidad’s residents saw the land as being the inheritance of the children in the community, and no current comunarios intended to move there.

Two other laws increased the attractiveness of rural areas: the Law of Popular Participation and the Law of Administrative Decentralization (Ley de Participación Popular 1994; Ley de Descentralización Administrativa 1995). The two laws worked together to decentralize government administration, with the aim of making the government more responsive to local people’s needs (Kohl 2003b). The laws strengthened the authority and responsibility of the municipality level of government and also redistributed public funds to this local level. Municipalities received funds based on the number of its inhabitants with relation to the population of the country as a whole. In addition, a proportion of the revenue from the sale of natural resources (for example, timber) reverts to the region of origin (Gottwald 2004).

When communities met certain criteria of the Law of Popular Participation, they were eligible for government funds for services such as education and health care. This increase in availability of services attracted more people out of patron-controlled barracas and averted more people from emigrating to cities. Henkemans (2001) found in a survey of Vaca Diez province that 65% of barracas had no schools, in comparison to only 2% of independent communities. In addition, over ninety percent of barracas had no health care services whatsoever, while less than a third (29%) of independent communities were in a similar state (Henkemans 2001). The vast
majority of *barracas* did not have permanent populations; workers only lived on *barraca* lands during the four months of the Brazil nut harvest.

Rural residents valued the independence that they were able to achieve in independent communities, through their cultivation of diverse sources of economic benefit. They appreciated being able to continue living in the forest where they have lived for generations. Without further education, making a living in the city was not easy, although it did offer more opportunities for their children (Henkemans 2001). While the region’s residents achieved a certain stability through perseverance and ingenuity, in 2001, seventy percent of the population of Pando and Beni Departments lived in poverty (Pacheco and Cronkleton 2005). Overall, there were opportunities and challenges in both the countryside and the urban centers of the northern Bolivian Amazon. Without the strong international demand for Brazil nuts, however, there would be very little economic opportunity or growth in the region. This dependence on international markets for one forest product undermined the resilience of the system and raises the question of how the region’s people, economy, and ecosystems would respond to rapid change in the future.

**Future Directions for the Region**

The economy of the northern Bolivian Amazon was constrained by its remote location and poor infrastructure. The strong international demand for first one and then another non-timber forest product enabled the development of systems for overcoming this obstacle and transmitting credit, goods, and services into the far-flung regions that were the sources of these products. Widespread poverty remained in the beginning of the 21st century, however, and workers and harvesters were often ensnared in exploitative labor relations and had little recourse to state-administered justice or to other means of making a living. In 2001, Pando remained among the
poorest departments in Bolivia, seventh out of nine departments with respect to unsatisfied basic needs (Fuentes et al. 2005)

How will the tenure and livelihood systems respond to imminent infrastructure improvements in the region (i.e., the paving of the Transoceanic highway, which links the southwestern Amazon to Pacific ports)? Looking across the border to better-integrated Acre, Brazil, trends of increased deforestation related to cattle ranching and increased immigration might be the future of the northern Bolivian Amazon as well (Cumming et al. 2005). In addition, the timber industry may become a more important economic player in the region. With the new Forest Law of 1996, communities had the legal opportunity to benefit more from logging than in the past, but it was still unclear whether this would prove to be true on the ground or whether the overly onerous bureaucratic system would only facilitate more elite capture of benefits from the forest. It remains to be seen if the factors that maintained a forest-dependent economy and forested landscape in 2006 will continue to be the most important or if increased connectivity will transform the socio-ecological system.

This chapter focused on how the region’s social-ecological system was organized during the rubber boom, and how this system responded to a series of externally and internally driven changes. The next chapters also examine the interplay between local and external forces, concentrating on the specifics of the two study communities, Navidad and La Paz. Chapter 3 details the uneasy reconciliation between socially determined, informal land tenure arrangements in the study communities and the national framework for regularizing and formalizing land rights. Chapter 4 investigates how the opportunities represented by decentralization reform shaped the way that the study communities were developing institutions for self-governance.
Figure 2-1. The Northern Bolivian Amazon. The region includes the Department of Pando, the Province of Vaca Diez (Beni Department), and the Province of Iturralde (La Paz Department). [Map created by Marco Antonio Albornoz, Center for International Forestry Research, Bolivia.]
Figure 2-2. Brazil nut prices and export volume, 1995-2005. [Data source: UN Statistics division (http://unstats.un.org/unsd/default.htm)]
Table 2-1. Continuity and change in the transition from rubber to Brazil nut as the mainstay of the extraction economy of the Northern Bolivian Amazon.

<table>
<thead>
<tr>
<th>Institution</th>
<th>Rubber economy</th>
<th>Brazil Nut economy</th>
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<tbody>
<tr>
<td><strong>CONTINUITY</strong></td>
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<tr>
<td>Habilito – advance payment system</td>
<td>Debt peonage</td>
<td>More recourse to justice for contractees, but relatively similar</td>
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<td>Barracas</td>
<td>Patron-ordered and organized</td>
<td>More independence for harvesters.</td>
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<tr>
<td>Lines of commercialization</td>
<td>International</td>
<td>International</td>
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<tr>
<td>Infrastructure</td>
<td>All transport via rivers</td>
<td>Poor roads, and rivers still very important</td>
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<tr>
<td><strong>CHANGE</strong></td>
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<tr>
<td>Property rights</td>
<td>Informal: claims made and defended by possession.</td>
<td>Some lands titled, with interim usufruct rights recognition for independent communities Incipient Organizaciones Territoriales de Base with access to government services due to legal reforms</td>
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<tr>
<td>Community Organization</td>
<td>Patron-led</td>
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<tr>
<td>Seasonality</td>
<td>Rubber tapping in dry season; complemented by other forest product collection in other seasons</td>
<td>Brazil nut harvest during wet season</td>
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<tr>
<td>Cities</td>
<td>Linkage to capital from international banks</td>
<td>More opportunities for work due to Brazil nut processing plants</td>
</tr>
<tr>
<td>Migration</td>
<td>Migration into region (sometimes forced)</td>
<td>Seasonal migration for Brazil nut harvest</td>
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<tr>
<td>Subsistence Agriculture</td>
<td>Outlawed in barracas</td>
<td>Central to livelihood strategy of independent communities</td>
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<tr>
<td>Dependence on extractive product</td>
<td>Complete – labor relations in barracas did not permit diversification of income/livelihood strategies</td>
<td>Less wholesale dependence on Brazil nuts – part of a diverse livelihood strategy in independent communities</td>
</tr>
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CHAPTER 3
COMPLEXITY IN LAND TENURE REGULARIZATION: WORKING TO MAKE THE FORMAL AND INFORMAL FIT IN THE NORTHERN BOLIVIAN AMAZON

Land tenure regularization is an ongoing challenge across the developing world. Government agencies, NGOs, and other actors struggle to make legal property rights systems work within the complex social, economic, and ecological context of each country, while at the same time protecting and promoting sometimes conflicting civil-society objectives of justice, equity, and efficiency. Despite years of interventions and decades of policy reforms, tenure systems remain characterized by large government investments in regularization followed by a reversion to extra-legal land transactions and a reliance on informal means for legitimating property rights, and a lack of trust in the formal tenure system (Barnes & Griffith-Charles 2007; de Soto 2000; Delville 2002; Fitzpatrick 2005; Odgaard 2002).

Formal land tenure systems grow from laws, but in most developing countries, governmental capacity to implement such laws across whole national territories is inadequate. The challenge is to create a system that requires limited governmental intervention to function successfully, that aligns its incentives with de facto tenure systems and provides a structure for conflict resolution. In this paper, informal land tenure systems denote rules relating to land rights that are not officially sanctioned by the government. Although I define ‘informal’ in opposition to the legal system, this opposition does not necessarily mean that the informal and formal work at cross purposes, simply that informal land tenure refers to socially mediated tenure arrangements that do not reference legally recognized tenure (Helmke & Levitsky 2004). There are a variety of ways that formal and informal land tenure systems interact. In some cases informal systems predominate because the formal system is functionally absent. In other cases, informal systems are part of a nested relationship with formal systems acting at a higher hierarchical level. This paper teases out the specificities of the interactions between the informal
and formal tenure systems in Bolivia’s northern Amazonian region, whether they are reinforcing, conflicting, or simply coexisting. The research focused on understanding informal tenure systems in two communities in the region and how these systems were affected by Bolivia’s second agrarian reform, which overlaid the formal, *de jure* system on top of existing informal arrangements. The research reveals some incompatibilities between the more flexible, informal system and the rigidity of the legal framework, reveals some problems with the implementation of land adjudication in these cases, and recommends some strategies for managing the inevitable conflicts that arise in trying to reconcile these two systems.

**Bolivian Agrarian Reforms in Context**

The Bolivian government instituted the first agrarian reform in 1952, as part of a populist revolution that promised to minimize disparities in landholdings and redistribute unproductive lands. The second agrarian reform, initiated in 1996, also aimed to redistribute land (Thiesenhusen 1995). Creating greater equity in landholdings was not, however, the primary goal of this second agrarian reform. The main distinction between the two reforms was the provision for indigenous title. Bolivia’s large indigenous population (particularly the lowland groups that had previously been politically marginalized) had been the main mobilizing force behind the second agrarian reform. Indigenous groups demanded a place within the nation’s land tenure system to formally acknowledge and support their land rights and customary land tenure practices.

There is a fundamental tension in land tenure law between creating a legal system that treats its citizens equally and uniformly and one that can justly accommodate the diversity of traditional and customary systems. Most countries have dealt with this tension by creating multiple property categories to accommodate different tenure systems (e.g., Native title in Australia: Mabo and others v. Queensland 1992). The 1996 Agrarian reform bill can be seen as
an attempt to satisfy the interests of multiple stakeholders: lowland indigenous groups, 
campesinos of the highlands, lowland smallholders, and entrepreneurs and commercial 
agriculturalists (Urioste & Pacheco 2000). According to the second agrarian reform (1996a), land 
was divided into the following tenure categories: publicly owned land; private, individual title; 
private, community-held title; and indigenous land holdings (Ley del Servicio Nacional de 
Reforma Agraria, No. 1715). Overlain on top of these landholder categories are concessions and 
entitlements. Different amounts of land are entitled to different landholders depending on their 
use of the land. If a single landholder provides employment to others through his or her use of 
the land, she or he is entitled to a larger amount of land in proportion to the number of 
employees. Similarly, rural residents are entitled to more land if they hold land as a community. 
Indigenous peoples are entitled to communally-held lands due to their traditional use of that land 
before the existence of the modern state. According to a Presidential Decree (2000) that amended 
the original 1996 law, campesino and indigenous communities in the northern Bolivian Amazon 
are entitled to 500 ha per family (Decreto Supremo 25848). A further amendment in 2004 
indicated that an individual, private landholder can hold title to 50 ha of land and access 30,000 
hectares of government-owned land through a concession (de Jong et al. 2006). As of 2006, none 
of these concessions had been incorporated into the agrarian reform because saneamiento in the 
northern Bolivian Amazon was required to first determine title for community and indigenous 
lands (de Jong et al. 2006).

In Bolivia, as in the rest of Latin America, the strong legal tradition of land’s social 
function undergirds land entitlements (Ankersen & Ruppert 2006). Holding land is not enough to 
establish tenure. The social function doctrine stands in contrast to the liberal tradition, which is 
the basis for managing property rights in the United States. The liberal tradition envisions a
negative role of the government with respect to tenure: an individual’s right to private property is protected from government intervention, and the burden of proof is on the side of the government to justify the expropriation of land for a public project (Ankersen & Ruppert 2006).

In this tradition, the market is the most important mediator for land transactions (de Soto 2000; Deininger 2003). The Property Rights School, which embodies this liberal paradigm, argues its merit on efficiency. They argue that regularization and privatization of land as a capital enables the most land to be used for economic production, and to marshal resources for further economic growth through leverage (de Soto 2000).

In contrast, the social function doctrine positions government in an active role to ensure that the land is being used to its full potential for the greater good. In this scenario, the landholder must prove that his or her use of the land generates some social or economic value, or the land reverts, after a certain period of time, to the government. The legal principle of socioeconomic function enabled Latin American governments to institute Agrarian reforms repossessing and redistributing large, unproductive estates to landless peasants. The socioeconomic function has been invoked in Brazil, Bolivia, Mexico, and Peru, but with varying degrees of success. In recent decades, the concept of a social-ecological function has begun to be used, as a way to protect landholders from repossession or adverse possession of their forested lands, as forests perform social-ecological functions such as soil stabilization and water filtration (Ankersen & Ruppert 2006). Bolivian law incorporated ecological values into the social function doctrine in the Agrarian Reform Law of 1996, stating,

The socio-economic function in agrarian terms, established by article 169 in the Constitution, is the sustainable use of the land in the development of agriculture, livestock, forestry and other activities of a productive character, even as it is also in the use of the land through conservation and protection of biodiversity, research, and ecotourism, in keeping with its capacity for greatest use, to benefit society, the collective interest and that of the owner of the land. (Article 2, paragraph II, author’s translation)
Community-held lands and indigenous lands in Bolivia are subject to certain restrictions in the bundle of rights associated with property (Forster 2000). These lands cannot be sold, divided, borrowed against, or taken by adverse possession (Ankersen & Barnes 2004). These restrictions are supposed to protect these landholders against more powerful actors, and reflect the notion that the land’s function is to support subsistence for the country’s poor or marginalized. In countries that have small tax bases from which to raise funds to deliver services, land is one of the few means available to the government to provide a safety net for the poor. The Agrarian Reform Law of 1996 (Ley no. 1715) states, “Communal properties are those titled collectively as *campesino* communities and ex-estates and they constitute the source of subsistence for their owners. They are inalienable, indivisible, irreversible, collective, cannot be mortgaged nor taken by adverse possession” (Article 41, sect 6, author’s translation). These restrictions reflect the intention that these communal properties provide the means for citizens to make a living, thereby fulfilling the socioeconomic function of the land.

Governments in developing countries struggle to make laws that reinforce and work with customary practices, do not create burdensome bureaucracy, and build processes to protect marginalized citizens. This emphasis on the laws and structures for getting the rules right “once and for all” creates a fundamental contradiction. The different rights and responsibilities associated with tenure are not granted all at once, but rather are negotiated on a quotidian, iterative, and recursive basis. An absentee landholder may return to his lands to find the forest cleared and cultivated by squatters. User groups in common property institutions negotiate and modify over time the rules that govern their exploitation of a given resource (Ostrom 1990). For example, the rules about who can access a certain plot on communal lands in a part of Sumatra depended on the amount of time since clearing and whether or not trees were planted (Otsuka
Another example from Malawi demonstrates how land rights are negotiated and evolve over time. During the colonial era, locals were accustomed to access European colonizers’ lands for various non-timber forest resources. Following independence, the same lands were also accessed for timber (Walker & Peters 2001). These examples illustrate that passing good laws is not sufficient for a functioning formal land tenure system.

