

TREES, TRACTORS, AND GOVERNANCE: AN ANALYSIS OF CONFLICT OVER
NATURAL RESOURCE IN SANTA ROSA DEL SARA, BOLIVIA

By

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“In memory of Jesse”

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Abstract of Dissertation Presented to the Graduate School
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By

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This dissertation focuses on the themes of conflicts and state decentralization, and their impacts on resource use and human welfare. It describes the Bolivian Policy experiment of decentralization that occurred between 1996 and 2007 and its impacts on conflict over natural resources (land and timber) in Santa Cruz, Bolivia. It analyzes whether participation and transparency improved after the decentralization reforms. It concludes that decentralization reforms may not be sufficient to result in good forest resource governance. On the other hand, local actors, including loggers and ethno-regional minorities, may possess great power and determine natural resource governance through the influence they exert on policy and decision making, despite their lack of formal authority. I adopt an approach combining multiple research methods and draw on theoretical insights from political ecology, which highlights political interactions among various interest groups, to understand how the Bolivian experiment is playing out in the municipality of Santa Rosa del Sara.

CHAPTER 1
INTRODUCING FACTORS CONTRIBUTING TOWARD NATURAL RESOURCE
CONFLICT IN BOLIVIA

On July 21, 2004, several hundred campesinos from the Bolivian community of Santa Rosa del Sara, in Santa Cruz department, blocked local roads outside the town (see Object 1-1) and forced their way onto the grounds of a nearby natural gas pipeline operated by the Transredes company (see Object 1-2). The campesinos shut down the pipeline valves in a protest of an invasion by squatters in the municipal forest reserve.



Object 1-1. Object of the Blockade



Object 1-2. Wheel that closed the Gas Line.



Object 1-3. Citizens and Soldiers in the Market.



Object 1-4. Luis Zelaya slain in the Conflict

The next morning, some 350 combined police and army troops arrived and fired tear gas at the campesinos, successfully dispersing them from the pipeline and clearing the road. Word about the repression spread quickly through Santa Rosa, however, and when police and army troops tried to drive into the town's central plaza after breaking up the protest, they were met by some 1,500 angry residents (see Object 1-3). Outnumbered, the troops used tear gas and guns. In three hours of clashes, campesino Luis Zelaya Marquez was killed (see Object 1-4) and eight other local residents were wounded; five police agents and two soldiers were also wounded, and nine people were arrested.

Goals of the Dissertation

Many of the themes of the dissertation are embedded in the larger problems discussed above. This dissertation takes up the question of conflict over natural resources for the cases of land and timber in the department of Santa Cruz, Bolivia. It looks at conflict over land and timber by analyzing whether participation and transparency improved during the decentralization reforms from 1994 through 1996, and how they impacted the agrarian and forestry sections, as well as informal timber markets and ethno-regional tensions. It assumes that local actors, including loggers and ethno-regional minorities, may possess great power and determine natural resource governance through the influence they exert on policy and decision making, despite their lack of formal authority (Wood and Schmink, 1992).

I also explore the impact of decentralization reforms on informal timber markets and ethno-regional tensions. The remainder of this chapter introduces these explanatory themes, beginning with decentralization and describes the importance of Bolivia's policy reforms, the study site, and a summary of the consecutive chapters.

Decentralization, Changing Timber Markets, and Ethno-Regional Conflict

In Bolivia in the 1980s and 1990s, a variety of innovative policy initiatives were intended, in a collaborative effort between international lenders and the Bolivian Government, to more sustainably manage natural resources and improve human welfare. Such "institutional experiments" occurred in a highly dynamic context of economic globalization, environmental degradation, and growing threats to traditional livelihoods. The implementation of these initiatives has followed a "top-down" approach, forcing rapid institutional changes that originated at the national or global levels, but reached down to local levels such as regions, sub districts, and localities, producing variable outcomes.

Pre-eminent among such top-down policy experiments have been structural adjustment programs (SAPS), which amounted to conditions on loans from multilateral financial agencies to developing countries. There have been two generations of such policy reforms in Bolivia. The first generation of reforms was intended to make markets work more efficiently via changes in pricing, exchange rate and interest rate reforms, tax and expenditure reforms, and the establishment of rudimentary market institutions. The second generation directly covered issues of public service reform and focused on a much broader agenda, which included reform of public service censuses, functional reviews of ministries, training, and revamped personnel management systems. Its key features consisted of a considerable reduction of public service programs, the rehabilitation of major personnel management systems and institutions, development of a competitive government system, employment of local consultants for the government, and a motivational program in favor of key civil servants.

One of the key measures implemented in the second generation of reforms has been an institutional rearrangement whereby local government entities receive more state revenue in return for greater administrative responsibility, i.e. decentralization. Underlying this institutional rearrangement are many theoretical ideas (political, economic, and cultural assumptions) as well as a willingness to take (or shift) political risks for the sake of more grounded, localized implementation of state policies.

Decentralization is usually referred to as the transfer of powers from central government to lower levels in a political-administrative and territorial hierarchy (Breuss and Eller, 2004; Crook and Manor, 1998; Ebel and Yilmaz, 2002; Fisman and Gatti, 2002; Oates, 1999; Panizza, 1999). Rather than being a uniform concept, however, different types of decentralization may result,

depending on how much legislative, administrative, and financial control is transferred (Uphoff, 2002; Sharma, 2005; Sharma, 2006; and Sharma, 2008).

The forms of decentralization are: deconcentration, democratization, or devolution, depending on the degree of participation and transparency transferred to local actors.

Deconcentration, considered to be the weakest form of decentralization, redistributes decision making authority and financial and management responsibilities among different levels of the central government. It can merely shift responsibilities from central government officials in the capital city to those working in regions, provinces or districts, or it can create strong field administration or local administrative capacity under the supervision of central government ministries (Uphoff, 2002).

With democratization, information or transparency remains at the center with access to information only at international, national and regional levels but because people vote, participation reaches the lowest levels of government (sub-district, local, community, and group levels; (Uphoff, 2002).

A third type of decentralization is devolution. When governments devolve functions, they transfer authority for decision-making, finance, and management to quasi-autonomous units of local government with corporate status. Devolution usually transfers responsibilities for services to municipalities that elect their own mayors and councils, raise their own revenues, and have independent authority to make investment decisions. In a devolved system, local governments have clear and legally recognized geographical boundaries over which they exercise authority and within which they perform public functions (Uphoff, 2002).

In this dissertation, to answer these questions I focus on three themes about decentralization, they reveal distinct features that influence conflict under decentralization. I ask

two questions: 1) what type of decentralization has taken place in Santa Rosa del Sara with the Forestry Law and Agrarian Reform? 2) How has this decentralization influenced historical conflict in the municipality?

The first theme explored is how the different types of decentralization are affected by whether or not participation and transparency reach down to local levels. The participation in decision making of local constituencies is an important index of decentralization, as this broadens popular participation (Crook and Manor, 1998; Schönwalder, 1997). Participation is therefore an important criterion on good governance (Asian Development Bank, 1997, World Bank, 1989; Herdman, 2000; Ribot, 2002).

Transparency, as used in the humanities, implies openness, communication, and information. It is introduced as a means of holding public officials accountable and fighting corruption. When government meetings are open to the press and the public, when budgets and financial statements may be reviewed by anyone, when laws, rules and decisions are open to discussion, they are seen as transparent and there is less opportunity for the authorities to abuse the system in their own interest (Fisman and Gatti, 2002). Transparency, therefore, allows stakeholders access to information and check procedures in order to see whether there has been a deviation from the rules in whether any abuse has taken place (Nijenhuis, 2002).

In theory, there will be different levels of participation and transparency in a deconcentrated as compared to a devolved institution (Schönwalder, 1997; Uphoff, 2002). It is believed that a devolved institution will be more transparent, allow participation, and be responsive to the needs of local social actors because of the active role that stakeholders are given. This is contrasted with a deconcentrated institution that is less closely aligned with local

stakeholders, with less transparency and participation, and thus less chance of successfully understanding, identifying, and implementing policies that are aligned with local priorities.¹

The second key theme is how decentralization may include new regulations and a realignment of local actors, such as communities and loggers, and may increase transaction costs and foster illegal logging. In many centrally controlled economies, illegal activities in logging disrupt the timber market, resulting in significant increases in transaction costs and prices that could not be based on the real costs of production. Timber is freely obtained from the forest, but the companies and illegal loggers have to pay bribes for securing their illegal logging operations. Much of the illegal timber is not taxed, however, which means that by comparison, the legally obtained products have higher transaction costs.

Communities increasingly put pressure to claim or reclaim their rights over forest resources. These claims may be legal or illegal. Some communities claim their right to access their traditional forests and to provide illegal logs to private companies and illegal sawmills. These communities will defend the logging companies if these companies face legal action with regard to illegal forest exploitation, protesting any effort to close down forest industries on which their livelihoods have become dependent. Local communities have claimed forestlands near their settlements and have converted them into agricultural production systems. Some communities also assert their rights to customary forests, including forestlands that have been occupied by the government or private companies. In these cases, they demand that the government recognize their traditional institutional rights and control over forest resources.

¹ It is believed that in a deconcentrated institution that the policy makers are further removed from social actors and therefore do not create policies that address local realities. This creates problems in the implementation of the policy as local actors may choose to abide or violate these policies.

Logging and wood-based processing companies may play key roles in shaping the patterns of forest resource governance under decentralization; they are, in fact, the most powerful actors in the process. The response of logging companies and sawmills and their willingness to comply with or evade regulation, based on the impact of increased transaction costs, becomes a key issue influencing the success and failure of regulation.

The third central theme is the need to understand the political ecology of ethno-regional groups in order to comprehend how institutional change proceeds as well as the outcomes it may bring about for resource use and human welfare. New reforms enacted with decentralization often change the balance of power and in turn influence local actors' efforts to gain control to resources amongst distinct ethnic groups. In a typical rural society, control over land resources significantly influences income. It is not surprising, therefore, to find that competition to control land has become a prominent source of conflict among many parties, involving local people, migrants, and local government.

Each of these factors plays a role in explaining conflict related to natural resource management in Bolivia. First, a lack of participation and transparency by key government institutions may cause local actors to become frustrated because they have no say in reforms. Second, an increase in production costs related to reforms may cause local social actors to become involved in illegal timber activities. Third, the manner in which local ethno-regional groups attempt to gain access to natural resources may change as a result of reforms. New sets of winners and losers may result from new rules imposed under decentralization (Schönwalder, 1997).

“Why Bolivia?”

The Bolivian case is of particular interest because Bolivia has a history of liberalization as part of SAPs and is in the vanguard of countries experimenting with decentralization. Bolivia is

also important because much of its territory constitutes the southwestern Amazon, a highly biodiverse region with considerable timber and non-timber forest resources that are being increasingly exploited. Further, Bolivia has experienced rapid recent frontier colonization, leading to conflicts over land and other natural resources, something that has been complicated by institutional changes brought by SAPs and decentralization. Finally, Bolivia is at a political crossroads over a set of interrelated questions concerning the role of indigenous peoples in national politics, and nationalization of natural gas resources, which link the institutional experiments underway to the legitimacy of the state.

By creating new forestry regulations, decentralization measures may have a direct impact on local livelihoods. It is important to assess how these regulations affect the decisions of local social actors— local governments, various landholding groups, loggers and sawmill operators — due to their economic impact and ability to control conflict (Pacheco, 2004; Pacheco, 2006).

The effects of government decentralization unfold in the context of local and regional histories, and these become manifest in distinctions made among ethno-regional groups with distinct cultural identities. Such identities are grounded in different group histories of settlement in the Bolivian lowlands. “Cambas” with longstanding settlement in the lowlands increasingly feel competition and derision by “Kollas” who have longstanding ties to the highlands, but who recently have settled in the lowlands as well. If you ask a Bolivian their nationality, he or she will immediately respond either *Kolla* or *Camba*, referring to the Western and Eastern regions of the country. Interests between the regions have become so divided that identities have been reformed along regional lines rather than national ones. As in any conflict, however, the battle lines are more complex in Bolivia than simply Santa Cruz against the national capital of La Paz and indigenous populations against foreign investors (or exploiters, depending on point of view).

The elite in La Paz are adversely affected by protests, and support privatization as strongly as do active interest groups in Santa Cruz. Furthermore, a large wave of internal migration from the West to the East, where there are more opportunities for employment, has altered the demographics and politics of Santa Cruz.

Different regional identities and contrasts in the timing of settlement may also beget conflicts over resources. Given that Kolla migration to the lowlands occurs in the context of prior Camba settlement and recent government decentralization of resource management, it is possible that decentralization yields conflicts by intensifying contestation over resources between distinct ethno-regional groups. That said, strategies for appropriating land resources by a given group, such as the long-settled Cambas' ways of confronting incursions by Kollas, may change due to decentralization.

The Study Site of Santa Rosa del Sara

Santa Rosa del Sara represents an appropriate place for the study of decentralization and conflict. First, the area is rich in natural resources with a forest reserve and vast reserves of natural gas and oil. The area represents a frontier in which there has been colonization from the highland with the opening of the highway from Cochabamba to Santa Cruz and gas exploration opening access to virgin forests. Santa Rosa del Sara is becoming an active development frontier due to recent road projects, making land and timber more accessible and profitable to exploit (Pacheco and Kaimowitz, 1998).

Santa Rosa del Sara exhibits many traits common to other municipalities in Bolivia experiencing conflict over resources. The effects of decentralization are being felt as weak local regulatory institutions; allow ambiguous newcomer groups to lay claims to natural resources that other groups considered their own. The examination of this case reveals important lessons that may be learned for Bolivia as a whole.

Outline of the Dissertation

The dissertation examines the case of Santa Rosa del Sara in terms of the impacts of the Bolivian policy experiment of decentralization. Decentralization is a complex with many observable impacts, I therefore adopted multiple data techniques including participant observation, structured questionnaire interviews, and examination of secondary data, which enabled me to explore the relationship between state institutions, various local stakeholders, and their strategies to capture and control natural resources in the context of the policy experiment in decentralization. The use of multiple methods was necessary to gather information about how institutions were designed (documented in secondary sources) and how social actors responded to those institutions (documented via participant observation and interviews).

The exploration of conflict over land in the context of decentralization, changing timber markets, and ethno-regional tensions is conducted in the following chapters. Chapter two presents background information about the municipality of Santa Rosa del Sara contrasted with and compared to a similar department called Guarayos. The chapter also introduces the general research methods that are used in the dissertation.

Chapter three addresses two questions: 1) What type of decentralization has taken place in Santa Rosa del Sara with the Forestry Law and Agrarian Reform? 2) How has this decentralization influenced historical conflict in the municipality? The chapter presents a framework in which to examine decentralization in terms of participation and transparency. This allows for an appraisal as to the type of decentralization that took place in both the agrarian reform and forestry sector.

Chapter four takes up the issue of ethno-regional identities and resource contestation. Specifically, I will address the question, how and why do strategies (between highlanders and lowlanders), to claim resources vary and change? This chapter draws on the political ecology

literature, which has examined how distinct social groups compete or cooperate for access to natural resources, especially in the context of changes in the presence of “outside” social actors. Chapter five focuses on the ethno-regional differences between Kolla and Camba communities. As Kollas have settled more recently in Santa Rosa and other parts of the Bolivian lowlands traditionally inhabited by Cambas, ethno-regional conflicts have emerged. While such tensions are well-known, less well-understood are the strategies employed by Cambas in response to Kolla incursions on their traditional resource base. Despite differences in settlement histories and even given ethno-regional tensions, Camba strategies to retain claims to natural resources have changed, to the point of including strategies employed by Kollas to gain resource claims.

Chapter five answers the questions: 1) is illegal logging prevalent in the departments of Santa Cruz? 2) Are legal forest management plans used to illegally harvest wood? 3) Is legal logging an attractive option for small timber operators? 4) Does illegal logging make forestry an unattractive livelihood option for farmers? 5) Do historical conflicts including land invasions (and entailing clear cutting) make timber production more expensive? The purpose of this chapter is to provide an economic perspective on forest resources in the department of Santa Cruz in the context of decentralization and conflict. The colonist farmer, the concessionary, the domestic timber industry and exporters all have to consider the economic impacts of their decisions. This chapter specifically examines Santa Rosa del Sara as compared to Guarayos, a nearby municipality with similar timber species. Both have experienced conflict over land and timber resources. The two municipalities, however, exhibit distinct kinds of land tenure. In Santa Rosa del Sara, many of the communities are colonists that squatted on the land. Guarayos has an indigenous population that has communal land tenure; the presence of this population has helped to limit colonization.

Increased conflict and resulting natural resource depletion has severely increased the cost of timber extraction in Santa Rosa del Sara as compared to costs in Guayaros. When coupled with increased regulatory costs resulting from the change in forest policy, this conflict plays a significant role in the decision of local sawmills and timber operators to comply with “legal forestry.” Thus, the comparison of Guayaros and Santa Rosa del Sara shows how conflict impacts the economic viability of forest management in two biophysically similar locations in Santa Cruz. Secondly, the chapter looks at secondary and survey data from Santa Rosa and Santa Cruz to examine legality and illegality in the forest sector and the wood that is actually being harvested. In the final chapter, I conclude with a discussion of the theoretical implications of the study and the lessons that may be learned.

CHAPTER 2 SETTING THE STAGE

In the first chapter, I described the case of conflict in lowland Bolivia centralization. I will now provide background information about the study site and the Bolivian context in order to set the stage for the analysis to follow in later chapters.

One essential discussion is about structural adjustment policies, which include two key governmental laws that have changed natural resource management: forest law (Ley Forestal) and the agrarian reform (Ley INRA). The Forestry Law attempted to decentralize forest management in Bolivia. The centralized Ley INRA is the root of many of the land conflicts, as emboldened and enabled local groups and governments exerted influence over such a centralized institution and process, in the general climate of decentralization.

Another important precursor for the later chapters is the history and ecology of the municipality of Santa Rosa del Sara. Its history, settlement patterns, and ethno-regional populations provide important insight into the conflict over forest and land resources embedded in the decentralization efforts, market of timber, and tensions among ethno-regional groups.

These discussions are followed by a detailed analysis of the social actors in Santa Rosa del Sara. Santa Rosa is an area that includes multiple ethno-regional groups, loggers, sawmills owners, and newly developed state organizations. Each plays a key role in shaping the conflict in the municipality of Santa Rosa del Sara. I therefore examine the specific organizational properties of the social actors. These actors are examined in terms of the manner in which conflict is shaped through the participation and transparency of the forestry and land reforms, economic impacts of this legislation on timber, and finally ethno-regional relationships between Kollas and Cambas.

Finally, the chapter examines the multi-method research strategy that I adopted. One challenge in this research was to use methods that could recognize the multiple levels of scale on which key social actors operated (from global to household) to influence resource claims and management. I used both quantitative and qualitative methods in order to consult diverse data sources to corroborate information among sources and to acquire a more complete understanding of the complexities of the changes that have taken place in natural resource management in Santa Rosa del Sara, Santa Cruz, Bolivia.

Popular Participation, Agrarian Reform (Ley INRA), and the Forestry Law (Ley Forestal)

In order to understand the events described in chapter one, it is useful to look at the political context. In 1994, the Popular Participation Law that introduced formally the political-administrative decentralization in Bolivia was approved. Two years later, the Agrarian Reform and the Forestry Law, both conceived within the new institutional decentralized public system launched before. The agrarian regulations were focused primarily on moving forward a process of title regularization and titling, while the forest legislation defined a set of regulations for forest use, somewhat differentiated according to forest user, under the premise that sustainable forest management is feasible under the right practices. I divide this section into two parts, first popular participation, then land reform, and finally forestry reform.

Popular Participation

The Popular Participation Law expanded the municipal government's jurisdiction beyond the urban centers to the entire territory covered and made municipalities responsible for local schools, health facilities, roads, and water systems sections. To finance these new responsibilities, the central government allocate 20 percent of its budget in favor of the municipal governments, to be distributed among municipalities in proportion to each one's

population. Rural and urban property taxes have been earmarked for the municipal governments, who now administer their collection (Pacheco, 2004; Pacheco, 2006).

The law has sought to introduce community control over municipal governments by recognizing local social organizations as territorially based grassroots organizations (Organizaciones Territoriales de Base, OTBs); permitting them to influence municipal investment decisions and to elect oversight committees to monitor municipal finances (Pacheco, 2004; Pacheco, 2006). Furthermore, the Popular Participation Law has strengthened municipal governments and made them more democratic. The Administrative Decentralization law, issued in 1995, complemented the Popular Participation law, although its effects have been less dramatic.

The municipal governments, over time, have made significant progress in establishing boundary districts within their jurisdictions, which allows them to deal with planning processes at a district level by both formulating and implementing District Development Plans. Majors have the function to appoint to sub-mayors in each district; although it is up to them to transfer part of the municipal revenues to be administered by the sub-mayors, in order to implement the annual plans. Local authorities can be nominated directly as sub-mayors only in the case of the Indigenous Districts (Pacheco, 2004, 2006).

Land Reform

Prior to 1952, large landholders who held poor households as serfs in their fiefdoms dominated Bolivia. All of this came to a dramatic head as the violent Bolivian Revolution set out to redistribute land to the poor. The first post-revolution government in Bolivia, led by Paz Estenssoro in 1952, viewed the State's role as that of a central planner and coordinator of economic development. During this period, the mines and other large corporations were nationalized. According to historian Juan de la Mesa, the Paz Estenssoro government set the

tone for government interventions in the Lowlands for the next three decades. They did so with their ambitious policy to be the “powerful, direct administrator of the productive sectors” (de Mesa, 2001). By the 1970s, the central government administration had reached monstrous proportions as the central government’s public sector now consisted of 520 agencies (World Bank, 2001).

The central government’s colonization program in the 1950 has consisted of an aggressive land-titling program with the objective of relocating scores of landless people (Kollas) from the highlands to the sparsely populated lowland; settlers received a conditional title of approximately 50 hectares on the agricultural frontier. The title was conditional because unless the settler cleared a significant part of the land for agricultural purposes, he ran the risk of losing the title if inspected (Urioste and Pacheco, 2000). The centrally planned colonization effort was an expensive task, and as more and more people migrated to settle in the lowlands, fewer government services became available for settlers (World Bank 1993). By the late 1950s, the titling program started showing signs of heavy strain as the backlog of untitled land grew quicker than the government agencies could inspect and issue new official titles.

The government’s capacity to respond to local settlers’ demand for titles as well as requests for technical support and infrastructure development for agricultural production was severely hampered by the political instability that characterized Bolivian rule in the post revolution era. For instance, during the 18-year period between 1964 and 1982, Bolivia had a change of government, on average, every eleven months. Most of these changes were related to military coups. Of the twenty different governments in power during this period, only five were civilian governments. Despite obvious political differences between the series of generals and the civilian governments that led Bolivia during these years, they all shared the same centralist

policy of government control over the productive sectors (de Mesa, 2001). The political leaders' vision of central government as the crucial locus of power over the productive sectors would characterize government until the mid-1980s, when the economic crisis forced the country into a World Bank–designed structural adjustment program.

The limited capacity of the central government, aggravated by the extreme political instability during the three decades following the 1952 revolution, led to little direct interaction between the central government and local settlers. Consequently, the influence of government policy on local settlers' land-use decisions has been limited at best, and in some cases non-existent (Pacheco 1998; Contreras and Vargas, 2001).

In order to deal with the uncertainty that a lack of formal governance structure produced in their new environment, settlers (Kollas) turned to more informal institutional arrangements to address the problems they faced. Such informal arrangements are still prevalent strategies for Lowland populations to deal with tenure insecurity, variable climatic conditions, volatile markets and other sources of risk for the farmer (Becker and León, 2000; Pacheco, 1998). Lowland communities have learned from history that if they want public goods such as tenure security, market access and production infrastructure, they need to organize the community to provide these themselves, because it is unlikely that the government will do it for them. Given the high diversity of ecological conditions in the lowlands and the wide variety of settler origins and characteristics, one can expect these informal institutional arrangements to vary greatly from one place to another.

In the mid-1980s, government-led and donor-supported structural adjustment programs started. They were aimed at transforming the Bolivian central planning model to a modern market economy. This included both first and second generation structural adjustment reforms.

In the first generation, fundamental attention was given to monetary policy, growth, and stability as a precondition for attacking the questions of poverty. The structural adjustment program, which improved the financial stability of the country, was followed up by a second generation of reforms in the 1990s (Andersson, 2001, 2002).

With the rise of structural adjustment policies in the first generation, international agencies have been advocating throughout Latin America the paradigm of a ‘market in land’ as a solution to the ‘failure of redistributive agrarian reforms’. Since then many countries have encouraged the free purchase and sale of community lands and family peasant properties and have focused their attention on clarifying private property land rights. The premise is that once private ownership is assured, the market can allocate the factors of production (land, labor and capital) more efficiently than the State, and thereby achieve growth (Deininger and Binswanger, 2001).

Policymakers recognized that “second-generation” reforms — which included social safety nets, anticorruption measures, improved corporate governance, and targeted poverty reduction — were needed to build an institutional foundation that can sustain economic growth and protect against external shocks. In the mid-1990s, Bolivia underwent significant policy changes in the land and forestry sector. They were part of a broader package of reforms as part of the “second generation” of structural adjustment reforms, which included policy reforms in the health, educational, and financial systems. Broader reforms also included a drastic institutional reform of the public administration that included a process of decentralization and popular participation. The second generation reforms were to create a social framework to deal with the people that fell out of the loop, and it included land and forestry reform.

The INRA law (Instituto Nacional de Reforma Agraria or National Institute of Agrarian Reform) was passed with the aim of clarifying and regularizing land rights. Unlike in other

countries of the region, however, where the land titling process has been restricted to registering property rights, the Bolivian law is more ambitious and complex. This was a significant issue, especially in the context of the first generation of reforms, which emphasized markets and efficiency.

This key law in the second generation built in the social function of land and not just market efficiency per se. The INRA law (*Instituto Nacional de Reforma Agraria* or National Institute of Agrarian Reform) allows the justification of the socio-economic function through agricultural production, conservation and biodiversity protection activities, as well as research and ecotourism. This is a dramatic departure from a market oriented system which gives only the market power to redistribute land. In this system, the rich as well as the poor must show that they are using the land; otherwise, the land will be redistributed to those who did not have land.

For such a system to be successful, however, there needs to be broad participation of social actors. Each should have a chance to prove that they own land and are complying with the socio-economic function. Just as important are land zoning and municipal land use plans that create a vision for municipal development including colonization, farming, and conservation. The INRA law is an extremely ambitious law, therefore, and it must balance many interests and resolve persisting conflicts and land claims.

The titling process is divided into two phases or stages: the first phase known as *Saneamiento*, or ownership verification, is done on the field and involves the property owner and neighbors. The second phase known as *Titulación*, or titling, corresponds to the processing of all the documentation needed to register and issue a property title.

The process of regularization of agricultural property lies at the heart of the new agrarian process begun in 1996. The guiding principle for the regularization of land titles (*'saneamiento'*)

is to establish the fulfillment of what the law defines as the Social and Economic Function (*Función Económica y Social* - FES) and the legality of the adjudication or acquisition of property titles within a time span of 10 years from 1996 (Superintendencia Agraria, 2001). If it can be established that the large farm does not fulfill these requisites then the property would revert back to the State and the land would become available for redistribution to those in need of land.

How would the state carry out the assessment of the socio-economic function? It is also important to ask, how would local actors prove their socio-economic function? Would land use, such as agriculture, be more valuable than forestry? Such legal reforms may spark conflict as users attempt to adhere to the law and gain an advantage. The impacts of the law are assessed in the case of the municipality of Santa Rosa del Sara.

Another of the INRA law's aims is to recover land, which has been wrongfully acquired by latifundistas (large landholders). The INRA law retains the preferential rights of peasants and indigenous groups to ownership of the land and creates the concept of Community Lands of Origin (TCO) for handing over titles to vast indigenous territories in favor of the original inhabitants² (Almaraz, 2002). As from the passage of this new law in 1996, a process was set in

² The INRA Law categorizes rural properties into the following categories:

1. Solar campesino refers to the place of residence of small-scale farmers or campesinos and their families. Their lands are undividable and cannot be seized (indivisible y inembargable).
2. Small property refers to lands of subsistence farmers and their families. Their lands are undividable and cannot be seized (indivisible y inembargable).
3. Medium sized property refers to properties where the owner has salaried workers and where their product is destined for the market. The lands are transferable. • Farming and/or cattle (agropecuario) company's lands refers to the lands of farming or cattle companies with salaried workers. The lands are transferable.
4. Tierras Comunitarias de Origen refers to the lands of indigenous peoples and communities. They are inalienable, individable, cannot be seized, and are collectively owned.
5. Community property refers to the campesino communities. Their land is inalienable, individable, cannot be seized, and is collectively owned. Regarding community property – it is governed by an assembly of heads of household. This Assembly creates and enforces statutes and regulations. It can vote to expel a member and redistribute his/her land. Community members do not have to live on the land, and may be members of more than one community.

motion of reviewing the legality of each one of the property titles handed out by the agrarian reform since 1953. This is the issue, which in the last few years is generating a great deal of conflict with no end in sight. This process of regularization of land titles ('saneamiento') aims to correct the technical and jurisdictional distortions of land ownership in order to continue redistributing land to the peasant and indigenous population who do not possess any or a sufficient amount.

The agrarian reform resulting from Ley INRA (Ley 1715- Ley de Servicio Nacional de Reforma Agraria -SNRA) took place during a period of reform in which decentralization was promoted, it was not really an example of decentralization. Under this law, all power to classify and distribute land remained in the hands of Bolivia's national government and INRA is a highly centralized institution.