Governments in developing countries often lack the enforcement and arbitration capacity to maintain systems for land title registration that can accommodate the dynamic nature of tenure as it exists on the ground. One can use the metaphor of the development of a network of well-planned and -constructed roads that the government then puts no resources into maintaining. Over time, rains wash out individual branches of the road network. Others are rendered impassible by potholes created by regular use of the road. No matter how good the initial product is, the road network will be broken and unusable without maintenance. Maintenance is the missing component for formalized land tenure systems as well.

Without ongoing government enforcement, people have to figure out for themselves which rules to follow and how to legitimate these rules and outcomes (Delville 2002; Unruh 2006). This negotiation can undermine the legitimacy of the legal framework and renders it inconsequential. For example, Hernando de Soto has estimated that between 40 and 55% of rural land parcels, and 80% of urban real estate in the developing world is held without a legal basis (de Soto 2000). By solely focusing on getting the legal structures right, policymakers are ignoring the more salient problem that the government cannot make this legal structure present and apparent in the day-to-day life of its citizens. In many cases, informal institutions fulfill a need that would be met by the legal system, if the government had better capacity to do so (Helmke & Levitsky 2004). The challenge is to find a way to link these systems so that the
formal system is not compromised or undermined and so that those relying on the informal system have recourse to justice and other services during conflicts.

As most legal tenure frameworks stand, they require the intervention of an external authority in order to determine the outcome for adjudication or conflict resolution, or to legitimate a transaction. This places the power for creating and maintaining legality with government, which is usually absent, unknown, or inaccessible to the citizens requiring this intervention (due to monetary, logistical, or educational realities). Without access to the external authority of the government, there is no way to generate a legal outcome in a dispute or transaction, and so citizens rely on informal means to which they have access for the next step. In this way, the tenure situation as recorded in legal registries becomes a ‘snapshot’ of a moment in time rather than a reflection of the reality on the ground.

An alternate approach might place the power for maintenance of the more quotidian aspects of the tenure system in the hands of the citizens, while providing for conflict management services. Deville documents this kind of activity already undertaken by rural farmers, drawing on research from western Africa, Rwanda, and Comoros (Delville 2002). Farmers amassed paper documents in order to legitimate land transactions, whether they be outright sales, agreements for usufruct rights, or inheritances. The papers are as informal as a handwritten agreement on a lined sheet of notebook paper, or as out-of-date as a sheet out of land record books used by colonial administrators in the 1950s. With these pieces of paper, the farmers are building their case should a conflict arise, whether the conflict be settled in a court of law or through traditional avenues (Delville 2002). Some of the problems relating to the divide between de jure and de facto legal systems may be solved if legal systems can find a way to incorporate such citizen-based legitimating processes. In Peru, the Praedial Property Registration
system, or Registro Predial, used informal sources of information as bases for land registration. While the system was successful at reducing the bureaucratic and monetary hurdles to land registration, registered land did not translate to greater access to credit for landholders, which was one of the goals of the project (Lastarria-Cornhiel & Barnes 1999).

This paper elucidates some of the difficulties encountered when an otherwise absent government implements legal reforms to bring customary land tenure arrangements into the formal system. Finally it presents a methodology developed by the Center for International Forestry Research (CIFOR) that works to empower local people to improve their own tenure security, not requiring government action.

**Methods**

I conducted semi-structured interviews and held six focus groups (three per community). All male and female heads of household were interviewed using a questionnaire with both closed- and open-ended questions (only one community member refused to be interviewed, n = 55). All interviews were recorded with the permission of the respondent. 53 interviews were recorded: one respondent did not give permission and the other interview was not recorded due to technical difficulties. Interviews lasted between thirty minutes and one hour and a half. Participant observation also yielded important qualitative data. Data were collected between May and August 2006.

Questions focused on the rules that governed community use of natural resources. I used maps that the communities had created with the facilitation of CIFOR, to elicit information about the rules the communities had created regarding access to the forest for Brazil nut collection, hunting, firewood collection, and agriculture. Focus groups were helpful in verifying the community-level information I had gathered from individual interviews and through informal inquiry. In focus groups, I focused in particular on the rules-in-use. I was able to get an idea from
focus group participants about which authority created which rules and which rules were more seriously enforced than others.

Due to time restraints and the relative difficulty of accessing La Paz in comparison to Navidad, I spent much less time in La Paz than in Navidad. In Navidad, I was able to spend a first week with the community collecting only minimal data in a formal way, before beginning my interviews. In La Paz, unfortunately, I began conducting interviews the day after arriving in the community, which meant that respondents were probably less expansive in interviews because I was still relatively unknown at the time of the interviews. In both communities, I benefited from being introduced by a CIFOR employee (Marco Antonio Albornoz) who had previously worked with both communities and was known to them for over two years. It is not possible to determine the specific impact that these different strategies for conducting research had on the data that were collected, but it does mean that I am more confident in the data from Navidad, due to the increased opportunity to establish rapport with the respondents.

Introduction to Region and Study Communities

Study Location and Context

The economically integrated region of the Northern Bolivian Amazon includes the Department of Pando and the provinces of Vaca Diez in Beni Department and Iturralde Province in La Paz Department (see Figure 2.1). As the vast majority of Pando’s Brazil nuts are processed for international export in the city of Riberalta in Beni, it does not make sense to talk about Pando without including this economic center located outside its borders. The Northern Bolivian Amazon region has a population of about 169,000 people, with a population density of two people/km² (Llanque 2004), a low density in comparison with the rest of Bolivia, which had an national density of 7.56 people/km² in 2001 (INE 2003). Road access to the region from other parts of Bolivia is limited to a few poorly maintained roads. Estimates of deforestation vary
between 7% and 10%, although most authors recognize that these statistics are underestimates (Fuentes et al. 2005; Ruiz 2005).

Brazil nut harvest occurs during the wet season (November to March). Extraction is undertaken by equal numbers of on-site and imported labor (Stoian 2005). The Brazil nut has been called “forest gold” due to the high prices it commands and the growth in the industry – estimated at US$74 million in 2005 (Ortiz 2005; Pacheco & Cronkleton 2005; UN 2007). At least three different land tenure types exist in the region – community-held campesino lands, community-held indigenous lands, and individually held property. Some of the individual landholdings are brazil-nut estates called barracas. These landholders typically import labor for the Brazil nut harvest. Most independent campesino communities arose following patron abandonment of rubber estates when the rubber economy collapsed.

The two communities that participated in the study, Navidad and La Paz, were selected based on their similarity in size, their location in the same municipality in Pando (El Sena), and their former experience working with CIFOR, my main institutional partner. Navidad and La Paz were both relatively small communities (29 and 26 heads of household; 77 and 90 total residents respectively). Brazil nut collection was the primary source of income for all households except for one headed by a carpenter. Both communities’ lands had good forest cover, with the majority of the anthropogenic disturbance located close to households, due to agricultural fields. Navidad’s lands included a degraded grassland area, about 10% of their overall lands, which was not naturally reverting to forest. Navidad lay on a side road off the main highway between El Sena, the municipal seat, and Riberalta. To get to El Sena from Navidad, there was a road, which took about 2 hours and there was a short-cut trail off the road, which took about 1.5 hours by

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6 Community names have been changed to protect the anonymity of the study participants. All individuals are referred to with pseudonyms.
motorcycle. La Paz lay on the Madre de Dios River, about 3 hours by motor boat from El Sena, although most community members traveled by peki-peki, a canoe with a small outboard motor, which more than doubled the travel time.

The communities were very different in terms of the kinship relations in the community and the life history of their residents. One family dominated the make-up of La Paz; all residents except for one couple were related to the community’s founder by either blood or marriage. In addition, the majority of La Paz’s residents (19 of 27 household heads) had lived in the community their entire lives. Only three households in La Paz had substantial experience living elsewhere. In contrast, the majority of Navidad’s residents (18 of 29 household heads) had moved around a lot in their lives, and had lived for some time in one of the region’s urban centers, such as Riberalta, Guayaramerin, or Cobija. Navidad’s kinship relationships were more varied than La Paz’s. Three families dominated the kinship relations of Navidad, but ten of 29 household heads were unrelated to these three families.

Another source of variation between the two communities was the way that they had partitioned community land, especially as it concerned Brazil nut collection, to community members. The next section details these differences.

**Customary Land Tenure Systems in Case Study Communities**

The communities of Navidad and La Paz developed different and complex systems of apportioning the rights and responsibilities related to their land among their members. Both systems reflected their particular historical and geographical contexts and their current resource use. As with most community property, certain resources were held to an individual-use model of exclusive use and access, while other resources were open access for community members (Ankersen & Barnes 2004; Fitzpatrick 2005). Some of these differences reflect the varying
spatial distributions of natural resources, while other differences reflect the resources’ diversity of values, whether subsistence or market.

Settlement in the lands of Navidad and La Paz had been established during the rubber boom in the last half of the 19th century. Access trails to the forest and land partitioning in both communities were a heritage of this past land use system. Most rubber estates had main trails and secondary trails. For the most part, this infrastructure of forest access was maintained after the fall of the rubber economy (the main collapse occurred around 1913 due to competition with Indonesian plantation rubber) and the rise of importance in Brazil nuts (Assies 2003). Rubber tappers typically were assigned to a fixed set of loop trails through the forest that enabled them to access the same trees twice in a day. These collections of trails divided up the forest according to the presence of rubber trees. These divisions were maintained when rubber estates stopped collecting rubber and focused solely on Brazil nut collection, with slight modifications due to the different distribution of Brazil nut trees on the landscape as opposed to rubber trees.

Navidad was initially a barraca, which became independent in the mid-1990s. The residents who had remained on the land became its joint controllers, and received title to their community lands in 2006. Due to this history, Navidad’s members viewed their lands as communal. When asked, they said that they held their lands in common and all shared equal access rights, no matter which resource. No one resident had the right to exclude another from any area for collecting Brazil nuts within the community lands. In practice, there were a few long-time residents who customarily used one area, or centro, that they had been assigned to previously when they were workers on the barraca. Newer community members tended to move around a lot more and access a greater variety of centros when it came to Brazil nut collection.
A Columbian adventurer founded La Paz during the small rubber boom during World War II. When he died unexpectedly, his lands passed to his six sons and his wife (his two daughters did not receive lands). The community in 2006 also included the founder’s brother-in-law and his two nephews, who had their own lands. The community’s founding as a private, family enterprise affected the model that the community used to apportion rights to its members. In 2007, despite having been granted formal communal title, La Paz’s residents continued to partition most resource access rights according to a model that more resembles private, individual property than communal access.

When conducting semi-structured interviews with community members, I asked where in the community lands they carried out different activities (Brazil nut gathering, firewood collection, hunting, and clearing of agricultural fields): if they accessed the same areas every year for this activity; if others accessed those same areas; and whether or not it was permissible for others to access that area for that resource. I divided up residents’ responses based on the amount of exclusivity they reported regarding the areas they accessed for these various activities. I clumped the responses into four different categories: individual, pseudo-individual, communal, and open-access. When people told me that they accessed the same area for a given resource every year and that others (both from the community and outsiders) were not allowed to access that area for that resource, I counted that response as belonging in the ‘individual’ category. For the ‘pseudo-individual’ category, I included responses that had elements of the individual model but did not meet all criteria. For example, one of the residents in La Paz had a Brazil nut centro, which he considered his own for the exclusive right of he and his family to access. The neighboring barraca, however, did not recognize the community member’s centro, and frequently accessed parts of it for Brazil nut collection. Also, I put all of the agricultural lands in
the ‘pseudo-individual’ category because, although only one household would harvest the produce from these plots, the plots were not permanent; households would abandon fields after two or so years of cultivation, depending on the quality of the harvests. Responses belonged in the ‘communal’ category when there was no restriction of access between community members. I placed responses in the ‘open-access’ category when no rules restricting access were reported. Not every respondent engaged in every activity, so to facilitate comparisons between resources and between communities, I reported the findings in percentages.

Figure 3-1 summarizes the different tenure models employed by both communities and how the exclusivity of access and exploitation varied with the resource in question. The figure reveals differences between the two communities except with respect to agricultural resources, with La Paz having more privatized land tenure forms. Although the two communities adhered to different overall tenure models with respect to resource allocation (individualized versus communal), they both recognized different levels of exclusion according to the resource involved. The resource with the most regulated access in both communities was Brazil nuts. Due to the importance of Brazil nuts to livelihoods in both communities and the market orientation of the resource, community members protected their access to Brazil nuts and actively excluded others from their Brazil nut centers. Brazil nuts were the main (and in some cases, the only) source of income for residents of both La Paz and Navidad. In La Paz, eight of the fourteen families enjoyed exclusive use of Brazil nut centers (57% as reported in Figure 3-1). Two other families in La Paz had Brazil nut centers, which they considered their own, but there were overlapping claims with the neighboring community, so they did not have exclusive use. The remaining four families did not have centers to access, but relied on being granted access by one of the other community members. One of these four families was of the younger generation, the
grandchild of the founder. Two other households were the families of the founder’s daughters, who, as mentioned previously, did not inherit lands following the death of their father. The final La Paz family without a centro was a couple that had only lived in the community for the previous three years and had not yet been officially recognized as full members of the community. In Navidad, as mentioned earlier, long-term residents accessed customary Brazil nut centers, but they did not exclude others altogether. About half of the respondents held Brazil nuts to a pseudo-individual tenure model, while the rest accessed the resource in keeping with a communal tenure model (Figure 3-1).

Although Brazil nuts had a tight connection to the market, which predisposed its extraction to be managed according to an individualized tenure model, the production characteristics of the resource predisposed it to management through a communal tenure model. Brazil nut production varies by harvest. A tree that has excellent production one year might have low production the next (Zuidema & Boot 2002). A communal tenure model of management enables the user group to spread the risk of low-production trees among its members. In Navidad, the more recently arrived community members accessed a wider variety of areas than the long-term residents, meaning that they did not have to bear the burden of a low-production year for a tree, although they did have to walk more and probably lost time locating trees in diverse areas. In contrast, the long-term residents always accessed the same areas, so knew each tree’s location better and did not have to walk as far to access the same number of trees as newcomers. Community members with their own centro did run the risk of being tied to any low-producing trees in their centro.