The Ley INRA was an ambitious reform that attempted to resolve many of the preexisting conflicts over land. Historically land rights in the Bolivian Amazon typically include indigenous claims, colonial holdings, early colonist projects of the late nineteenth and early twentieth centuries, resource extraction claims including mineral, non-timber forest products, timber, grazing rights, and more modern forms of tenure including land settlement allocations for small-scale farmers, colonist and political resettlement, and private land rights. This made for some sharp conflicts about competing uses. The Ley INRA was intended to resolve long-standing conflicts over natural resources in Bolivia by decentralizing land surveying and titling for a variety of land tenure types. Despite the goals of the Ley INRA there are lots of local vested interests and longstanding conflicts. The failures of Ley INRA constitute a key focus of this dissertation, because land conflicts continued, including in such places as Santa Rosa del Sara.

6. The INRA Law specifically states that titles will be first awarded to those that live on the land, with preference given first to indigenous peoples and communities and campesino.

Forestry Law

The second generation of reforms implemented in the 1990s not only changed the nature of the land reform but also of forestry. Once again, the reform was introduced into an environment in which there has been traditional control by large landholders, where Kollas established many of the small communities through spontaneous colonization between 1950s-90s, and indigenous groups (Cambas) demanded land tenure. Colonists and indigenous groups were excluded from controlling their forest resources. Many indigenous groups that depend on forests for their livelihoods had no direct control of the forests and disputed territorial control of existing forest concessions. Furthermore, overlapping colonies and forest concessions provided another source of tension and prohibited colonists from engaging in forest activities. The existing regulations neither addressed the conflicts nor acknowledged the importance of these social actors in terms of forest management.

The state held the property rights over all forest areas in both public areas and private properties until the mid-1990s. By then, about 20.7 million hectares, of the 76 million hectares that comprise the Bolivian lowlands, were granted to forest companies through a system of contracts, most of them of short and medium-term, although only three million hectares were actually harvested every year (Hunnisett, 1996). That system led to an excessive concentration of forestlands in the hands of just a few timber companies.

As a part of the second generation of reforms in the 1990s, the forestry law attempted to reduce the central bureaucracy through decentralization. For the first time in Bolivian history, the country's formal legal framework recognized forest management as a legitimate land use for all property owners. Formal property rights with regards to forest resources according to the two integrated laws can be summarized in the following manner:

- The Bolivian State owns all forest resources in the country;

- Private ownership of forest resources are limited to forest plantations and harvested products that are accompanied by government permits;
- The current private landholders' user rights with respect to the forest on their land include:
 - Household use of forest products and services on their land without any formal permits from the government;
 - Forest management activities, including commercial timber logging, if in accordance with the national standards of sustainable forest management; and
 - First option to apply for commercial logging rights, but may pass on or sell these rights to third party users who do not hold formal titles to the land (Urioste, 2004).

In the second half of the 1990s, that situation reversed dramatically due to the fact that the contracts systems, founded on volume-based fees, was replaced by a system of forest concessions to large timber companies supported on an area-based taxation system. The total area under forest concessions declined to 5.8 million hectares in 1996, and it shrank to 5.3 million hectares in 2002 due to the devolution of three forest concessions back to the state (SF, 2003).

A portion of the areas that the forest companies handed back to the state overlapped with indigenous people's territorial claims, and protected areas. Since the early 1990s, indigenous people have been granted a total area of 22 million hectares of which only three million are titled. Furthermore, the government has allocated 23 million hectares to large and medium-sized farms, and three million hectares were distributed to small-scale farmers or colonists. Although those areas were allocated for agricultural purposes, they have been an important source of timber, and still supply some timber mostly from areas to be converted to agriculture. The new forest regulations have transferred some areas to municipal control to be allocated as forest concessions to local forest users.

The law lays out the broad mandate of the municipal governments in the forestry sector. Among their main duties, municipal governments are responsible for monitoring compliance

with the formal user rules prescribed by the forestry law. In addition, they are to lead and coordinate the planning, implementation and monitoring of all public services related to the forestry sector in their respective territories. As long as municipalities comply with the overall formal mandate, they are free to adopt their own strategies of how to meet the exigencies of forest users in their jurisdictions, as long as these strategies do not conflict with the formal forestry regime.

The effectiveness of the decentralized forestry regime will largely depend on the outcomes of the relationships between (1) the central and municipal governments, (2) actors within municipal governments, (3) individuals and user groups throughout the municipal territory, and (4) between forest users and municipal governments.

The challenge to achieve effective and efficient municipal forest governance can thus be examined in the case of Santa Rosa del Sara. Forest tenure security in the municipality is a fundamental condition for encouraging Bolivian farmers to invest in their forest resources. Only with forest tenure security would rural smallholders have an incentive to start diversifying their traditionally agriculture-based production systems to include forest-related products (Pacheco and Kaimowitz, 1998).

Significant obstacles may limit the ability of the municipal government to manage forest resources. The forestry-sector reforms in Bolivia, which decentralized some of the decision making in the forestry sector down to democratically elected municipal governments, present some important opportunities to deal with the widespread problem of insecure forest property rights when other actors' rights conflict with those managed by a municipality. Municipal governments alone are not likely to be able to do much about improved forest tenure, as many of

the obstacles to greater property rights security go beyond the jurisdiction, resources, and capacity of municipal governments (Pacheco, 2004; 2006).

In Bolivia, decentralization of forest management was strongly linked to two ongoing processes initiated in the mid-1990s. The first sought to institutionalize social participation as part of a broader process of institutional reform of municipalities, and the second was aimed at reforming the forest regulations dating from the mid-1970s. Although these two processes were quite different in the nature of their goals, both have been interlinked through promoting a larger involvement of municipal governments in a wide range of forestry-related issues since the second half of the 1990s. While prompting popular participation led to increases in the responsibilities of municipal governments in social services provision, and expanding the influence of social actors in local planning, the forestry regulations involved municipalities as a strong emergent actor with the ability to mediate conflicts, and to produce and deliver forestry services to those actors. This dissertation is aimed at explaining the impacts of Bolivian decentralization, and in determining its main implications for local forest users.

The History and Ecology of Santa Rosa del Sara

Bolivia's Amazon is home to a powerful modernizing elite based in the city of Santa Cruz. They developed the most economically dynamic agricultural sectors in Bolivia's national economy. It is estimated that at present there are 48 million hectares of tropical forest in the Bolivian lowlands: 48% of the total is located under the regional control of the Department of Santa Cruz. About 12.8 million hectares are within the country's 37 protected areas, few of which are effectively administered. The pressures to clear forestland have been unrelenting over the past decades in eastern Bolivia. Factors contributing to deforestation in the area include land scarcity in the densely populated Andean highlands, the cocaine trade, and government-sponsored colonization schemes (1950s-80s) in the tropical lowlands, which have led to

population movement. In addition, the growth of urban centers and the opening of international markets have encouraged land intensification and the opening of new land to agro-exports primarily soybeans (Hecht, 2005; Pacheco, 1998, 2003; Urioste, 2003).

Small farmer shifting agriculture is also a factor in deforestation (Pacheco, 1998). Typically, colonist farmers have received land parcels of up to 50 hectares, and are loosely organized in farmers' unions. 'Slash and burn' techniques on forest land (either of the remnant forest cover or secondary re-growth) in order to produce food crops such as rice (manual and mechanized) and maize, and small-scale but extensive cattle production have contributed to deforestation. At the same time, the falling productivity of these smallholder agricultural systems has induced what is known as the secondary regrowth, or forest fallow (*barbecho*) crisis (Maxwell and Pozo, 1981). Farmers confront low levels of fertility and high weed infestation in their cultivated plots; whilst overgrazing and poor pasture management have resulted in the abandonment of pastures. As well as labor shortages, farmers are increasingly faced with a lack of land, and a lack of viable options for diversifying on-farm household livelihoods. Many abandon their farms due to this. Other colonist farmers often replace them; commentators have noted this persistence of colonial settlement, together with increasing land accumulation and social differentiation among farmers on the agricultural frontier (Thiele, 1993).

The site at the center of my research —Santa Rosa del Sara — has been greatly influenced by these trends. The area is rich in natural resources with a forest reserve and vast reserves of natural gas and oil. It includes a frontier in which highland colonization has occurred due to the opening of the highway from Cochabamba to Santa Cruz. Gas exploration has opened access to virgin forests. Santa Rosa represents a cross section, therefore, of natural resource use and ethnicities that are present throughout the nation.

In Santa Rosa del Sara, Cambas have been present prior to the spontaneous colonization periods described later in this chapter. The small colonial settlements fall under the jurisdiction of the larger municipality of Santa Rosa.

The municipality of Santa Rosa del Sara is located (see Figure 2-2) within the Department of Santa Cruz (see Figure 2-1). Overall, there are 6,862 km² in the municipality. The northern section of Santa Rosa del Sara is a sub-tropical, semi-deciduous forest, which comprises the western half of the “Forest Reserve El Chore” (see Figure 2-2). The reserve itself totals 900,000 hectares, with 400,000 hectares located in the municipality of Santa Rosa (Bojanic and Pavez, 1998; Pacheco, and Kaimowitz, 1998). (The eastern half of the reserve lies in a separate municipality, that of Ichilo, and is not under study here).

The topography of the area is deficient in drainage and is prone to flooding in the rainy season between the months of October and May. The climate is defined as being sub-tropical humid with a mean annual temperature of 24.2 degrees Celsius and annual precipitation of 1,955 millimeters.

Of specific importance in the area is the Forest Reserve of El Chore, which was created in 1966, and is comprised of subtropical humid and semi humid deciduous forest with primary and secondary forest (see Figure 2-2). A high heterogeneity of tree species is present, dominant species include ochoó (*Hura crepitans*), bibosi (*Ficus* sp),cedro (*Cedrela lilloi*), mara (*Swietenia macrophylla*), gabún (*Virola* sp.) and mapajo (*Ceiba pentandra*). Eventually this led to over harvesting of precious commercial species and implicated the degradation and genetic erosion of mara and cedro (Bojanic and Pavez, 1998). Such over-harvesting prompted the designation of the El Chore reserve to protect the described species by establishing permitted extraction and implementing control mechanisms to monitor logging.

The reserve, then, was solely to be used for logging, with the exception of governmental exploration of natural gas. Concurrent with the designation of the forest reserve El Chore was the creation of The Forest Concession San Pedro: one area where extraction was not open for public logging. This area of land, the concession San Pedro, would instead be rented to one private owner, who would be solely permitted to establish logging within the concession. The reserve operated in this capacity for thirty years (when creation of the Forestry Law demanded changes such as community forest concessions and mechanisms for monitoring and enforcement) (See figure 2-3).



Figure 2-1. Map of Bolivia and Santa Cruz; Davies et al., 2004

The Popular Participation Law expanded the municipal government's jurisdiction beyond the urban centers to the entire territory covered and made municipalities responsible for local schools, health facilities, roads, and water systems sections. To finance these new responsibilities, the central government allocate 20 percent of its budget in favor of the municipal governments, to be distributed among municipalities in proportion to each one's population. Rural and urban property taxes have been earmarked for the municipal governments, who now administer their collection (Pacheco, 2004, 2006).

The law has sought to introduce community control over municipal governments by recognizing local social organizations as territorially based grassroots organizations (Organizaciones Territoriales de Base, OTBs); permitting them to influence municipal investment decisions and to elect oversight committees to monitor municipal finances (Pacheco, 2004, 2006). Furthermore, the Popular Participation Law has strengthened municipal governments and made them more democratic. The Administrative Decentralization law, issued in 1995, complemented the Popular Participation law, although its effects have been less dramatic.

The municipal governments, over time, have made significant progress in establishing boundary districts within their jurisdictions, which allows them to deal with planning processes at a district level by both formulating and implementing District Development Plans. Majors have the function to appoint to sub-mayors in each district; although it is up to them to transfer part of the municipal revenues to be administered by the sub-mayors, in order to implement the annual plans. Local authorities can be nominated directly as sub-mayors only in the case of the Indigenous Districts (Pacheco, 2004, 2006).

The Chore reserve was created prior to the reforms of the Ley INRA and Ley Forestal. It is not recognized by INRA (nor given special status under the current forest law. Reserves like El Chore were created originally to try to set aside forest areas for large timber companies, and its greatest defenders today are individuals in Santa Cruz tied to the region's industrial timber interests. El Chore is the center of a struggle between regional elites and broad peasant movements.

The opening of the logging trails and gas exploration toward the end of the 1960s increased mobility in and around the forest reserve. Highland populations (Kollas) soon began colonizing land areas within the forest reserve itself, a practice that has subsequently gained momentum. Initially, between 1,000 families and 2,000 families colonized inside the forest reserve, primarily along its southern boundary. Additional influxes brought even more people to communities deeper within the forest reserve. About 40% of the populations originate from the highland departments of Chuquisca, Potosí and Cochabamba (CIPCA, 1997).

This research studies natural resource conflict surrounding the colonization within the forest reserve El Chore (see Figure 2-2). Colonization from the 1960s to the present is identified according to four marked time periods (see Figure 2-3). These time periods are marked as such because they reflect massive influxes of individuals to particular areas within the forest reserve.

The colonization occurred in the Forest Reserve that is located to the north of the town of Santa Rosa del Sara which has been inhabited by Cambas. The first period of colonization in the forest reserve was from 1966 through 1969 (see Figure 2-3). During this period, early colonists (Kollas) claimed land inside the reserve, close to its southern border. This time period resulted in the foundation of three communities, Galilea, Bellas Niguas, and Las Piedras, each located

near the southern border of the forest reserve. The majority of these settlers were Kollas. The initial colonies were established on former logging roads in the southern part of the municipality.

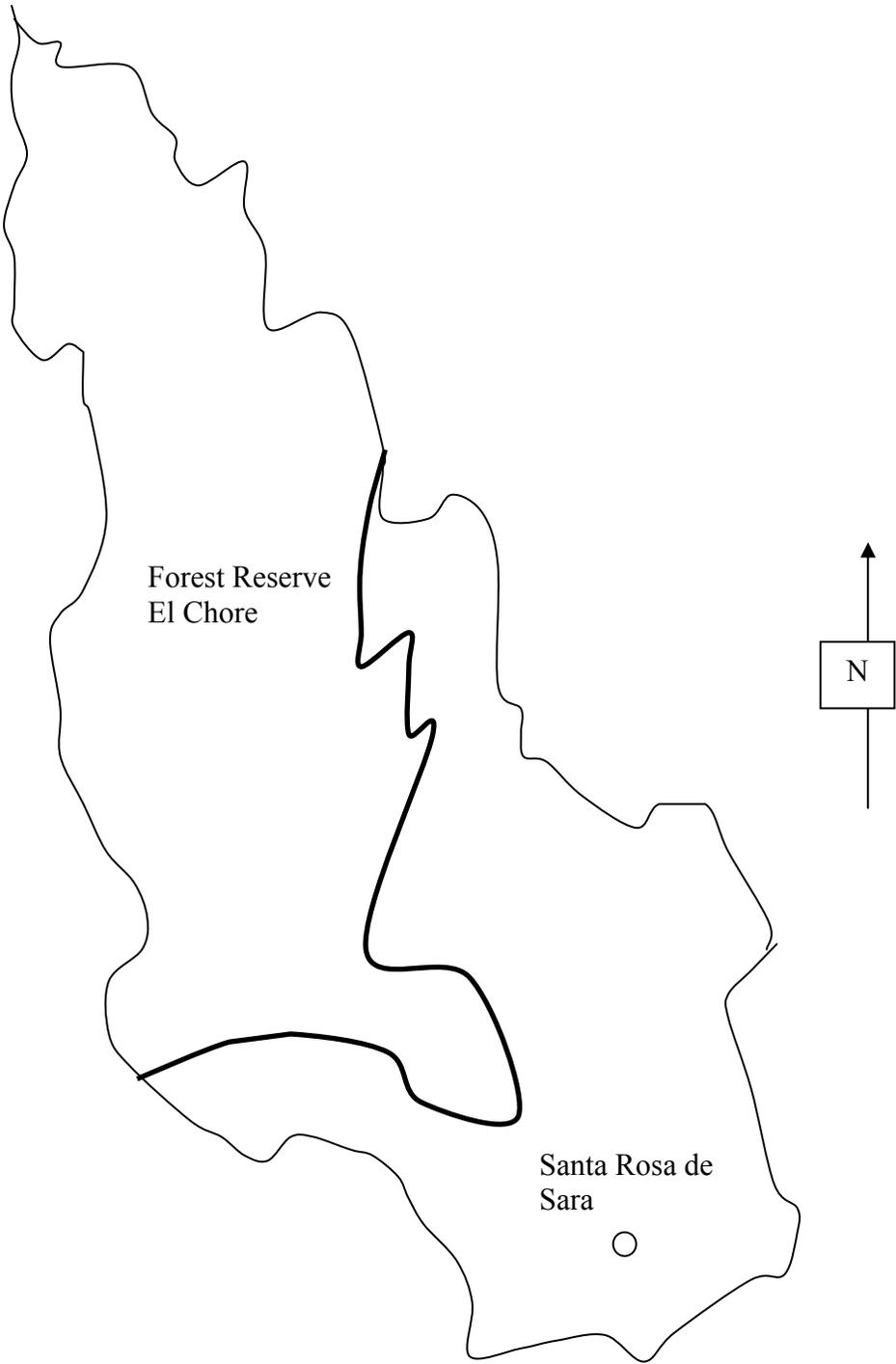


Figure 2-2. Forestry Reserve El Chore in the Municipality of Santa Rosa del Sara

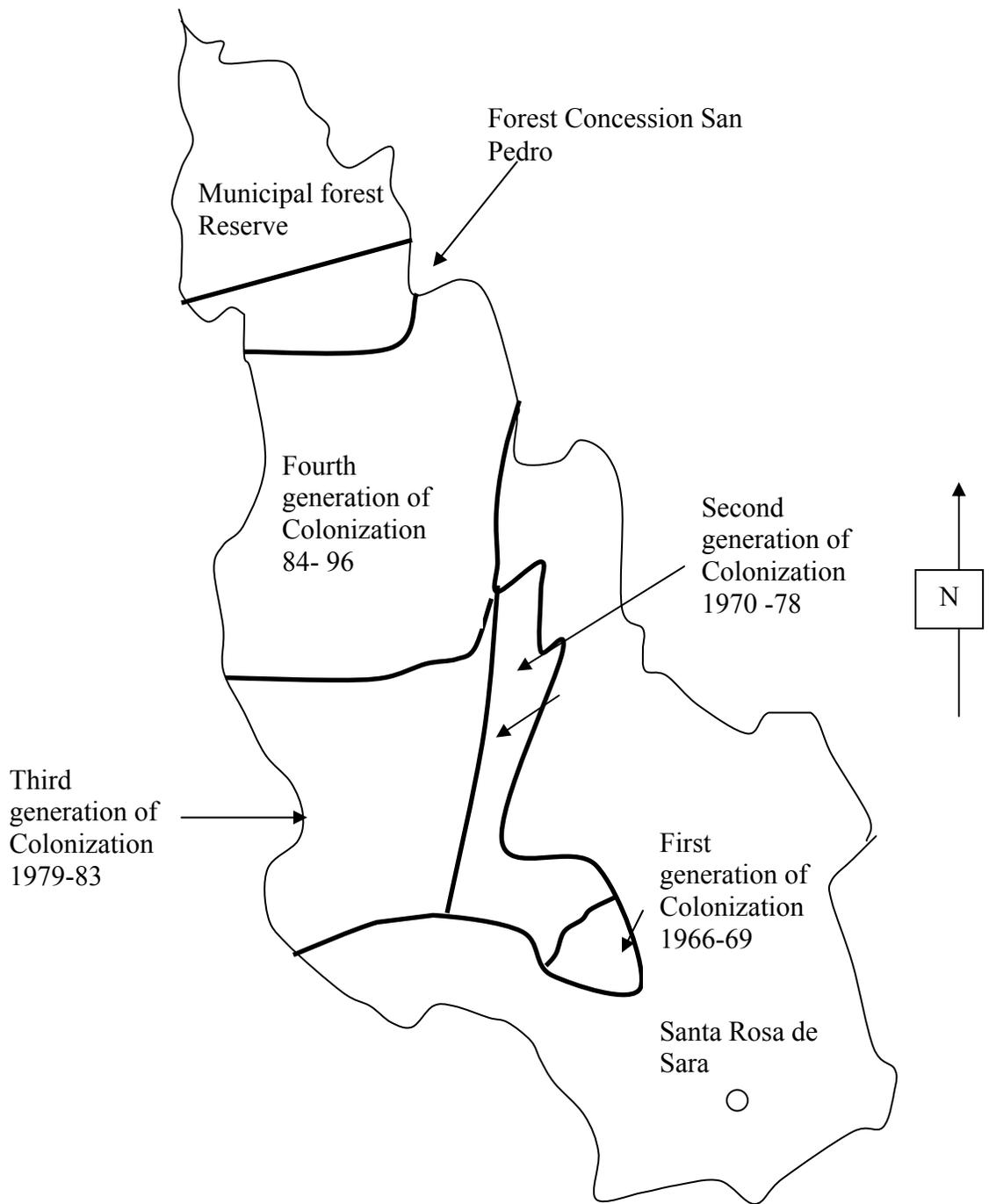


Figure 2-3. Municipality of Santa Rosa del Sara

The second period of colonization was from 1970 to 1978 (see Figure 2-2). Similar to the first group the primary goal of the colonists was to gain access to land. This period is notably

different because these communities were colonized in different areas of the reserve: instead of colonizing near the southern border, colonists began to move deeper (north) into the forest reserve El Chore. The area was colonized along roads that were used for gas exploration in this region. In this time period the communities of Nazareth, Rio Nuevo, San Miguel, Santo Domingo and 12 de Octubre were established.

The third period of colonization was from 1979-1983 (see Figure 2-3). Again, this time period is marked by colonization (by Kollas) of a particular location within the reserve. Once again, the colonization followed roads along the gas lines. In addition, the motive was to gain land for agriculture. During this time, the communities of 4 de Marzo, Los Andes, Monte Rico, Nueva America, Recreo, San Luis, La Planchada, and Rancho Grande were established. This period is similar to the previous ones; however, it moved deeper and deeper into the Forest Reserve.

The final colonization period occurred between 1984 and 1996 (see Figure 2-3). During this period, the colonists (distinctly Kollas) had reached northwestern areas of the forest reserve bordering on the Forest Concession San Pedro (see Figure 2-3). Per negotiations, the colonists reached an agreement with the government to permit the previously settled colonists to remain within the forest reserve, so long as no new colonists claimed land further within the forest reserve (thereby determining an actual line of demarcation). This last colonization period was intended to halt further colonization, making later colonization illegal and setting the stage for conflicts over land claims outside the reserve.

Colonists are sequentially located in communities along previous forest or petroleum tracks, with regular plots of up to 50 hectares (normally approximately 250 meters wide and 2,000 meters long or 200 meters by 2,500). As compared to colonization zones outside the

municipality, the deforestation has been low. The dominant vision of colonists is that of the 50 hectares they will utilize 20 hectares for agriculture (manual or mechanized), 20 for cattle, and 10 for forestry. Some variations in the land uses occur, depending on the different soils. In some areas such as 4 de Marzo there are more cattle because of rocky soil that makes it difficult to intensify agricultural production. The agricultural system of the colonists is predominantly a “slash and burn” system; however, it includes an amplification of mechanized production with the removal of stumps and creation of pastures for cattle.

Nevertheless, about 50% of the 550,000 hectare colonized area is still classified as "primary forest" with another 30% classified as "secondary forest" (regrowth following clearing of the original forest cover). It is estimated that by 2010, 70% of the forested area in El Chore will have been converted to mechanized agriculture or cattle production (Treneir and Margariños, 2002).

Social Actors of Santa Rosa del Sara

In order to help the reader to understand the coming chapters it is essential to introduce the social actors in Santa Rosa del Sara who have been influenced by forestry and land reform. In principle decentralization affects governance conditions by changing the distribution of powers across different levels of government and actors in society, enhancing public accountability and participatory decision-making (Meinzen-Dick et al., 1997). Nevertheless, decentralization as mentioned previously, in some cases tends to reinforce the power position of influential groups at the local level, and it reduces the opportunities for social participation in decision-making (Ferroukhi, 2003). The outcomes of decentralization, therefore, regarding participation and accountability are not linear, and they ultimately depend on the previous conditions under which decentralization took place. These conditions are mainly linked to power relationships, the local

political economy, and the importance that forest and land resources represent for local people (Pacheco, 2002).

In the case of Santa Rosa del Sara, the impacts of the forest and land decentralization have created new social actors, as well as national, regional, and municipal institutions. As mentioned, some of the reforms favored certain actors while many others from below have criticized the reforms. Many actors and institutions have been created. This dissertation concentrates, however, on those that are involved in conflict and are divided by the manner in which they have been impacted by the Forestry Law and INRA (see Table 2-1).

I have divided the social actors according to the law by which they are affected. This includes those institutions and social actors affiliated with the Forestry Law such as the Forestry Superintendent, the Forest Concession San Pedro, the Asociaciones Sociales de Lugar (ASLs), loggers and sawmills. Those associated with the Ley INRA are INRA and the syndicates of small producers.

Forestry

In 1996, the Forestry Law changed the regulations for forest resources use and management, and the institutional framework to monitor the implementation of such regulations. The Forestry Law represented a massive change in the framework of Forestry. The Law has increased potential conflicts between the new institutions created and social actors that already existed. Many of the new institutions such as the Forestry Superintendent and the ASLs are at odds with existing social actors such as the loggers and small producers. Much of the conflict is centered on the interest to access and control either lands or forest. In this section, I examine each of the different institutions created and social actors that have been affected which include the Forestry Superintendent, the Asociaciones Social de Lugar (ASLs), loggers, and sawmills.

Forestry superintendent

In Santa Rosa del Sara, the Forestry Superintendence (SF) is in charge of the following: authorizing logging permits, approving management plans and raw material supply and processing programs, monitoring forest product transportation, confiscating illegal timber, and supervising the activities of forest management. The establishment of a local Forestry Superintendent (SF) office has been one source of conflict because of their relationship with the loggers and sawmills. The SF's goal of stopping illicit activities puts them directly in dispute with many of these actors. The other conflict is with small producers organized as syndicates who have entered the forest concessions (legally defined territories within the forest reserved for the use of ASLs) in order to establish land tenure (see Table 2-1) and thus placed themselves directly in opposition to the forestry law. The relationship between the Forestry Superintendent and these other social actors is crucial to understanding conflict in Santa Rosa del Sara.

ASLs (Asociaciones Social del Lugar)

The new forestry regulations have included provisions that have had some implications for democratizing access to forest resources. In the case of Santa Rosa del Sara, it created local forest user groups that have forest concessions within the municipal forestry reserve.

In the case of Santa Rosa del Sara there are four communal forest concessions, labeled Asociaciones Sociales del Lugar (ASLs) located to the north of the Forest Concession of San Pedro (see Figure 2-2 and Table 2-1). According to Treneir and Margariños (2002) the ASLs: “a) Commercialize wood as small businesses, b) certify the forest, c) ensure the livelihood of those involved, and protect the forest from small producers of El Chore” (p. 26). ASLs are groups of traditional forest users, peasant communities and indigenous populations that depend on forests within the jurisdiction of the Municipality (Cordero and Andaluz, 1998). Each of the communal forest concessions averages about 500 hectares. The majority of the members of the

ASLs are composed of individuals that are members of the timber industry. They harvest and sell wood to the local sawmills.

Table 2-1. Primary Institutions and Social Actors in Santa Rosa del Sara Involved in Conflict

	Forestry Law	INRA	Description
Forestry Superintendent	X		The Forestry Superintendent is the primary agency responsible for the implementation and enforcement of the new forestry law. The institute has been caught in the struggle between forest and land resources.
Asociaciones Sociales de Lugar	X		The ASLs are concentrated in Santa Rosa del Sara. They were created by the Forestry Law and have concessions north of San Pedro. The concessions along with San Pedro have been involved in a struggle for control of land.
Loggers and Sawmills	X		The loggers and sawmills are based out of Santa Rosa del Sara. They remove wood from El Chore, mainly from land cleared by small producers. They have played a key role in the informal activities that have taken place in the timber industry in response to regulations established by the forestry law.
INRA		X	The institution that was established to carry out the land reform. The institution was charged with the complex task of assessing which land was legal and illegal and should be redistributed. The implementation of the Agrarian Reform has been one of the primary causes of conflict.
Illegal Colonists		X	The illegal colonists are those syndicates of rural producers that have crossed into the forest concessions. Their goal is to achieve land tenure by establishing their claim through possession of the land.
Syndicates of Small producers (legal colonist)		X	The formation of the syndicates dates back to the post revolutionary period in 1953. They formed the syndicates in order to organize to establish and defend their claims to land.

As the forests in El Chore have disappeared, there has been increasing hope that the Municipal Forest Reserve will provide wood in the future. The promise of protection of the land tenure, however, has led to a substantial investment by individual members. The invasion in the 1990s of the municipal forestry by small producer colonists has threatened the future of these members. The municipal forest reserve has thus been the scene of a great deal of the conflict between members of the ASL who have user rights to the forest concession, and the syndicates of small producers who are trying to establish land tenure in the same area.

Sawmills and loggers

The sawmills are located in the town of Santa Rosa del Sara but purchase their wood from colonists located in the Forest Reserve El Chore (see Figure 2-2). In the municipality, the majority of the wood is taken from the land of the colonists or from the private Forest Concession San Pedro. The wood is usually sold with either verbal or written contracts to one of the 11 sawmills in the area. Before the wood is harvested the sawmills will give an advance that is used by the loggers to put together a team to cut, delimb, open up logging paths, create logging decks, and transport the wood. San Pedro as well uses wood that comes from the colonists.

The wood that is taken from the parcels of the small producers of El Chore comes from two types of forest management plans: planes de desmonte and areas less than thirty hectares. The desmonte (clearing) is permission to take the wood from a cleared area, while the plan for less than 30 hectares is an area that allows select trees to be removed while seed trees are left with trees with less than a certain diameter.

Tension exists between many sawmills and loggers in opposition to other key social actors. Many of the small producers feel that they have been exploited by sawmills and loggers that are interested at extracting wood at almost any cost. The complaints of the small producers ranged from a lack of payment to illicit removal of trees by the loggers. These activities take place on the land that belongs to the small producers. The tensions have led to a limiting of trucks access from Santa Rosa del Sara and a general distrust of the timber industry (see Table 2-2).

Land

The other major source of conflict has been land reform that has been influenced by the Ley INRA. In theory, the law sought to create more equitable land distribution and rationalize land markets and property titles. The reform was to decentralize control of land reform to

include municipal priorities. Rather than clarifying the land tenure situation, however, it has created some of the most explosive conflicts in the municipality of Santa Rosa del Sara.

INRA

In Santa Rosa del Sara, INRA began a process of clarifying land titles, but it has been slow, expensive and bureaucratic in practice. INRA started the process of evaluating all of the land in the municipality of Santa Rosa del Sara. They sent out teams to take GPS all of the property lines as well as interview all of the perspective owners. To date there has been no final title given. Many of the social actors— including large landholders, small producers, and forest concession owners —have become increasingly concerned over the status of their land tenure. The lack of final tenure has created an environment in which social actors have attempted to force the government to take action. The principle conflict has been with the syndicates of small producers.

Syndicates of small producers of El Chore

In the case of the Municipality of Santa Rosa del Sara, the Ley INRA has created a great deal of tension. Many of the small producers of El Chore have attempted to gain and control land by squatting in areas such as the forest concessions, which were designed to provide access to forest resources for forest-dependent portions of the population, i.e., members of ASLs. To date, INRA has not been able to resolve the land disputes in the area.

The majority of the tension and conflict has been because of the activities of the small producers of El Chore. To form a syndicate, local farmers gather and form a group, or syndicate, to defend their interest. Syndicates are organized to defend rural workers' rights, including rights to make informal land claims in order to later gain recognition for land rights.

Organized syndicates are grouped into larger units entitled “sub-centrals,” which are further organized into “centrals.” Within Santa Rosa del Sara, a total of 64 syndicates exist, each

with a representative. There are four sub-central units (Villa Nueva, 4 de Marzo, Galilea y Nuevo Amanecer), and two central units (Las Pavas and San Luis). Sub-central and central units each have their own representatives, the latter of which reflects the highest level of local syndicate representation. These individuals constitute the national organization known as the *Central Unica de Campesinos del Norte de Santa Rosa* (CUCNSR-The Unified Campesino Center of the North of Santa Rosa).

The syndicates form for mutual aid among members. Traditionally little formal support has existed for the syndicates, and at times, attempts have been made to have them removed. Therefore, the formation of the national organization (CUCNSR) represents a manner in which the syndicates may support each other and demand land rights.

Each of these social actors is important to the later chapters in terms of considering structural accountability, the economic impacts of the reform, and the political ecology between the social actors. In order to examine each institution and social actor I had to employ methods that would allow me understand the dynamics of the situation.

Description of the Research Methods

The decentralization efforts that have taken place have created many new institutions and created tensions amongst the different social actors in the municipality. To examine the conflict among these multiple social actors presents a methodological tension. I have varied phenomena of interest and multiple levels of analysis with which to deal. In order to understand the interests and strategies of various local social actors who may be affected by decentralized administration of agrarian and forestry laws in Bolivia, I used multiple methods.

In the sections below, I outline the four different methods of study used in Santa Rosa del Sara. They include participant observation, formal and informal interviews, secondary data analysis, and analysis of primary data gathered through questionnaires.

Participant observation

One manner of in-depth study is through the use of participant observation. Participant observation simultaneously combines document analysis, interviewing of respondents and informants, direct participation and observation, and introspection. When using participant observation, the researcher shares as intimately as possible in the life and activities of the people in the observed setting. The purpose of such participation is to develop an insider's view of what is happening. This means that the researcher not only sees what is happening but also “feels” what it is like to be part of the group. Participant observation further allows for validity in reporting the perceived opinions of various institutions.

Experiencing an environment as an insider necessitates the participatory role in the participant observation process. At the same time, however, an observer's role is clearly part of this process, too. It was necessary to attend state meetings and use state documents, as well as primary documents and data, to understand these institutions. This approach was consistent with the exploratory nature of the study.

Traditional participant observation was used with INRA, the Forestry Superintendent, the Forest Concession San Pedro, Syndicate of Small Producers, Asociaciones Social de Lugar, Illegal Colonists, Private Landholders, Loggers, and Sawmills. This entailed the researcher's physical presence in order to sit, talk, take Objects, and record notes with the goal of understanding the relationships among these social actors and the manner in which these actors manage their natural resources. Overall, I was in the field for over a year and a half (non-consecutive) of which a majority of time was dedicated to these activities. All field research was conducted between 2003 and 2005.

I had to be able to understand the multiple perspectives that are present in the region of El Chore. During one example of participant observation, the colonists in the municipal forestry

reserve were going to be expelled. No one had information on the colonists, their motives, and how they would respond. I went with a friend on motorcycle to visit the colonists. We did not know what type of reception that we would receive, but ended up conducting interviews with some 60 people.

The same has been true for other groups. I have gone with the loggers as they harvest, sat in colonists' meetings, and drunk both kinds of chicha (Kolla and Camba). Nothing compares, however, to the initial greeting of the observer offering someone coca leaves. In the case of the colonists, it removed the feeling that I was a DEA agent or member of the CIA. However, this same tactic is discouraged with the Cambas unless you are actually in the field. The cultural diversity and the number of social actors meant spending a significant amount of time with each of the groups.

It has been important to have a similar relationship with government institutions. I went with the Forestry Superintendent when they went to give the order to dislocate the colonists. I spent time and became friends with them and used informal tactics such as soccer to befriend and understand these actors. One gains respect and begins to understand these individuals as you spend time with each.

Many public officials have faced very dramatic situations where they have been locked up (as is the case of the prefecture and SF), hit, and abused. Everyone wants public officials to apply the law when it is in their favor. When the contrary is true, however, the response is often explosive and at times dangerous. These events have an impact on the ability of the government institutions to function.

Interviews

In the case of Santa Rosa del Sara, I used formal interviews with the Forest Concession San Pedro, The Syndicates of Small Producers (legal colonists), ASLs, Private Landholders,

Loggers, and Sawmills. Additionally, formal interviews were conducted with both government institutions implementing laws, INRA (the agency) and the Forestry Superintendent. Formal interviews were not conducted with illegal colonists due to the logistical issues of organizing such interviews with this population. Informal interviews and participant observation were used with all of the identified institutions. Two formal interviews with individuals from each social actors associated with INRA were conducted (for a total of 16 formal interviews).

A total of fifty-six informal (semi structured) interviews were conducted. Fifty-two of these informal interviews were conducted rating the participation, transparency and accountability of INRA and the Forestry Superintendent. This included one with Forest Concession San Pedro, 18 with Syndicates of Small Producers, two with ASLs, 15 with Illegal Colonists, five with Private Landholders, five with Loggers, and six with Sawmills.

These informal semi-structured interviews concentrated on the interaction between social actors and their natural resource use. These interviews were used to provide both an understanding and documentation of the perspective held by these individuals and institutions. The perspectives specifically measured participation and transparency by social actors in the implementation of the Ley INRA and Ley Forestal. The remaining informal interviews (4) were conducted with individuals from INRA (2) and the Forestry Superintendent (2) providing background on the institutional structure (Table 2-2).

Two focus groups were conducted: one with the Syndicate of Small Producers and one with the ASLs. A large group of small producers, 28 individuals, was present as they were approached at a routine meeting. A smaller group of four ASL leaders was organized specifically for this focus group. Both focus groups were asked to discuss and evaluate INRA's roles and responsibilities (with emphasis on participation and transparency). These two groups

were selected to participate in focus groups because they exhibited strong organizational capacity, and presented the opportunity to consider group opinion. The Forest Concession San Pedro consists of one owner and a number of employees, creating less of a desire for focus group analysis.

The information obtained from individuals and institutions was continuously updated until all relevant topics had been covered and the accuracy and breadth of responses was sufficient for analysis. Interviews with a single individual were generally later considered in the context of supplemental information obtained through a number of discussions and the data collected during the initial formal and informal interviews. This allowed for an increased understanding of the true nature of the perceptions of relevant formal and informal institutions, the extent of conflict, and the relationship between the two.

In some cases, it was necessary for follow-ups in order to clarify something that I did not explore initially, often due to what I then learned from other sources. The multiple methods allowed me to triangulate and generate more questions for more inquiry to get more of the story. Using follow-ups deepened my understanding, often during the course of unfolding political events and various key decisions.

I was trying to understand a highly dynamic situation that was politicized due policy changes and limited information about those changes among many social actors, in a place with pronounced power inequalities. This meant it would take time to build rapport with specific social actors, and to gain access to many different social actors, especially among those in conflicting relationships with each other. It was difficult to maintain neutrality while also gaining some depth of understanding; overall this was a time-consuming task.

Table 2-2 Total Formal and Informal Interviews and Distribution of INRA and Forestry Law Respondents

	Distribution of INRA Respondents		Distribution of Forestry Law Respondents	
	Formal Interviews	Informal Interviews	Formal Interviews	Informal Interviews
Forest Concession San Pedro	2	1	2	1
Syndicates of Small producers (legal colonist)	2	18	2	18
Asociaciones Social de Lugar	2	2	2	2
Illegal Colonists	0	15	0	15
Private Landholders	2	5	2	5
Loggers	0	0	2	5
Sawmills	0	0	2	6
INRA	2	2	0	0
Forestry Superintendent	0	0	2	2
Total	10	43	14	54

Secondary data

The data from each of these sources was coupled with secondary data. Secondary data analysis involves the use of existing data, collected for the purposes of a prior study, in order to pursue a research interest, which is distinct from that of the original work; this may be a new research question or an alternative perspective on the original question (Hinds, Vogel and Clarke-Steffen, 1997). The secondary data analysis was aimed at getting the “official” story about government laws and what was supposed to be done. Secondary data analysis also provided quantitative data about timber plans and actual harvesting. I used quantitative secondary data from INRA and the Forestry Superintendents. The data were used to assess both the situation of land reform, forestry extraction and operations. I also used secondary data from INE (National Institute of Statistics). These data were used to classify the ethnicity of groups

that live in the region of Santa Rosa del Sara. Ethnicity played a key role in assessing tactics that are used to understand the local political ecology in Santa Rosa del Sara. This will be explored in chapter five.

Furthermore, there were qualitative secondary data used from the prefecture, Forestry Superintendent, INRA, local syndicates, ASLs, and Municipal Forestry Units. Various arguments in favor of developing secondary analysis of qualitative studies have been put forward (Hinds, Vogel and Clarke-Steffen, 1997, Szabo and Strang, 1997, Thorne, 1994). In this case, this information helped to illuminate the motives, relationships, and roles of each of the institutions. When coupled with the primary interviews, the information aided assessment of the relationship of each of the actors in terms of the status of the Forestry Law and Agrarian Reform. In this manner, I was able to see the institutional impact of these reforms and their ability to make decisions that improve the quality of life of local individuals.

Structured qualitative interviews

Finally, I gathered primary data from four questionnaires. I used questionnaire interviews to gather more systematic, standardized data for purposes of comparison. The first questionnaire was conducted with ASOSIL (Asociación de Silvicultores del Chore) with a random sample of 57 households in five communities of the Chore. I wrote and implemented the questionnaire to gather data about the impact of decentralization on the social actors in the Forest Reserve El Chore. These structured qualitative interviews focused on the relationships of the small producers with the other social actors, experience with forest management, as well as livelihood data including evaluations of prices paid for wood, etc. These data were used in order to assess the impacts of decentralization in chapter three and the impacts of market reforms in chapter five.

A second questionnaire was conducted with CIPCA (Centro de Investigacion y Promocion Campesino) and took a detailed look at the livelihood system of a random sample of 180 households in 28 communities of colonists in the Forest Reserve El Chore. These data provided great insight into the impacts that decentralization and the timber markets have on small producers, explored in chapter four. Furthermore, the breadth of the communities included and the amount of interviews conducted greatly expanded the scope of the data.

A third questionnaire examined the experience of the 22 different individuals in El Chore that had enacted both “*planes del chaqueo*”³ and management plans for areas of less than 200 hectares. This questionnaire was conducted in collaboration with CIFOR and was randomly selected from a sample from 2001⁴-2002 that had been passed by the Forestry Superintendent. The questionnaire focused on the individuals’ experience with their forest management plan and the manner in which it could be improved.

The questionnaire data gathered with CIFOR was coupled with secondary data and provided key insights into the informalities in the timber trade, analyzed in Chapter Five. The data and interviews provided key insights into the tactics used to transport wood illegally as well as the amount of wood that was illegally taken. Furthermore, the questionnaire and interviews showed the impacts on the small producers’ benefit and willingness to conduct forestry.

The fourth questionnaire was a census conducted with 140 barracas and sawmills in Santa Cruz, Santa Rosa del Sara, and Guarayos. I first received a list of the barracas and sawmills in Santa Cruz, Guarayos, and Santa Rosa from the SF. I then conducted a snowball sample based on a map of each of the regions. If there were mills or barracas that were closed or not located, I

³ Permits to clear cut an area.

⁴ Barraca is a timber outlet.

called the owner before they were removed from the sample. The data looked at the species they sell, volume, overall structure, as well as their experience with the forestry law. These data were joined with secondary data from the quarterly reports from the SF in order to create a model for the yearly production per species.

These data provided a look at the illegalities of the wood that was transported from areas such as Guarayos and Santa Rosa del Sara to Santa Cruz de la Sierra. The interviews looked for the ability to provide legal documentation as well as quantities of wood transported. The data were crucial in assessing the informal activities in the wood trade in Bolivia.

With a combination of methods including participant observation, formal and informal interviews, secondary data analysis, and analysis of questionnaires, I gleaned more than any one of these methods would have yielded about the rapidly changing situation surrounding land and timber management in Santa Rosa del Sara. The resulting body of information allowed me to address the three key research questions I posed in the previous chapter. In the next chapter, I examine the impact of decentralization of forest management and land reform.

I will now turn to an analysis of how decentralization, or its imperfect implementation, helps to account for conflicts such as the one illustrated in chapter one as well as ongoing tensions in the study site of Santa Rosa del Sara. In the next chapter, I will focus on institutional changes and how they are related to conflicts among the social actors described earlier in this chapter. I will call upon the multiple methods described within this chapter to better understand how decentralization affects the conflicts observed and documented in Santa Rosa del Sara.

CHAPTER 3 DECENTRALIZATION EFFORTS AND NATURAL RESOURCE BASED CONFLICT IN LOWLAND BOLIVIA

For two decades, Bolivia has been one of Latin America's chief laboratories for an experiment in market-driven economic reforms, which involves decentralization of the administration of natural resources by the state. There is by now no disputing that Bolivia has undergone vast changes in national policies governing natural resources (Pacheco, 1998). Further, it is accepted that such policies have been changed by heralding the decentralization of government entities responsible for natural resource governance (Pacheco, 2003). The Popular Participation Law (1994) redistributed resources to autonomous municipal governments, introducing participatory mechanisms for planning and monitoring. Administrative decentralization (1996) established regional departmental governments (prefects) of which the department heads were appointed by the president. Agrarian Reform (Ley INRA) and the Forestry Law (Ley Forestal), both conceived within the new institutional decentralized public system, sought to improve governance and curb the mismanagement of the nation's natural resources.

Bolivia has a long tradition of centralized government. Before decentralization, decisions were made by the central government, which nominated "prefects," the main political authority of the departments or provinces. Mayors were also designated from above; their responsibilities were confined to a limited range of services in the urban municipal seats and they answered to the prefects, by whom they had been elected to occupy their post (Pacheco, 2004; Pacheco, 2006).

In order to facilitate the colonization process, the government created the National Colonization Institute (INC), which typically helped highland families move to newly established government colonies, sometimes completely isolated from other towns. From 1952

to the mid-1970s, the government helped 46,000 families (190,000 people) colonize the lowlands (Library of Congress, 1989). Government sponsored colonization, however, accounted for just 15 percent of all the pioneers who ventured east. Furthermore, INC colonies suffered a high dropout rate among participants, many of whom faulted the INC for providing insufficient support services and too few roads (Hecht, 2005).

Until recently, the Bolivian Forestry Service (CDF) was responsible for ensuring that timber companies complied with forestry regulations and followed forestry management plans. In reality, however, the CDFs principal concern was collecting timber royalties, and it did little to encourage sustainable forest management. Corruption and illegal logging practices were widespread (Andersson, 2002).

The central government also controlled both land and forests; however, the institutions charged with this control were inefficient and corrupt (Pacheco, 2002). The government directed land distribution through the National Colonization Institute (INC) and National Agrarian Reform Commission (CNRA) and forestry through the Center for Forestry Development. The outcome of this land distribution policy, combined with deficient and imprecise mapping of land awards and forestry concessions, together with the jurisdictional conflict among the National Agrarian Reform Commission (CNRA), the National Colonization Institute (INC) and the Forestry Development Center (CDF) was an administrative chaos of overlapping land, forestry and mining rights (involving farmers, ranchers, indigenous peoples, loggers, mining concessions and oil and gas interests, etc.) which created widespread tenure insecurity, especially in the Eastern Lowlands (Library of Congress, 1989; Contreras-Hermosilla and Vargas Ríos, 2002).

With decentralization in 1996, new institutions in both the forest and agrarian sectors were formed. The two laws dramatically changed the ways public forest and lands are allocated and

how their use is monitored. The new forestry law creates a new system of monitoring and enforcement, along with some market-oriented regulations and taxes to make unsustainable forestry operations unattractive. The land policy's main purpose is to clarify land ownership rights through a process of title regularization (saneamiento), titling and the consolidation of the rural property cadastre. The agrarian law has merged the rights over the land and forest; and since its approval, social, economic and ecological considerations are legitimate ways to justify land ownership.

The new Forestry Law has transferred a number of powers to prefectures and municipalities. Prefectures' main responsibilities include implementing programs of forestry research and extension, and forest conservation at the departmental level, and developing programs for strengthening municipalities' institutional capacities in the forestry sector (Pacheco, 2004; Pacheco, 2006).

Municipal governments' functions include monitoring of logging activities, and inspecting raw material supply and processing programs. They are also in charge of delimiting municipal reserves to be assigned as community concessions for local forest user groups in up to 20% of the total public forest within their jurisdiction. In order to carry out their new functions, municipal governments are expected to create forestry units (Unidades Forestales Municipales, UFM) (Contreras-Hermosilla and Vargas Ríos, 2002; Pacheco, 2004, 2006).

The UFM are accountable to the municipalities, but they also have to follow the forestry regulations being implemented by the Forestry Superintendence (SF), which is the national entity, dependent on the Ministry of Sustainable Development, in charge of implementing the new forestry regime. The SF has the main function of allocating concessions and forest permits, authorizing and monitoring forest management plans, collecting forest taxes, and controlling

illegal logging and forestry crime. This institutional system, in theory, should be entirely financed with the revenues coming from both forest extraction and clear cutting fees (Contreras-Hermosilla and Vargas Ríos, 2002; Pacheco, 2004, 2006).

While decentralization was instituted as a policy goal, it is less clear whether decentralization actually occurred (Pacheco and Kaimowitz, 1998). The goal of this chapter is to examine the type of decentralization that has taken place in the Municipality of Santa Rosa del Sara with the Forestry Law and Agrarian Reform and how this decentralization influenced historical conflict in the municipality.

In the literature on public administration, there is a distinction made between different types of decentralization: there is deconcentration, devolution, and democratization (Fesler, 1962). The first of these, deconcentration, refers to the dispersal of agents of higher levels of government into lower-level areas (Agrawal and Ribot, 2000). Thus, deconcentration is a weaker form of decentralization since the mechanisms by which deconcentrated decision makers are responsive and accountable to local populations are weaker (Ribot, 2002).

Democratization can represent a second kind of decentralization, where decision-makers remain at the center, but they are held more accountable to members of the public who, by definition, reside outside the center. Giving an electorate the right to choose and/or remove decision-makers, when previously autonomous decision-makers at the center controlled all appointments and promotions, can be a far-reaching kind of decentralization.

Devolution is perceived as the most complete form of decentralization. It involves the transfer of resources and power (and often, tasks) to lower-level authorities who are largely or wholly independent of higher levels of government, and who are democratic in some way and to some degree. They are assumed to have some amount of autonomy over decision-making

(Rondinelli et. al., 1989). Under this system, efficiency and equity benefits arise from democratic processes that regional authorities use to serve the needs and desires of their constituents (Crook and Sverrison, 1999). Thus, devolution should be the most effective form of decentralization. These distinctions between kinds of decentralization of government or states can also apply to institutional levels within the state.

Various forms of decentralization efforts produce different levels of power transferred to local governments. Under deconcentration, there is no power given to local units, but with devolution, local governments have a high level of power over decision-making. Practically, the central government determines the extent of local power transference, based on economic, political, and social circumstances of a country/ state. Decentralization refers to power being passed to lower levels, and in this chapter, I am particularly interested in the decentralization process occurring in two Bolivian institutional structures governing agriculture and forestry in the 1990s. I specifically ask two questions in this chapter: 1) what type of decentralization has taken place in Santa Rosa del Sara with the Forestry Law and Agrarian Reform? 2) How has this decentralization influenced historical conflict in the municipality?

Transparency and Participation

In order to develop the model of decentralization discussed later in the chapter I develop the concepts of transparency and participation embedded in the concept of decentralization. I intend to bring together a theoretical model to provide a framework to examine the perceptions of the social actors as to the type of decentralization that has taken place under the Forestry Law and Agrarian Reform.

Transparency

One of the fundamental concepts that underlie decentralization is transparency. Contemporary discussions on the transparency of public institutions emphasize transparency as

the opposite of corruption (Giurgiu et al, 2002). The authors of a study on “Corruption in Local Public Administration” argue that transparency derives from the constitutional right of citizens to information (Giurgiu et al, 2002). The “Report on the Integrity and Transparency of Local Public Administration” supports this definition by operationalizing this concept as ensuring citizens access to public interest information (Transforma, 2004).

Transparency has become, in the minds of many, a prerequisite for, decentralization. If the society is unable to observe or monitor the behavior of policymakers, those policymakers may adopt policies that are not in the general interest. A policymaker may find it possible to create and distribute rents to the benefit of his (rarely, her) family, cronies, and himself; this is done at the cost of the welfare of the broader community (McLean, 2001; Ribot, 2002). Policymaking ceases to be responsive to the will of the “people” when policies are made in smoke-filled back rooms, far from the cleansing bright light of scrutiny. Rent seeking and resource-dissipating activities are a subversion of the will of the voters, facilitated by obscure policymaking processes.

Transparency, on the other hand, limits rent creation and diversion by forcing democratically elected policymakers to be accountable to the electorate at large. Elected officials who routinely divert resources to their own ends, and are observed to do so, will be removed from office by the electorate. Elections act as disciplining devices in the presence of information (provided by the media) about policymaker behavior. The voters demand transparency then; where without it, elected officials, fearing less that they will be evicted from office, can more freely shirk their obligations. However, voter demand is only one side of the story (McLean, 2001; Ribot, 2002).

Transparency also requires the willingness of the political elite to be subject to the scrutiny of the voters. Transparency requires constitutions to protect the freedom to obtain information, it requires information generating agencies to be established, and it requires that executives limit their use of the power of the state to hide their activities. In the language of game theory, the decision to provide information, to permit transparency in policy-making, must be incentive compatible (Winkler, 2000). Democracies emerge; they develop norms, practices and institutions incrementally, including the capacity to be transparent. Moreover, these institutions of transparency emerge with the consent, not only of the governed, but also necessarily of the governors (McLean, 2001; Ribot, 2002).

Participation

Transparency is one of two fundamental concepts that underlie decentralization. When coupled with the concept of participation, the two allow me to develop a model that illustrates the type of decentralization that takes place (Uphoff, 2002).

Participation and decentralization have a symbiotic relationship. On the one hand, successful decentralization requires some degree of local participation. Subnational governments' proximity to their constituents will only enable them to respond better to local needs and efficiently match public spending to private needs if some sort of information flow exists between citizens and local governments (Ribot, 1995; 1995a). On the other hand, the process of decentralization can itself enhance the opportunities for participation by placing more power and resources at a closer, more familiar, more easily influenced level of government. In environments with poor traditions of citizen participation, decentralization can be an important first step in creating regular, predictable opportunities for citizen-state interaction (Donnelly-Roark, 1997; Ribot, 1998).

Citizen participation ensures that public goods are expanded consistently with voter preferences and public sector accountability. Such participation is possible only if political freedoms (voice and expression) are permitted and political stability prevails. Decentralization strengthens citizen participation by bringing governments closer to the people they are intended to serve (USAID, 2000). Substantial attention has been given to this principle by making decentralization and democratic governance a cornerstone of USAID policy to develop transparent and accountable government institutions (USAID, 2000).

The existing institutionalized channels for participation and the ability of people to use them include two factors, which should be taken into account as design parameters for decentralization programs in developing countries. Fair, regular, local elections and high levels of "social capital" (community cohesion and a history of working together) enable citizens to both signal their preferences efficiently and enforce leaders' compliance with their wishes.

Various studies have shown that broad, ongoing citizen control over leaders can improve the quality of government action (Putnam, 1993; Narayan and Pritchett, 1997). The continuous struggle to stay in office might lead to broad efforts to satisfy consumers on all fronts. Results from studies on Colombia including Tandler (1997) show that public officials who fear for their jobs are much more likely to pick better staff to carry out the day-to-day work of government. Putnam's (1993) research on regional government in Italy found that those governments more open to constituent pressure were more successful at managing resources and creating innovative programs to distribute services effectively. A more recent study in Tanzania shows a positive association between the quality of local schooling and the level of social capital in various villages as well as a strong correlation between economic well-being and high levels of social capital (Narayan and Pritchett, 1997; Fox and Aranda, 1996). Another study of local

governments in Mexico suggests that the Oaxaca province's long history of participatory mechanisms may help it provide services more effectively than socio-economically similar, but less participatory Chiapas (Fox and Aranda, 1996). Crook and Manor (1998a), based upon work in India and Africa, conclude considerable promise for decentralization in promoting citizen participation, increasing information flow between governments and citizens, enhancing transparency and accountability, integrating society with the state and reinforcing and invigorating democracy at the national level. Recognizing this, India has recently amended its constitution to strengthen local government institutions (Paul, 1996). Garmannd, Haggard, and Willis (1996) reaffirmed the same results, based upon a comparative study of Latin America. They conclude that the "greater the political sensitivity of central level politicians to subnational political outcomes, the more decentralized the system is likely to be" (p. 2).

The focus of this section has been to examine two concepts: transparency and participation. The two vary in terms of scale in the different types of decentralization. These concepts help to establish the basis for a theoretical framework that examines the different types of decentralization.

Decentralization and Conflict

The type of decentralization including: centralization, deconcentration, democratization, and devolution, raise questions about how the extent of decentralization may affect the propensity for local conflicts among distinct social actors, as well as the nature of conflicts over natural resources. Decentralization can on the one hand be seen as a prerequisite for transformation and sustainable peace, but it can also easily become a source of conflict. Decentralization is supposed to prevent conflicts by "giving groups control over their own political, social and economic affairs" (Brancati, 2006). Disposing of prerogatives in schooling, language or taxation policies at the local level should protect groups from threats posed by

central power and make it possible for them to implement policies closer to the wishes of the local population. Decentralization is one of the five types of power-sharing arrangements that Lijphart (1977) envisions for divided societies. Stepan (2004) argues that subnational governments may be veto players in the sense of Tsebelis (2002), i.e., their agreement if not their compliance is needed in order that a law passes. In the same vein as the mutual veto of Lijphart (1977), the constitutional veto power of subnational governments implies that the political system is more inclusive, and then is less likely to hurt some segments of the society.

Fiscal decentralization is supposed to influence conflict by diminishing the distance between the government and the people. Devolving power to subunits permits locals them to design and provide local public goods, which correspond to the preferences of local constituents. When preferences are widely heterogeneous across jurisdictions, decentralization tends to be preferable to uniform policy (Oates, 1972; Bardhan and Mookherjee, 2005).

The potential of decentralization depends on the proper establishment of structures, values and attitudes that can enable the different groups within the society to handle their conflicts peacefully. Decentralization can also have negative consequences. In situations of externally induced rapid change, it can well become a source of acute conflict and provoke violent reactions on the part of the ruling regime. Poorly designed state reform can even lead to the deterioration of a conflict.

The wide range of possible combinations of types and dimensions of decentralization (rarely implemented in pure form) adds further complexity to assessing the potential impact of centralization and decentralization on internal conflict. Yet, the debate is still largely carried out in a dichotomous – decentralization vs. centralization tone. A survey of the decentralization experience in Africa is illustrative of the potential for misinterpretation (Ndegwa, 2002). While

nearly all African countries claim to have pursued decentralization since the democratization wave swept the continent in the early 1990s, objective assessments reveal only a third exhibit functioning decentralized structures. There was also a pattern of administrative decentralization without political decentralization, reflecting the preferred form of decentralization in nondemocratic countries. Perhaps most revealingly, local governments control less than five percent of national public expenditure in two-thirds of African countries. All African countries, except South Africa, posted shares of local expenditures below the average for developing countries – 14 %.