Other resources were held to different tenure models. Wild game, for example, was an open-access resource, even between communities. Community members in both Navidad and La Paz seemed unconcerned about entering others’ lands to hunt. Wild animals, due to their fugitive
nature (the fact that they move from place to place and are not tied to one piece of land), are unsuited to an exclusionary individualized tenure model. La Paz community members who had their own Brazil nut centers typically hunted there as well, but did not exclude others from hunting in their centros. Community members without their own centros hunted in others’ centros and also crossed the river to hunt in another community’s lands. In Navidad, hunters selected areas based on where their prey congregated, but were not concerned about entering one centro or another to hunt. Many hunters indicated to me that they accessed lands outside of Navidad’s official boundaries, that they frequently saw others while hunting, and that they were never challenged when they were in another community’s lands. Fugitive resources like wild animals are some of the hardest to manage sustainably (Agrawal 2001). In these cases, neither community limited members’ hunting nor were there agreements with neighboring communities about minimum or maximum takes. This lack of management may have led to a classic open-access problem of resource depletion (Hardin 1968; Ostrom 1990). Most long-term residents at both communities agreed that wildlife was significantly less plentiful now than in the past and that some of the most favored game species were entirely absent (e.g., Howler monkey, white-lipped peccary).

Firewood was also managed in a nonexclusive way in both communities. Convenience and availability seemed to be the most important determination in selecting where individuals went to collect firewood. Most people collected firewood from old agricultural fields, and not necessarily the fields that they themselves had cleared. Most people used firewood for cooking, although a few families in Navidad also had gas stoves that they used in addition to firewood. They bought the gas cylinders to run the stoves in El Sena. In Navidad, all respondents indicated that their collection of firewood was not impeded by individual claims (Figure 3-1 shows 100%
of the respondents viewing firewood as communally held). In La Paz, the households that lived in the same area as their Brazil nut *centros* also collected their firewood in there. That others did not collect in these *centros* seems more related to convenience than active exclusion on the part of the families to whom the *centros* belonged. Nevertheless, I coded these responses as adhering to a strict individualized tenure model as other families did not access firewood from these *centros* and the households consistently accessed the same areas for collecting firewood.

Decisions about where to place agricultural fields were also determined by ecological characteristics and convenience more than social control. When asked, community members in both La Paz and Navidad indicated that the most important characteristics to consider when locating a new agricultural field were finding good soil and not cutting down any economically important trees (such as Brazil nut, mahogany, rubber, or Spanish cedar trees). Convenience of access was also very important. In La Paz, community members whose houses were located within their Brazil nut *centros* would place their agricultural fields in their *centros*. Some of the other residents who had their own *centros* but lived in the community’s residential center also placed their fields in their *centros*, but others placed their fields in the lands of the community’s founder’s wife, Doña Esperanza, as her *centro* was closest to the community’s residential center. Doña Esperanza’s daughters, who did not have their own Brazil nut centers, also placed their agricultural fields in her Brazil nut center.

As mentioned earlier, agricultural fields for all families in both communities were counted in the ‘pseudo-individual’ category. While all agricultural products were clearly considered the sole property of the family that had cultivated them, not all resources held on the land were considered as private. People often took firewood from another family’s agricultural fields. Once
a field reverted to fallow, there were no rules regarding access to these areas by community members.

Tenure arrangements in both communities varied according to the resource involved. Resource tenure varied in time, in space and in the degree of exclusivity. Resource characteristics informed how community members managed access to that resource (for example, the resource’s importance to livelihoods). In addition, the two communities had different overarching tenure models: Navidad’s model was more communal while La Paz’s was more individualized. The cases of these two communities illustrate the complexity of informal, local tenure institutions.

Common Challenges to the Formalization Process

Informalities as Challenges to Saneamiento in the Northern Bolivian Amazon

A main goal of the second agrarian reform was to protect and reinforce customary tenure systems rather than force them to conform to a Western legal tradition. In this section, I investigate how the national framework of the agrarian reform was implemented and the relative success of meeting these goals.

Many problems related to land tenure regularization affected the communities that participated in my research in the northern Bolivian Amazon. These problems reflect the ‘devil’s in the details’ procedural challenges associated with implementing a national-level framework in a specific local context. Other problems were more fundamental, in that they expose incompatibilities between a formal, legal-based system and customary land use systems.

A common procedural challenge for land tenure systems is overlapping claims. In one of the study communities, a member’s traditional Brazil nut collecting center was also accessed by a family from a neighboring community. In order to resolve this overlapping claim within the formal system, some higher authority must rule on which neighbor’s claim is more valid. There
is a clear way to deal with this problem within the existing procedural framework of 
* saneamiento.*

Because migrant workers, who do not know the traditional boundaries between landholders, collect a large proportion of the Brazil nut harvest, boundary delineation is another clear activity for the government to increase tenure security. While a full-time resident of an area may recognize the traditional boundary markers (e.g., a stream or an old field or a row of trees), a worker that only comes to an area during the four months of the Brazil nut harvest will not necessarily have this knowledge. *Barraca* owners who employ the migrant workers have little incentive to inform their workers about the boundaries of the lands they have rights to access. The *saneamiento* process includes placing cement boundary markers (*mojones*) on the ground, but only at important vertices, not at all bends along the boundary line. Unfortunately, due to the imperfect implementation of *saneamiento* in these cases, these boundary markers were not even located in places that had social significance: the markers did not delineate the customary divisions between the communities’ lands.

Most tenure arrangements were informal in the study region before the government began the *saneamiento* process in 1998. Though there had been many changes in the make-up of La Paz and Navidad since the communities’ foundings, there was a common understanding of where their lands ended and where their neighbors’ lands began. The boundary separated territories, but not necessarily rights to all resources. This is one of the fundamental challenges of land tenure regularization: customary and informal arrangements sometimes do not hold to the hard lines of boundary demarcation as practiced in Western tenure arrangements (Fernández-Giménez 2002). Total exclusion of outsiders’ activities on one side of the boundary is uncommon in customary tenure, although certain activities would not be permissible in another’s territory (Walker &
The two case study communities provide an example of this fluidity with respect to hunting: community members regularly accessed other landholders’ areas to hunt, without complaint from their neighbors. Neither community, however, would allow an outsider to clear and plant an agricultural field on their land.

In addition, rules of access depended on what resource an individual enters the land to exploit. For Brazil nuts, a resource linked to international markets, the rules were clear (even if they were not always followed): an individual from one community could not collect from trees on another community’s land. When it came to other activities that were more linked to subsistence, such as firewood collection or wildlife hunting, the rules of access were less stringent. Individuals from one community frequently went to hunt in another community’s lands. The diversity of ways that community members conceived of resources, rather than the land – as private, held in common, or justly theirs to exploit – is difficult to accommodate in western-style formal tenure systems. Formal tenure systems usually divide the landscape into polygons, to which landholders have uniform rights (Walker & Peters 2001). While the formal tenure system does not preclude landholders’ ability to create socially differentiated rights that vary with resources, it does not necessarily provide recourse when there is a conflict over these socially differentiated rights (Helmke & Levitsky 2004).

Another fundamental challenge for land tenure regularization is posed by the forested landscape and the forest-based livelihoods of Northern Bolivian Amazon. A typical strategy for claiming land and for substantiating that claim is to clear it (Ankersen & Ruppert 2006; Unruh 2006). In the absence of governmental institutions and within a changing social context, there is a great need to leave evidence on the landscape of its occupation. By having made a mark on the landscape by clearing it, the owner has invested labor into it and therefore the land cannot be
taken away without an explanation or compensation. This strategy is clearly problematic when
the primary means of income generation in the region is predicated on a standing forest.

The laws on the books in Bolivia do not require that the land be actively cultivated for
proof of productive ownership. Both the Agrarian Reform Law and the Forestry law (both of
1996), recognized that ecological processes contribute to the public good through ecosystem
services (Nueva Ley Forestal, no. 17000, 1996b). In practice, however, in many frontier areas
where land tenure is contested, the surest way to maintain a claim to land is to clear it.

The Conflicting Boundaries Generated by Saneamiento

The Saneamiento process began in Pando in 1998 (Rodríguez 2007), but only came to the
study communities in 2005. Saneamiento literally means “cleaning up.” It is the formal process
that the government undertakes to title land, distinguish between competing claims, and
determine entitlements according to different tenure categories and types (individual vs.
communal, smallholder vs. large holder, etc.). The 1996 Agrarian Reform Law outlines the
general requirements for the process and sets a maximum timeline of 10 years for its completion
(Ley INRA 1996a). The National Institute for Agrarian Reform’s Technical Standards for the
process explain: “Saneamiento aims to promote: legal land tenure security; guarantees for
investment; stimulus for long-range credit as guaranteed by the land; and definitive resolutions
of land disputes” (INRA 1996).

The first step of the Saneamiento process is the collection of existing data in the area of
interest (maps, titles, etc.). Then there are a series of public meetings to make people in the area
aware of the objectives of the process, its timeline, to solicit their help, and make them aware of
their obligations. Government contractors then go into people’s lands and measure GPS
coordinates of their lands’ boundaries. Landholders on all sides of a boundary are supposed to
accompany the field agents when collecting boundary points, in order to make sure that the
boundaries as recorded are acceptable to all interested parties. If boundary points are acceptable to all neighbors, field agents are supposed to install a boundary marker. Neighbors are also expected to sign a document attesting to their agreement with the location of these defined boundaries. During this fieldwork stage, there is usually an assessment of whether the land is performing its socioeconomic function under the current ownership. This assessment can vary depending on the amount of land in question. The burden of proof lies heavier on individuals with a large amount of land than it does on a smallholder or a community.

Following the completion of fieldwork in a *saneamiento* zone, results of the boundary surveys are summarized in a report. The next step is a widely advertised public meeting where the maps and other data collected during field surveys are exhibited. Landholders then can sign a form stating that they are satisfied with the results, which concludes the *saneamiento* process for those plots. If there are inaccuracies, there is also an opportunity at these meetings for people to make formal complaints, which starts a process to sort out the problem.

The process of *saneamiento* in the northern Bolivian Amazon redrew the boundaries between communities and their neighbors. The process was not well implemented and the quality control mechanisms in the design as described above did not enable either community to address the problems with implementation. For both La Paz and Navidad, these new boundaries caused conflicts with neighboring landholders and affected individual community members in different ways.

For both communities, the problems with the implementation of *saneamiento* may not have even been appreciated if they had not been working with CIFOR Bolivia. Both communities were given a small (A4 letter size), provisional map of their lands after the *saneamiento* process, but neither community could evaluate the accuracy of the maps. Through their training
experiences with CIFOR Bolivia, in particular, the Multidisciplinary Landscape Assessment, they were able to interpret the maps and imagine how they would have preferred the saneamiento process to be implemented. This lack of cartographic capacity on the part of the two case study communities is a common obstacle to successful implementation of land adjudication.

In the case of Navidad, the traditional boundary demarcation between it and its northern neighbor, Santa Elena, was a stream, Vial, in the northern section of the community lands. When the government agents determined the points to delineate the boundary between these two communities, however, they joined the two points in a straight line (Figure 3-2 is a map of Navidad’s traditional lands), north of the natural border provided by the stream (see asterisk 1 in Figure 3-2). During the following year’s Brazil nut harvest, Navidad’s residents began to access these new lands granted to them by the government, but encountered resistance from community members from Santa Elena, who did not respect the government’s decision. This conflict continued throughout the harvest season. Navidad responded by holding community meetings almost once a week for a couple of months to strategize about how to deal with this conflict with Santa Elena. Eventually Santa Elena accepted the government boundaries and conflict was more or less contained between the two communities.

Another conflict arose due to the location of three centros that Navidad customarily accessed outside the boundary lines demarcated by the National Institute for Agrarian Reform (INRA, or Instituto Nacional de Reforma Agraria). While their lands were augmented in one area by the addition of the lands to the north of the river, the amount of Brazil nut trees traditionally accessed by the community was diminished by the loss of the centros Sardinal, Las Abejas and Buen Destino, which lay outside the newly official boundary lines of their community (see Figure 3-2). Overall the number of hectares accessed by the community
decreased (the titled area of the community totaled 4065 hectares, while the traditional access area was estimated at 6400 hectares) (Albornoz 2007), but more important, the redrawing of their community boundaries deprived Navidad of lands where they had experience and knowledge. To the residents of Navidad, every hectare was not equal in terms of the density of Brazil nut trees and the historical use of the land. The polygon of formal tenure, as imperfectly imposed, did not accommodate this value that the community historically attributed to their lands.

Navidad responded to this change in access by negotiating with their eastern neighbor, for access rights to Buen Destino on behalf of the long-term resident family of Doña Mariana (see star 2 in figure 3-2). The negotiated agreement was for one Brazil nut harvest only and so delayed Doña Mariana’s family’s activities that their harvest for that year was significantly reduced from previous years. This action illustrates Navidad’s residents’ eagerness to comply with the formal system, and their desire for a system that reflects and embraces their customary practices.

Similarly, saneamiento created conflicts for La Paz. Their neighbor, Puerto Rico, contested the boundary lines as created by INRA and did not respect them (although they did not take any formal action). One of the main objectives of the saneamiento process, creating clear boundary lines to reduce conflict was not met in this implementation of the formalization process.

Following the completion of saneamiento, INRA would meet the other objective of the agrarian reform: redistribution of unclaimed and repossessed lands and reassignment of reclaimed and unclaimed lands to these communities whose lands were not sufficient to fulfill the minimum entitlement of 500 hectares per family in community-titled lands (2000). The logical solution was for the lands to be contiguous, so that the 500-hectare-per-family allotment could be met by enlarging existing community lands with surrounding lands that were
unclaimed, reclaimed by the government during *saneamiento*, or held by a private entity (INRA 2006).

Unfortunately, in Navidad’s case, the ideal was not possible. The community was surrounded on three sides by indigenous lands, whose titling got precedence over their own. Therefore the community was to be granted lands in another province of Pando to fulfill the 500ha-per-family entitlement. These lands were inaccessible most of the year, and only by a river. No one in the community had yet visited their proposed land allotment. It was unclear if there were Brazil nut trees in the area, or if there would be a way to transport the nuts to market. It was also unknown if there were other people already living on the land. Navidad’s residents had no intention of moving to the relatively inaccessible land. They intended the allotment for their children and new community members. But if no one occupied the lands, there was a real risk that the community’s claim would be invalidated if another party settled there.

La Paz had more luck with the planned extension of their lands. When I was in Pando in 2006, they were going to be allocated an unspecified amount of land from the neighboring *barraca*, San Miguel. INRA had still not determined how much more land they were going to get and where exactly their boundaries would be expanded. It was unclear how the company that ran the neighboring *barraca* was going to respond. Perhaps the *barraca* would cede possession to La Paz, but there was no guarantee that they would respect the new borders delineated by a far-away government.