The more practical emphasis would be to examine the appropriate balance between layers of government. Rodden (2004) discusses an emerging view of decentralization as “an organic, intertwined transfer of political, fiscal, and policy autonomy.” He calls for more nuanced analysis based on the complexity and diversity of several alternative forms of federalism and decentralization. Fiscal and policy decentralization often do not entail a shift in some fixed amount of authority or money from the center to regional or local governments but adding new layers, resources, or responsibilities to existing lower-tier governments in the context of overlapping spheres of authority.

A theme that emerges from these considerations is that decentralization is a collaborative process. Effective decentralization is dependent on the cooperation of and coordination with the central government. Central government officials must be willing and committed to share some of their authority and resources if decentralization is to be effective. Local government leaders, in turn, must be capable of managing additional authority while accepting central government oversight.

In a thoughtful review of the literature Schou and Haug (2005) conclude that decentralization fulfills a conflict-mitigating role when it: (1) broadens popular participation, including minority groups; (2) brings sub-national groups into a bargaining process with the government; (3) increases state legitimization through broadened local popular participation; (4) establishes state outreach and control in remote areas; (5) builds trust between groups that participate in local governance institutions; and (6) redistributes resources between regions.

Decentralization must in any case encompass more than just reorganization of the administrative system or resource allocation. By forging democratic development, the participation of the population and rule of law, it will also develop structures that can offer an effective means for the peaceful management of deeply rooted conflicts (Brancati, 2006). As democracy takes root, it will itself have a pacifying effect since it is based on values such as pluralism, tolerance, inclusiveness and compromise, and because it helps to establish norms of behavior such as negotiation, compromise and cooperation among the social actors (Oates, 1972; Bardhan and Mookherjee, 2003).

However, despite these claims, most decentralization efforts end up without increasing much of the power of local authorities or peoples. Decentralization of natural resource management is especially intricate because it is not only about providing services efficiently, but it also requires the devolution of real powers over the disposition of productive resources. In addition, it requires the resolution of divergent interests among a host of actors so that externalities associated with natural resource management are not disproportionately borne by any subgroup. Therefore, in many cases the incomplete transfer ends up not being able to resolve conflicts over natural resources but also ends up aggravating existing conflicts (Bardhan, 2002; Bardhan, Pranad, and Mookherjee, 2005).

A Model of Decentralization

Decentralization is not a simple concept, for the reorganization of government functions among federal and local entities involves multiple simultaneous changes and alterations in the relationships among state agencies as well as between the state and other social actors. To grapple theoretically with the notion of decentralization, and to provide a framework to evaluate decentralization in Bolivia, I draw from Uphoff (2002), who articulated a model of decentralization.

Decentralization attempts to make governments more responsive by creating space for local actors to become involved with and providing information to stakeholders. I develop a model that incorporates the concepts of transparency and participation to decipher the different types of decentralization. The degree of participation and transparency shows how one may differ between democratization, deconcentration, and devolution.

Scale is important to the analysis of social and ecological systems because the concept directs attention to the diversity of variables and processes involved in the articulation of change and responses to change (Armitage and Johnson, 2006). Those working in institutional design, and indeed those concerned with the management of common resources generally, have grappled with issues of scale. Much of the research work on which current approaches are based has been carried out on small-scale systems where linkages and interactions on the local scale can be investigated and documented.

Translating this to the large scale has been problematic, but has generally been covered in the concept of nested systems. By this, it is envisaged that each layer deals with the same types of issues but at a progressively larger scale and lesser level of detail. Thus, in the case of forest management, the village level involves a small number of individuals face-to-face on a daily basis. These villages are incorporated within the municipality, which handles the management

of municipal forests. In turn, the municipality is nested within a larger body having responsibility for forest management of the whole province. The concept of nesting is thus used as a mechanism for linking together small-scale local interactions to develop actions on the large scale. In the case of this chapter, there are eight levels at which participation and transparency can occur ranging from the group, community/village, locality, sub-district, district, regional/provincial/state, national, and international levels.

Figure 3-1 looks at the levels of participation and transparency. The lower levels of this figure are quite remote from the arenas where most people spend most of their lives. Few people are able to make decisions and to act effectively at the national or international levels. Regions or provinces of large countries are commonly larger than small nations, in population if not in area. Districts and subdistricts are similar in that they are basically administrative units, not collections of persons who know and care about each other.

The local level, in Figure 3-1, encompasses a set of villages or communities that have some common identity, based on economic or social relationships. People in this set of communities may come to one of the villages regularly for marketing produce and buying goods, or there may be a rotating market that moves among the villages on fixed days. People in such communities know each other, go to churches together, may play on sports teams together, are likely to intermarry, all the while maintaining their membership and identity in particular villages that are part of this larger locality. This level often has no legal or juridical status, but it is a social and historical reality.

The community or village level, as illustrated in Figure 3-1, is one we are most familiar with, in part because it has a very visible manifestation: a set of dwellings, and associated residents clustered together or at least designated by common agreement to belong to a particular

village. Such communities are usually to some extent self-governing, with designated persons in roles of authority, formal or informal, to make decisions on behalf of the residents (members).

The group level, in Figure 3-1, is generally smaller than the community level, because most groups are subsets of persons within communities. Often they are sets of persons who live in a number of communities, so this level can cross-cut the higher level, while still remaining different because persons in a group are united by some particular trait or characteristic.

I emphasize that these levels in Figure 3-1 are analytical, though they refer to real sets of people, with real responsibilities and capabilities, and with real needs and life conditions. Each upper level is subsumed within the level below, though this does not mean that the lower level can control, or completely control, all higher levels.

These levels play a role in distinguishing between the different types of decentralization. They are used in a model of decentralization in Figure 3-1 on the x and y-axes, in combination with two essential concepts, transparency and participation, to help separate what the different types of decentralization are. The central tenet is that the more control, resources, and responsibility are transferred to upper levels, the greater the type of decentralization.

The more power that is shifted to the higher levels the community and group levels, one would expect greater participation. Thus the y-axis is a variable, which measures whether participation (power) reaches up to level y (i), where the y (i) level ranges from the international level (signifying little local participation) to the community or group level (signifying a great deal of participation). Ranging between the extreme levels are intermediate levels of government: the national level, regional level, district and sub-district levels, and local levels.

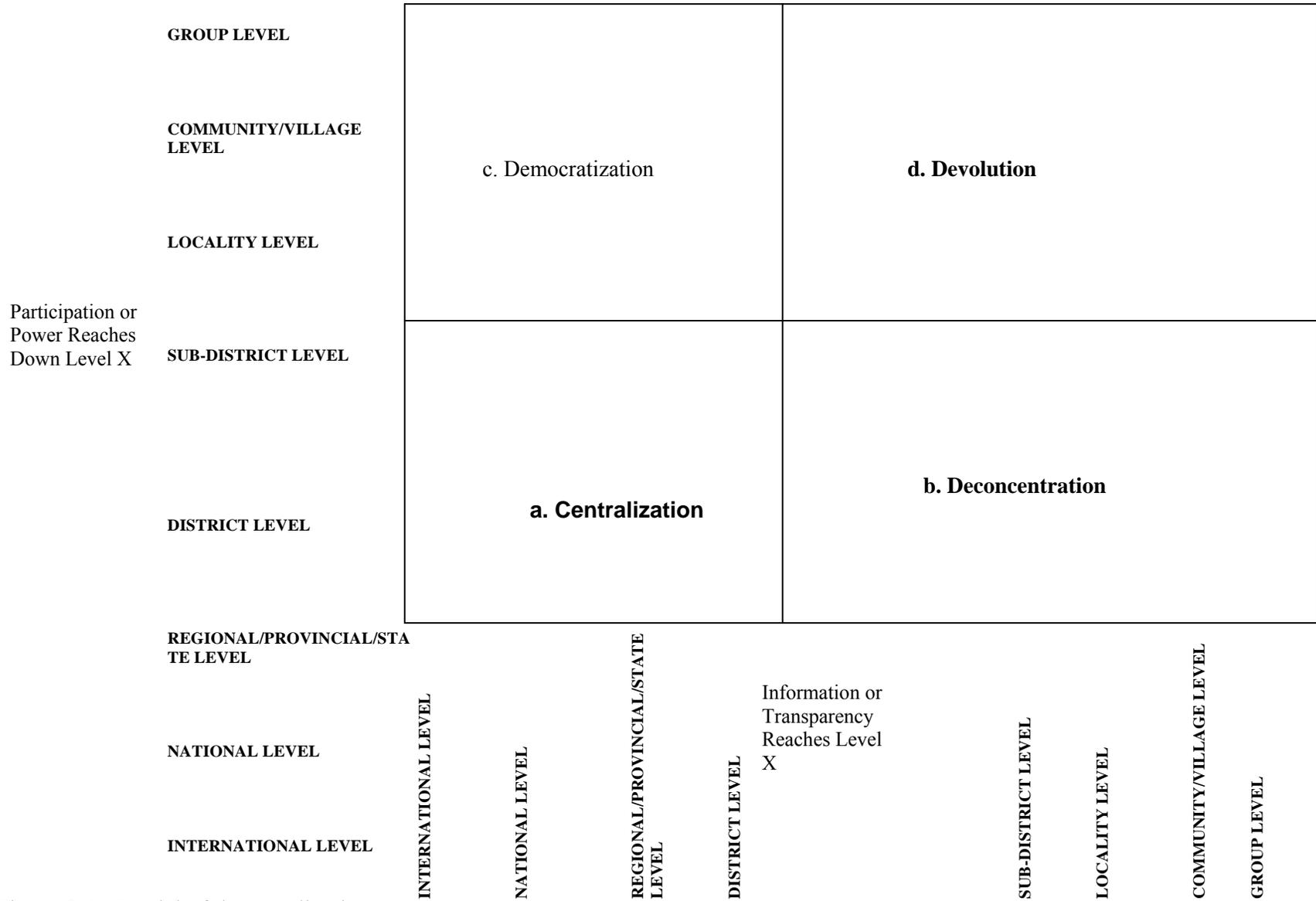


Figure 3-1. Model of decentralization

On the X-axis is defined a variable that assumes that the greater the transparency at the local levels, the more complete the decentralization. Examples of transparency at the local level are public meetings (the *cabildos abiertos*) held in many Latin American countries; formal redress procedures (municipal vigilance committees in Bolivia); opinion surveys (public-opinion surveys); and issue-specific ad hoc councils are other examples. This is measured on the X-axis by a variable which measures in a dichotomous way whether information or transparency reaches x (i) level, where level x (i) ranges from the international (signifying little transparency), to the community or group levels (signifying a high level of transparency).

These variables, the levels reached by participation and transparency, are used to distinguish between centralization, deconcentration, democratization, and devolution, considered as contrasting forms of decentralization (Fesler, 1962). This distinction can be made clearer by showing it diagrammatically in Figure 3-1. The categorization has been done summarily, recognizing that there can be differences between sectors.

Deconcentration (Point b in Figure 3-1) is one way in which a political-administrative system can be decentralized, i.e., decision-making can be brought closer to the people who are affected by those decisions (Uphoff, 2002). In this case, participation in decision-making only reaches from the international to the regional level, and transparency reaches up to the district level to the village level. With deconcentration, decision-makers are both more accessible physically to local people and they also have more direct knowledge of local conditions and needs. The role of intermediaries who speak on behalf of local interests is somewhat diminished because people can speak more readily for themselves.

The cutoff that separates the deconcentrated from the centralized is the transparency between the district and sub-district and levels of transparency. Uphoff (1986) developed this

division because the sub-districts often have formal-legal political-administrative identities, like a ward, or administrative village. Uphoff and Buck (2006) wrote, “they have a sociological reality that derives from (usually) hundreds of years of communities and households living in close proximity with one another and having developed certain norms and expectations of mutual cooperation and collective defense. This has been cemented by relationships of economic trade in local markets, of social ties through marriage and friendship, of mutual identify and solidarity through attendance at the same church, temple, mosque or other local institution” (p. 43). The identity and relationships arising from economic, social, religious, as well as cultural, linguistic and other bonds are of a different order and significance from those created by membership in higher-level political-administrative units. What constitutes ‘local’ has grown out of this confluence of historical, cultural, social and other influences.

Devolution (point d in Figure 3-1) involves decentralization in two directions, or two dimensions (Uphoff, 2002; p. 51). In this case, transparency as well as participation reached up to the district and village levels. Obviously, devolution represents a greater degree of decentralization than does deconcentration (point b), although there can be significant benefits from deconcentration, especially when a political-administrative system has been highly centralized.

Along with these two forms, democratization (point c in Figure 3-1) can represent a third kind of decentralization. In this case, information or transparency remains at the center with access to information only at international, national and regional levels but because people vote, participation reaches the highest levels levels (sub-district, local, community and group).

This model will help answer the questions posed at the start of the chapter:

- 1) What type of decentralization has taken place in Santa Rosa del Sara with the Forestry Law and Agrarian Reform?

- 2) How has this decentralization influenced historical conflict in the municipality?

Methods

These questions were answered in Santa Rosa del Sara through the use of fifty-six informal (semi structured) interviews. Fifty-two of these informal interviews were conducted with the seven institutions: one with the Forest Concession San Pedro, 18 with Syndicates of Small Producers, two with ASLs, 15 with Illegal Colonists, five with Private Landholders, 5 with Loggers, and 6 with Sawmills. The remaining informal interviews (n=4) were conducted with individuals from INRA (n=2) and the Forestry Superintendent (n=2) providing background on the institutional structure.

The majority of these social actors operated at the municipal level, equivalent to the sub district level in figure 1, and it is therefore possible to evaluate if they felt there was participation and transparency. The nature of participation as well as the access to information (transparency) was discussed with each social actor. These responses were rated as “yes” and “no” according to the information provided by each responder. INRA and the Forestry Superintendent were examined in formal and informal interviews in order to determine who actually participated in decision-making and had access to information. The levels at which decision-making takes place and information is accessible were subsequently rated by the researcher utilizing the new variables of whether transparency and accountability were reached at levels x (i) and y (i). The results were plotted by the researcher on Figure 3-1 in order to determine the actual type of decentralization: whether deconcentration, democratization, or devolution. Therefore the qualitative data classify decentralization based on a majority of the responses falling at/above or below the district level.

Results

The analysis proceeds in two parts. The first part examines social actors' perceptions of transparency and participation for the Ley INRA. The law is subsequently rated as being either a centralized, deconcentrated, democratic, or devolved. I also examine how both transparency and participation are related to conflict. This is followed by an examination of the Forestry Law.

Ley INRA

In order to answer the first question with respect to the agrarian sector, Table 3-1 assesses whether social actors such as 1) the forest concession San Pedro, 2) syndicates of small producers (legal colonists), 3) Asociaciones Social de Lugar, 4) syndicates of small producers, 5) private landholders, and 6) INRA felt there was participation and transparency at their level of government. The majority of the institutions interviewed are rated as pertaining to the group and local levels (n=40) with the exception of INRA (n=4), which belonged to the national level.

Of the 44 social actors, 40 felt that they had not participated in the implementation of the Ley INRA. None of the local social actors who were interviewed (n=40, see Table 3-1) stated that they had a role in local implementation of Ley INRA. INRA rated itself as having a role (participation, n=4). One private landholder stated, "The only thing I will have been involved in with INRA has been to witness their disastrous reforms unfold." A small producer stated, "I have participated in the reform by making them respect my will . . . they do not care, act, or even look to us." There has been a gap between the land tenure regulations put forward by the INRA and the role of social actors in the municipality.

Other social actors such as the leaders of the ASL's had much stronger words. One respondent stated, "We are never allowed a say in the process . . . those of us that have followed the law . . . and the paisanos (ethnic term for Kolla) are given priority as the teams from INRA interview directly include them . . . shouldn't those who support the law be involved." Many of

those social actors felt those who violated the law and used aggressive tactics, such as land invasion, were given a more prominent role than those who obeyed it.

Table 3-1. The social actors' perceptions of whether transparency and participation in the Ley INRA reached their level of government.

	Level	N	Level reached by Transparency (contributed to decision-making)		Level reached by Participation (contributed to decision-making)	
			Yes	No	Yes	No
Asociaciones Social de Lugar	Group	2	0	2	0	2
Illegal Colonists	Community	15	0	15	0	15
Syndicates of Small producers (legal colonist)	Community	18	0	18	0	18
Private Landholders	Local	5	0	5	0	5
INRA	National	4	4	0	4	0
Total		44	4	40	4	40

There was a very telling session in the local municipal government, which included many key social actors including small producers of the Forestry Reserve El Chore and a forest concession owner. The session attempted to settle a long-standing conflict between these social actors. One municipal official was asking questions about the status of a land dispute between a forest concession user and a colonist.

Municipal official: 'What does INRA have to say about the legality of the settlement?'

Forest concession owner: 'Actually we have not seen INRA and not heard anything back'

Municipal official: 'Have you presented your case to INRA?'

Colonist: 'I would have to go to La Paz . . . not even the office in Santa Cruz can answer my question . . . I wish that we had more insight but we will have to ask the prefecture to try and get INRA to come here . . . We have no time for INRA!'

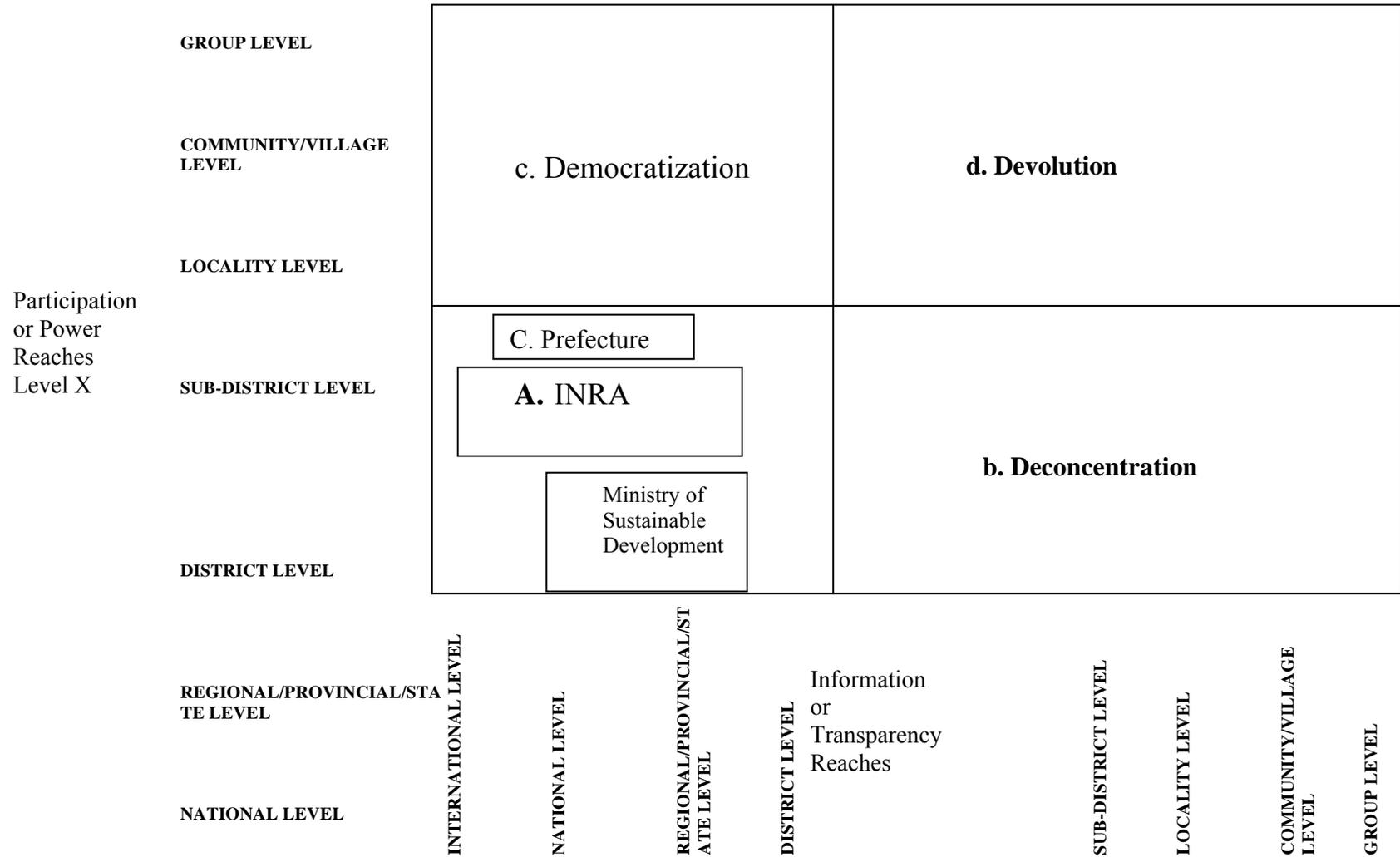


Figure 3-2. Land Tenure Decentralization

The conversation revealed a great deal of the role of each of the social actors because in a decentralized system, the municipal government should have been involved in the process. The municipal government, forest concession owner, and the colonist each had no idea as to who had tenure. Instead, the municipality convened a meeting in which it had no answers or power.

Furthermore, none of the local social actors (n=40, see Table 3-1) felt that there was transparency of the Ley INRA. A local municipal official discussed the availability of information, “The status of the land reform is a closely guarded secret until they actually complete an entire area . . . they are scared because land tenure is such an explosive issue . . . even local forestry officials who depend on the Ley INRA to pass management plans don’t have access to precise and accurate information.” Only the INRA officials located at the central level felt that there was transparency of the law.

The lack of transparency combined with the lack of participation at the local level makes INRA appear to be a centralized institution (see Figure 3-2). If there was either participation or transparency at the local level, it could be rated as either a democratic or a deconcentrated institution. However, none of the social actors at the local level feel that it is either participatory or transparent.

In Bolivia, there has been no link between the titling processes and registration carried out by INRA and the municipalities. The municipal government’s role has yet to be established in land redistribution, soil use plans, land administration and the levying of property taxes, and the regrouping of land parcels and human settlements.

The data show that neither in terms of transparency nor participation did INRA reach local social actors at the municipal or sub-municipal levels. In order to truly decentralize decision-making and thereby resources, there should have been information available and a process by

which local social actors could file grievances. Instead, all of the answers resided in La Paz and the local actors were left to ask questions - or in this case to fight. The feelings of the social actors are examined later in this chapter but the case shows that there appeared to be very little local involvement in the land distribution process.

Therefore, INRA is described as a centralized institution in which the majority of the power belongs to the Ministry of Sustainable Planning and Development and the National INRA office. These results are plotted on Figure 3-2, which shows the actual institutions involved in the agrarian reform.

Through participant observation of institutions involved in the implementation of land reform, the national institution of the Ministry of Sustainable Development and Planning (MDSP) has been constituted as the primary entity that, in practice, creates policy for land reform (See Figure 3-2). The interview with the INRA office (see Table 3-1) revealed that the national INRA office has helped to coordinate the fieldwork and played the primary role of implementing the Ley INRA.

At the regional level, participant observation with the prefecture showed they had very little influence over the tenure process. One official from the prefecture stated, “We have no direct control over INRA. We help to coordinate their visits but we can do little beyond that.” Essentially, the municipal prefecture has no direct influence over the process but oversees the implementation of the land reform and helps to coordinate activities. There was a general tension between the two institutions (the municipal prefecture and INRA). The municipal forestry official in control of the municipal forest area stressed his frustration. He stated, “The Forestry Law gives me the power and responsibility to enact a municipal forestry area . . . now look at where we are at . . . INRA has not even recognized or officially backed up the

designation of the area.” Another municipal representative stated, “The municipality is at a loss . . . when one evaluates the entire situation we can do nothing.” A statement by INRA illustrated that social actors must wait until the process is completed. He stated, “We know they want the forestry reserve but everyone must wait, even if they are municipal officials.” At the local level, the municipalities and social actors have little to say regarding land tenure issues, except to suggest the creation of municipal forest reserves. Despite these efforts, the municipal forest reserve has not been officially recognized by INRA. This resulted in conflicts in the reserve, something I will explore later in this chapter.

The key finding in Table 3-1 is that everybody at the local level disagreed with INRA. INRA is very disconnected from the social actors in the municipality as they feel that everyone must wait for them to finish their reforms. All of the local social actors are anxious and frustrated with the process. If there was any participation on behalf of these social actors, or at least information disseminated by INRA, there might exist a possibility to resolve potential conflicts.

The problems with INRA and the lack of control have become a constant source of frustration and conflict in the Forestry Reserve El Chore. I interviewed the president of one of the Syndicates of Small Producers about the conflicts. He explained the problems: “The problems that we are encountering are not new but the Ley INRA has been a disappointment . . . over the last couple of generations we have had to use land invasion to gain land . . . however the Ley INRA promised to give a voice to the small people, to reverse discrimination favoring the large landholders, and to allow us to finally have a stake in national policies . . . but this is Bolivia and the corrupt officials stole the money and we have been forced to return to the same old thing . . . there are fights between syndicates, neighbors, and large landholders . . . INRA has

failed.” INRA in the eyes of many of the social actors is worse than a mere centralized institution but a corrupt state institution. In turn, there is conflict over land as social actors vie for resource control.

Forestry Law and Forestry Superintendent

The other major reform that was conducted was the Forestry Law that created a professional forest service to support the implementation of forest management plans (which allow for sustainable forest management), and the Forestry Superintendent, an institution that can enforce the laws at the local level. Once again, the formal and informal interviews sought to examine the extent of decentralization in terms of levels of transparency and participation in this reform process.

In order to address these issues, Table 3-2 shows the level of participation perceived by social actors including those in the forest concession San Pedro, syndicates of small producers (legal colonist), Asociaciones Social de Lugar, illegal colonists, private landholders, loggers, sawmills, and the Forestry Superintendent. In terms of participation, 50 respondents stated that they did not participate while six did participate. In terms of transparency, 34 reported that there was not transparency on behalf of the Forestry Superintendent while 22 reported that there was transparency.

The majority of respondents did indicate a lack of transparency, but that appraisal is by no means universal. At the community level, many people said there was transparency, while at the local level, a higher level, there was unanimity in agreement that there was not transparency. The difference is attributed to the direct contact the Forestry Superintendent had with many of the social actors. One member of a syndicate explained, “We have had many problems with the Forestry Superintendent but they are honest . . . if there is a dispute they come and listen . . . at

least we can talk to them . . . and they provide us with information.” The key for those who felt that there was transparency was that they felt there was access to information.

Table 3-2. The social actors’ perceptions of whether transparency and participation in Forestry Reforms reached their level of government.

	Level	N	Level reached by Transparency (contributed to decision-making)		Level reached by Participation (contributed to decision-making)	
			No	Yes	No	Yes
Asociaciones Social de Lugar	Group	2	0	2	0	2
Syndicates of Small producers (legal colonist)	Community	18	12	6	18	0
Illegal Colonists	Community	15	5	10	15	0
Private Landholders	Local	5	5	0	5	0
Loggers	Local	5	5	0	5	0
Sawmills	Local	6	6	0	6	0
Forest Concession San Pedro	Local	1	1	0	1	0
Forestry Superintendent	Municipality	4	0	4	0	4
Total		56	34	22	50	6

The perception for many of the other social actors at the community level was quite different. One logger stated, “They give us information . . . after around three meetings. Then I wait for the plan (Forestry Management Plan) to come from Santa Cruz . . . I have access to information after six months.” Those at the community level had access to information, however, the bureaucratic nature of the approval process made individuals doubt the information.

Much of the problem was the lack of power of local Forestry Superintendent Officials. Many social actors felt that these representatives would not give them valid information or that they had to wait too long. For many people, such as the loggers, this directly threatened their livelihoods, and led to charges that officials suppressed information or were corrupt.

According to these results, the Forestry Superintendent is classified as a centralized institution because local social actors did not feel that the institution was participatory or transparent. These findings were reinforced based on participant observation. At the national level, the Ministry of Sustainable Development and Planning (MDSP), the entity that creates public forestry policy, has exhibited both very passive and, in other cases, aggressive involvement, based on differences in administration.

The MDSP was only present during a series of blockades that erupted in relation to the Forestry Reserve. The Vice Minister stated, “I am here to ensure that we serve as a mediator to resolve the conflict.” The Vice-minister, however, quickly withdrew to La Paz fostering complaints of passive action on behalf of the Forestry Law.

Under another administration, however, the Vice-minister started a social movement to save the Forest Reserve El Chore. I asked the MDSP if they would negotiate with the small producers that were in the Forest Reserve. He responded, “There will be no negotiations . . . The Forestry Reserve belongs to all the Santa Cruz and it is our heritage.” Once again, there is a command and control mentality.

The MDSP is in a very political position and depends on the administration; there has been a very different relationship with local social actors. Despite the inconsistencies of the MDSP overall, the majority of the policy implementation comes from the central government. Local social actors are left to respond to either the lack of action or aggressive policies pursued by the government.

At the regional level, the prefecture develops programs for strengthening municipalities' institutional capacities, and implements programs and projects of public investments related to the forestry sector at the departmental level. The actual completion of these responsibilities has been non-existent (see Figure 3-3). The prefecture has played the role of mediator between the different levels of government. One official from the prefecture explained his role. He stated, "We do not have a lot of money or control of policy. We can try to coordinate between the different people involved. We have been most successful when we can create a social network to respond to problems." Despite the promises, there was little delivery by the prefecture.