The formalization process in Navidad and La Paz redrew community boundaries, changing the rules of the game and generating conflicts for these communities and their neighbors. While any change will cause conflict as actors adjust to the new reality, some of these conflicts were caused or at least exacerbated by the poor designation of boundaries in these cases. It is
impossible to expect a government process to proceed exactly according to a well-designed plan, especially considering the wide diversity and numbers of people involved in a process such as *saneamiento*. Formalization of tenure arrangements was one necessary step for ensuring enduring tenure security in La Paz and Navidad for the years to come, but it was not sufficient to deliver tenure security on its own. In the next section I describe a complementary process that could enhance tenure security following the completion of *saneamiento*.

**CIFOR’s Participatory Mapping Methodology**

Participatory mapping has been used to empower marginalized groups around the world and strengthen territorial claims, particularly those of indigenous peoples (Herlihy & Knapp 2003; Parker 2006; Walker & Peters 2001). Such maps have facilitated a powerful means for negotiation about contested rights. Participatory mapping transforms a medium that is usually the purview of the elite, and puts it in the hands of many (Parker 2006). Because the end users are involved in the maps’ creation, the information they convey is transparent to its users (Parker 2006). As a tool, participatory mapping is powerful, but, like *saneamiento*, it cannot address all the challenges of maintaining secure tenure that works in conjunction with informal systems, while meeting the requirements of formal tenure.

Bolivia’s *saneamiento* process was designed to be participatory in order to have quality control and local buy-in. Unfortunately, the way that it was implemented, neither the quality control nor legitimation by locals were attained. The borders were improperly placed and both Navidad and La Paz’s neighbors did not accept their claims to the lands defined by *saneamiento*. Of course, no matter how well *saneamiento* had been implemented, it would not have been able to create *de facto* tenure security at the same time as it is creating *de jure* tenure security. Tenure relations are determined on a more quotidian basis. While the government needs to provide the formal process for land titling, there needs to be some other process for empowering local actors
to maintain their tenure security following the intervention of the government in the land adjudication process, so that when the machinery of government retreats, the benefits of the completed process are not lost. The participatory mapping methodology developed by CIFOR reflects the fact that the community members themselves will have to deal with most conflicts regarding tenure arrangements in the future and gives them a concrete tool for negotiation (a map that they helped to create and so is transparent and useful). Participatory mapping is also an experience of collective action that can build further social capital and provide pathways for future collaborative efforts (McCarthy et al. 2004).

In 2006, the CIFOR had been working for five years in the Northern Bolivian Amazon. One of its projects to improve governance in the region developed a mapping methodology that aimed to increase communities’ knowledge about the resources they legally held and to build their capacity to manage conflict both within communities and with their neighbors. This methodology was adapted and implemented in Navidad by a local workers advocacy group, COINACAPA (Cooperativa Integral Agroextractivista de Pando – Brazil nut gathering cooperative in Pando).

The methodology produced a geo-referenced map that depicted every Brazil nut tree on community lands. In contrast to the products of the saneamiento process (a title and a map), community members had ownership in the final product of the participatory mapping and were able to interpret it. They could use it in negotiations with neighboring communities or the government, or for determining how to allocate access to Brazil nuts between community members.

The participatory process that created the map was equally, if not more important than the finished product. The process increased the community members’ knowledge about their lands
(especially in the part of the community lands only annexed following *saneamiento*). By working together to create the map, community members shared a common understanding of the information in the map, how it was generated, and had a common basis for recognizing its legitimacy.

The legwork for creating the map was extensive and labor-intensive, using both GPS and standard forestry methods. The first step was to divide up the community lands into discrete chunks and then divide up the community members into teams of five to work on the mapping. The team entered the forest and took a GPS point at the point of entry. Two people were in charge of opening up the trail and finding the next Brazil nut tree. Another person was in charge of measuring the distance between trees. Another person was in charge of determining the compass direction and the slope of every trail between trees. At each tree, a team member placed a numbered plaque on the tree, and the tree was measured for diameter at breast height. The height of the tree was estimated, as well as an index estimating the previous harvest’s production (estimated by the amount of seed pods on the ground).

In addition to increasing knowledge about the natural resources under Navidad’s control, the process also aided in strengthening their on-the-ground presence. The plaques they placed on their Brazil nut trees during the mapping have the potential to act as ‘no trespassing’ signs. They are a physical manifestation of their ownership of the resource and their claim to the land, which can be recognized by other actors in the absence of strong government institutions to protect their tenure security (Unruh 2006).

Participatory mapping is not a panacea for all the shortcomings of formalization, but it does hold some promise as a way to socially embed the results of the *saneamiento* process,
recognizing the ongoing role of informal institutions in shaping land tenure even after
saneamiento.

Conclusion

This research demonstrates some of the challenges of reconciling customary and formal
tenure systems, as well as those related to bringing a national framework to the local level. In
this case, the formal, legal-based system entered into a forum where informal institutions had
been substituting for an absent government. The diverse ways that the communities had
informally been organizing access to various natural resources could not be explicitly
accommodated in the formalization process because every polygon of formal tenure implies
uniform rights and responsibilities and focuses on the land rather than the resources that the
landholders use. Furthermore, the formalization process was fleeting and was poorly
implemented, with respect to boundary placement. Although both communities had the tenure
security that comes with formal title to their lands, the formal institutions did not have the
capacity or on-the-ground presence to deal with the ongoing, quotidian maintenance of formal
land rights.

While all actors can recognize the challenge of land tenure formalization, too many are
looking for a simple solution. Local contexts, whether they make formalization easier or more
difficult, will always temper the outcome of implementation. Recognition of this power in local
settings may help make future legal tenure interventions more successful. Making legal tenure
systems work for the broad diversity of customary tenure systems in the world, however, is an
ongoing project.
Figure 3-1. Comparing tenure models for different resources for the two communities. ‘Strict individual’ means exclusive use for that household. ‘Pseudo individual’ means one household accessed one area more than others but did not exclude others. ‘Communal’ means that any community member could access these resources anywhere in the community lands. ‘Open access’ means that anyone can access this resource, even beyond the community lands.
Figure 3-2. Navidad’s traditional lands. The polygon outlined by the straight dashed line delineates the community’s titled land following the *saneamiento* process. The shaded area roughly corresponds to the customary use area before adjudication. The dark line on the left of the map is the Canada River and the smaller lines running across the map are smaller streams. The dotted lines represent access trails, from the community center to the forest. The asterisks refer to sites of conflict following *saneamiento*. Map produced by the author from geo-referenced participatory maps facilitated by CIFOR.
Figure 3-3. La Paz’s traditional lands. The thick line at the top of the map is the Madre de Dios River. The polygon outlined by the straight dashed line delineates the community’s titled land following the *saneamiento* process. The shaded area roughly corresponds to the customary use area before adjudication. The smaller lines running across the map are smaller streams. The dotted lines represent access trails, from the community center to the forest. The asterisks refer to sites of conflict following *saneamiento*. The Map produced by the author from geo-referenced participatory maps facilitated by CIFOR.
Introduction

Decentralization has been a major trend in government administrations around the world for the last few decades (Andersson & Gibson 2006; Batterbury & Fernando 2006; Conyers 1983; Faguet 2004; Hutchcroft 2001; Lemos & Agrawal 2006; Samoff 1990). Decentralization has been championed as a means to promote democratic processes and more effectively meet development goals, whether from the neoliberal standpoint of reducing burdensome bureaucratic procedures, or from the more populist point of view of making the government more responsive to local constituents (Faguet 2004; Hutchcroft 2001).

Decentralization, however, encompasses many different types of policies, with varying degrees of de-concentrating central government power, ranging from those that simply replicate administrative units at local scales to those that incorporate devolution of decision making and service administration to non-government partners (Hutchcroft 2001; Samoff 1990). Replication of administrative units at local scales can increase delivery efficiency for standard government services, while enabling more decision-making and executive autonomy for local government agents may make government interventions more locally appropriate. Advocates for devolving independence and decision-making power to non-governmental partners argue that the government does not have the capacity to provide certain services at all levels, and in all parts of the national territory, so partnering with civil society organization is a practical response.

Devolution of natural resource management in particular was a response to the dissatisfaction with outcomes of expert-driven top-down management (Pretty & Smith 2004). Local actors, it was argued, knew the resources upon which they depended better than experts sitting in administrative capitals; therefore they should be empowered to manage these resources
as they saw fit. Centralized, expert-driven government administration of natural resources was viewed as a relic of colonial rule (Samoff 1990). Advocates of devolution and decentralization argued that traditional local institutions should be revitalized to partner with local government agencies to manage natural resources (Agrawal 2003; Samoff 1990).

Many areas of the world may have traditional resource management institutions for natural resource management or a tradition of natural resource management that solely required a favorable policy environment in order to become as powerful and effective as in the past (Agrawal 2005; Menzies 2007). There are other parts of the world, however, where such traditional institutions have never existed, or were all but obliterated through disenfranchisement by centralized governmental control. Indeed, mass migrations and economic changes dictate that the players involved and the resources being managed have changed since the end of the colonial era.

Such was the case for the northern Bolivian Amazon\(^7\), a region whose economy in the early 2000s was dominated by the extraction and processing of Brazil nuts (*Bertholletia excelsa*) for export. While this non-timber forest product had been exported from the region since the 1930s (Helbingen 2001), in the 1990s the international demand escalated dramatically and Bolivia’s capacity for processing the nuts for international markets grew, reaching $74 million and 16.26 million kilograms in exports in 2005 (see Figure 2-2 for trends in price and production of exported Brazil nuts from 1995-2005) (UN 2007). Brazil nuts took on a central role for livelihoods across the region. Although the region’s residents had previously collected Brazil nuts, they had no experience with managing its collection for this heightened demand. Likewise,

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\(^7\) The economically integrated Northern Bolivian region includes the Department of Pando and the provinces of Vaca Diez and Iturralde from Beni and La Paz Departments. Riberalta, the capital of Beni, is the main center for Brazil nut processing. Riberalta is inextricably linked to Pando and Iturralde Province because, although most of the Brazil nuts originate in Pando, the vast majority of nuts are processed and then exported through Riberalta. A map of the region is presented in Figure 2-1.
the majority of residents in the region were migrants from other parts of Bolivia, who had come to the region during the rubber boom (late 19th century to early 20th century). The decline in profitability of rubber began in 1913 (although rubber continued to be extracted in Bolivia until 1992) and caused a massive reshuffling of populations from rural to urban areas and from remote rural areas to more accessible rural sub-centers (Canelas 2005; Llanque 2004). The regional tradition of labor organization was a form of debt peonage initiated during the rubber era, many features of which were still extant in larger, privately run Brazil nut estates. Following the collapse of the rubber economy and abandonment of rubber estates by patrons, independent campesino communities began to take hold, but they had no tradition of self-governance. Therefore, when decentralization policies were enacted in Bolivia during the mid-1990s, local-level institutions for self-governance and natural resource management were developing more-or-less from scratch. At the same time, many of these communities had recently experienced high levels of in-migration. Although community members were very familiar with Brazil nuts as a resource and with the other activities required for subsistence in the Northern Bolivian Amazon, they were taking on new responsibilities in managing for themselves their use of natural resources, rather than following the patron’s orders.

Decentralization policies in Bolivia took the form of a series of laws affecting distribution of government revenue, agrarian reform, and administration of the forestry sector (Andersson & Gibson 2006; Kohl 2003a, b). The Law of Popular Participation (1993) was part of this decentralization effort (Ley de Participación Popular, No. 1551). This law required every community to apply for legal status (personalidad jurídica) in order to become eligible for land tenure regularization, titling and other government services. Part of the process of obtaining the
personalidad jurídica is the registration at the municipality level⁸ of an Organización Territorial de Base (Grassroots Territorial Organization, OTB from now on). The OTB is a community organizational unit that interacts with the municipal level government. The goal of the Law of Popular Participation was to direct more money and services to the municipal level. The OTB created an avenue for the municipalities to transfer services and projects to communities. The Law of Popular Participation conceived of OTBs as the formalization of a diverse array of already-existing small-scale groups and associations, such as block associations in urban areas and indigenous organizations in rural areas (Kohl 2003a, b). In the case of the northern Bolivian Amazon, however, the OTBs were new associations, as most communities had no formal bodies for self-organization prior to the passing of the Law of Popular Participation. Thus, communities were rising to the challenge of creating roles and processes for managing the everyday conflicts and chores of living in a shared space. The establishment of OTBs formalized these nascent institutions.

This paper presents two case studies of Brazil-nut-collecting communities in the northern Bolivian Amazon confronting the challenge of self-governance within the context of these legal reforms. As the communities managed Brazil nuts on communally held land, I use a common property institutional framework (following Ostrom and others) to analyze their institutional development. The Law of Popular Participation provided a basic structure for these nascent institutions: they had to have an OTB. What constituted the OTB, how they would choose officers of the OTB, who was considered a ‘member,’ and the scope and processes of the OTB were not prescribed. The two communities (described in more detail in a later section) differed

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⁸ Bolivia is administratively divided into nine Departments. The Departments are divided into provinces, which are further divided into sections and municipalities. The main sub-national government powers reside at the departmental and municipality levels. The Law of Popular Participation was seen to favor municipal governments over departmental governments, as it increased the role of municipal governments in administering government money and services.
substantially in their social organization and in their members’ life histories, offering an opportunity to examine how these different characteristics affected their institutional development.

Scholarship on common property and common-pool resource institutions was one of the intellectual foundations for promoting decentralized environmental governance (Agrawal 2003; Lemos & Agrawal 2006). By pointing out that local groups can successfully self-organize to manage natural resources, scholars have shown evidence that there are other institutions, beside the state or the market, that can regulate use of natural resources. Ostrom’s influential theory of common property institutions outlines how users of common pool resources have overcome free riders and other challenges to sustainable management (Ostrom 1990; Ostrom 2005). While acknowledging that the model of Hardin’s “tragedy of the commons” can hold true for some situations (Hardin 1968), Ostrom rejects the notion that this model is a prescription for the fate of all common pool resources. Rather, Ostrom insists that Hardin’s tragedy of the commons refers to open-access resources without institutions to regulate their use. User groups throughout history have successfully devised rules and processes to create an incentive structure that does not lead to the degradation of a common pool resource (Ostrom 1990; Ostrom 2005).

In the context of widespread decentralization, Ostrom’s framework becomes more germane than ever before as more and more local user groups are charged with managing commonly held natural resources. Although the archetypical common property institution is one that has evolved over long periods (i.e., decades, or even centuries), these user groups must create institutions, sometimes from scratch, to meet the challenge of their new, shared responsibilities. In the following sections, I further explore common property theory, introduce two Bolivian communities confronting this challenge, and follow with an analysis of these
communities’ institutional development and how their specific social contexts shaped this process.