The Forestry Superintendent enforces forestry laws and reviews and monitors compliance with forest management plans. The new legal framework gives the Forestry Superintendent a considerable degree of independence from political influences. The Superintendent is selected by the President of the Republic from a list of three names submitted by the Congress and serves an appointment of six years. The agency also has financial independence and is paid by the forestry fees (see Figure 3-3).

Despite the independence, however, the Forestry Superintendent is rated as a centralized institution because of the lack of transparency and participation of local actors. At the local level, the Forestry Law has established municipal offices of the Forestry Superintendent and Municipal Forestry Units. The Forestry Superintendent issues forest permits, approves forest management plans, and enforces regulations. The Municipal Forestry Unit has been responsible for identifying areas for Municipal Forest Reserves, helping local communities produce management plans, monitoring and controlling compliance with these plans, stopping illicit activities, and promoting forest plantations and agro-forestry (see Figure 3-3).

The Forestry Superintendent is principally concentrated at the national level but there is an office in Santa Rosa del Sara. The director of the regional office described their role. He stated, “We are the arms of the government in this area because we have to enforce the policies and make sure the loggers are following the law. It does not make us very popular because the majority of the local people are frustrated with us at one point.” Once again the Forestry Superintendent is part of a command and control structure and there is very little control or involvement amongst the local population.

Often there has been collaboration between the Forestry Superintendent and the Municipal Forestry Units, but the Municipal Forestry Units rarely take on monitoring and enforcement of policies. I talked to the local Municipal Forestry Officer about his role. He stated, “I can promote some activities such as the plans to clear forests . . . these generate money for the municipality . . . beyond this if there is a problem I have to check with the Forestry Superintendent . . . I have had people come in and report forest crimes and I can do almost nothing . . . the Forestry Superintendent has the majority of the power.” The municipal agencies have no power or participation. Rather they have concentrated on granting small permits to clear land, identifying municipal forests, and helping local groups establish concessions. The local Forestry Superintendent has usually handled the majority of the monitoring and enforcing of the law.

The Forestry Superintendent has imposed this relationship on the municipal forestry unit because of a lack of trust. There is a feeling that the Municipal Forestry Unit is not able to carry out its responsibility. Furthermore, there is a fear that municipal officials will be sympathetic or fearful of local loggers and not apply the law.

The other local social actors, including the loggers, small producers of El Chore, and the ASLs are all frustrated by their lack of participation and control. In a meeting including the vice-minister for sustainable development, local ASLs, colonists, and the Forestry Superintendent, there was a discussion of the status of the municipal forest reserve.

Vice minister: “What is it you actually want?”

Member of the ASL: “Madame minister, the municipality has designated an area as a forest reserve, we are still waiting for the title to be finalized but we have started the process . . . this area has been invaded and we need to have the colonists removed.”

Vice minister: “What has the Forestry Superintendent done about this invasion?”

Forestry Superintendent: “We have delivered a notice for the colonists to be removed and are waiting for the prefecture to order troops to remove the colonists.”

Vice minister to the ASL: “You are not satisfied with these measures?”

Member of the ASL: “Every day we wait, the colonists cut down 30 hectares, we have been waiting for 6 months for the removal of the colonists . . . We had to shut down the gas lines. . . It’s the only way to get the attention of the government . . . we already removed the colonists once ourselves.”

The dialogue is very revealing of the decentralization and the problematic nature of the power structure. The majority of the power is concentrated with the Ministry of Sustainable Development, the prefecture, and the Forestry Superintendent. At the municipal level, there are representatives of the Forestry Superintendent and there has been the establishment of municipal forestry reserves and ASLs but they have no real power.

Apart from the centralization, there has been some devolution with the establishment of the Municipal Forest Unit (UFM) and local ASLs (see Figure 3-3 and Table 3-2). In the case of Santa Rosa, the UFM receives 25% of the money that is collected for the patents in the municipality and 25% of the money collected for the plans of desmonte. The UFM has successfully assisted the ASLs through the process of the establishment of the municipal forests,

their forest inventory, and the creation of the management plans. Furthermore, the UFM has been actively coordinating the creation and inspection of the plans of desmonte with the SF.

The formation of the ASLs is part of the Bolivian experiment and another important case study. Essentially the law has brought together local users that solicit municipal forest lands. The importance of the ASLs should not be underestimated. Overall, I have witnessed the actions of the ASLs as they have fought to keep the Municipal Forest Reserve forested. Initially, the ASLs spent two years preparing the management plan and waiting for the final approval from INRA for the concessions. After the completion of these steps, the ASLs should have been able to harvest their concession but the major obstacle has been the presence of colonists. Overall, there has a high level of frustration on the part of the ASLs with three years of continual conflict. The pressure from the ASLs has been the driving force of the enforcement of the Forestry Law and despite their efforts, there are still people in their concessions.

Although these forest reforms exhibit more transparency than was seen in the case of the agrarian reform, there exists a gap between the concept of decentralization and the actual reforms that took place. One of the key problems is the lack of information available immediately to local social actors. These have placed the Forestry Superintendent in a position of command and control within the local timber industry and the information that they must approve directly influences the ability of the timber industry to cut, transport, and process wood. Therefore, the lack of quick and decisive decisions and information directly undermines many of the social actors' faith in the institution.

At times this tension has boiled over, as loggers and sawmill owners have been frustrated with the cost of the policies that are imposed. I witnessed staff of the forestry superintendent being hit, threatened, locked in their office, and when there was a local death from a logging

accident, they threatened to burn the forestry superintendent's office down with the members inside. The conflict was severe enough that the forestry superintendent actually moved out of town.

Discussion

In brief, the findings from interviews indicate that in both the case of the Forestry Law and Ley INRA, local actors have very little involvement and information. In the case of INRA because of the lack of participation and transparency, it is rated as centralized. The limited participation in the titling and lack of information on the status of final tenure has fostered conflict. None of the social actors reported that they had public availability of information on open budget preparation, execution, and reporting. The lack of information has led to charges of corruption and all were frustrated due to the lack of transparency of the land titling process.

CHAPTER 4
THE POLITICAL ECOLOGY OF ETHNO-REGIONAL IDENTITIES AND LAND TENURE
IN MUNICIPALITY OF SANTA ROSA DEL SARA

In Latin America, ethnic conflict in the region mainly concerns the longstanding inequalities among the region's three main ethno racial groups: the descendants of the original inhabitants, "indigenous peoples" or "Indians"; the descendants of European conquerors and immigrants, "whites" or "criollos"; and the descendants of African slaves, "Afro-descendants" or "blacks."

Indigenous peoples constitute approximately 40 million individuals, or roughly ten per cent of Latin America's population, with large concentrations in Bolivia, Chile, Ecuador, Guatemala, Mexico, and Peru. The situation of the indigenous populations varies greatly across countries (Psacharopoulos and Patrinos, 1994). Although a couple of the continent's leaders are of indigenous origin, these communities typically experience difficulties in accessing political power as a group because of their lower position in society (Aylwin, 2001; Lewis, 2002).

The conflict over land is a long-lasting one, since Latin American "indigenous" people have been deprived of most of what they had (not only land) since the 16th century. Access and security of tenure over already-reduced footprints of land has been an ongoing subject of—sometimes violent—political struggle. Their political and economic weakness means that they have usually been unable to retain their land when it was seized for the constitution of large agricultural estates (or of mines). Consequently, they have been the victims of violent retaliation when they tried to resist seizure of their land (Kay and Urioste, 2005).

Contemporary indigenous social movements formed in the 1960s and 1970s to demand bilingual education and collective land rights. These movements gained strength and public recognition in the 1980s and became important collective political actors in Bolivia, Chile, Colombia, Ecuador and Mexico (Aylwin, 2001; Bengoa, 2000; Lewis, 2002; Van Cott, 1994;

Van Cott, 2000). By the 1990s, extensive and persistent interaction with neighboring movements generated a common, cohesive set of indigenous rights claims associated with the right to self-determination, or the right to freely develop their cultures, forms of production, and traditional modes of political organization (Inter-American Dialogue, 2003).

In Bolivia, such conflicts are evident in the Department of Santa Cruz and its capital city of the same name, have continued to emerge and fester with the flow of agricultural and urban migrants from the highlands. While rivalry between the political elite in the highlands and the lowland elite has a long history in Bolivia, recent immigration of poor Quechua and Aymara speakers and other working class highlanders has presented new dilemmas for the lowlanders. On the one hand, lowlanders (“Cambas”) needed highlanders (“Kollas”) as laborers for harvesting sugar cane and cotton as agricultural industrialization grew in Santa Cruz. On the other hand, Cambas feared the threat of poor Kolla immigrants invading their landholdings.

The terms Kolla and Camba refer to ethno-regional distinctions used in Bolivia. Kollas may be distinguished in terms of the origin (departments from the highlands), language, dress, and belief systems (Stearman, 1985). Camba is a term used to describe lowlanders who may also be identified by their origin, and language, as well as their behavior and distinct Spanish (Stearman, 1985).

The movement of highlanders (Kollas) has initiated a struggle over land between highlanders (Kollas) and lowlanders (Cambas). The Kollas have begun a number of tactics to gain control of land. In response, the Cambas have adapted to either regain or maintain their control of land. The series of events leads to the question, how and why do strategies (between highlanders and lowlanders) to claim resources vary and change?

This chapter examines the political ecology of land use conflict between Cambas and Kollas in the Municipality of Santa Rosa del Sara. In particular, the chapter examines the political ecology of land invasion, emphasizing the invasion tactics employed by Kollas, the responses employed by Cambas, and finally the adoption of Kolla tactics by Cambas. First, the chapter discusses political ecology to help us understand contestation over land tenure between Cambas and Kollas. Second, the chapter discusses methods I used to document the Camba and Kolla tactics employed in land invasions.

The analysis will proceed in three steps: analysis of techniques used by Kolla colonists to gain access to land, how Camba communities respond to the Kolla invasion, and the radicalization of techniques by both Kollas and Cambas including increasing violence. Each step shows that there is adaptation by the actors as they respond to each other and these adaptations help to explain increasing violence in El Chore.

Political Ecology

Alier (2002) defines political ecology as the study of ecological distribution conflicts. By this he means conflicts over access to, and control over, natural resources, particularly as a source of livelihoods, including the costs of environmental destruction. “Ecological distribution conflicts” however, exist in the context of economies, cultures, and forms of knowledge, besides the obvious ecosystem context.

The majority of the previous research on political ecology of conflict examine two perspectives, most commonly adopted: that resource scarcity (mostly of renewable resources) causes conflicts (Bennett, 1991; Brown, 1977; Homer-Dixon, 1999; Renner, 1996; Suliman, 1998; Dalby, 1998; Peluso and Watts, 2001) and that resource abundance (mostly with respect to non-renewable resources) causes conflicts (Auty, 2001; Collier, 2000; de Soysa; Dietrich, 2000; Fairhead, 2000; Karl, 1997; Keen, 1998; Le Billon, 1999; Leite and Weidmann; 1999; Sachs

and Warner, 1995). The resource abundance, such as that examined in this chapter, often includes themes such as deforestation (Painter and Durham, 1995), frontier expansion (and Wood and Schmink, 1992), struggles between ranchers and small farmers (Sheridan, 1988; Stonich, 1993), and conflicts between logging companies and local communities (Peluso, 1991, 1992).

This chapter specifically examines the “cultural meanings” that define the practices that determine how nature is appropriated and utilized. Recently, some work in political ecology and social movements' strategies has begun to emphasize cultural conditions (Leff, 1998). Struggles for cultural difference, ethnic identities, and local autonomy over territory and resources are contributing to redefinition of the agenda of environmental conflict.

The study of cultural distribution conflicts looks at how cultural differences create or propagate inequalities in social power, usually through the imposition of a particular set of cultural norms as 'natural' and universal. Cultural distribution displaces the study of cultural difference from strict concerns with diversity towards the distributive effects of cultural dominance and struggles around it, thus originating the field of political ecology (Escobar, 2006).

The above argument brings together discourses and struggles around culture, often the focus of ethnic, gender, and other movements for identity; environment, the interest of ecology movements; and diverse economies, usually the concern of social and economic justice movements. This political ecology framework aims to analyze the interrelations created within secondary struggles such as those of Cambas and Kollas (Stearman, 1985) around identity, environment and economies, in all of their diversities (diverse identities, diverse ecologies, and diverse economies; Escobar, 2006).

The pattern of social relations is one factor that determines the risk of conflict and deployment of violence. Although this process of transformation can be peaceful and cooperative, it is often disputed. Violence may be used either in the form of physical force or through coercion and domination.

Local social actors adapt and violence becomes the prime means of political action, economic accumulation, or simply survival. In Chiapas, the rebellion by self-defense groups and the Zapatista movement mostly served to respond to the violence of a local political economy of neglect and marginalization, to challenge the neo-liberal political economic order which supported it, and to attract the attention of the government and media to improve their negotiating position (Harvey, 1998). In Rwanda, the dependence of the state and many farmers on coffee exports was the foremost structural factor in the weakening of the state and the radicalization of exclusionary politics into mass murder (Uvin, 1998).

Cultural Adaptation in Political Ecology

I define adaptation as an adjustment in ecological, cultural or economic systems in response to observed or expected changes in climatic or socio-economic stimuli and their effects and impacts, in order to alleviate adverse impacts of change or take advantage of new opportunities. Adaptation can involve building adaptive capacity. This increases the ability of individuals, groups, or organizations to adapt to changes, and implement adaptation decisions, i.e. transforming that capacity into action (IPCC, 2001).

Adaptation is usually implicit in the political ecology field. The relationships between ecosystems and political economy are often treated as issues of adaptive management of risks related to political and social power relations, resource use, and global economies (Blaikie and Brookfield, 1987). Work on entitlements and food security considers adaptation as a stress response in light of access to resources and the abilities of people to cope (Adger and Kelly,

1999; Adger, 2000). A key feature of this field is its demonstration of how the adaptive capacity of individuals or households is shaped and constrained by social, political, and economic processes at higher scales. Research on global environmental risk and the social amplification of risk places adjustments and adaptations in the context of human driving forces, biophysical constraints and the social, economic and political attenuation of risks (Kasperson and Kasperson, 2001).

Cultural adaptation occurs as social actors attempt to gain access to natural resources (Durham, 1995). It is along agricultural frontiers where forest conversion to agriculture is responsible for most of the deforestation on the earth. Most studies have focused on the adaptation of wealthy business elites and migrant peasant farmers (Moran, 1983).

The literature describes the manner in which the rural poor, who migrate or colonize forest areas, are required to adapt to the harsh environment they often encounter. The first generation of colonists is plagued by a host of problems, including poor infrastructure in the form of roads, and lack of access to water, public works, schools, and health care (Murphy et al., 1997). It is thought that colonists are pushed by poverty to the frontier where lack of capital, technological, market, and labor constraints further their suffering (Barbier, 1997). This is particularly true for the majority of migrants (or settlers) who, following the initial influx of colonists, are left to select among lands of even poorer transportation access or production quality (Murphy et al., 1997). While those colonists who are able to survive the first several years of settlement have sometimes experienced wealth improvements, the first phase of frontier colonization is generally characterized by indebtedness and low yields. Often, this is quickly followed by consolidation in the hands of rural elites, resulting in an increase of both very large and very small plots

(Bilsborrow and Pan, 2001), and the subsequent exodus of the poor farmers, often to another rural frontier (Barbier, 1997).

Often there is conflict between social actors as they adapt to gain access and control of resources. Hammond (1999) describes the efforts of the MST (Movimento Sem Terra) in Brazil. The MST has promoted land invasion, which includes three steps. First, it identifies sites which it believes are eligible for expropriation. At the same time, it recruits occupiers. An occupation can involve anywhere from 200 to 2,500 families. Some are recruited in the immediate vicinity and others in larger towns and cities. Second, they meet regularly for a period of months, undergoing political education and preparation for the effort, in "origin groups" in their places of residence. Finally, those who have been educated invade the land and begin to farm it. In response, landowners deploy paramilitary groups to intimidate those who challenge their control.

The work of Hammond (1999) is part of a vast body of literature that describes adaptation of social actors (Hall, 1990; Gaiger, 1987; Grzybowski, 1987; Schmink and Wood, 1993; Bilsborrow and Pan, 2001; and Barbier, 1997). Despite the plethora of research on adaptation tactics of one group, there has not been a great deal of research on how the interaction between social actors influences their adaptation techniques. An important, but not thoroughly documented tenet in the field of political ecology is the fact that adaptation between groups of social actors does take place as they attempt to influence policy and gain control over natural resources. Therefore, this chapter provides an important contribution to the field of political ecology because it describes those interactions in detail. The subsequent section provides an introduction into the ethno-regional groups in Bolivia (Cambas and Kollas) that provides an example of the way that groups adapt, interact, and change over time.

Cambas and Kollas

I focus on the cultural adaptation of Cambas, the long-time inhabitants of the Municipality of Santa Rosa del Sara and other lowland municipalities in Bolivia, and Kollas, who are relative newcomers from other parts of Bolivia. The distinct cultural identities of Cambas and Kollas are well established in prior literature on Bolivia (Stearman, 1985; Gustafson, 2004; and Hertzler, 2005). Following other scholars, I characterize that distinction as ethno-regional because of distinct ethnicities that are regionally located (Keating, 1998; Brenner, 1999).

I use the term “ethno-regional” as having a spatial division and a population that is culturally distinct and has an exclusive group identity. Programmatically, their most defining characteristic is their demand for empowerment of the ethno-regional collectivity (De Winter, 1994: 28; Türsan, 1998). Ethno-regional groups thus call for reconfiguring the power structure of the national political system, leading to a certain degree of self-government for the region. This degree can vary from cultural protectionism to straightforward separatism (De Winter, 1998).

In Bolivia the centralized and colonial style government (based on race, gender, social and regional exclusion) has prevented regions and large groups of Bolivians from participating in or being considered in public policies from the time of independence in 1825 (Kay and Urioste, 2005). In colonial and post-colonial periods, indigenous groups did attempt to resist Spanish domination and promote their right to autonomy by various means and often with support from sectors of the dominant culture, such as “protectors” and Jesuits (Assies, 2006; Kay and Urioste, 2005).

Claims for access to or control of natural resources, as well as other demands (such as Santa Cruz’s demands for further decentralization or autonomy) are often symptomatic of deeper identity issues that have fomented since colonial times. Geography and natural resources have

become symbolic points of reference, embodying historic collective memories, especially for indigenous peoples whose territory was usurped by Spanish colonialists. Additionally, the national identity claim is based on a defense of natural resources against foreign threats and linked in history to a national consciousness formed during the Wars of the Pacific and the Chaco (polarizing defenders of the nation against foreign “anti-nation agents”) (Molina, 2007).

Diverse geography and historical economic development have resulted in distinct economies in Bolivia. Regions of the country have experienced varied degrees and types of economic development, resulting in tense relations with the central government. Santa Cruz, between 1988 and 1994, consistently earned a higher gross domestic product per capita than the rest of Bolivia. The central government has ignored the fact that Bolivia has three economies (a rural natural resource-based; a family based urban economy and a relatively small mercantile economy) resulting in failed economic policies (Anderson et al, 2002). The economic division of the country goes along with the regional divisions. Bolivia is divided, regionally, into three different "cultural" or “ethno-regional groups.” Importantly, this ethno-regional configuration is shaped by the interactions between the social and the ecological sphere and socially defined property rights. Therefore, ethno-regionalism informs societal perceptions of natural resources (Molina, 2007).

The inhabitants of the lowlands in Bolivia are known as Cambas, “a term believed to have originated from the Guaraní word meaning ‘friend’” (Stearman, 1985; p. 36). As time went by, Camba became an all-inclusive term for lowland society. It also became a means by which lowlanders could demonstrate their cultural as well as geographical distance from highlanders, to whom they referred as Kollas (from the Quechua word Kollasuyo, the Bolivian sector of the Inca Empire). The Camba is mestizo and “tends to be a potpourri of highland Indian (Quechua and

Aymara), lowland Indian (Guarani, Guarayo, Chiquitano, and many more), European (primarily from southern Spain), and perhaps African heritage” (Stearman, 1985). People from the southern department of Tarija are known as chapacos and are neither Camba nor Kolla (parts of Chuquisaca also share this distinction).

There are many stereotypes concerning the Cambas (e.g. Cambas are extremely direct, perhaps even rude at times). Cambas do not have a reputation for humility. A Camba will always demand good treatment, and is quick to anger if slighted, whereas Kollas will wait until water boils to steam (Centellas, 2005). Cambas and Kollas speak differently. Whereas Aymara or Quechua words and expressions mark Kolla Spanish, Camba Spanish is marked by the near-inability to pronounce the letter "S," sprinkled Guarani words and expressions, and verb conjugation patterns that resemble Portuguese.

Attitudes towards property are also markedly different. The Kolla campesino is more familiar with the tradition of the ayllu, a form of communal farming (Aguiló, 1992; Bouysse Cassagne, 1987; Choque, 1993; Gisbert, 1987; Klein, 1991; Saignes, 1986; Xavier and Barnadas, 1990). The Camba isn't. In Camba traditions, private property is private property, and is fiercely defended. In the Beni countryside, you don't walk up to a door and knock. Rather, you walk up to within viewing distance of the door, and clap (loudly) in the air — then you sit down and wait for the owner to decide if you're friendly or not (Centellas, 2005).

The international perception of Bolivian culture is one comprised of ethno-regional Kolla traits. The western, Andean departments of Oruro, Potosí, La Paz, Cochabamba, and Chuquisaca are considered Kolla departments. These departments are more "Andean" and have large Quechua and Aymara populations and traditions. In general, the stereotypical Kollas tend to be

pleasant and courteous as a rule, even somewhat humble and socially conservative. Meals include soup, evenings require sweaters, and “mate” tea (Centellas, 2005).

The rift between Kollas and Cambas is economic, cultural, and ethnic. While the axis of economic power used to flow south to north through the highlands, from Potosí to La Paz, now the line is from east to west, from Santa Cruz to La Paz. Santa Cruz, for example, is more entrepreneurial, competitive, and fast growing, while business in La Paz is more traditional, familial, and closed. Santa Cruz is the economic powerhouse, while La Paz is the seat of national government. While Santa Cruz fancies itself a risk-taking modern melting pot, conservative indigenous culture in the highlands is strong and taking increasingly radical forms.

In Santa Cruz, there is a long history of bitter distrust and discrimination against Kollas. In Santa Cruz, Kollas are socially inferior to Cambas and reminders of this class distinction are everywhere. Everyone understands that to “be treated as Kolla” is to be treated with disrespect. It is not uncommon to hear Cambas complaining about the “Kolla de mierda.” Stearman (1985) writes, “Most Cambas maintain that highlanders are hard workers but dirty, slow-witted, and untrustworthy. Kollas often describe Cambas as lazy drunkards, unfaithful to their spouses but fun loving and carefree. The strength of these stereotypes is beginning to erode due to increased firsthand contact and other matters, but prejudices still remain strong” (17).

Most highlanders (Kollas) arriving in Santa Cruz are aware that such prejudices exist, but are unprepared for the level of animosity that is often demonstrated. Stearman (1985) writes, “If highlanders come to Santa Cruz with a desire to get along with Cambas, they learn quickly that the best they can hope for at present is mutual tolerance. Still, a certain degree of resistance is practiced by highlanders, and those who are gibed by Cambas may be heard to retort ‘Camba flojo’ (lazy Camba) or ‘Camba pícaro’ (Camba rogue)” (p. 39).

The Kolla migrants who come to Santa Cruz for the most part are upwardly mobile and ambitious. Stearman writes, "They are entrepreneurs who will turn most any venture into a capital gain. Lowlanders are bewildered at the rate at which highlanders are dominating the Cruceño economy. The Kolla is out farming and outselling the Camba in every corner of the region. Some lowlanders are philosophical about the apparent take-over of their territory, but for others it only leads to more bitterness" (p. 45).

European racism has a lot to do with this animosity. One example is that the citizens of the city of Santa Cruz (traditionally European and mestizo) who think of themselves as "true" Cambas compared to the inhabitants/residents of the countryside. The above-mentioned differences are reinforced through education. For example, in school, Cruceños learn about Melchor Pinta Parada and the 11 percent: the bitter struggle to win the right to keep 11% of the oil profits in Santa Cruz. The balance of oil profits, according to school lessons, all went to the "national" treasury, that is, La Paz. Such history of political marginalization left deep scars among both Cambas and Chapacos. This has led to a great deal of mistrust against La Paz (the center of political power) and the poor western departments (Potosí and Oruro) that receive large chunks of economic support from the state while producing less than 5% of the national GDP. Santa Cruz alone produces more than 30% of Bolivia's GDP. In essence, Cambas frequently see themselves supporting the nation economically while getting little back, and being politically ignored to boot.

Land has become a catalytic issue around which nominally unified indigenous and popular movements have taken shape. This is caused by the increase in Kolla migrant flows to the eastern lowlands and fueled by a spiraling pattern of unchecked land invasions by Kollas. This

off-and-on conflict has also come to be articulated around indigenous collective land and minifundio claims contrasted with/that compete with large-scale cattle or agro-farming models.

Many scholars such as Hetzler (2005) and Gustafson (2006) feel that the notion of difference between the Camba and Kolla is primarily a class issue (Gustafson, 2006). These scholars argue that the term Camba is used to maintain control of the wealth found in the lowlands. This is done by creating an identity that justifies the discrimination of poor highlanders migrating to the wealthier lowlands.

The conflicts that are witnessed in Santa Rosa del Sara are often utilized as part of a larger struggle between Santa Cruz and La Paz. Despite protests, the decentralization of Popular Participation has removed most political violence. This has been accomplished by giving traditional minorities (Kollas) a role in the municipal government.

In the case the Municipality of Santa Rosa del Sara (in which the Provincial Capital is Santa Rosa del Sara), recent colonization by Kollas has proceeded via tactics that allow them to gain access to land claimed by Cambas. In response, Cambas have adapted their tactics in order to retain their land claims in the face of Kolla incursions. As we will see, the success of Kolla land invasion tactics has prompted Camba adaptation even to the point of adopting Kolla tactics.

On occasion, these local struggles are incorporated into the larger discourse of the destruction of Santa Cruz and the abuse of the landless poor. I argue, however, that these local conflicts are embedded in, but not directly driven by, larger national organizations such as the Pro Committee of Santa Cruz and CUCNSR (The Unified Campesino Center of the North of Santa Rosa). Rather I feel the conflict has been the result of adaptation of local actors.

Research Methods for the Political Ecology in the Municipality of Santa Rosa del Sara

This chapter seeks to answer the questions, what tactics do Cambas and Kollas use in conflicts over land, and how and why do their strategies change as each group seeks to make

resource claims? In this study, the units of analysis are communities that were coded as being either Kolla or Camba. The communities selected span several generations. They provide examples about whether the evolving tactics used by both Kolla and Camba communities—to gain access and control of natural resources—have or have not changed.

As a brief reminder, I review herein the colonization periods presented in chapter two but here I turn to specific sites that illustrated particular elements of Camba/ Kolla political ecology. The first period of colonization in the forest reserve was from 1966 through 1969. Kollas claimed land inside the reserve, close to its southern border. This time period resulted in the foundation of three communities: Galilea, Bellas Niguas, and Las Piedras. These settlements are located near the southern border of the forest reserve.

In my first example of Kolla strategies, I specifically examine the case of Galilea, located in the Southern edges of the Forest Reserve of El Chore. Galilea was colonized by Kolla families that followed logging roads produced by loggers from the town of Santa Rosa del Sara (see Figure 4-1). Galilea was colonized by families that moved from the town of Montero which is some 45 Km. to the south of the town of Santa Rosa del Sara.

The second period of colonization of the Forest Reserve of El Chore was from 1970 to 1978. This period is notably different because these communities were colonized in different areas of the reserve. Instead of colonizing near the southern border, colonists began to move deeper (north) into the forest reserve El Chore. In this time period the communities of Nazareth, Rio Nuevo, San Miguel, Santo Domingo and 12 de Octubre were established. Once again the colonization was primarily conducted by Kolla communities that were taking advantage of logging roads. The colonization began to create tension between residents of the town of Santa Rosa del Sara and colonists in the Forest Reserve El Chore. The colonists entered seeking access

to land for farming. Loggers from Santa Rosa del Sara saw the destruction of forest areas as a threat to their primary livelihood activity.