**Common Property Institutions**

Since the publication of Ostrom’s *Governing the Commons* (1990), a large body of research has focused on identifying facilitating conditions for successful common pool resource management. Ostrom’s original thesis refuted the idea that commonly held resources were tragically fated to be over-exploited, but instead posited that certain facilitating conditions enabled sustainable use of common pool resources (Ostrom 1990). These different conditions related to the characteristics of the managed resources, the user group managing the resources, and the political and institutional framework surrounding the use of the resource. Ostrom’s original facilitating conditions include (summarized in Table 4-2): clearly defined boundaries; congruence between appropriation and provision rules and local conditions; collective-choice arrangements; monitoring; graduated sanctions; conflict resolution mechanisms; minimal recognition of rights to organize; nested enterprises. Later researchers have built on the Ostrom’s original research and have examined additional characteristics contributing to the relative success or failure of common property institutions. Other authors (e.g., Agrawal 2001) have summarized this research more fully so I will focus my discussion on the research most relevant to the two communities included in this study. While some consensus has been reached about the characteristics that facilitate successful common property institutions, there are still numerous points of contention (Agrawal 2001; Poteete & Ostrom 2004).

Group size and heterogeneity are two characteristics whose effect on institutional outcomes continues to be debated (Poteete & Ostrom 2004). Some argue that, in the case of too small a user group, per-capita costs are too high to maintain the collective action necessary for forming an institution to manage a common property resource (Esteban & Ray 2001). Others
have said that the transaction costs of monitoring, communication, and conflict resolution with too large a group cause common property resource institutions to collapse. The “free rider problem” – that of a person receiving the benefit of the provisioning of a public good (such as the steady supply of a commonly held resource) without having to bear the costs of that provisioning – has been often cited as a reason why too large a group may be less effective at managing a commonly held resource (Olson 1965), cited in Poteete & Ostrom 2004).

Heterogeneity is another characteristic that seems to be most facilitative at an intermediate level. Too homogeneous groups have trouble partitioning the various tasks for maintenance of a successful CPR institution, while creating consensus has been shown to be too burdensome in a highly heterogeneous group (Poteete & Ostrom 2004). Conversely, in a comparative study of nine communities in Bolivia, community heterogeneity has been shown to neither undermine nor support community cohesion (Grootaert & Narayan 2004).

On the other hand, there is no substantial debate surrounding the effect of land tenure security on the success of common property institutions. Tenure security falls under one of Ostrom’s original design principles (the minimal recognition of rights to recognize). Multiple authors have recognized tenure security as a facilitating condition (Agrawal 2001; Agrawal & Ostrom 2001; Banana & Gombya-Ssembajjwe 2000; Tucker 1999). Tenure security acts as a way to simplify some of the dilemmas of commons management; it enables the landholders to constrain the group of people that must be consulted or regulated with regard to resource management (Ellsworth 2002; Tucker 1999). Without tenure security, there is always the possibility that outsiders will infringe upon the resource being managed, undermining the benefit of abiding by the rules of the common property institution. In addition, without tenure security,
the incentive to cooperate is diminished because of the increased possibility of loss of access to
the resource being managed.

The relatively new concept of social capital has also been widely cited as an important
factor for reducing transaction costs and making institutions run more smoothly (Krishna 2004;
Ostrom 2005; Pretty & Smith 2004; Pretty & Ward 2001). The community characteristics (trust,
reciprocity, connectedness, etc.) that contribute to social capital are conducive for highly
functioning common property institutions (Poteete & Ostrom 2004). Communities with high
levels of social capital should be able to reduce the costs of maintaining a common-property
institution by reducing the need for monitoring.

**Study Communities: Traditional vs. Cosmopolitan**

The two communities that participated in the study, Navidad and La Paz⁹, were selected
based on their similarity in size, their location in the same municipality (El Sena), and their
former experience working with the Center for International Forestry Research (CIFOR), my
main institutional partner. The two communities were emblematic of two sides of a spectrum of
community characteristics. One community, La Paz, was “traditional:” it was more
homogeneous; kinship relations were very important for their social organization; 70% of its
household heads were long-term residents. This community closely resembled an archetype, or
even a stereotype, of a rural community of the developing world: closed, homogeneous, and
dominated by kinship relations. Navidad was more “cosmopolitan” in its heterogeneity, its
members’ experiences of migration, and the minimal importance of kinship for organization.

It is important to clarify my meaning in employing these archetypes of “cosmopolitan” and
“traditional” to describe the communities. These characterizations should not imply that I am

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⁹ I have changed all community names as well as personal names to protect the anonymity of the individuals who participated in my study.
presuming that either community is unified or monolithic in its beliefs, politics, or interests. Much scholarship has aimed to explode the mistaken idea that small rural communities can be considered as a unified whole, and I do not aim to undermine this work (i.e., (Agrawal & Gibson 1999). While both communities were small and membership was defined by their shared geography and livelihoods, both had significant conflicts and divisions. These labels of “traditional” and “cosmopolitan” serve simply as shorthand to encapsulate some of the differences in their community-level characteristics, as well as to facilitate the generation of expectations regarding their institutional development.

Table 4-1 summarizes the main characteristics of each community, comparing the communities based on the size of the population, the means of access, the travel time to the municipal center, the importance of kinship, the communities’ neighbors, the tenure arrangements relating to Brazil nuts, and the life histories of the community members. La Paz’s ‘traditional’ characteristics included its relative inaccessibility, the dominance of kinship relations, and its residents’ relative lack of experience outside the community. Navidad was cosmopolitan in its proximity to the municipal center, the relative unimportance in kinship for organization, and its residents’ varied life histories and experiences outside the community. Navidad and La Paz were of comparable size (29 and 27 heads of household respectively; 77 and 90 total residents). Brazil nut collection was the primary source of income for all households except for one headed by a carpenter. Both communities had similar age structures: children under the age of 16 made up the majority of the population (58% of Navidad’s residents were 16 years old and younger; the proportion for La Paz was 65%). Both communities’ lands had good forest cover, with the majority of the anthropogenic disturbance located close to households, due to agricultural fields. Navidad’s lands included a degraded grassland area, about 10% of their
overall lands, which was not naturally reverting to forest. Navidad lay on a side road off the main highway between El Sena, the municipal seat, and Riberalta. To get to El Sena, there was a road, which took about 2 hours and there was an alternate route by a trail, which took about 1.5 hours by motorcycle. La Paz lay on the Madre de Dios River, about 3 hours by motor boat from El Sena, although most community members traveled by peki-peki, a canoe with a small outboard motor, which more than doubled the travel time.

The communities were very different in terms of the kinship relations in the community and the life history of their residents. One family dominated the make-up of La Paz; all residents except for one couple were related to the community’s founder by either blood or marriage. In addition, the majority of La Paz’s residents (19 of 27 household heads) had lived in the community their entire lives. Only three households in La Paz had substantial experience living elsewhere. In contrast, the majority of Navidad’s residents (18 of 29 household heads) had moved around a lot in their lives, and had lived for some time in one of the region’s urban centers, such as Riberalta, Guayaramerin, or Cobija. Navidad’s kinship relationships were more varied than La Paz’s. Three families dominated the kinship relations of Navidad, but ten of 29 household heads were unrelated to these three families.

Another source of variation between the two communities was the way that they had partitioned community land, especially as it concerned Brazil nut collection, to community members. When asked, Navidad’s residents indicated that their Brazil nut holdings were global, or held in common between the community members. No one resident had the right to exclude another from any area for collecting Brazil nuts within the community lands. In practice, there were a few long-time residents who customarily used one area, or centro. Newer community members tended to move around a lot more and access a greater number of centros when it came
to Brazil nut collection. No one had a proprietary attitude about where to go when hunting, collecting firewood, or making agricultural fields; any community member could hunt or collect firewood anywhere in community lands, and the most important consideration for placing an agricultural field was to take care not to cut down any Brazil nut, rubber, or valuable timber trees.

In contrast, the model for land allocation within La Paz was more individualized. The sons and nephews of the community’s founder each had his own centro, used primarily for collecting Brazil nuts, but they also hunted and made their agricultural fields there. The family of the founder’s daughter and other members of the community were given areas from their mother’s area to make their agricultural field, and also to collect Brazil nuts. One of the founder’s daughters was allowed to collect Brazil nuts from an area in her brother’s centro, but she had to give part of her earnings to her brother. The one couple unrelated to the community’s founder also worked for one of the founder’s six sons. Community members hoped that the increased amount of land they were entitled to under the agrarian reform would enable allocation of centros to every family, including the younger generation just starting their own families.

While La Paz and Navidad were very different, they were both confronting the same challenge of self-governance and incorporation into the governmental apparatus of Bolivia. Before the decentralization reforms, arrival of saneamiento to Pando, and the rise in price for Brazil nuts, these communities existed in a governmental vacuum. Just as the government was mostly absent from their daily lives, so were their experiences and needs mostly absent from the official infrastructure of the Bolivian nation state.

**Methods and Research Focus**

The research aimed to understand how the communities’ institutions for self-governance were developing within this context and how the communities’ characteristics affected their
institutional development. Given the differences between the communities, as described above, the research explored how these differences related to formalization, trust, and conflict in the two communities and their institutions for natural resource management. Group size was not significantly different between the two communities, enabling its uncertain effect on function of common property institutions to be left out of the investigation. In addition, *de jure* land tenure security was essentially the same for the two communities, facilitating a focus on facilitating conditions other than minimal recognition of right to organize.

Under the Law of Popular Participation, the two communities had wide latitude in how they designed their institutions for self-governance and natural resource management. The research aimed to understand how the differences between the communities translated to differences in the form and function of the institutions that they created. In particular, the degree of formalization was investigated. Unlike in Chapter 3, formalization in this case does not necessarily mean sanctioned by the government. Instead, it means organizational features are explicit, named, and part of an understood and acknowledged structure. The specific prediction investigated in the research was: *the ‘cosmopolitan’ community has greater formalization in its organization than the ‘traditional’ community* (Prediction 1).

As described above, trust is an important facilitating condition for common property institutions. Game theory research indicates that higher density of kinship relations and longer membership stability within a community correlates with higher levels of trust between all community members (Barr 2004). The research investigated trust in the two communities as predicted by differences between the two communities in kinship relationships and longevity and stability of community membership. Specifically, I investigated the prediction: *the ‘traditional’*
community (La Paz) displays higher levels of trust than the ‘cosmopolitan’ community (Navidad) (Prediction 2).

Building on the trust information, the research also investigated differences in the communities’ response to conflict, both within and between communities. In Ostrom and others’ work, the response to conflict is often cited as an important determinant of common property institutional functioning. Based on my predictions regarding trust, the second prediction was: due to its higher levels of trust, (Prediction 3).

To explore these expectations and to understand some of the communities’ underlying characteristics outlined above, I conducted semi-structured interviews and held six focus groups (three per community). All male and female heads of household were interviewed using a questionnaire with both closed- and open-ended questions (only one community member refused to be interviewed, n = 55). All interviews were recorded with the permission of the respondent. 53 interviews were recorded: one respondent did not give permission and the other interview was not recorded due to technical difficulties. Interviews lasted between thirty minutes and one hour and a half. Participant observation also yielded important qualitative data. Data were collected between May and August 2006.

I asked residents about the official responsibilities of the community, the regularity and purpose of community meetings, and about the rules that governed their use of natural resources. I included four questions from the World Bank Social Capital Questionnaire to understand some of the issues relating to trust which are so important to successful common property institutions (Grootaert et al. 2004). I also used maps that the communities had created with the guidance of CIFOR, to elicit information about the rules the communities had created regarding access to the forest for Brazil nut collection, hunting, firewood collection, and agriculture. I used the focus
group sessions to clarify the data that I had collected in individual interviews. Focus groups were helpful in verifying the community-level information I had gathered from interviews and through informal inquiry.

Due to time restraints and the relative difficulty of accessing La Paz in comparison to Navidad, I spent much less time in La Paz than in Navidad. In Navidad, I was able to spend a first week with the community collecting only minimal data in a formal way, before beginning my interviews. In La Paz, unfortunately, I began conducting interviews the day after arriving in the community, which meant that respondents were probably less expansive in interviews because I was still relatively unknown at the time of the interviews. In both communities, I benefited from being introduced by a CIFOR employee (Marco Antonio Albornoz) who had previously worked with both communities and was known to them for over two years. It is not possible to determine the specific impact that these different strategies for conducting research had on the data that were collected, but it does mean that I am more confident in the data from Navidad, due to the increased opportunity to establish rapport with the respondents.

**Results**

**Ostrom’s Design Principles and the Two Study Communities**

The situation in the northern Bolivian Amazon provides a stage for the two communities’ different characteristics to play out with respect to their institutional development. In this section, I briefly describe how the two communities’ situations aligned with and differed from the basic eight design principles enumerated by Ostrom’s original research (Ostrom 1990). This information is summarized in Table 4-2. The situation of the study communities aligned with half of the Ostrom’s eight principles.

Both communities had recently been granted *de jure* tenure security. In 2006, Navidad had already received its title, and La Paz was waiting for the official issue of their title. Both
communities had already undergone the formal adjudication process (*saneamiento*) of the 1996 Agrarian reform. The *saneamiento* process had clarified some of the communities’ boundaries and complicated others, but it did provide a common basis for negotiation for both communities and their neighbors (see Chapter 3 for further discussion of *saneamiento*). La Paz’s neighbors did not respect the community boundaries as created by *saneamiento*. On the other hand, Navidad’s neighbors recognized and adhered to the boundaries as delineated by *saneamiento*, although these official boundaries demarcated an area that was significantly smaller than the area Navidad had traditionally accessed.

Brazil nuts, the most important resource accessed by both communities, are easily partitioned spatially. As a long-lived tree species, Brazil nut trees are fixed in space, and the producing, mature population is relatively stable in over time. This means that it is relatively straightforward to separate one resource user group’s trees from another group’s trees. The longevity of the species means that its production is relatively predictable, aiding the management of its use between individuals in a user group. These biological characteristics of Brazil nuts facilitate clarity in managing its use, both within a community and between the community and its neighbors. Whether this potential clarity translates into effective and low-conflict management depends, however, on other factors.

In addition, the decentralization reforms of the mid-1990s formalized user group membership through the designation of legal status (*personalidad jurídica*) to the community as a group (1993). This defined membership in the community at the time and empowered the community to designate new members as the need arose. When asked in focus groups, members from both communities indicated that new membership would be granted after an initial trial period (ranging from 1-3 years). The decision to extend membership would need to be agreed
upon by the whole community, although no specifics were given as to the process for determining agreement. So, both Navidad and La Paz’s situation corresponded, albeit with reservations, to rules 1, 2, and 7: clearly defined boundaries, congruence between management and the resource, and formal recognition of rights to organize.