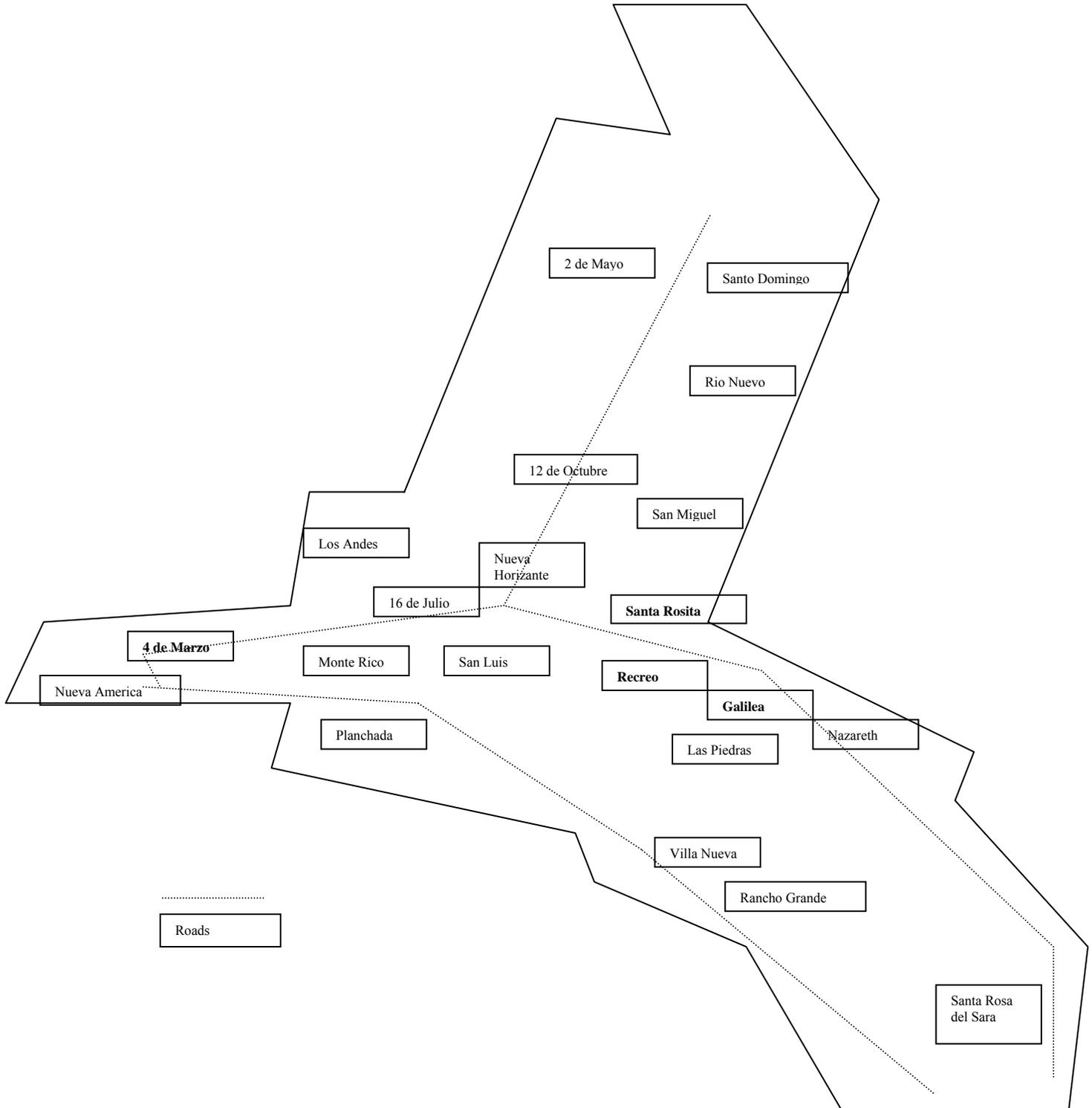


Figure 4-1. Communities in the Forest Reserve El Chore Located in the Province of Sara

The Camba community El Recreo is distinct because Guaranies from the lowlands colonized it. The community was the first to attempt sustainable forest management in the Region with the help of CIAT (The International Center for Teropical Agriculture in Cali, Colombia). The forest management area in the community has become a target of invasion by another Kolla syndicate 9 de Abril.

The final colonization period occurred between 1984 and 1996. During this period, the colonists (distinctly Kollas) had reached northwestern areas of the forest reserve bordering on the Forest Concession San Pedro. This included the establishment of 24 de Septiembre (a Kolla community) and Santa Rosita (a Camba community, my final two examples. The Kolla syndicate 24 de de Septiembre was established by taking land claimed by private landholders from the town of Santa Rosa del Sara. The private holders were using the land for logging, while the syndicate wanted to use the land for agricultural production.

The community of Santa Rosita was formed by 12 families from the town of Santa Rosa. The families went into the middle of the Forest Reserve of El Chore and displaced Kolla syndicates. Therefore, Santa Rosita provided a unique opportunity to see the adaptation of a Camba community.

The communities examined represent the range of colonization from the beginning of this migration to recent times. Each subsequent example shows how these tactics have evolved. Galiea and 4 de Marzo show the initial techniques used by Kolla colonists in order to gain access to land. The first community, Galiea (a Kolla community), was one of the first colonies in the region; while the second case 4 de Marzo (a Kolla community) was settled in a much later time in which there was more conflict. El Recreo illustrates how a Camba community responded to the Kolla invasion (the community 9 de Abril considered Kolla). The final two cases show an

evolution of the tactics as shown in the adaptation by a Kolla community (24 de Septiembre) and a Camba community (Santa Rosita), which illustrate the radicalization of techniques including increasing violence. I describe the general research methods that were used in this chapter and then look at the manner in which ethno-regional origin is distinguished.

The main research methods utilized in this chapter were participant observation, combined with semi-structured interviews (with 12 interviewees from six communities), along with a questionnaire (totaling 180 individuals from 33 communities), and use of secondary data.

In participant observation, the researcher shares as intimately as possible in the life and activities of the people in the observed setting. The purpose of such participation is to develop an insider's view of what is happening. This means that the researcher not only sees what is happening but also "feels" what it is like to be part of the group (Genzuk, 2003). The researcher experiences an environment as an insider. At the same time, however, there is clearly an observer side to this process.

The information obtained from individuals and institutions was continuously updated until all relevant topics had been covered and the accuracy and breadth of responses were sufficient for analysis. Interviews with a single individual generally included supplemental information obtained through a number of discussions, in addition to the data collected during the initial formal and informal interviews. Similarly, many discussions were followed up with multiple contacts over time, increasing the accuracy and breadth of the responses.

I conducted a total of 12 semi-structured interviews with community leaders (six communities in the forest reserve El Chore). Topics addressed during the semi-structured interviews concentrated on the interaction between communities, natural resource use, and

conflict. The semi-structured interviews emphasized the interaction between social actors as well as the conflict surrounding utilization of scarce natural resources.

I also used a questionnaire and secondary data from INE (Instituto Nacional de Estadística) to identify the ethno-regional identity of participants. The questionnaire was conducted with CIPCA (Centro de Investigación y Promoción Campesino) and provides a detailed look at the livelihood system of 180 households in 33 communities of colonists in the forest reserve El Chore. The secondary information from INE was collected in 2001. The census data are a valuable source of information on key aspects of living conditions of the Bolivian population at the disaggregated geographical level, thanks to the universal coverage of the census. Both of these sources play a key role to distinguish between the Camba and Kolla communities as discussed below.

Distinguishing Between Camba and Kolla Communities

In order to examine the ethnic-regional identity between Kolla (1) and Camba (2), indicators were developed in order to systematically distinguish between the two. I coded each of these categories as either being Kolla (1= being from the highland) or Camba (2= from the lowland). I have developed three indicators that I use to determine the type of ethno-regional origin including self-identified language, ethnicity, and place of origin.

I use self-identified language and ethnicity as two of the primary indicators to determine who are Camba and Kolla. Language is an important indicator of ethno-regionalism because of shared cultural traits. For example, many highlanders who live in the lowlanders still speak Quechua, eat foods and use dress common to the highlands, and listen to similar music. The language acts as one indicator for those who may share a culture.

The same rationale is used for the term ethnicity. People of distinct ethnic groups self-reported their ethnicity in the interviews with INE and CIPCA. I therefore, defined ethnicities as

Kolla (Origin Quechua, Origin Aymara), and the people of origin Camba (Origin Guaraní, Origin Chiquitano, Origin Mojeño, Origin Gaurayo, Origin Tacana, and Origin Ayoreo).

The third indicator is place of origin, highlands or lowlands. In the literature, it is common to refer to the “Media Luna” which comprises lowland departments of Pando, Beni, Santa Cruz, and Tarija, in contrast to the highlands, which are Chuquisaca, La Paz, Cochabamba, Oruro, and Potosí.

Finally, each of these findings was confirmed in consequent individual interviews with key informants. The informants were asked what makes someone Camba or Kolla. Later they were asked if they believed their community was either Camba or Kolla. In this manner, I was able to establish the external validity of the criteria utilized as well as the findings of ethno-regional identity of the communities.

Many of the conflicts that occur are based on the distribution of land between the highlands and lowlands. The place of origin helps to shape many of the views of those who come either from the lowlands or highlands. For example, people from the highlands usually favor the redistribution of land in the lowlands, while many of the lowlanders resist such efforts.

The previous selections are important because it is important to be able to contrast the different ethno-regional groups. I have comprehensively categorized each:

- the self identified language 1= highland [Aymara and Quechua], and 2= lowland [Gaurayo, Tacana, Chiquitano,, Mojeño, and, Ayoreo],
- ethnicity 1= highland [Origin Quechua and Origin Aymara,] and 2= [Origin Guaraní,, Origin Chiquitano, Origin Mojeño, Gaurayo, Quechua, Origin Tacana , Origin Ayoreo]
- place of origin 1= highland [Departments of Chuquisaca, La Paz , Cochabamba, Oruro, and Potosí, and 2= [Departments of Santa Cruz , Beni, and Pando].

If the community has more than 50% in any of these categories, it was considered either or Kolla or Camba appropriately. Data from INE and CIPCA were used to make this distinction.

Table 4-1 shows a summary of the different indicators used to determine ethnic-regional identity. 4 de Marzo, 24 de Septiembre, 9 de abril, and Galilea were determined as being indigenous Kolla while Santa Rosita and El Recreo were determined to be Camba.

Table 4-1. Summary of Ethno-Regional Identity of the Communities

Community	Santa Rosita*	El Recreo	4 de Marzo	Galilea	9 de Abril	24 de Septiembre
Self-Identified (INE)			Kolla	Kolla		Kolla
Origin (INE)	Camba	Camba	Kolla	Kolla		Kolla
Language (INE)		Camba	Kolla	Kolla		Kolla
Self-Identified (CIPCA)		Camba	Kolla	Kolla	Kolla	Kolla
Origen	Camba	Camba	Kolla	Kolla	Kolla	Kolla
Number of Inhabitants According to the 2001 Census	9	137	706	384	-	57

This research contributes to political ecology by examining the manner in which ethno-regional groups, especially the Cambas, have adapted in response to the tactics utilized by the Kollas. The distinction between the two ethno-regional groups is crucial in the Forest Reserve of El Chore in which there is conflict over access and control of natural resources. It is necessary to distinguish between the two groups so that one may decipher the manner in which each behaves in order to gain control over natural resources. There is also an evolution of the tactics used by each group as they have adapted and changed.

Results

The results rely primarily on informal interviews to distinguish how the tactics, used by both Kollas and Cambas to gain access to natural resources, have changed over time. Part one shows the initial techniques used by Kolla colonists in order to gain access to land. Part two shows how Camba communities adapt to the Kolla invasion. Finally, I describe the radicalization of techniques including increasing violence.

Part 1-Initial Colonization Techniques in Galilea and 4 de Marzo in the Municipality of Santa Rosa del Sara

I began with an examination of Galilea, a Kolla community, that was the first colony established in 1968 along a former logging road. Galilea was a simple case of Kollas finding land not claimed by Cambas, so colonization proceeded straightforwardly. It, however, stimulated colonization elsewhere, where the outcome involved contestation and conflicts over land with Cambas.

My primary interview in the case of Galilea was with one of the founders of the community. He described the colonization process as being three-fold. First, a group of people formed a syndicate in the town of Montero. There was one syndicate per community, which was responsible for organizing and governing all aspects of the development. Second, the group entered and physically settled in the Forest Reserve. Third, they began to clear the forests to establish their land claim.

The key Kolla informant described the overall experience of the colonization process. “Initially we were in Montero but life was very expensive . . . we wanted the chance to produce (agriculture) and advance and we needed land . . . we chose an area in which there was access . . . several of the members of the syndicate had worked as laborers and we knew how to enter . . . it was not easy but we didn’t have land . . . The mosquitoes were terrible and the kids got sick but once we were there, we could not go back . . . most of the people were friends of mine . . . I had nothing and my only hope was to get land . . . I had no house, land, and this was my only hope . . . we knew it would be hard but what isn’t.” The description shows individuals who were poor and wanted to gain access to land in order to improve their livelihoods. They chose an area in which they knew there were no clear landowners and then invaded the land.

I inquired about the need for the Kollas to colonize as compared to purchasing land or going through the government sponsored settlements. The founder described his feelings in terms of both the government and need to colonize. “The government was not interested in the majority of the small people, much less from the highlands . . . we did not have sufficient money to purchase the land so we used the only alternative for the majority of the people from the highlands . . . We organized into the syndicate and then entered the land. Many others have done the same in places such as Yapacani and San Julian . . . The syndicate is part of the Cuatro Provincias del Norte (federation of syndicates) to protect and provide order . . . if not then there are no laws.” The key informant described the land invasion as necessary because of the perceived lack of interest on the part of the government, and lack of money on the part of the colonists. Therefore, the Kolla colonists utilized a strategy that had proved successful in other areas, which included land invasion.

After settlement in the area, the key Kolla informant described the importance of clearing the land. Individuals were allotted particular plots of land, and were then responsible for clearing the land and beginning agricultural production: a process primarily intended to achieve land tenure. The key Kolla informant from Galilea reported, “We really had no choice because we needed to plant . . . it took forever to clear the trees but the real hard part was the stumps. In the first couple of years we planted rice and corn with yuca . . . it was also part of the prerequisite for land tenure. One of the foundations of the syndicates was that each member had to clear land to prove the land was ours.” This clearing of the land complied with the saying “the land belongs to the person who uses it” which became the primary prerequisite for receiving legal title.

The national civil codes relating to property rights restricted the “social function” of rural property to agricultural use (Pacheco and Pacheco, 2004). Land laws underpinning colonization schemes consequently encouraged colonists to deforest land to claim property rights for “improvements” (mejoras) involving the conversion of land to pasture and crops (Hecht, 2005).

The Kolla community of Galilea does not show a violent conflict between Cambas and Kollas, but indicates that the relationship between the ethno-regional groups influenced their choice as to where to colonize. I asked why the Kolla leaders chose Galilea and not another already-established Camba community. “They (Cambas) did not want us around . . . we also needed to create a space that was ours. In the old towns we would be second class citizens with little access to land . . . The choice was influenced by where there was unused land where we could leave our footprints.” Essentially the Kollas wanted to control their own destiny for both agricultural production and local governance.

Galilea and the other initial Kolla colonies helped to establish a larger trend. The process used by the Kolla communities, essentially included getting together to form a syndicate, entering the land, and finally clearing it. These activities helped complete the social function grounded in the agrarian reform of the time. It also was associated with the larger syndicalism movement post dating the Bolivian Revolution.

The community of El Recreo represents one of the first adaptations of a Camba community. The example provides the first case in which a Camba community actually used land invasion to gain access to land. Initially, Kolla syndicates seeking land for agriculture conducted the colonization. The case of El Recreo, however, represents a community that utilized Kolla tactics. One community member explained, “The Kollas were forming syndicates and invading the land . . . we formed a community and joined the syndicate structure . . . but we

have kept our normal communal structure . . . our goal was to have access to an area with forests where we would farm, build houses . . . the invasion gave us this opportunity.”

The members were quick to point out that they had a very distinct use of the forests from the beginning. The key informant stated, “We settled in an area where the CDF had their outpost and they let us enter. There was no conflict because we had no intention of deforesting the entire area . . . Only enough for agricultural production for our consumption.” The members emphasized the importance of the forest in their livelihood as a source of animals for hunting, timber, and other goods. They were not interested in deforesting the entire area because the forest was the center of many of their livelihood strategies.

The Camba community went to great lengths to conserve their forests. They were the first to start managing their forest in cooperation with CIAT. Later they enacted the first forest management plan in cooperation with CIPCA. Essentially, they have been proactive about their intentions to protect their forest resources.

The invasion of the Kolla syndicate 9 de Abril of the forest management plan, therefore, was seen as a threat to El Recreo’s livelihood. This case shows the tactics used by syndicates (normally run by Kollas) to gain tenure from Cambas who attempt to maintain control. In the case of El Recreo, the conflict was between a syndicate (Kolla) and a community, El Recreo (Camba).

Traditionally the Cambas have been passive in response to Kolla colonization. Normally Kolla syndicates have invaded, but the Cambas have not responded. There has been a change as the deforestation associated with the colonization directly threatens the livelihood of many of the Camba communities. This passiveness has begun to dissipate as many of the Camba communities are defending their land claims and forests. This proactive/more active response

constitutes an instance of Camba adaptation to Kolla land invasions. As I will show, in this instance, adaptation meant a shift from no response to the threat of the use of force.

The example of El Recreo is important because there is a common opinion that wealthy Cambas take land away from Kollas. The case of El Recreo contradicts this perception, as the founders were poor Guarani's from the Gran Chaco. Therefore, we are not looking at rich Cambas versus poor Kollas, rather both the Kollas and Cambas were poor.

A difficulty faced by the Camba community has been a lack of land tenure. As one community member stated: "One of the problems that we have had with the implementation (of a forest management plan) has been the threat of land insecurity. Therefore, when people (Kolla) invade the land they go directly to the (forested areas under the forest) management plan . . . INRA supports them directly, because they say that they have to work the land." The common Kolla perception is that forest management does not comply with the legal requisites for land tenure. In reality, forest management is a legitimate use. In fact, according to the forestry law, it actually receives priority over other land uses. However, the common perception amongst many of the Kolla communities is that forest management does not comply, and they target forests for invasion.

The members of the syndicate 9 de Abril (who are Kolla) essentially went into the middle of a forest management area that had been enacted by the community El Recreo to prove that they were using the land. The Camba inhabitants of El Recreo live outside the forest but travel there daily/regularly to manage the forest as a resource. And so they have title/usage rights even though they don't occupy it and clear it. One of the key informants from the Kolla syndicate revealed his feelings. "The land is idle . . . the law states that there must be production on the land. We have established our claim by starting to clear the land," stated the Kolla syndicate

leader. Once again, the pattern of entering and clearing forest is enacted to prove that land is being used, thereby legally completing the socio-economic function as defined by the government

The Camba community El Recreo responded to the land invasion. One member described the process, “We got up at 5:00 in the morning and we had guns and we each approached from a different side until we had them surrounded. We made them gather their possessions and forced them off the land . . . We had appealed to the Forest Superintendent but there was no actionthe only way to keep land is through the use of force . . . that is the reality.” In the case of El Recreo, the community has responded in the only manner that they can. The Cambas moved en masse and removed the Kollas by force. There exist few legal mechanisms to retain land; and due to the high cost of hiring police to remove the colonists, the more appealing mechanism is to remove the colonists themselves.

The case shows some of the differences of perception of the value of forest. The Camba community of El Recreo really expresses interest in long-term management of their forest. One key Camba informant stated, “The forest management plan has not been a motive to get more land. It is just that our culture is different from the people from the interior (Kollas). It has always been our vision that there would be a part of the forest for preservation and so our children and grandchildren can see it, no?” To the syndicate it appears to be an area that is not utilized and may be invaded because they are primarily interested in the agricultural value of the land. The same key Camba informant stated, “The people understand the way that the situation is managed here. They (Kollas) go directly to the forest management plan area. For two reasons: one, they don’t have any land . . . and two, they (Kollas) only see the management plans as a way to get fat or to sell the wood. This is the vision of the people from outside

(Kollas).” The term to get fat refers to the view that extracting wood is seen as a livelihood for the rich. The cultural differences are important in terms of the ability to conserve forests (probable under traditional Camba practices) or lack thereof, in the case of the Kolla syndicate (which leans toward clearing and agricultural use of the same land).

Furthermore, the example shows the use of force to defend the land from invasion. This is an option that is being used more often as both communities and private landowners arm themselves. This is a dangerous trend fostered by the lack of action from the government to clarify and/or enforce the law in terms of tenure. The tactic leads to the possibility of potentially fatal results.

The perception shows the importance of timber as a livelihood for the Cambas and farming for the Kollas. Many Cambas farm; however, timber is the primary livelihood activity in which they are engaged. Therefore, the Cambas are more apt to be worried about the status of the forests. At the same time, many Kollas primarily earn their living from farming. Forested areas are often seen as a potential farm. Many of the differences between the Cambas and Kollas come from their primary livelihood activities.

The Kollas wanted land to work for agricultural production, and Cambas preserve forests and sell timber. The issues discussed in chapter three, incomplete decentralization and confusion in agency mandates and jurisdictions, are compounded by pre-existing ethno-regional tensions as Kollas go after land and Cambas after timber and they end up contesting each other’s claims in the same places. As just noted, the colonization of the Kolla community of Galilea was early on and straightforward, and occurred without major conflicts. Resistance on the part of the government increased later, during the second wave of colonization. These issues may be seen in the case of 4 de Marzo.

4 de Marzo, a Kolla community, shows that the techniques seen in Galilea were still present in the later stages of colonization. The second example represents colonization that took place between 1979-1983 with the establishment of the communities of 4 de Marzo, Los Andes, Monte Rico, Nueva America, San Luis, La Planchada, and Rancho Grande. These communities consolidated the syndicate movement in the area of El Chore and created greater demand for official recognition by the government.

The colonization of Galilea was directly in violation of government policy, which had officially declared the Forestry Reserve of El Chore to be off limits to colonization. In order to enforce these measures the Centro de Desarrollo Forestal established a station to defend the area and remove any new colonies. Therefore, there was a direct conflict between official government policy and the presence of Kolla immigrants.

The Kolla syndicate of 4 de Marzo was founded by immigrants from the highlands during this period. There is one syndicate per colony, which serves as the local government by providing written rules for communal initiatives such as colonization, schools, and other such issues. Once again, the colonists entered an area that was unsettled in order to establish their colony. A key Kolla informant stated, "Originally we went in but the majority did not stay. Many could not take the hunger . . . If one family left another would come in to occupy the land. After we got in we then divided the plots with each family receiving 50 hectares." The description is typical of the process in which the syndicates are formed; people go in, start clearing the land, and they divide it between those who enter. Furthermore, many families enter and leave while a few families have stayed.

Another central theme of the conversation with the Kolla respondent was the importance of clearing the land. "We essentially entered this area with nothing...we had to clear the land in

order to gain title...according to the law persons must show that they are using the land...agrarian reform was to support the redistribution of land, not to set up a reserve for the rich...as a poor person the only way to make a better living is to have land and we have had to colonize and organize to gain our rights.” The description is about the choices that are made by people who lack necessities, but have no way to improve their life.

The Kolla syndicate also helped to establish its own government through the preparation of statutes and electing a board of directors. “In the agrarian syndicate every land owner has the right to vote. After we established the syndicate, we prepared the statutes, and we elected the board of directors . . . affiliated with the Central of San Luis that was coordinating with the larger federation . . . there are meetings in which one delegate goes to the meetings of Central San Luis.” The purpose of the syndicates is to defend the rights of the members (normally Kolla) to remain in the area. Through the membership in a larger structure, the members were able to defend their land claims.

There was no official sanctioning as the syndicate formally requested title of the land from the government. The syndicates continued their colonization of the Forest Reserve as the government attempted to remove the colonists. The key Kolla informant described the incident, “It was very bad for a long time as the police removed people, people fought back...while others would flee and then come back. At the same time the federation fought for our rights to land . . . finally there was an agreement reached after we held marches protesting the removal of colonists.” The organizational structure, the physical presence, and the resistance paid off as the syndicates were granted the right to stay in these areas.

In 1985, the syndicates signed an agreement with the CDF, the corporation for the regional development of Santa Cruz (CORDECRUZ), and Centro de Investigación Agrícola Tropical

(CIAT) in order to limit the colonization and protect the natural resources until an agreement was reached. The conflict was resolved with the establishment of a "red line" that divided land areas destined for logging and those for settlement. The colonists committed themselves to avoid the expansion of the colonization within the physical limits of the forest reserve (PRODISA et al, 1996).

The negotiation marked changes in the relations between the syndicates and the government. Furthermore, it legalized colonization up to the forestry reserve, a line that was respected up until 2000.

The first section has shown the cases of two Kolla communities that developed specific political tactics in order to gain land tenure. Tactics included forming a syndicate, invading land and clearing it, and finally demanding tenure. The creation of the agreement limited the area that could be colonized, creating more pressure on already established communities.

The agreement preceded the Ley INRA, which actually aggravated land conflict. The Ley INRA established a process in which a team came from Santa Cruz in order to assess who had possession of the land. There was thus a rush to attempt to hold or gain access to land to be registered with INRA.

In the face of the increasing land invasion and decreasing land availability, Cambas began to defend their communities. This was in direct response to the increased tension in the municipality and attending conflict between the Cambas and Kollas. This adaptation was particularly dangerous as it involved the use of arms. In the second portion of the analysis, I look at the manner in which people in a Camba community defended themselves from Kolla invasion.

Part 2-El Recreo-The Camba Adaptation

The community of El Recreo represents one of the first adaptations of a Camba community. The example provides the first case in which a Camba community actually used land invasion to gain access to land. Initially, Kolla syndicates seeking land for agriculture conducted the colonization. The case of El Recreo, however, represents a community that utilized Kolla tactics. One community member explained, “The Kollas were forming syndicates and invading the land . . . we formed a community and joined the syndicate structure . . . but we have kept our normal communal structure . . . our goal was to have access to an area with forests where we would farm, build houses . . . the invasion gave us this opportunity.”

The members were quick to point out that they had a very distinct use of the forests from the beginning. The key informant stated, “We settled in an area where the CDF had their outpost and they let us enter. There was no conflict because we had no intention of deforesting the entire area . . . Only enough for agricultural production for our consumption.” The members emphasized the importance of the forest in their livelihood as a source of animals for hunting, timber, and other goods. They were not interested in deforesting the entire area because the forest was the center of many of their livelihood strategies.

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The Camba community El Recreo responded to the land invasion. One member described the process, "We got up at 5:00 in the morning and we had guns and we each approached from a different side until we had them surrounded. We made them gather their possessions and forced them off the land . . . We had appealed to the Forest Superintendent but there was no action . . . the only way to keep land is through the use of force . . . that is the reality." In the case of El Recreo, the community has responded in the only manner that they can. The Cambas moved en masse and removed the Kollas by force. There exist few legal mechanisms to retain land; and due to the high cost of hiring police to remove the colonists, the more appealing mechanism is to remove the colonists themselves.

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Part 3-Kolla and Camba Escalation

The initial two sections have shown that the Kolla communities have invaded land in hopes of getting tenure. The Camba communities have increasingly begun to use violence in response to the invasion. There has been a further adaptation of tactics including the use of violence on part of the Kollas as illustrated in the case of 24 de Septiembre, as well as the Cambas in Santa Rosita.

The case of El Recreo showed the willingness of many of the Camba communities to use force to defend their land and forests. The escalation of the techniques, however, is not one-sided. Kolla communities have also resorted more frequently and readily to threats of violence. In essence, there is further adaptation of one group to another, in this case of the Kollas to the Cambas. Such adaptation can be viewed as two ethno-regional groups learning from other political ecological experiences. This is extremely important in the Municipality of Santa Rosa del Sara, where Camba and in this case Kolla groups adopt new tactics, in response to the tactics of their adversaries in previous contests over land.

The shift in tactics by Kollas in response to threats of Camba violence may be seen in the case of 24 de Septiembre. As in the case of El Recreo, 24 de Septiembre involved land invasion by Kollas and armed resistance by Cambas. In 2005, the Kolla syndicate 24 de Septiembre invaded the land of Camba landholders from the town of Santa Rosa del Sara. The landholders were not living there but only harvested timber part of the year. Kollas took four Camba

landholders hostage as 30 members of the Kolla syndicate 24 de Septiembre colonized 400 hectares of land. A member of the Kolla syndicate described the conflict, “We called the people of Santa Rosa to negotiate. We have allowed them to remove wood from this land, and when we met, they said that they were owners here. They pulled out guns and tried to intimidate us. We disarmed one in self-defense . . . we struck him and he left injured for Montero. The others were held as hostages until INRA came to clarify everything” (See Object 4-1). No one was killed in the situation but there was heightened conflict with injured people.

Other members of the syndicate blamed INRA, “INRA is the culprit of this problem. When we cut wood, they send soldiers to intimidate us. But when the industrialists bring in heavy machinery and cut wood then they give the concessions to them.” The Director of INRA acknowledged that there were overlapping boundaries but resisted the call to give title to 24 de Septiembre. “We are not going to legalize illegal establishments, but we will review the situation of these properties. The conflict area was part of the forest reserve forest El Chore, but it was done by a decree and the final tenure has not been given,” stated the INRA Director.

Kolla adaptation here also involved adoption of violence. This constitutes an adaptation to the threat of violence by Cambas. In brief, the political ecology of Camba-Kolla contestation over land in El Chore amounts to escalation in the use of violence. The major objective of the Kolla syndicates is to gain access to land, while the Camba landowners use force to defend their interests. The example shows the new tactics and the acceleration of violence including invading land, taking hostages, using arms, and injuring one person.

In the end, the Cambas abandoned their claim by signing land over to the Kollas, before they were allowed to leave. One person lost a portion of his ear from a machete wound. Overall, there was no loss of life but the situation could have been much worse.



Object 4-1. Armed Syndicate Member

One of the problems is that many private Camba landholders tend to reside in town and work at most part-time on their land. Therefore, many of the Kollas see the land as not being used and it quickly becomes a target for colonization. The actual lack of residence on the land owned by the Cambas makes them an easy target for many of the Kolla colonists.

In this case, there were important perceptions of “class” involved. The members of the syndicate of 24 de Septiembre charged that the people from Santa Rosa del Sara were large landholders. One member of the Kolla syndicate stated, “These are the rich, they have all this land and they do not even use it . . . we will not sit back and wait for INRA to favor these large estates.” The perception was that the rich were being given large tracts of land by INRA.

At the same time, Camba landowners say the perception of the syndicates as representatives of currently landless people is a lie. One key Camba informant stated, “They

claim that they are landless but the majority of those who entered here already have land . . . all they want is to get as much land as possible . . . each already has 50 hectares, what will we pass on to our children.” Many Cambas feel that the perception that the Kollas are landless is false and that continued land claims are made by people who already have land and only make new claims in order to sell it later. Furthermore, they speculate that the majority who attempt to take land are speculators who later sell the land.

Both the Cambas and the Kollas make claims of wealth accumulation. The Kollas feel that the rich from Santa Rosa del Sara are only trying to achieve more wealth. The Cambas cite the large number of colonists who continue to invade and acquire more land. The truth of the matter is that there are abuses on both sides.

Up to this point, I have shown the examples of Kolla syndicates that have attempted to gain land tenure. The cases show the use of land invasion, clearing, as well as vertical integration in a federation in order to defend their interests. In turn, many of the Cambas have used arms or forced removal in order to defend their interests. Cambas have shown that they are willing to resort to violence to try to maintain control of land.

This has resulted in further adaptation by the Kolla syndicates. They not only use the previous tactics but also have invaded en masse and used arms to gain land tenure. Even if they are not legally recognized by INRA, it will be difficult for the Cambas to remove them from the land. Even if they were removed, the Kollas could easily retake the land because of the lack of the physical presence of the Cambas.

Santa Rosita-Camba Adaptation

This chapter has described the adaptation of tactics between the Cambas and the Kollas. There has been a slow evolution of tactics used by the Kolla communities including invasion, physical possession, the use of arms, and finally violence. The next example provides a case in

which the Camba community of Santa Rosita adopted Kolla tactics to invade land controlled by Kollas in order to establish a new Camba community.

There was a great deal of bitterness on the part of the members of the community of Santa Rosita in response to the land invasions of the syndicates. A Camba key informant from Santa Rosita stated, “We have stood and watched as the Kollas have taken over the land. These were the forests where we hunted, took lumber . . . the Kollas are not the only ones that can take land.” The statement shows the frustration that has built up among Cambas and the willingness to adapt by adopting Kolla techniques for land acquisition.

The frustration was manifested in the invasion of an area that had already been settled by three syndicates. The Camba key informant from Santa Rosita described the process, “We went in and took the land . . . we Cambas also have a right to have property . . . we forced who were on the land to move.” The syndicates were removed from the area that was claimed by the Cambas.

The Cambas first prepared for the invasion in the town of Santa Rosa del Sara. Some 12 families got together and decided that they were going to actually gain access to an area and preserve their “heritage.” The Camba key informant from Santa Rosita stated, “We have a right to preserve the forests and have a future for our children . . . We decided on a date and went into the area and began to settle, we planted crops, built houses, and showed them (the Kollas) that the land is not theirs for the taking.” The practice of clearing and planting crops is contrary to Camba practices regarding forest conservation. Santa Rosita Cambas adapted, or were pushed to this act in order to establish a claim on the land, defying their own cultural belief in the forest’s integrity.

Cambas are adapting even to the point of adopting Kolla tactics. The invasion of the syndicates by the Camba community of Santa Rosita represents a first in the region. The Kolla communities had used land invasion in both El Recreo (despite being unsuccessful) and 24 de Septiembre. Now the tables were turned as the Cambas used the same tactics in order to gain control of the land.

As was seen in the case of El Recreo, the Cambas defended the land after the initial invasion. The members of Santa Rosita used force to remove any of the “intruders” on the land. “If they come onto our land, we force them off. We are going to save some areas for our children . . . we started removing them but have negotiated with each of the syndicates. We have established boundaries and if there is any invasion we help each other,” explained one Santa Rosita community member. Once again, the ability to gain and maintain land was central to control the resources. Later, the ability to settle the dispute with those around them has served as a key in order to ensure the long-term integrity of Santa Rosita.

Community members from Santa Rosita stressed the need to preserve both the land and the forest. “We are the people from this area and the manner in which the Kollas have come in and taken over the land is terrible . . . we have a different value . . . we are going to protect this land and preserve the forest,” stated a Key Informant. The Cambas use a discourse that their goal is to conserve nature and the Kollas are those who destroy nature.

The overall goal of conservation was put into action as the Cambas developed a forestry management plan. The Camba key informant from Santa Rosita stated, “We have a forest management plan because our goal is to protect nature . . . the plan has been invaded but we removed the colonists . . . we are Camba and when the Camba gets mad there is no one that will stop him . . . the plan gives us the legal recognition that we need to keep the forest.”

The key difference between the Cambas and the Kollas is the actual status of the forests to the people claiming title to them. The Cambas are willing to over-harvest certain species but at no point did they enter the Forest Reserve of El Chore and actually colonize it. The Kollas on the other hand did not see forests, but unclaimed land that could be used for agriculture. This perception has led to the colonization and deforestation of almost all of the forest reserve inside of the Municipality of Santa Rosa del Sara.

The Cambas have learned political strategies from the Kollas including violence and possession of the land i.e. actually living there. The Cambas have only recently begun to invade land, following the examples set by the Kolla syndicates. Apart from El Recreo, Santa Rosita is one of the few Camba communities that have established a presence in the Forest Reserve El Chore without affiliation with the syndicates.

Discussion

In brief, the findings indicate that Kollas have adapted to social exclusion by creating a series of strategies that give them access to land. The case of the Cambas versus the Kollas illustrates that the Cambas learned strategies used by the Kollas. The Cambas were exploitative as they invaded properties that they knew belonged to others, and used violence to achieve their goals. They also used the forest management plan to help achieve the land tenure as was shown in Santa Rosita.

CHAPTER 5 TIMBER MARKETS, ILLEGAL LOGGING, AND CONFLICT

The implementation of the centralized Forestry Law (Chapter 3) provides for a number of procedures to ensure law enforcement and reduce the impact of forest crime and corruption. Controls include the examination of planning documents (the forest management plan, the annual operations plans, annual and quarterly reports from the raw material processing centers), the use of independent inspecting agents and well as inspections by the Superintendence itself, and the control of transport of forest goods by either independent agents or the Superintendence.

The Forestry Law was designed to implement sustainable forestry for large-scale forest concessions. Later it was adjusted to incorporate the needs of small timber producers and farmers through the creation of small management plans (management plans under 200 hectares) and permission to clear-cut areas (planes de chaqueo).

However, these plans are still costly for small timber operators and farmers, as they still require many of the steps described above, including a forester to conduct a survey of all the trees in the area to be harvested. The Forestry Superintendent must then approve the management plan. After this, these individuals must then purchase documentation (certificates of origin or CFOs) that allows the wood to be transported. The CFO is a document that accompanies harvested wood in order to ensure that it comes from a forest management plan.

The goal of the chapter is to show the challenges confronted in the implementation of the forestry reform. There are important lessons that may be learned about the impacts of historical conflicts on the effectiveness of the law. The law has also created certain challenges for many small timber operators and farmers who have been able to circumvent or adapt to it. The goal is to understand some of the nuances of the law in an area with a long history of illegalities and conflict.

This chapter answers the questions: 1) is illegal logging prevalent in Santa Cruz? 2) Are legal forest management plans used to illegally harvest wood? 3) Is legal logging an attractive option for small timber operators? 4) Does illegal logging make forestry an unattractive livelihood option for farmers? 5) Do historical conflicts including land invasions (and entailing clear cutting) make timber production more expensive?

In Santa Rosa del Sara, I witnessed many activities involving illegal CFOs. Many loggers overestimated the wood available in the management plan area so they could legally over-harvest the wood. Some illegally harvest wood but use illicitly purchased CFOs to launder the wood.

Another illegal activity I saw was the illegal transportation and or over-transporting of wood. Often the truck would be allowed to have 13,500 board feet, but would carry up to 15,000 board feet in order to gradually move the illegal wood. Other trucks would transport the wood with no CFO or would carry a blank CFO to fill out just in case they encountered a checkpoint. Often if these trucks are stopped at a checkpoint, they would use a bribe to get past. Another common practice was hiding wood below other products such as agriculture or cattle.

Finally, as a part of the illegal activities there is a great deal of illegal wood that is brought into sawmills. The logs are cut as quickly as possible because the log has the number of the tree (in reference to the management plan) and therefore may be referenced in an inspection of the management plan. However, once the wood is cut, then it is impossible to identify what management plan it comes from. In other cases, the tree is given a number from another management plan so that it appears to be legal.

Furthermore, as shown in chapter 4, Santa Rosa has a history of conflict between lowlanders who live in the town and make their living through forestry, and highland farmers

who have invaded, deforested, and live in previously forested areas. The conflict between the timber industry and highland farmers has provided a test for the newly enacted Forestry Law.

This chapter is composed of a theoretical framework and an introduction into the research sites. This is followed an assessment of the legality of timber operations in Santa Cruz and Santa Rosa, and a analysis for small timber operators, how illegal logging impacts the option of forestry as a livelihood activity for small producers, and an examination of how historical conflict influences the viability of sustainable forestry management.

Theoretical Framework

In Bolivia, illegality takes many different forms during the process of extraction through timber processing, commercialization, or exportation. There are three different types of illegal logging. The first includes forestry operations that are carried out in areas allocated to conservation. These forest crimes in Bolivia may be seen in several protected areas that are under pressure from external actors interested in logging some valuable tree species. The most vulnerable areas are close to populated areas (i.e., Amoro National Park) or those containing valuable species such as mahogany (i.e., El Chore).

In the second, logging is practiced without regard for current forestry regulations regarding illegal harvesting of protected species, and wood is extracted in amounts exceeding those permitted. In some cases, these acts are covered by falsifying documents (Certificates of Origin or CFOs) to transport the timber, as well as by altering the figures of the amount of timber harvested (Cronkleton and Albornoz, 2003). Examples of the second type of crimes in Bolivia are the legal permits to extract timber from forest management plans. It is possible to obtain CFOs for the transportation of the timber to be extracted from the area with approved management plans. Hence, there is a black market in CFOs, which are illegally bought and sold to justify the transportation of logs extracted in other areas.

The third type of illegality is non-compliance with technical regulations of forest management in operations with authorized forest management plans, including the extraction of timber outside of the authorized areas, and the selling of CFOs obtained for authorized forestry operations (Cordero, 2003). Trucks transporting illegal timber tend to camouflage the sawn wood under other products. In other cases, the drivers travel with blank CFOs that allow them to reuse them during several trips unless they are caught and forced to fill them out (Cordero, 2003). In order to camouflage the illegal timber, sawmills tend to manipulate their registers of productivity, as well as the dates when the logs are sawn, in order to recycle the CFOs.

The first and second questions specifically look at the illegalities that occur in the second and third types of illegal logging. The first question specifically examines the ability of loggers and sawmills to produce CFOs even if they are not legally registered with the Forestry Superintendent, the regulatory institution that monitors timber extraction. The second question looks at over extraction of timber from forest management plans.

The third, fourth and fifth questions specifically examine the economic incentives to use sustainable forestry, unsustainable forestry (illegal logging), and/ or to convert forests to agriculture. I ask if legal logging is an attractive option for small timber operators due to the incentive available from excess, illegal harvesting? Does illegal logging make forestry an unattractive livelihood option for farmers? Do historical conflicts including land invasions (and entailing clear cutting) make timber production more expensive?

The decision to dedicate a piece of land to formal forest management activities, with all the necessary government permits, boils down to weighing the likely costs against the projected net income from future forest product sales along with the estimated value of potential non-monetary benefits (Davies et al, 2000). Even if local users are able to acquire formal forest property rights,

there are several potential pitfalls that hamper the emergence of positive incentives to motivate more sustainable forest management.

The process of implementing a forest management plan is very expensive and time consuming. In order to begin timber management, each forest user group must formulate a forest inventory in the total area of the common-property forest chosen for developing timber management activities, following a sample of random plots in a systematic approach. This consists of selecting forest plots between 0.5 to 1 hectare every 500 to 1,000 meters according to the size of the forest managed area, aimed at recording data about the forest including mature trees, young trees, saplings and seedlings. The most important data recorded include total height, diameter, and quality of trees. Once the Forest Inventory is formulated, the timber user group must elaborate a forest management plan, which is a document that includes, besides the Forest Inventory, information about the organization of the timber user group that will be in charge of carrying out timber harvesting, distributing timber earnings, and scheduling the planned activities for forest conservation.

Once the forest management plan is formulated and approved by the Bolivian Forest Superintendence, each year a timber user group must select a parcel of the forest to harvest within the forest managed area. The selection of such a forest parcel allows for a process of rotation of different forest parcels within the total forest area selected for forest management. The Forest Superintendent requires a minimum rotation of 20 years, which means that a forest user group should divide the total forest area into at least in 20 parcels. Once the parcel of the forest for timber harvesting is selected the forest user group must develop a “forest census” in order to exactly register the location of the trees for cutting down in the timber harvesting process. GPS coordinates of each tree to be harvested are recorded on a map, as well as

identification of roads and rodeos, round areas cleared out in the middle of the forest near to the open roads with the purpose of gathering the roundwood (trees devoid of branches), as well as the location of paths for the transit of the chainsaw operator.

Timber harvesting must be developed following a strict supervision of the logging process. Each tree is recorded with a number tag, the same that is registered in a forest certificate that legalizes the timber harvesting process, which is checked out in the inspection stations installed by the Forest Superintendent along the most important timber roads by which roundwoods are transported.

Finally, an “annual harvesting report” must be elaborated once timber harvesting has finished. This report displays the effective timber volume by species harvested. It corrects the coordinates of the trees, and shows additional information regarding timber harvesting such as the number and volume of logs left out in the forest or in the rodeos. According to Forest Superintendent regulations, an efficient timber harvest should take into account the following issues. First, the construction of rodeos and the delimitation of roads must take into account the topographic limitations of the soils and forest conditions to avoid unnecessary removal of trees. Second, the processes of removal and pulling out of the trees must avoid the unnecessary construction of roads, execution of activities in wet soils, and inappropriate use of machinery. Third, the timber harvesting process roads that were open for this purpose must be closed and others that would cause soil erosion must be maintained.

All of these requirements make legal forest management very expensive, especially with the available option to illegally harvest wood without any of the additional requirements. All of these factors may potentially make sustainable forestry unattractive to both small timber operators and small farmers.

One of the main obstacles hindering forest development is the lack of consolidated land-rights and the overlapping of rights. On the one hand, this generates land-tenure conflicts and, on the other, it weakens the legal security required for the implementation of long-term activities such as forest management. Both these factors also act as a disincentive for investment, which are required by the forest sector to ensure the economic viability of forest management.

In fact, weak law enforcement and land tenure problems are still major constraints to sustainable forest management. Local tensions between legally defined forest users and forest dwellers remain unabated. Illegal logging of mara and cedro in particular still exists. Illegal crops, particularly coca, are planted by migratory farmers in fields and small openings and are often a major reason for violence in forested areas.

The empirical analysis assesses the extent to which illegal logging is prevalent in Santa Cruz, if forest management plans are used to illegally harvest wood, if legal logging is an attractive option for small timber operators in the presence of illegal logging due to excess harvesting, if illegal logging makes forestry an unattractive livelihood option for farmers, and if other factors such as historical conflicts including land invasions (and entailing clear cutting) make timber production more expensive.

Research Sites

My research takes place in Santa Cruz de la Sierra, Gaurayos, and Santa Rosa del Sara, all located in the Department of Santa Cruz. Santa Cruz de la Sierra is the commercial center for the marketing of wood in the Bolivian Lowlands. Santa Rosa and Guarayos are two of the most important forest resources in the Department of Santa Cruz. Each is under threat from illegal logging.

The Bolivian Amazon in the Department of Santa Cruz has some of the highest quality upland soils in all of Amazonia. The soils occur in largely flat landscapes. According to the

agro-ecological zoning map for the Department of Santa Cruz, 4.4 million hectares of the Bolivian lowlands is suitable for intensive agriculture (PLUS, 1996).

If there is not careful management of these soils, however, there is a threat of potential soil infertility from monoculture production and soil compaction from heavy machinery. The dominant process is that of machinery-induced and natural compaction, which has resulted in an estimated 50 % of the soils being moderately to severely compacted, causing serious root restriction and the loss of both transmission and water-storage pores (Barber et al, 1996). Degradation has made the soils increasingly susceptible to moisture stress due to the combined effect of a) restricted rooting as a result of compaction and the hard setting characteristics of the soils, b) reduced rainfall infiltration due to the loss of transmission pores and surface crusting, and c) a decrease in available soil moisture caused by the loss of storage pores (Barber et al, 1996). The degradation tendencies of these soils are exacerbated by the greater variability of seasonal rainfall during the last 20 years that has led to a greater frequency of extremely high or extremely low rainfall events. This is mainly due to the destruction of the primary watersheds of the forests of El Choro and Guarayos (Barber et al, 1996).

The development zones in the Department of Santa Cruz, where most forest clearing is concentrated, have seen very dramatic rates of deforestation. Clearing in this region jumped from less than 20,000 hectares per year in the early 1990s to more than 100,000 hectares per year by 1998. While there has been a slight contraction due to the severe Bolivian economic crises, rates of clearing remain high overall, and especially compared with previous decades.

Timber Market in Santa Cruz de la Sierra

With over 1.2 million inhabitants, Santa Cruz de la Sierra is the capital of the Department of Santa Cruz and the primary market of timber. It is the center of the main timber forest producing area in the country and where the majority of Bolivia's certified forests are located

(1,150,186 hectares). It is also the primary recipient of the majority of the wood that is harvested illegally in Bolivia.

Guarayos

Historical conflict has had a strong impact on forest management and the timber market in the area. Guarayos appears to have less conflict in the forestry sector than does Santa Rosa del Sara. Up until recent decades, the Guarayos forests were largely intact due to the low human population density and remoteness of the region. These forests were very rich in high value timber. In the last 30 years, however, the situation has changed dramatically, although to a lesser extent than in Santa Rosa del Sara. Logging companies moved in to extract the high value species, and in many places, there have been multiple cycles of logging. The 1980s were a period of high pressure, with a rush by companies to harvest mahogany and cedar, and by ranchers to occupy and clear large estates.

Guarayos is a frontier region suffering from heavy pressure to convert forests to other uses and to utilize forest resources in a non-sustainable fashion. Spatially, pressure is high near the Santa Cruz-Trinidad highway and other principal roads and is highest near human settlements due to clearing for slash and burn agriculture, wood collection, and hunting. The logging roads built to extract the dispersed trees exposed the area to increased pressure from outsiders, including commercial hunters and others wishing to harvest timber illegally.

However, several dynamics help maintain forest cover including the presence of a TCO (Territory of Origin), communal land that cannot be sold and is titled by INRA. While the TCO is being titled, the indigenous movement has adopted a series of strategies to maintain their hold on the land. Although there is pressures from colonists, the people of Guarayos have been able to use both legal and social pressure to defend their land as well as forests. Furthermore, many of the local sawmills have their own forest concessions that remain relatively intact in spite of

being the target of some land invasion. Despite considerable deforestation and illegal logging, there is still a large supply of the less valuable wood species in the area.

Santa Rosa del Sara

Santa Rosa del Sara, on the other hand, has suffered from greater land invasion. As discussed in chapter two, there have been successive generations of colonization. The majority of the timber species have been logged or clear-cut for agriculture. This leaves very little valuable wood close to Santa Rosa and many of the loggers must travel up to eight hours to cut timber. The costs of the transportation and extraction have greatly increased with the deforestation and colonization.

The areas that are still fully forested are in the extreme northern portion of the municipality of Santa Rosa (the Concession San Pedro and the ASLs). In the southern portion of the Forest Reserve of El Chore immigrants hope to gain land tenure by clear cutting the wood.

Because of disparate populations in Santa Rosa, conflicting titles to land tenure and rights to forest resources, and lack of clarity or action on the part of the governing bodies such as INRA and the Forestry Superintendent, social actors take the situation into their own hands. Stakeholders in Santa Rosa del Sara do not have recourse to change the system, to seek redress, to expect enforcement of or administration of the regulations in a viable way. They therefore find their own methods of handling situations, and in many cases the conflict is escalating.

In the case of Santa Rosa, the government has always owned the Forest Reserve El Chore. In the case of Guarayos, the native population has always claimed a large proportion of the land as a part of their nation, aided by a central body to coordinate the defense of their ownership. There is no central organization, apart from the government, to defend their forested lands against invasions from outsiders. As a result, the Forest Reserve El Chore located within the Municipality of Santa Rosa del Sara will be deforested within three to five years. Whereas in

Guarayos, if INRA grants them a TCO for all the land petitioned for, then their forests should remain intact indefinitely.

The difference between the two sites, then, is in the scale of historical conflict, ethnicity of the populations, and the perceived and real options available to social actors to resolve conflict by legal and peaceful means, as opposed to illegal acts and confrontations that increasingly include violence . In Guarayos, stakeholders are able to use regulatory and administrative infrastructures and other means, in order to negotiate and manage access to land and forest. In Santa Rosa del Sara, many social actors turn to other means to resolve problems.

Questions, Methods, and Results

To address the questions set out in the introduction, I estimate the amount of illegal logging in Santa Cruz, Guarayos, and Santa Rosa del Sara. I then estimate the extent of illegal activities by looking at the amount of wood actually extracted as compared to that permitted from the land of small producers in Santa Rosa del Sara. I examine the costs of legal forestry for small timber operators in Santa Rosa del Sara and look at the socio-economic impacts on small farmers by examining revenues from forestry as compared to those from other livelihood options. The final section also compares the cost of production in Santa Rosa del Sara where there is a great deal of historical conflict, with that in Guarayos, an area with less conflict. The comparison serves to show the manner in which historical conflicts impact local forest management.

Question 5-1

Question 5-1 deals with the extent of illegal activities in Santa Cruz and Santa Rosa del Sara. Traditionally the timber industry was allowed to operate unencumbered by regulations. Regulations were often not enforced and there was little incentive to alter illegalities.

The Forestry Law brought in comprehensive reforms both to monitor the wood cut and transported. The enactment of the law and the creation of the Forestry Superintendent to enforce it created new challenges to the industry, which had previously been prone to illegalities. Despite the efforts, there is a belief that the informalities and violations are still abundant in the industry in spite of regulations (Pacheco, 2006).

Therefore, Question 5-1 asks: is illegal logging prevalent in Santa Cruz?

Methods

To examine question 5-1; I looked at the extent of illegal activities in Santa Cruz. I applied a questionnaire and also used secondary data to determine who sells wood legally and illegally. I compared those sawmills and barracas (timber outlets located in urban centers) found in the interviews with those actually registered with the Forestry Superintendent to determine if they are functioning legally.

I examined 198 barracas and sawmills in Santa Cruz, Santa Rosa del Sara, and Guarayos with a questionnaire. I first received a list of the barracas and sawmills in Santa Cruz, Guarayos, and Santa Rosa from the Forestry Superintendent. I then built a snowball sample based on a map of each of the regions. If there were mills or barracas that were closed or not located, I called the owner before they were disqualified. If the barraca or sawmill was functioning, but not registered with the Forestry Superintendent, it was considered to be functioning illegally.

Each sawmill and barraca was asked to show documents (Certificates of Origin-CFO's) to examine if they could transport wood legally. The ability to provide documentation to transport wood legally (CFOs), showed the ability to use legal documentation even if the sawmills were illegal.

Findings

Only 39% (78 of the 198) of the barracas and sawmills surveyed in Santa Cruz, Santa Rosa, and Guarayos are registered with the Forestry Superintendent, so 61% are operating illegally. One barraca owner stated, “We were registered but the Forestry Superintendent came in and was checking our supplies . . . we have closed and reopened but have not officially registered with the Forestry Superintendent . . . If we do, we must file quarterly reports of everything that comes in, prepare reports for what we will sell . . . it is easier to not deal with them” (Barraca owner). The smaller owners avoided the regulations by not registering with the Forestry Superintendent. The majority of those people who were functioning illegally (75%) only owned one barraca. According to key informants, most lacked the capital or did not have sufficient volume to require them to register.

Each of the mills was asked if they could provide a CFO if wood was purchased. Out of all of 198 barracas and sawmills, 175 (90%) could provide CFOs, which identified the type and amount of wood that was extracted from a management plan. However, many loggers and mills from Santa Rosa del Sara admitted that it was easy to get CFOs from other forest management plans. These data support the findings of Codero (2003) that there is trafficking of wood with the CFOs and illegal markets.

The majority of the barracas and sawmills that were functioning legally were wealthy. Some 98% either owned a sawmill and operated a forest concession, or a barraca with a sawmill. These vertically integrated operations favored a harsher application of the law. One mill owner expressed, “They should apply the law more firmly and arrest illegal traffickers . . . they undermine our profits.” The vertically integrated mills have greater resources and a steady supply of wood; therefore, they are able to operate legally.

There is non-compliance with technical regulations of forest management plans (Cordero, 2003). Diverse are the ways through which illegality operates in practice: excess harvesting, falsification of inventories, and illegal trade of transportation permits, among others. Most illegal practices are mixed with legal operations, which make it hard to separate them. The second question examines excess harvesting, one of the primary illegalities in the area.

Question 5-2

The second question focuses on the amount of wood illegally harvested:

Are legal forest management plans used to illegally harvest wood?

Cordero (2003) has found that sawmills not linked to forest concessions or to another source of stable supply of raw material are partially dependent on illegal timber sources.

Methods

In collaboration with CIFOR, I examined data from 22 forest management plans from the Forestry Superintendent. These forest management plans were randomly selected from a 2001-2002 sample of 66 forest management plans. These data show the amount of wood physically extracted from each of these forest management plans, which I then compared to the wood legally allowed from Certificates of Origin (CFOs) that registered the actual wood extracted. If the amount harvested exceeds the amount allowed, the difference indicates illegal extraction.

Findings

I examined the amount of wood that was approved in the forest management plans as compared to the wood that was extracted from the forest management plans. The two primary species in the area, Ochoo (*Hura crepitans*) and Bibosi (*Ficus* sp.), are presented here. There were 6,286.98 M3 of Ochoo approved and 6,796.30 M3 were extracted. In 18 out of 25 forest management plans, the amount extracted exceeded the authorized quantity. Similarly there were 2,316.37 M3, of Bibosi approved as compared to the 2,795.12 M3 harvested. In the case of the

Bibosi 19 of the 25 plans evaluated extracted more than was permitted. In both cases, the amount of wood that was extracted was more than the actual amount that was approved.

The management plans are being used for illegal wood trafficking. The theory behind the concept of the management plan is to be able to harvest wood over the long-term while maintaining the forest cover. In reality, I witnessed loggers who have used the management plan as a means to harvest wood from wherever they like. The Forestry Superintendent rarely inspects the management plans so there is very little control on the part of the regulating institution.

To date, little has been done to deal with forest management plans overestimating available species, extraction of higher volumes than authorized, and illegal transaction of CFOs to transport illegal timber. In the Bolivian case, it seems that the problem is that many of the instruments that could help to monitor illegal acts are not enforced in practice. Questions three, four, and five help to explain some of the causes of these illegalities.

Question 5-3

The next question asks, is legal logging an attractive option for small timber operators due to the incentive available from excess, illegal harvesting? Illegal logging of forest resources often produces an undervaluation of legal forestry. If the cost of forest products obtained illegally is less than those obtained legally, legal forestry is not competitive. The chances are that the forests will be cleared for other land uses, even if this implies high costs for society at large. Further, the economic distortion of illegal forestry may lead to suboptimal on-farm incomes, as it will shift investments away from the otherwise more profitable forestry activities. I explored these issues by conducting an economic analysis of the predominant forest management plans used in Santa Rosa del Sara.

Methods

The overall cost estimate in forest management is based upon the following cost components. First I look at the cost of preparing a forest management plan and cost of harvesting wood for the Plan of Chaqueo (that was averaged at 3 hectares in the sample) and Forest Management Plan under 200 hectares (that averaged 30 hectares). These costs include felling, delimiting, preparing skidding paths, bucking, and loading logs. Secondly, I examined the logging costs up to the log landing. Finally I examined the transport and marketing costs up to the sawmill, which include the costs of transporting logs to sawmill, including the transaction costs involved in obtaining log transport certificates (CFO).

For both of the two dominant forest management plans (the Plan of Chaqueo and Forest Management Plan under 200 hectares), I calculated the costs including the time, cost of obtaining the forestry patent, the amount of wood produced, the cost of cutting, loading, and transporting the wood. This is compared to the actual sale price of the softwoods and hardwoods from each of these plans. This information was gathered from the formal interviews that I conducted.

I calculated the costs for each plan by sitting down with the sawmill owners and loggers to detail each of the different steps of the particular plans. After agreeing on the steps, I then calculated the cost for each. I confirmed estimates by comparing figures provided by several different sawmill owners in order to ensure the accuracy of the data. I then used means of figures collected from sawmill operators to estimate the average cost of both the Plano de Chaqueo as well as management plans for under 200 ha.

Findings

Table 5-1 shows that the total average cost of the Plan of Chaqueo is 11,520 Bs (Bolivianos, where 1 \$US = 8 Bs in 2003) for a three hectare forest block (see Table 5-1), including 3,040 Bs. to fill out the legal paperwork to submit to the municipality and Forestry

Superintendent. This can be compared to returns of 11,800 Bs, which was the average of the results. Subtracting costs of 11,520 Bs., this leaves a profit of 280 Bs or a minuscule margin of 2.4% profit. Without the management plan, the profit margin would be 8.16%; and by excluding the costs of filling out paperwork, the profit margin would be 20.83%. These figures help to explain why many of the loggers and sawmills have stopped filling out the legal paperwork for a Plan de Chaqueo.

Table 5-1. Costs of the Plan of Chaqueo in Santa Rosa del Sara for a 3 hectare forest block.