As mentioned earlier, the Popular Participation law also required the communities to create formal organizational bodies in addition to acquiring legal status. These Grassroots Territorial Organizations (Organizaciones Territoriales de Base – OTBs) provided a sanctioned platform for decision-making within communities. While there was no provision for the processes by which communities came to decisions, the entirety of the community was included in the OTB, implying every community member’s right to participate in the process. The OTBs were a forum for changing rules about resource management in the community, corresponding with rule 3: those affected by the operational rules can participate in modifying these rules.

Ostrom also observed that successful common property institutions had monitoring systems to enforce rules, graduated sanctions to discourage rule-breaking, access to conflict resolution services, and nested enterprises at higher hierarchical levels that reinforced the facilitating conditions at the user-group level. La Paz and Navidad’s situation did not conform to these design principles. Neither community had set up a formal monitoring program, nor did any respondent mention having monitored on their own initiative. While both communities threatened sanctions against rule-breakers, specific rule-breakers were not identified and so sanctioning was impossible. Similarly, both communities lacked conflict-resolution mechanisms. While each community’s response to conflict with their neighbors differed (see following section), neither community had developed official avenues for managing conflict within the community. At the higher hierarchical level of the communities’ relations with their neighbors,
there were no official mechanisms in place for addressing inter-community conflict. Under the new Agrarian Reform, communities should have enjoyed access to a federal-level tribunal to handle land conflicts following saneamiento, but the financial and logistical costs of accessing this court were too high for the communities. In addition, the municipal-level government preferred that the communities work differences out between themselves; the communities I encountered in El Sena seemed to share this view and did not seem inclined to include the government in dispute resolution. Beyond the government, there was a newly organized union of Brazil nut gatherers (COINACAPA), but no residents in La Paz or Navidad were members at the time of the research. To summarize, the two communities’ situations did not adhere to principles 4, 5, 6, or 8: they had not established a monitoring system; no sanctions were regularly applied, neither were they systematically graduated with repeated offence; finally, La Paz and Navidad were not nested within a larger-scale organization with structures that reinforced their institutional arrangements.

**Community Organization**

The research aimed to understand the structure and processes of the two communities’ institutions for self-governance. As the registration of an OTB was a requirement of the Law of Popular Participation, I began with asking about the OTB, the frequency and regularity of meetings, and the timing and regularity of elections of the people who served as officials of the OTB. Then I asked about other types of community organizations and the officials that served as part of these. I asked respondents to name all the positions of responsibility held in the community.

There were very striking differences between the two communities with regard to formalized organization, as expected. Navidad had three organizations other than the OTB (the parent-teacher association, the women’s group, and the electricity cooperative), while La Paz
only had the OTB and the parent-teacher association (called Junta Escolar). Moreover, there were eight additional positions named by Navidad’s residents that were not clearly affiliated with one of the four organizations in the community.

Navidad’s officials also stood for election more often than La Paz’s. In 2006, La Paz’s then-present community president had held the position for 8 years. There had not been elections, and there was a lack of individuals in the community interested in taking over as president. Navidad’s residents also lacked interest in the position of community president, although there were more regular elections. In the last six years, Navidad had seen three different presidents. The president in June 2006, Don Jaime, had come into office a year and a half previously, when the individual who had been elected to presidency resigned his office due to lack of time. At that time, Don Jaime was the only person in the community who could be convinced to fill the position.

Overall, Navidad had developed a more intricate and formal system than La Paz. When compiled over all respondents, Navidad’s residents named a total of 26 different positions (see Table 4-3), in comparison to 9 named by La Paz’s residents (see Table 4-4). Some examples of positions included the president of the OTB, the treasurer, but also the official midwife (Matrona/Partera), and the person in charge of the community’s little store of drugs (Responsable de Salud). Navidad’s residents on average named almost twice as many positions of responsibility (9.3) within the community as did La Paz’s residents (4.7). Also, when comparing the percentage response for each position named, all of La Paz’s positions were named by a lower percentage of respondents than Navidad’s, indicating that Navidad’s residents

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10 All respondents will be referred to with pseudonyms to protect their anonymity.
shared the knowledge of their community’s organizational structure more fully than did La Paz’s (see Figure 4-1).

Trust and Reciprocity

As mentioned before, I used four questions from the World Bank questionnaire on social capital to get at issues of trust and reciprocity, which have been shown in the literature to be beneficial to the running of common property institutions. Contrary to expectations, the two communities exhibited similarly high levels of trust, and respondents in both communities responded similarly. The results are summarized in Figure 4-2 for the following series of questions.

Do you agree, disagree, or neither agree nor disagree with the following statements:

1. The majority of people in the community are trustworthy.
2. The majority of people in the community are ready to help if necessary.
3. People in this community generally do not trust one another in terms of borrowing and lending money.

For statements 1 and 2, the results were overwhelmingly positive: 86% of Navidad’s residents and 85% of respondents from La Paz, agreed with statement 1; 97% of Navidad’s and 92% of La Paz’s residents indicated they agreed with statement 2. For question 3, the results were more mixed. 52% of Navidad’s respondents agreed, compared with 46% of La Paz’s residents. When I presented preliminary results to the communities before leaving the region in 2006, people in both communities indicated to me that the mixed response reflected the fact that trust with respect to borrowing and lending money is more defined on a case-by-case basis. No statistically significant difference between the communities’ responses to all three questions was determined with a Chi-squared test (p-values > 0.1).

The other questions included from the World Bank Social Capital questionnaire generated similar results: respondents from both communities indicated similarly high levels of trust. In
response to the question, “Do you think that over the last five years, the level of trust in this community has gotten better, worse, or stayed about the same?” the vast majority responded positively. 69% of respondents in La Paz and 79% of respondents in Navidad indicated that the levels of trust had increased. Only one respondent indicated that they believed the levels of trust had decreased.

I included another set of questions from the World Bank questionnaire to further understand about reciprocity and solidarity in the communities. One question read,

If a community project does not directly benefit you, but has benefits for many others the village/neighborhood, would you contribute time or money to the project?

In both communities, the vast majority of respondents indicated that they would help with both time and money. In La Paz, 92% of the respondents indicated they would help with their time, and 65% with their money. In Navidad, 83% of heads of household would help with both time and money. A more nuanced result was garnered from response to the closed-ended question, how much do people in your community help one another these days? The majority responded “always” or “most of the time” (59% of responses from Navidad and 58% from La Paz). Only one respondent from each community responded “never.” The largest single response from both communities, however, was “sometimes” (38% for both communities), a less unequivocally halcyon view of the communities. Again, the responses were not significantly different between communities (Chi-squared test, p > 0). Community responses to this question are summarized for the two communities in Figure 4-3.

I also asked what would happen if someone in the community were to become very sick. In both communities, the majority of respondents told me that the community would respond as a whole if there were a serious illness. The president of the OTB would start a collection for that family, to help them get to Riberalta or Cobija for treatment. In Navidad, Don Andre’s daughter
had died of cancer the year before. The president at the time had started a collection for the family, to help with travel expenses while the girl was getting treatment. Similarly, in La Paz, when Don Sebastian, one of the founder’s sons, was very sick, the president had made a collection from the community to help his family with expenses. I was not able to determine if there had been any help given to Don Valerio, in La Paz, when his father was sick and taking care of him had prevented him from harvesting as many Brazil nuts during the season as usual.

Response to Conflict

Both communities had experienced conflict within the communities and with neighboring communities during the previous Brazil nut harvesting season. One manifestation of this conflict was the high percentage of reported robberies of Brazil nuts. In Navidad, 38% of respondents reported suffering theft of Brazil nuts, whether from a bag left on a trail, or from a storage location. The quantity stolen was between 1 and 50 cajas\(^{11}\) (the average household sold between 100 and 300 cajas a year). The rate of reported theft was much higher in La Paz; 69% of the respondents reported Brazil nut thefts in the previous year, ranging in quantity from 2 to 100 cajas.

Both communities struggled with a way to address these thefts. The instances of thefts that were most troubling were those that threw suspicion on other community members. In both communities there was a suspicion that the community’s teenaged boys were responsible for some of the smaller instances of theft. There was no way, however to determine who was responsible for these or any other of the thefts. In another case of theft, in Navidad, a few bags of Brazil nuts were stolen out of a storage structure in the forest. This was a much more serious

\(^{11}\) A caja is the unit of measurement for the sale of Brazil nuts by communities to middlemen, usually measured by volume, but equaling about 22 kg. The price per caja was about 100 Bolivianos, or about $12.50 in 2005 (CIFOR 2005).
crime as those bags had already been promised as payment to an itinerant merchant. One of the community members burned a patron saint candle in an effort to discover who was responsible for the theft. The candle ‘indicated’ another community member, but as he denied responsibility, there was no way to resolve this conflict, and the accusations subsided into suspicion.

Similarly, in La Paz, thefts of Brazil nuts between community members generated a lot of suspicion, but there was nothing concrete anyone could do without knowing who was responsible. The president threatened to call in government agents from the municipality to force community members to comply with the rules and to root out any thieves. The president never followed through on this threat.

The greater problem for some of La Paz’s residents was the stealing of Brazil nuts from their *centros* by outsiders. The households that suffered the greatest amount of loss were those that came to their *centros* and found that the fruits had already been opened and the nuts taken away. Two households in particular suffered from this problem, both of whose *centros* were on the outskirts of the community lands. On one side, Don Valerio’s *centro* was accessed by a resident of the neighboring community, Puerto Rico\(^{12}\). As mentioned previously, Don Valerio’s father had been sick during the last harvesting season and so Don Valerio was less able to exert his right to collect in that *centro*. Neither Don Valerio nor his wife expressed a strategy for addressing this conflict. Both seemed resigned to the fact that they would be competing with *comunarios* from Puerto Rico in the following harvest as well. On the southwest side of the La Paz’s lands, seasonal workers from the *barraca* Triunfo had accessed Don Ernesto’s *centro*, which bordered Triunfo’s lands. Don Ernesto indicated that he would be contacting the Triunfo’s patron to see if there was a way to keep the seasonal workers from entering their *centro*. They

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\(^{12}\) Puerto Rico is a pseudonym. All communities, individuals, and entities throughout the thesis are referred to with pseudonyms to protect respondents’ anonymity.
had had an agreement in the past about the lands that Don Ernesto counted as his centro, and Don Ernesto was confident that they could reach some kind of an agreement with Triunfo’s patron.

Navidad also encountered conflict with its neighbors due to problems with the land adjudication process associated with the Agrarian Reform. The lands that Navidad traditionally accessed were much larger than the lands granted them in the adjudication process: their titled land totaled 4065 hectares, while the traditional access area was estimated at 6400 hectares (Albornoz 2007). These discrepancies were not appreciated until after Navidad had begun to work with CIFOR and could understand the implications of the maps that they were given by the agents of the Agrarian Reform. Three out of six of their traditional Brazil nut collection centers lay outside their titled polygon. Navidad responded to this change in access by negotiating with their Eastern neighbor for access rights to one of these centros for one of Navidad’s long-term residents for one year. This household hoped to negotiate again for the following harvest.

There was also a problem with boundary placement during the adjudication process. For example, Navidad’s northern boundary with the indigenous community of Santa Elena was customarily a stream. When the INRA contractors came and delimited their community lands, however, the stream boundary was represented as a straight line between two points near the stream, which included some land to the north of the stream. Thus, after adjudication, the community legally held rights to lands to the north of the stream. During the following year’s Brazil nut harvest, a few of Navidad’s residents crossed the stream to collect Brazil nuts. The people of Santa Elena, their northern neighbor, did not believe that they had the right to do so. Navidad responded by holding community meetings almost once a week for a couple of months to strategize about how to deal with this conflict with Santa Elena. Eventually Santa Elena
accepted the government boundaries and conflict was more or less contained between the two communities.

Navidad benefited from its association with CIFOR in responding to conflict. The community petitioned CIFOR to facilitate a participatory mapping effort to plot each Brazil nut tree on their land. CIFOR had developed this methodology in another community in El Sena municipality as a way to manage conflict within the community and to increase tenure security.

When I was in Navidad in July 2006, they had just finished the labor-intensive project to map each of their Brazil nut trees. Part of the methodology included putting a plaque on each tree, claiming the tree for Navidad – a practice that could possibly serve as a “no trespassing” sign for outsiders and reduce conflict with their neighbors. The community also hoped that the increased knowledge that the map provided them would enable them to create strategies for managing conflict over Brazil nuts within their community.

The two communities’ responses to conflict did not differ as expected, in part because the expected differences in levels of trust (Prediction 2) were not found. La Paz, the more ‘traditional’ community, did not respond to conflict with more unity than did Navidad, the more heterogeneous and ‘cosmopolitan’ community. When responding to conflict within their own communities, neither community had yet discovered a successful strategy and neither community responded with unity. Although Navidad’s residents indicated that they hoped that the mapping exercise they were undertaking would provide a means to better manage intra-community conflict in the future. When responding to conflict with their neighbors, however, Navidad was more unified in its response than La Paz. The households in La Paz that were involved in the conflicts with neighbors felt that they had to handle these conflicts on their own.
Discussion

How did the characteristics of these two very different communities affect the development of their institutions for self-governance? How did the situations of the two communities compare with the expectations based on the literature?

As expected, Navidad had developed a more formalized institution for self-governance than did La Paz. With more than a third of the community’s heads of household unlinked to any other family, Navidad could not rely on kinship relations alone for organization. Some of this increased formalization can also be understood in terms of the previous experiences of the community members. The vast majority of the community had extensive life experience elsewhere. About half of the community members lived at some point in a major regional city (either Riberalta or Cobija), and so had expectations about government services that they then recreated in Navidad. Also, because so many of Navidad’s members had recently joined the community, there was a real need to have agreed-upon formal structures and processes because there was less time to develop expectations about how to behave.

La Paz, as expected, had developed a less formalized institutional structure than Navidad. With all but two head of household closely related family or married into the family, creating official positions for the responsibilities of living in a shared place was unnecessary, and may have even seemed silly. For example, there is no need to give an aunt, sister, or wife an official title as “midwife” when everyone just knows that that aunt, sister, or wife is the one that knows the most about midwifery. In addition, only three community members had significant experience living outside the community, which might have limited their expectations of what shared responsibilities should be formalized. La Paz had minimal formalization, just what was required by the Law of Popular Participation and the school: the OTB and the parent-teacher association.
An unexpected outcome was the similar results regarding trust and reciprocity in both communities. I operationalized this variable by including parts relating to trust from the World Bank’s social capital questionnaire in my interview instrument (Grootaert et al. 2004). Although the measurement strategy for this variable was coarse, it was unexpected that a relatively heterogeneous community (Navidad), with about half of its members newly joined, would demonstrate comparably high levels of trust as one with long-standing relationships, very little change in membership, and highly dominated by kinship relations (La Paz).

The third question, that the more traditional community would be more unified in its response to conflict, was also unsupported, in part because of the similar levels of trust found in the two communities. This unexpected result can possibly be explained by the differences in tenure arrangements between the two communities. The conflicts described above were mostly related to tenure and resource security. La Paz’s model for tenure arrangements was more individualized, while Navidad’s tenure arrangements were more communal. Because of this individualized property model, the residents of La Paz that were involved in conflicts with the neighboring community and barraca were not supported by the rest of the community in trying to resolve their conflicts. These problems were their own, and not the community’s as a whole. On the other hand, in Navidad, since the community firmly felt that the lands were theirs in common, they responded as a community to conflicts with neighbors.

Another possible explanation for this unexpected result was the dominance of kinship relations in La Paz. Many of La Paz’s residents told me that everything was fine in the community because it was “pura familia,” or pure family. Perhaps conflict was difficult to address within the community because everyone in the community expected that they should get
along, which made it difficult or embarrassing to admit that there were problems, and rendered it impossible to address problems that did arise.

The above results suggest that valued community-level characteristics, including trust and reciprocity, can be created through recently established local institutions. La Paz’s high levels of trust and reciprocity are expected and can be attributed to the strength of kinship relations and long-term stability of community membership. On the other hand, the high levels of trust found in Navidad, could be attributed to the highly functioning local institutional framework that Navidad’s residents had established.

**Conclusion**

La Paz and Navidad, and the other newly recognized communities in the northern Bolivian Amazon were confronting a difficult challenge in creating, from scratch, institutions for self-governance. These community members were taking on responsibilities for making the communities run and responding to challenges to the communities’ ability to do so in the future. Overall, in a short period of time, La Paz and Navidad had creatively developed systems for running their communities. Navidad had even begun to address some of the tenure security problems that threatened their main source of livelihood: Brazil nut collection.

Although the communities had made great strides, there were still some outstanding issues. The literature, as well as the experiences of these two communities, suggest modifications to their institutional structure that could make these communities more viable and also a few services that the government should provide to promote better institutional development.

Conflict, both within the communities and with their neighbors, was a serious problem in both La Paz and Navidad. Navidad had successfully managed two conflicts with neighboring communities, while La Paz’s residents were struggling to manage their own conflicts.
Neither community had come up with a way to deal with accusations of Brazil nut theft between community members. Ostrom’s design principles point to the importance of monitoring and graduated sanctions for the success of a common property institution (Ostrom 1990). While La Paz’s president had threatened sanctions, there was no way to follow through on these sanctions because of the lack of knowledge about who was responsible for the thefts. Monitoring would perhaps be able to solve this issue. If communities instituted a rotating monitoring position, thefts would perhaps be discouraged and if a theft occurred, there would be a greater chance that the thief would be identified. However, there remains the issue that community members in both La Paz and Navidad were already reluctant to take on community-level responsibilities. Since monitoring would take place during the height of the Brazil nut harvest, and therefore monitoring may represent an opportunity cost to the collection of Brazil nuts for sale, some kind of monetary incentive would be necessary for the monitors.

With regard to conflicts between communities and their neighbors, Ostrom’s design principle of nested enterprises responds to this difficulty. At the moment, there is no higher organization that is active and present in the region that can serve to help arbitrate or mediate these conflicts between communities, and to enforce the outcomes. While Navidad has made some strides to deal with conflicts with its neighbors, there is no outside authority that can compel either party to abide by the agreements that they have come to on their own. The municipal level government could perhaps provide conflict resolution services for communities. Another option would be an association of Brazil nut gathering communities that could serve as a convener for mediation or as support when communities are in conflict with barracas.

The greatest obstacle to the adoption of these recommendations is lack of human and financial capital. Within the communities, the burden of performing community responsibilities
is already heavy, and residents do not want to take on these tasks, as evidenced by the dearth of candidates for the post of president in both communities. Municipal government was already overburdened with the new responsibilities devolved to them by the decentralization reforms. While the new finances available due to the Law of Popular Participation have already created new opportunities in the region, the first priority for the government is improving physical infrastructure such as schools, artesian wells, and diesel-powered generators. Perhaps conflict resolution services can be the next investment.

Decentralization has regularized several aspects of institutions for self-governance in these communities but has not necessarily realized the expected benefits, in terms of transparency and appropriateness of government services that proponents of decentralization tout. Decentralization in the northern Bolivian Amazon, as represented by the Law of Popular Participation and the Agrarian Reform, has mostly served to impose requirements on the communities in order for them to receive already established government services, but has not been responsive to or proactive in discovering the needs of communities. Decentralization policy represented an opportunity in the northern Bolivian Amazon, but an opportunity that did not realize its full potential.
<table>
<thead>
<tr>
<th>Characteristics</th>
<th>NAVIDAD</th>
<th>LA PAZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>77; 29 heads of household (about 16 households)</td>
<td>90; 27 heads of household (about 15 households)</td>
</tr>
<tr>
<td>Means of access</td>
<td>road</td>
<td>river</td>
</tr>
<tr>
<td>Number of hours to El Sena</td>
<td>1.5 by trail on a motorbike, 2 by road in a car or truck</td>
<td>3 by motorboat, 6-7 by peki-peki (canoe with outboard motor)</td>
</tr>
<tr>
<td>Kinship relations</td>
<td>more diverse, although dominated by three principal families</td>
<td>more uniform: all community members related, except for one couple</td>
</tr>
<tr>
<td>Neighbors</td>
<td>surrounded by communities, indigenous and <em>campesino</em></td>
<td>bordered by a barraca, Triunfo, and by Puerto Rico, a <em>campesino</em> community</td>
</tr>
<tr>
<td>Tenure arrangement with respect to Brazil nuts</td>
<td>quasi open access for community members; some long-time residents had traditional collecting areas</td>
<td>each male of the main family has an area, females of this family must work within their mother’s area</td>
</tr>
<tr>
<td>Life histories</td>
<td>varied experiences outside the community at <em>barracas</em> and urban centers</td>
<td>all but three households had spent entire life in community</td>
</tr>
</tbody>
</table>
Table 4-2. Design principles illustrated by long-enduring common property resource (CPR) institutions

<table>
<thead>
<tr>
<th>Rule</th>
<th>Navisión &amp; La Paz</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Clearly defined boundaries</td>
<td>✓</td>
</tr>
<tr>
<td>Individuals or households who have rights to withdraw resource units from the CPR must be clearly defined, as much the boundaries of the CPR itself.</td>
<td></td>
</tr>
<tr>
<td>2. Congruence between appropriation and provision rules and local conditions</td>
<td>✓</td>
</tr>
<tr>
<td>Appropriation rules restricting time, place, technology, and/or quantity of resource units are related to local conditions and to provision rules requiring labor, material, and/or money.</td>
<td></td>
</tr>
<tr>
<td>3. Collective-choice arrangements</td>
<td>✓</td>
</tr>
<tr>
<td>Most individuals affected by the operational rules can participate in modifying the operational rules.</td>
<td></td>
</tr>
<tr>
<td>4. Monitoring</td>
<td>X</td>
</tr>
<tr>
<td>Monitors, who actively audit CPR conditions and appropriator behavior, are accountable to the appropriators or are the appropriators.</td>
<td></td>
</tr>
<tr>
<td>5. Graduated sanctions</td>
<td>X</td>
</tr>
<tr>
<td>Appropriators who violate operational rules are likely to be assessed graduated sanctions (depending on the seriousness and context of the offense) by other appropriators, by officials accountable to these appropriators, or by both.</td>
<td></td>
</tr>
<tr>
<td>6. Conflict-resolution mechanisms</td>
<td>X</td>
</tr>
<tr>
<td>Appropriators and their officials have rapid access to low-cost local arenas to resolve conflicts among appropriators or between appropriators and officials.</td>
<td></td>
</tr>
<tr>
<td>7. Minimal recognition of rights to organize</td>
<td>✓</td>
</tr>
<tr>
<td>The rights of appropriators to devise their own institutions are not challenged by external governmental authorities.</td>
<td></td>
</tr>
<tr>
<td>8. Nested enterprises</td>
<td>X</td>
</tr>
<tr>
<td>Appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organized in multiple layers of nested enterprises.</td>
<td></td>
</tr>
</tbody>
</table>

Note: Recreated from Ostrom (1990), p. 90, with indication of how the two case study communities adhered to or differed from these principles.
<table>
<thead>
<tr>
<th>Position name</th>
<th>Description of responsibility</th>
<th>Frequency</th>
<th>Respondent percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OTB</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Presidente</td>
<td>president of the community</td>
<td>29</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>alerted the community about</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Vocal</td>
<td>community meetings</td>
<td>28</td>
<td>97</td>
</tr>
<tr>
<td>3 Vise-presidente</td>
<td>took notes and drafted</td>
<td>25</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>official documents for the</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Secretario, OTB</td>
<td>OTB</td>
<td>22</td>
<td>76</td>
</tr>
<tr>
<td>5 Tesorero</td>
<td>treasurer of the OTB</td>
<td>21</td>
<td>72</td>
</tr>
<tr>
<td><strong>PTA</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Presidente, Junta Escolar</td>
<td>president of the parent-teacher association</td>
<td>24</td>
<td>83</td>
</tr>
<tr>
<td>7 Secretario, Junta Escolar</td>
<td>took notes for the parent-teacher association</td>
<td>13</td>
<td>45</td>
</tr>
<tr>
<td>8 VP, Junta Escolar</td>
<td>vice president of the parent-teacher association</td>
<td>7</td>
<td>24</td>
</tr>
<tr>
<td><strong>Health</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Responsable de Salud</td>
<td>kept and administered the</td>
<td>28</td>
<td>97</td>
</tr>
<tr>
<td></td>
<td>government-sponsored health kit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Matrona</td>
<td>official mid-wife</td>
<td>12</td>
<td>41</td>
</tr>
<tr>
<td>11 Responsable de Malaria</td>
<td>administered malarial drugs</td>
<td>11</td>
<td>38</td>
</tr>
<tr>
<td><strong>Leisure/Religion</strong></td>
<td>men’s sports secretary:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 Secretario de Deportes – Varones</td>
<td>organized uniforms and kept sports trophies</td>
<td>14</td>
<td>48</td>
</tr>
<tr>
<td>13 Secretaria de Deportes – Damas</td>
<td>women’s sport secretary led religious gatherings on Sunday</td>
<td>6</td>
<td>21</td>
</tr>
<tr>
<td>14 Líder Religioso</td>
<td>led religious gatherings on</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Sunday</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Women’s Club</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Position</td>
<td>Responsibilities</td>
<td>Frequency</td>
<td>Percentage</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
<td>-----------</td>
<td>------------</td>
</tr>
<tr>
<td>Presidenta, Club de Madres</td>
<td>women’s group president</td>
<td>15</td>
<td>52</td>
</tr>
<tr>
<td>Secretaria, Club de Madres</td>
<td>took notes for the women’s group</td>
<td>15</td>
<td>52</td>
</tr>
<tr>
<td>VP, Club de Madres</td>
<td>vice president of the women’s group</td>
<td>9</td>
<td>31</td>
</tr>
<tr>
<td>Vocal, Club de Madres</td>
<td>alerted the women’s club members about meetings</td>
<td>7</td>
<td>24</td>
</tr>
<tr>
<td>Tesorera, Club de Madres</td>
<td>treasurer for the women’s group</td>
<td>6</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td><strong>Infrastructure</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secretario de Tierra y Territorio</td>
<td>dealt with issues relating to the community’s land &amp; title</td>
<td>6</td>
<td>21</td>
</tr>
<tr>
<td>Presidente, Cooperativa de la Luz</td>
<td>dealt with organizational details for the community’s generator</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>Secretario, Cooperativa de la Luz</td>
<td>took notes relating to the community’s generator</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Vocal, Cooperativa de la Luz</td>
<td>called meetings relating to the community’s generator</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Motorista, Cooperativa de la Luz</td>
<td>responsible for maintaining and operating the community’s generator</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Tesorero, Cooperativa de la Luz</td>
<td>treasurer for the community’s generator</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Secretario de Conflictos</td>
<td>conflict secretary</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>VP, Cooperativa de la Luz</td>
<td>vice president for the community’s generator</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: The frequency column reports how many times the position was mentioned. The respondent percentage column indicates what percentage of the total number of respondents mentioned that position. Positions of responsibility are reported here in the original Spanish, with descriptions in English.
Table 4-4. Positions of responsibility in La Paz.

<table>
<thead>
<tr>
<th>Position name</th>
<th>Position description</th>
<th>Frequency</th>
<th>Respondent percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>OTB</td>
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<td></td>
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</tr>
<tr>
<td>1 Presidente</td>
<td>president of the community</td>
<td>27</td>
<td>100</td>
</tr>
<tr>
<td>2 Secretaria de la OTB</td>
<td>took notes and drafted official documents for the community’s OTB vice president of the community</td>
<td>20</td>
<td>83</td>
</tr>
<tr>
<td>3 Vise-presidente</td>
<td>vice president of the community</td>
<td>14</td>
<td>58</td>
</tr>
<tr>
<td>4 Vocal de la OTB</td>
<td>alerted the community about OTB meetings</td>
<td>12</td>
<td>50</td>
</tr>
<tr>
<td>5 Tesorera de la OTB</td>
<td>treasurer of the OTB</td>
<td>4</td>
<td>17</td>
</tr>
<tr>
<td>Health</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Responsable de Salud</td>
<td>kept and administered the government-sponsored health kit</td>
<td>12</td>
<td>50</td>
</tr>
<tr>
<td>PTA</td>
<td></td>
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<tr>
<td>7 Presidente de la Junta</td>
<td>president of the parent-teacher association</td>
<td>21</td>
<td>88</td>
</tr>
<tr>
<td>8 Secretario de la Junta</td>
<td>took notes for the parent-teacher association</td>
<td>17</td>
<td>71</td>
</tr>
<tr>
<td>9 Tesorera de la Junta</td>
<td>treasurer of the parent-teacher association</td>
<td>8</td>
<td>33</td>
</tr>
<tr>
<td>10 Vocal de la Junta</td>
<td>alerted the community about meetings of the parent-teacher association</td>
<td>5</td>
<td>21</td>
</tr>
</tbody>
</table>

Note: The frequency column reports how many times the position was mentioned. The respondent percentage column indicates what percentage of the total number of respondents mentioned that position. Positions of responsibility are reported here in the original Spanish, with descriptions in English.
Figure 4-1. Comparing both communities’ official positions by frequency of mention. Each point represents a community position named in one of the two communities. The positions are ranked by the number of respondents that named them. The Navidad’s line is higher than La Paz, indicating that each position was mentioned by more respondents in Navidad than in La Paz.
Figure 4-2. Comparing response percentages by community regarding trust. No difference between the two communities was evidenced by their responses to a series of closed-ended questions relating to trust and reciprocity within the community. A Chi-squared test showed that there was no significant difference between the two communities with regard to the answers to all three questions (p-value > 0.1).
Figure 4-3. Comparing response percentages by community regarding reciprocity. The closed-ended question about reciprocity and solidarity asked was, “how much do people in your community help one another these days?” No difference in responses was evidenced between the two communities. A Chi-squared test showed that there was no significant difference between the two communities with regard to the answers to all three questions (p-value > 0.1).
CHAPTER 5
CONCLUSION

This research examined the interplay between locally developed institutions – for land tenure, self-governance, and natural resource management in the Northern Bolivian Amazon – and forces external to the region: decentralization reforms. Specifically, the research focused on the second agrarian reform (1996a) and the Law of Popular Participation (1993) and how they affected existing land tenure arrangements and nascent institutions for self-governance.

With regard to land tenure arrangements (Chapter 3), I found that community members in the study communities of La Paz and Navidad conceived of resources, rather than the land, as adhering to different tenure models: individualized, communal, or some variant in between. Overlaid on top of these informal ways of controlling land rights was the formalization process of the 1996 agrarian reform. By formalizing land tenure, the Bolivian government aimed to strengthen tenure security for newly independent communities and to ensure that the land was fulfilling its socioeconomic function. The diverse ways that community members conceptualized different resources – separate from the land as territory – were difficult to accommodate in a Western legal framework. Aside from this inherent incompatibility between the informal and the formal tenure systems, however, the formalization process of the agrarian reform was poorly implemented in the case of the study communities and caused as many problems as it solved. Although both communities had the tenure security that comes with formal title to their lands, the formal institutions did not have the capacity or on-the-ground presence to deal with the ongoing, quotidian maintenance of formal land rights. There was a high likelihood that land tenure would revert to being dominated by informal institutions. Overall, I argue that formalization initiatives in developing countries with inadequate capacity should work with
informal systems, finding ways to legitimate strategies that citizens undertake to document land transactions, and providing conflict resolution services where necessary.

The other part of the research was concerned with analyzing the nascent institutions for self-governance in the study communities and the effect of the Law of Popular Participation on their development. The situation in the Northern Bolivian Amazon was somewhat unusual in that decentralization reforms were occurring at the same time that local-level institutions were developing; independent communities had only recently begun to take hold, and most were made up of only recently assembled groups due to massive migrations following the collapse of the rubber economy. I used a common property framework to analyze these new institutions, because common property scholarship provided the main intellectual argument for decentralization (Lemos & Agrawal 2006; Ostrom 1990). The communities’ situations matched up with half of the eight design principles for long-enduring common property resource institutions, which implied some recommendations for the communities and the local government to consider going forward.

Navidad and La Paz, although similar in size and the livelihood strategies of their members, were very different. La Paz closely resembled an archetype of the traditional small rural community: closed, homogeneous, and dominated by kinship relations. Navidad community was its cosmopolitan mirror image: more heterogeneous, kinship relations were relatively unimportant, and about half the members had recently joined the community. This contrast in community characteristics enabled the formulation of expectations relating to their institutional development and function. I predicted that Navidad would have greater formalization in its community organization than La Paz, that La Paz would have higher levels of trust than Navidad, and that La Paz would respond to conflict with more unity than Navidad.
Only the first expectation was upheld. The other two were contradicted. La Paz and Navidad exhibited comparable levels of trust and while both communities struggled in their response to conflict, Navidad responded with a bit more unity than La Paz. Overall, in a short period of time, La Paz and Navidad had creatively designed institutions for running their communities.

In 2006, the Northern Bolivian Amazon was in a period of transition, with growing integration with the rest of the country’s political and economic system. The enhanced services available to independent communities thanks to decentralization reforms represented an opportunity for improving quality of life and self-determination. With the rise of Brazil nut prices and these social improvements, life in a forested landscape became more attractive. With research implicating that peopled forests are more likely to be resist deforestation (Nepstad et al. 2006), making life in the forest more attractive to people should be a priority for conservation and development.
APPENDIX
QUESTIONNAIRE

The same basic questionnaire was used for both communities. The only difference was that in Navidad, I asked questions regarding the participatory mapping being undertaken with CIFOR, while I excluded those questions in La Paz. For the section “Usando el mapa,” I gave the respondent a simplified map of the communities’ lands that I had created, and they indicated on the map for me the answers to the questions. The maps were simplified versions of maps that the communities had created with CIFOR during the Multidisciplinary Landscape Assessment and are the basis for Figures 3-2 and 3-3 (Sheil et al. 2002).

1. Nombre del entrevistado/a: ____________ 3. Edad: ____________
5. Estado Civil: [ ] S [ ] C [ ] Otro ____________
   si no esta casado/a, tiene pareja con quien vive? [ ] Si [ ] No
6. Religión: ______________
7. Quien vive con Usted?

<table>
<thead>
<tr>
<th>Nombre</th>
<th>Edad</th>
<th>Sexo</th>
<th>Parentesco</th>
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<tbody>
<tr>
<td>1.</td>
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<tr>
<td>10.</td>
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</tbody>
</table>
8. Otras personas de la familia que viven en otros lugares?

<table>
<thead>
<tr>
<th>Nombre</th>
<th>Edad</th>
<th>Sexo</th>
<th>Parentesco</th>
<th>Donde están</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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</tbody>
</table>

estaba viviendo aquí permanentemente durante todas las zafra indicadas?   [Sí  No]
durante cuantas zafras estaba aquí solamente durante la zafra? _____
donde pasaba la época de sequía? ________________
desde que año esta aquí permanentemente? ______

10. Cuáles son los productos que extrae del bosque?

☐ castaña   ☐ hierbas medicinales (hacer una lista)
☐ animales (veces cada mes_____)  (veces cada mes_____)  ☐ otros (hacer una lista)
☐ madera
☐ leña (veces cada mes_____)  ☐ otra (veces cada mes_____)  ☐ palmeras (veces cada mes_____)  

**USANDO EL MAPA:**

11. De donde en el área de la comunidad usted colectó CASTAÑA en la zafra pasada y los años anteriores? [indica en el mapa – durante los 5 zafra pasadas, si es posible]
12. Habían otras personas que colectaron castaña en el mismo área en la zafra pasada?
☐ Si ☐ No ☐ No sé
Cuántas?
Quién? ___________________________
¿ellos estaban allí también en los años pasados? _______________________

13. De donde en el área de la comunidad usted colectó LEÑA en el año pasado y los años anteriores? [indica en el mapa – durante los 5 años pasados, si es posible]

14. Habían otras personas que colectaron leña en el mismo área en el año pasado?
☐ Si ☐ No ☐ No sé
Cuántas?
Quién? ___________________________
¿ellos estaban allí también en los años pasados? _______________________

15. Donde en el área de la comunidad usted CAZÓ en el año pasado y los años anteriores? [indica en el mapa – durante los 5 años pasados, si es posible]

16. Habían otras personas que cazaron en el mismo área en el año pasado?
☐ Si ☐ No ☐ No sé
Cuántas?
Quién? ___________________________
¿ellos estaban allí también en los años pasados? _______________________

17. Hay áreas donde no está permitido extraer productos del bosque? [indicar en el mapa]
☐ Si ☐ No ☐ No sé

18. Hay épocas cuando no está permitido extraer productos del bosque?
☐ Si ☐ No ☐ No sé

19. Donde en el territorio comunal está su CHACO? [indicar en el mapa, durante los 5 años pasados, si es posible] y su barbecho?
¿cuáles son las cosas más importantes de tomar en cuenta cuando está ubicando un nuevo chaco?

20. Hay otras reglas o acuerdos pactados (verbalmente) sobre el uso de los productos del bosque?
21. Los demás miembros de la comunidad cumplen estas reglas?
☐ Si, usualmente ☐ de vez en cuando ☐ nunca
¿Puede explicar un poco más?
¿Quiénes son los en que tiene Usted más confianza que ellos van a cumplir con estas reglas?

22. Que pasaría si se encuentra alguien sacando productos del bosque de áreas donde no está permitido?

Esto ya ha pasado? Cuando fue la última vez?

23. ¿Habían conflictos (robos o confrontaciones) sobre castaña en el año pasado?
☐ Si ☐ No ☐ ¿Cuántos? _____
¿Con otras comunidades/vecinas? ¿Con otros comunarios?

24. ¿Cuántas cajas de castaña estima que fueron robadas en el año pasado? ______

25. ¿Cuántas cajas de castaña vendió en el año pasado? ______

26. ¿A quién le vendió la castaña?
☐ comerciante ☐ cooperativa (nombre: _________)
☐ otro
si vendió a más de uno, cuantas cajas vendió Usted en cada manera? [puede dar porcentaje, si es mas fácil]

27. ¿Es un socio de un cooperativa? ☐ Si ☐ No
¿Nombre: ____________________________
¿Hace cuando? ____________________________
¿Hay otros miembros de la comunidad en la cooperativa? ☐ Si ☐ No

28. ¿Qué se necesita hacer para ser socio?

29. ¿Por qué es un socio?

30. De quien consiguió crédito?
☐ Una cooperativa ☐ otro miembro de la comunidad
☐ un empresa (nombre: _________)
☐ comerciante ☐ otro
31. Participó en el mapeo?  □Si    □No

32. Como participó?

33. Por cuanto tiempo participó?

34. ¿Porqué quiso hacer un mapeo de sus castañales?
   ¿Qué opino que va a ganar del mapeo?

35. ¿Qué resultó del mapeo?

36. ¿Hay más o menos conflictos en la comunidad ahora, después del mapeo?
   □Mas  □Menos  □No hay cambio  □No sabe

37. Sabe qué es una Organización Territorial de Base, o OTB? Ha oído sobre OTB?
   □Si    □No

38. Ha formada una OTB en la comunidad? □Si    □No    □No sabe
   hace cuantos años? _______

39. Quién es el dirigente de la OTB por la comunidad? ______________________________
   Hace cuanto tiempo él/ella está con este cargo? _______
40. Tiene otros en la comunidad que ocupa un cargo dirigencial? Cual es sus nombres y cargos? (Presidente, Vise-Presidente, Secretarias de: Salud, Educación, Tierra y Territorio, Recursos Naturales, Conflictos, Hartas, etc.

<table>
<thead>
<tr>
<th>Nombre</th>
<th>Cargo</th>
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<tbody>
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</table>

41. Durante el presente año, cuantas reuniones de OTB tuvieron?  
 cuantas reuniones del dirigencia de la comunidad tuvieron?  

42. Hay otras reuniones en la comunidad?  
 Hacer una lista:  
 Cual es los objetivos?  
 Estas reuniones son regulares? Cuantas veces cada año (o, al menos, en los ultimos 3 meses)?  

43. Asistió a las reuniones?  
 Cuantas?___  

44. Participó en las reuniones?  
 Como?  

45. Cuando la comunidad necesita tomar una decisión, como paso la toma de decisiones?  
 1 La decisión esta tomado de afuera y puesta en practica aquí.  
 2 El dirigente o líder toma la decisión y informa los otros en la comunidad.  
 3 El dirigente o líder pida los comunarios por sus opiniones y después toma la decisión.  
 4 Los comunarios tienen una discusión y toman la decisión juntos.  
 5 Otro (como: ____________________________ )  

46. y para el mapeo, como tomaron ustedes la decisión de hacer el mapeo?
47. En cada comunidad, hay unos que se llevan bien y se confían con los otros, mientras hay otros que no son así. Ahora, quisiera hablar con usted sobre la confianza y la solidaridad en su comunidad. Que opina usted sobre la confianza y la solidaridad en la comunidad?

48. En general, usted está de acuerdo o discrepa con los frases siguientes?
   A. La mayoría de la gente que vive en la comunidad son de confianza.
   B. En esta comunidad, se necesita estar alerta o alguien probablemente va engañarse.
   C. La mayoría de la gente en la comunidad está listo para ayudar si se necesita.
   D. En esta comunidad, la gente en general no se confían en temas de prestar y tomar prestado dinero.

49. En los cinco años pasados, piensa usted que la nivel de confianza en la comunidad ha ido mejor, peor o es igual?
   1 mejor  2 peor  3 igual

50. Y después del principio del proceso del mapeo?
   1 mejor  2 peor  3 igual

51. Cada cuanto ayuda la gente uno a otro dentro de la comunidad hoy en día?
   1 todo el tiempo  2 la mayoría del tiempo  3 de vez en cuando  4 raras veces  5 nunca
   puede explicar mas?

52. Si un proyecto de la comunidad no le beneficiará directamente, pero llevará beneficios para muchos otros en la comunidad, usted contribuiría dinero o tiempo para el proyecto?
   tiempo:  
   dinero:  

53. Tiene algo mas para decirme sobre lo que pregunté?
LIST OF REFERENCES


Albornoz, M. A. 2007. Personal communication. Center for International Forestry Research, Cobija, Bolivia


CIFOR. 2005. Evaluating and Adapting Future Scenarios in Forest-Dependent Communities in the Northern Bolivian Amazon. Center for International Forestry Research - Bolivia (CIFOR), Santa Cruz, Bolivia


Duchelle, A. 2006. Personal communication, Cobija, Bolivia


forestal en el norte amazónico boliviano. Center for International Forestry Research, Jakarta, Indonesia.


INRA. 2006. personal communication, Cobija, Bolivia


Ruiz, S. A. 2005. Institutional change and social conflicts over forest use in the Northern Bolivian Amazon. Institute of Forest and Environmental Policy. University of Freiburg, Freiburg, Germany


BIOGRAPHICAL SKETCH

Although born and raised in urban New York City, Georgina Davie Cullman had a passion for the natural world and a concern for the environment from an early age. This interest found expression in the study of environmental science, which she first studied at the high-school semester program The Mountain School in rural Vermont. Georgina then pursued an undergraduate degree in ecology and evolutionary biology at Yale University, completing a senior thesis on barriers to reforestation in the Panama Canal watershed. Following graduation, she worked for three years at the American Museum of Natural History’s Center for Biodiversity and Conservation, where she was exposed to a diverse array of approaches to conservation both in the U.S. and in the developing world. Seeking social science training to complement her background in the biophysical sciences, Georgina started at the University of Florida in 2005, in the master’s program in Interdisciplinary Ecology. In Fall 2007, she began the doctoral program at Columbia University’s Department of Ecology, Evolution, and Environmental Biology, where she will continue to pursue interdisciplinary research.