	Unit and Cost per Unit	Total Cost
Time	1 week	80.00 Bs
Patent paid to the Forestry Superintendent	\$300	2,400.00 Bs
Plan of Chaqueo (Yields 60 M ³ there are 40 inches per M ³ for a total of 2,400 inches)	\$80	640.00 Bs
Putting Log in the log deck	1 Bs per inch	2,400.00 Bs
Chainsaw	.3 Bs per inch	720.00 Bs
Loading	.2 Bs per inch	480.00 Bs
Transporting	2 Bs per inch	4,800.00 Bs
Total Cost		11,520.00 Bs
Production of the Plan of Chaqueo	Unit and Cost per Unit	Total Returns
Sales Price		
Hardwood	5.5 Bs/ inch by 1000	5,500.00 Bs
Softwood	4.5 Bs/ inch	6300.00 Bs
Gross Sales		11,800.00 Bs
Profit		280 Bs

The second option is the Forest Management Plan less than 200 hectares. This is based on the assumptions that a forest management plan produces 7,800 inches of timber which 5,460 are softwoods and 2,340 are hardwoods that sell for 4.5 Bs per inch and 5.5 Bs per inch respectively. Once again, these figures are based on the averages from those interviewed. The total costs are 32,802. 50 Bs (see Table 5-2) and yields 37,440.00 Bs., leaving a profit of 4,637.5 Bs. and a profit margin of 13%. If the management plan costs were excluded there would be additional

profit of 3,942.50 Bs increasing the margin to 26.15%. Those interviewed generally considered if they had a return of 20% this would facilitate reinvestment, if they had secure land tenure.

Table 5-2. Costs of the plan of Forest Management Plan less the 200 hectares in Santa Rosa del Sara, but usually 30 hectares in Santa Rosa del Sara.

	Unit and Cost per Unit	Total Cost
Cost of Management Plan	\$505 (30 hectare)	3,942.50 Bs
Cut and delimiting	0.20 Bs	1,560.00 Bs
Bucking and loading	1.50 Bs	11,700.00 Bs
Transporting	2.00 Bs	15,600.00 Bs
Total Cost		32,802.50 Bs
Production of Management Plan less the 200 hectares	Unit and Cost per Unit	Total Returns
Production	Inches in 30 hectares	
Soft wood	5,460	24,570.00 Bs
Hardwood	2,340	12,870.00 Bs
Gross Sales	7,800	37,440.00 Bs
Profit		3,942.50 Bs

(Interviews with 12 sawmill owners)

In theory, the loggers in Santa Rosa del Sara should be able to make money. This is not always the case, however, especially due to the limited demand for the dominant species in the region such as Ochoó and Bibosi. Sometimes the loggers will cut wood but are unable to sell it immediately because there is no market. To raise profits, especially in light of high costs for management plans and low prices for wood, loggers attempt to maximize their profit by paying minimum price for logs to the small producers of El Chore from whom they harvest.

Discussion

Many sawmill owners and loggers feel the Ley Forestal instituted a complex, expensive, and time-consuming process of rules to which they must adhere. They can double their profits by not submitting the paperwork for a forest management plan. Similarly, they know the costs of

obtaining the legal paperwork for a Plan of Chaqueo is 25% of their total costs, which makes a profit margin almost non-existent (2.4%). Hence, legal logging is not an attractive option for small-scale timber operations.

Aside from profit reduction due to management plans, there are other considerations in Santa Rosa del Sara that militate against legal timber harvesting. Due to the current rate of colonization and deforestation, the loggers know that they may not have much more than four or five years left to harvest wood. Therefore, the short-term mentality due to short-term concessions, coupled with problems with conflict and tenure, means the pirating of wood will probably only increase.

In a very open discussion with a logger, we touched base about the costs associated with the forest management plans. “We are required to enact plans to conserve forests . . . the colonists may clear forest without a plan . . . we need the documents to transport so we enact the plans . . . no one really cares . . . its just a way to make money . . . if the state was really worried there would be troops in the last part of the forest reserve . . . why does the superintendent come out here and look at what is left of the ‘forest reserve?’” (logger in Santa Rosa del Sara).

Question 5-4

In question 5-4, I examine the socio-economic impacts of illegal logging on smallholder farmers in El Chore. Illegal logging weakens the incentives for the small-holder farmers to invest in forest management activities, and reduces the profitability of these farmers’ production systems because the low value of the timber they can sell. Without the distortions introduced by illegal logging, it makes more economic sense for rural smallholder farmers to manage forested land, even in the short term. Consequently, in theory, rural people could increase their overall incomes of their land uses if they had revenues from legal forestry. Forestry would then become

a more attractive land-use option for rural populations, therefore, I ask question 5-4: Does illegal logging make forestry an unattractive livelihood option for farmers?

The low profitability of forest management is a concern. In El Chore profitability depends largely on the local market prices for logs. Although apparently high and volatile at present, unless there is improved control of illegal logging there is likely to be downward pressure on these prices in the long-term. Illegal logging is in part linked to unresolved tenancy issues and the status of the colonization zone. The Forestry Superintendent and INRA have been slow to resolve the legal interpretation of land use in the El Chore reserve and colonization zone.

Methods

To address question 5-4, I collected socio-economic data from 22 different individuals in El Chore who had enacted forest management plans. This allows for an appraisal of the costs as well as the experience of these producers with the forest management plans. The sample was drawn randomly from a sampling frame that consisted of all of the 66 people in 2001-2002 with forest management plans provided by the Forestry Superintendent. The questionnaire gathered data on logging and other livelihood options.

Additionally I used secondary information from Davies et al. (2002) to compare the potential of forest management to other livelihood options including rice cultivation (both manual and mechanized). Davies et al. (2002) employed a variety of approaches including focus groups and Participatory Rural Appraisal (PRA).

To conduct my analysis, I compared production costs to gross income in order to gain a sense of the profitability of forest management as compared to rice cultivation. I then compared profitability across options.

Findings

Table 5-3 examines the costs for a small farmer to implement a forest management plan. These costs are based on averages from interviews with 10 farmers and 12 loggers. The costs for cutting and delimiting of trees amount to 5,502.5 Bs. (see Table 5-3). Costs include the cost of submitting a forest management plan (PMGF) of 3,492.50 Bs. plus the 1,560 Bs cost of cutting and delimiting the trees. Given there are a total of 13.65 hardwood trees and 13.37 softwood trees per ha, and if these were sold at 8 Bs. per tree, the total profit would be 31.65 Bs. per hectare. In a parcel of 30 hectares this would produce a total of 6,452.29 Bs.; and when costs are deducted, the profit is 949.79 Bs. (206.58 per hectare).

Table 5-3. Costs and Gross Income Falling a tree in a 30 hectare Forest Management Plan Over Years

	Forestry Management Plan	Total Units	Cost in Bs.	Profit in Bs.
Cost \$475 (30 Ha.)	Forestry Management Plan		3,942. 50	
	Cut and delimiting (. 20 Bs. / inch)		1,560.00	
	Total		5,502.50	
<hr/>				
Profit When Selling Per Tree		# of trees	Selling Price	Profit in Bs.
	Softwood Trees (400 inches per tree)		8 Bs	3,255.53
		409.5		
	Hardwood Trees (175 inches per tree)		8 Bs	3,196.77
		401.1		
	Total			6,452.29
	Margin Per hectare			31.65
<hr/>				
Profit When Selling Per Inch		Inches	Selling Price in Bs.	Profit
	Soft wood (Inches in 30 hectare)	5,460.00	1.5/per inch	8,190.00
	Hardwood (Inches in 30 hectare)	2,340.00	2.5/per inch	3,510.00
	Total	7,800.00		11,700.00
	Margin Per Hectare	7,800.00		206.58

(Interviews with 10 farmers and 7 loggers)

Table 5-3 compares the potential returns from forestry with manual (see Table 5-4) and mechanized rice production based on a study by Davies et al. (2002). These scholars used Participant Rural Appraisal (PRA) to create a model including both inputs and labor for both production schemes over a multiple year period. The mechanized rice had annual returns per hectare between 702 and 1,478 Bs. while the manual rice production varied between 1,789 and 2,312 Bs. per hectare.

Clearly, the returns to a forest management plan at the current prices do not compare favorably to returns for rice cultivation (manual or mechanized). Rather the small producer should first sell the log illegally and then produce the rice.

Table 5-4. Manual and Mechanized Rice Gross Margin per Ha in El Chore

Year	Manual Rice Gross Margin per hectare
1	2,312 Bs.
2	1,789 Bs.
Mechanized Rice Gross Margin per hectare	
1	1,478 Bs.
2	1,788 Bs.
3	1,432 Bs.
4	1,076 Bs.
5	702 Bs.

(Davies et al, 2002)

However, lowland farmers who practice slash and burn agriculture often keep a large proportion of their land under forest cover, as they only clear small areas of forest each time they rotate their crops. Because forest clearing is very labor-intensive and family labor is a scarce resource for many smallholders, it is common practice to rotate the crops every two years between 3-4 different fields rather than clearing new forest areas every year. Over a 20-year period, the average lowland farmer uses about ten hectares for agricultural production (Maxwell and Pozo, 1981). The remaining land is usually used for a combination of housing, pastures and forest. However, according to Godoy (2001) it is inevitable that smallholder farmers reduce old-

growth forest cover over time, unless economically viable alternatives to slash and burn agriculture exist.

Question 5-5

The low profits from legal logging due to costly management plans and other livelihood options that are more lucrative raise additional questions about threats to the economic viability of legal logging in Santa Cruz. My final research question in this chapter concerns the issue of conflicts over natural resources and their impacts on the costs of logging. It is possible that conflicts and insecure land tenure also inhibit legal logging and therefore foster illegal timber extraction.

Question 5-5: Do historical conflicts including land invasions (which entail clear cutting) make timber production more expensive?

There has been a sequence of events that have taken place over time that impact the viability of legal timber management including removal of the most valuable species followed by land invasions and clear cutting.

During the 1960s, 70s, and 80s In both Guarayos and Santa Rosa del Sara, the timber companies went into the forests in search of the most valuable timber species including mahogany. These companies opened up roads and almost completely removed the most valuable species from the forests. They were able to harvest the timber and sell it without further processing because of its high value. As the wood that was closest to the towns was removed, the loggers went deeper and deeper into the forest in order to continue the removal of these species.

As roads into the forest areas have been opened, many colonists, primarily from the highlands, invaded the lowlands in search of land. They entered the forest and began to clear-cut the land in order to gain land tenure and to produce crops. This process has been much more

dramatic in the municipality of Santa Rosa del Sara which is comprised by more than 50% by Kollas, enough so that they won the majority of the municipal county seats. Guarayos has had better control of their land partly due to their ethnic composition. They are organized along ethnic lines to defend their territory from outsiders. This in not, however, to create an image of Guarayos as an ideal haven in which there is no conflict. Previous studies including Cronkelton and Albornoz (2005) have documented the illegalities of timber operations in the municipality of Guarayos. Yet the extent of the illegal activities is much less than in Santa Rosa.

Loggers have thus had to travel farther and farther to access forests as the colonists have penetrated deeper into the forest reserve and clear-cut land. They perceive that this has greatly affected the profitability of forestry due to the much higher costs of transportation.

The loggers identify interacting factors including tenure conflicts, growing distance to markets, and shifts from high value species that operate in synergy to reduce the profitability of logging. First, there are fewer high value trees left so that there is little natural regeneration of these species. This has a direct impact on current operations as loggers attempt to make a living on less valuable species. Now they over harvest less valuable species trying to compensate for the decreased value of the forest through an increased volume of less valuable species. The species effect, as well the emergence of land tenure conflicts, has emerged alongside other factors that also push up logging costs (or push down income from logging), which reduces profitability.

Methods

Data come from secondary data as well as formal and informal interviews with sawmills. These data assess the costs associated with timber extraction in Santa Rosa del Sara and Guarayos. Formal and informal interviews specifically evaluate the impacts of historical conflict on the costs of timber extraction and processing for sale.

Furthermore, these interviews provide an idea of the informal activities that take place between the social actors, such as how wood was legally and illegally purchased, transported, and reported. It also examines how the conflicts, including loss of land and deforestation, change the costs of production for logging in Santa Rosa del Sara and Guarayos.

Secondary data were examined to document the species that are extracted in Santa Rosa and Guarayos. These secondary data come from quarterly reports from sawmills that are required by the Forestry Superintendent. These data detail the different species that are extracted by each sawmill and barraca each quarter of the year. I compiled four quarters of reports from each sawmill and therefore came up with specific annual estimates of wood extracted in all sawmills and barracas in Santa Rosa del Sara and Guarayos.

I then compared the similarity of wood species in Santa Rosa del Sara and Guarayos by combining the wood extracted from each of the sawmills located in these towns. I examined the predominant species by establishing the amount of board feet and the total percentage of each species as compared to the total wood extracted from the region.

Findings

In both Guarayos and Santa Rosa (see Table 5-5) the two softwood species Ochoo and Bibosi represent the majority of the wood harvested. Overall softwoods comprise nearly 75% of the species present. These figures show that there are a few softwood species that dominate in terms of overall volume harvested, and that high-value hardwood species like mahogany are scarce. The list included 110 species that are being utilized. Overall the two regions appear similar in terms of the dominant species harvested.

Table 5-6 examines the cost to buyers and returns of a truckload of softwoods in Santa Rosa del Sara. There are 2,143 inches of softwood on a truck and each inch of wood is bought by the logger at a price of 4.5 Bs. per inch for a total of 9,643.5 Bs. The wood is then sawed

with each inch of wood producing seven board feet for a total of 15,001 board feet at a cost of 4,714.6 Bs. (2.2 Bs per inch). Results show there is a marked difference in the price to buyers at which softwoods are purchased: 3.4 Bs per inch in Guarayos as compared to 4.5 in Santa Rosa. This substantially lowers the total costs for Guarayos; a truckload of softwoods costs 12,080.00 Bs., compared to Santa Rosa with a cost of 14,358.10 Bs (see Table 5-6).

Table 5-5.
Estimate of the wood harvested in the barracas, concessions, and sawmills, in Santa Cruz, Santa Rosa del Sara, and Guarayos.

	Guarayos (BF per Year)	%	Santa Rosa (BF per Year)	%
Ochoó (Hura crepitans L.)	19,059,618.35	36.59	Ochoó (Hura crepitans L.)	24,662,163.16 32.43
Bibosi (Ficus sp.)	3,963,796.47	7.61	Bibosi (Ficus sp.)	6,556,592.96 8.62
Others		55.8	Others	58.95

The higher costs in Santa Rosa del Sara produce lower profits for wood extraction in Santa Rosa, 3,643.1 Bs as compared to 6,001 Bs in Guarayos. The difference between the costs is associated with the extra distance that the loggers are traveling in order to extract wood in Santa Rosa del Sara. This distance is associated with the combination of over extraction of dominant species and clear cutting due to land tenure conflict in Santa Rosa. To understand why, I turn to a qualitative analysis that allows examination of land invasions and their effects on the viability of logging. Qualitative analysis shows the link between the additional cost of the wood production in Santa Rosa del Sara and the changes in timber extraction because of land invasions. In numerous in-depth interviews, loggers described the changes that have taken place in the timber extraction.

My family has made a living from timber for three generations; in the old days it was much easier . . . you did not have to saw timber, all you had to do was to find the mahogany and sell the log . . . Things have changed as these species have disappeared . . . the other major factor has been the distance that we travel to get wood . . . starting in the 1970s the first colonists came in and starting clearing land . . . at first it was not a big deal but each new invasion cleared more and more forests . . . by the end of the 1990s we were spending

months at a time harvesting . . . in the old days we would go in for a few months . . . imagine the increased costs for the crews that are staying in El Chore . . . why did the government not enforce the law, it is called the forest preserve not the colonization reserve” (logger in Santa Rosa del Sara).

The loggers associate the changes as being threefold, including their own overexploitation of valuable species, the additional distance and cost to cut wood due to colonization and clear cutting and deforestation, and the failure of the government to maintain the forestry reserve. Land invasions and deforestation led to increased distances to harvest wood as more and closer forests were cleared, leading to higher transportation costs. Slowly but surely the forests are being depleted as colonization penetrates deeper and deeper into the Forest Reserve El Chore.

Table 5-6. Costs and Returns to Wood Extracted from Santa Rosa del Sara and Guarayos.

Truckload of Softwood sold in Santa Rosa	Units Produced	Costs	Returns
Price to purchase softwood in inches bought at 4.5 Bs/Inch	2,143.00 inches	9,643.50 Bs	
Sawing an Inch produces seven board feet at a cost of 2.2 Bs per inch	15,001.00 BF	4,714.60 Bs	
Selling (1.2 BF) Santa Rosa		Total Cost 14,358.10 Bs	3,643.10 Bs
Truckload of Softwood sold in Guarayos	Units Produced	Costs	Returns
Price to purchase softwood in inches bought at 3.4 Bs/Inch	2,143.00 inches	7,286 Bs	
Sawing an Inch produces seven board feet at a cost of 2.2 Bs per inch	15,001.00 BF	4,714.60 Bs	
Selling (1.2 BF) Guarayos		Total Cost 12,000.80 Bs	6,001 Bs

One sawmill owner had actually owned a mill in Santa Rosa del Sara and then moved to Guarayos. I asked him about the difference in the prices between the two places. He stated,

It was getting hard to make a living in Santa Rosa . . . the majority of the valuable species were gone and it was harder and harder to go and get wood . . . you had to deal with the colonists and there are less forests that are close . . . I still have friends in Santa Rosa and they are almost broke . . . Here (in Guarayos) at least I can make a living . . . the wood is closer because the forests have not been cleared . . . this lowers my selling price.

I further examined the changes that he had seen in Santa Rosa as compared to Guarayos. I asked him why there was a difference between the two locations. He stated,

The difference is essentially the colonization . . . there are not many valuable species left in either Santa Rosa or Guarayos . . . after the roads were created there was no existing population in Santa Rosa . . . after the roads were made the colonists poured in . . . they don't really value the forests and chaquean (clear cut) almost all their land . . . if you leave the forest for 20 years you can return and cut . . . after there are pastures there is no hope . . . Guarayos in native indigenous they have lived in the forest forever and if they do produce crops it is for subsistence . . . the colonists in Santa Rosa clear so that they mechanize and sell crops . . . essentially there is a cultural difference between the Guarayos and colonists (in Santa Rosa del Sara).

Their key informant identified a cultural distinction between the two regions as one of the key factors. Essentially, he felt that the colonists in Santa Rosa del Sara were more destructive in Santa Rosa del Sara.

I also explored the theme of colonization in the area of Guarayos. He stated,

This is a very hot topic in this region. There are colonists that are entering in the region much as there was in Santa Rosa del Sara. Fortunately the Guarayos are both politically and physically active defending their territory . . . they have communities dispersed throughout the region and these act as a defense against some colonization . . . they are also politically active . . . they have demanded communal lands from INRA and have denounced colonists that entered in the area . . . A colonist can't make the claim that the Guarayos are large landholders . . . it comes down to the ability to maintain a physical presence . . . this in turn has helped to protect the forests to some extent.

Their statement illuminates a great deal about some of the differences between the two regions in terms of land use and culture. The sawmill owner essentially saw Guarayos having less colonization due to the ability of the Guarayos to organize and the location of communities.

In the end, many of the local populations in Guarayos and Santa Rosa del Sara blame the loggers for the opening of the forests. One key informant in Santa Rosa del Sara stated, "The loggers like to blame the colonists for everything but they continue to explore every inch of the forest reserve . . . they are just as much to blame as the colonists." Another key informant in Guarayos explored the same theme. He stated, "It's not only colonists that you have to watch for but also loggers . . . they will go in and take wood from anywhere . . . essentially we must be careful of all intruders."

Logging roads are usually the first step to colonization by landless peasants and to the conversion of forests to farm fields and pastures. As a result of the construction of the roads traversing most areas, deforestation is now becoming a widespread issue. Road access encourages colonization by landless migrants for agricultural practices, which leads to total clearance of the forest, usually by fire.

Essentially, in the case of Santa Rosa del Sara, the timber industry is a victim of its own success. The ability to penetrate deep into the forest reserve has opened roads for colonization. Guarayos still has many of its forests because it has a population to defend it. Theoretically, loggers should have been able to plan long term use of the forests and the government would support them. The reality is that the government has not had the ability to halt either illegal logging or colonization.

In Santa Rosa del Sara there has been an attempt to organize the timber industry (including the sawmill operators and loggers) into ASLs and secure their future with the Municipal Forest Reserve, but there has been land invasion which threatens the reserve's future. One logger and member of an ASL in Santa Rosa stated,

What is the point? We tried to comply with the law . . . we have spent seven years to get legal title . . . the colonists just take one day to invade and then cut down our forests . . . the law does not protect those who obey the law, it rewards those who violate it.

Overall, the conflict has been detrimental in terms of both the attitudes of Santa Rosa del Sara towards compliance of forest regulation and the negative attitudes of loggers towards small producers in the region.

There is plenty of blame to go around including: the government's inability to control illegal logging and colonization, the lack of interest in legal logging until resources are almost

gone, and indiscriminate colonization and clearing of land. Of course, each party blames the other as the colonists and loggers cry foul, as they all complain about the government. However, in the end, all are responsible for the destruction as each has participated in the process.

Discussion

In brief, the findings indicate that illegal logging prevails, in part because 1) management plans help foster excessive harvesting, 2) management plans make legal logging economically unattractive, 3) other livelihood options are more attractive for farmers, 4) indiscriminate logging has opened up vast areas of forest to colonization and 5) farmers are pushing loggers out via land invasions and clear cutting. This is occurring in a context of weak state presence and heavy compliance requirements to be legal, all in a frontier setting where many social actors are squaring off over different natural resources.

CHAPTER 6 CONCLUSION

Shifting some of the governance responsibilities for a specific sector from a heavily centralized organization to a more decentralized and polycentric system in which the governance responsibility is distributed among several different political actors at a lower level of aggregation, is a transformation process that implies both potential advantages and constraints for public policy. Theoretically, the shift in the roles of the political actors in the national natural resource management policy arena implies that the political decision making process is brought closer to the natural resource users, and that the local organizations in charge of governing activities in the sector, are in a better position to consider local knowledge of time and place when addressing problems associated with the use of natural resources (Johnsson, 2000; Arya et al., 2002; Barnett et al., 1998). Also, some of the inefficiencies resulting from the application of national, blueprint solutions are avoided (Ostrom et al., 1993).

Other theoretical justifications for decentralized governance of natural resources include a more (1) efficient administrative structure, as the resources required for centralized processing of local information tend to increase exponentially with the number of subsystems (Johnson, 2000, Hogg and Huberman, 1993); (2) effective arrangement for conflict resolution, as a local government authority is a more accessible mediator or arbitrator for local natural resource users involved in inter- and intra-communal conflicts (V. Ostrom, 1967; E. Ostrom, 1990; Lam, 1996); (3) more appropriate for learning, by allowing local actors to experiment and exchange information about the consequences (Lee 1996; Light et al., 2002), and more (4) robust governance system as the risk of governance failure is spread over many actors (McGinnis and Ostrom, 1999; Oakerson, 1999). The redundancy of functions among many actors at the local

level, i.e., municipal government systems, makes no single municipal government essential for performance of the overall governance system (Wunsch, 1991; McGinnis, 1999).

On the other hand, a decentralized, polycentric system can also produce sub-optimal results. For instance, information asymmetries in the principal-agent relationship between central and local government systems complicate the monitoring of local government performance producing perverse incentives for agents to slack (Ostrom et al., 1993). Another potential drawback with a decentralized structure is the possible strengthened position of local political elites who may direct the increased resources available in local governments to their personal benefit (Crook and Manor 1998; Ribot 2002; Pacheco and Kaimowitz, 1998). Also, in a decentralized system, coordination between local governments is necessary for solving some problems that cross the municipal boundaries, and such coordination can be costly (Oakerson, 1999; Wunsch, 1991). In countries where the central governments are decentralizing selected governance functions to lower levels of government, the challenge is to create institutional arrangements that will maximize the benefits while avoiding the disadvantages.

Discussion of Main Findings

This dissertation has examined these changes especially in regard to changes in the agrarian and forestry sectors. In particular it has looked at the impact of these changes on local logging and farming in the municipality of Santa Rosa de Sara in the Department of Santa Cruz. This chapter distills the key findings of the foregoing chapters to discuss their significance, and then situates the findings in the broader context of Bolivia's political environment and economy, and considers the implications for other countries contemplating or pursuing decentralization to address conflicts over resources and thereby improve natural resource.

Decentralization, Participation, and Transparency in relation to the Ley INRA and the Ley Forestal

I conclude that relatively little has been accomplished because there has been rather little power actually given to the local governments. The analysis has shown that in both the case of the Forestry Law and Ley INRA, local actors have very little involvement and information. Furthermore, pre-existing conflicts have not helped, and mistrust and top-down management among government actors has made coordination across levels very difficult.

In the case of INRA, the limited participation in the titling and lack of information on the status of final tenure has fostered conflict. For example, as the actual physical land boundaries have been revealed, significant overlapping of property lines has emerged. Today many small producers complain and are suspicious because they were not present when the GPS points were taken. Due to the lack of participation, there are charges of corruption, and ultimately less chance to resolve conflict peacefully (Urioste and Pacheco, 2000; Urioste, 2003).

Participation should give the social actors an active voice in the process. They should be able to peacefully resolve issues or at least be given mechanisms by which they may be able to appeal decisions made by INRA. The lack of voice forces individuals to make decisions they feel will allow them to receive tenure. Many returned to the historical saying “the land belongs to him/her who uses it.” INRA’s failure to incorporate landholders in the discussion process heightened conflict (Assies, 2006).

Transparency deals with the ability to receive information that allows social actors to understand what is happening inside the institution that regulates their control. The absence of public information leaves the social actors frustrated as decisions appear to be made in secret. Furthermore, it is impossible for social actors to spot problems, appeal decisions, or to challenge corrupt officials without information (Pope, 2000). In the case of INRA, the information is

important because land directly influences all of the social actors. None of the social actors reported that they had public availability of information on open budget preparation, execution, and reporting. The lack of information has led to charges of corruption and all were frustrated due to the lack of transparency of the land titling process.

There are similar problems with the Forestry Law Reforms as a number of social actors have little or no say in decisions about the process with which forest use rights are granted, to whom the rights are granted (the creation of municipal forest reserves has been an advance in this regard), or about the kinds of sanctions that should be imposed on illegal logging.

Of particular importance are the responses of these social actors, ranging from complaints to illegal activities. These responses provide a view of the present day reality of these institutions, and most importantly indicate groups with potential for, or tendencies toward, increased conflict. Actual conflict has escalated equally, if not more severely, with illegal colonists, where the predominant manifestation of conflict has included that of land invasion in the forest reserve.

Ultimate lack of involvement in the forestry management process on behalf of these colonists has led to repeated land invasions. Involving this group during the implementation of the forestry law could potentially diminish this conflict and identify obstacles to following forestry management plans. Early involvement in the crafting of policy and its implementation might help local social actors to overcome those obstacles, and make it possible to cooperate with the law instead (Urioste and Pacheco, 2000; Urioste, 2003).

Despite improved satisfaction with the transparency of the Forestry Superintendent, local institutions often resorted to the use of force to reach desired goals. Even with information provided, threats of violence continue against public officials due to dissatisfaction with forestry

law procedures. The Forestry Superintendent has actually left Santa Rosa del Sara and moved to Portachuelo which is nearly 75 km distance from Santa Rosa. Previously the forestry officials experienced threats of violence and were locked up; however, the officials always returned, explained, and applied the law. The abandonment of the local forestry post is a severe blow to the municipality's ability to regulate any forest activities. This situation has rapidly deteriorated as the local officials from the Forestry Superintendent were changed in 2005. Institutionally, the Forestry Superintendent is not equipped with mechanisms for enforcement of many laws, nor is it prepared to confront the violent outbursts of conflict from those in opposition to the forestry regulations.

Apart from these problems, there have been some positive benefits. In the case of the Forestry Law, the local ASLs have been given an active role in the municipal forests. The ASLs have pressured the government to complete the titling of the municipal forest reserve, remove illegal colonists, and to establish mechanisms in order to secure the long-term security of the municipal forests.

More devolution does not guarantee that there will be more responsive governance (McLean, 2001; Ribot, 2002). However, given the extreme weakness of both national and local governments in Bolivia, both INRA and the Forestry Superintendent have ended up having relatively little influence over what is actually happening on the ground in Santa Rosa.

Ethno-regional Identities and Land Tenure

In the example of Santa Rosa del Sara, I witnessed conflicts rooted in the cultural contestation over land among competing ethno-regional groups who have repeatedly changed their tactics for securing control over natural resources in response to the tactics used by their adversaries. The failure of INRA to finish the tenure process has created a situation in which those with physical control of the land, in essence, win their claims. This was revealed by the

fact that both Cambas, and Kollas, engaged in illegal land invasions and threatened the use of violence against their opponents. There were no consequences for the illegal activities; as no one was charged or placed in jail. The weak governing bodies and enforcement agencies perpetuated violence as groups used force to achieve their goals.

The case of the Cambas versus the Kollas illustrates that the Cambas learned strategies used by the Kollas. The Cambas became more exploitative as they invaded properties that they knew belonged to others, and used violence to achieve their goals. They also used the forest management plan to help achieve the land tenure as was shown in Santa Rosita. In this case, the Kollas appear to have capitulated.

At the end of the day, the most successful adaptation technique is possession of the land. The weak government provides no reason to abide by the law and reinforces the cycle of violence that dominates the tactics that are used in the region. The Kollas and Cambas attempt to paint a picture of the other group as the aggressors, while both are guilty of using conflict to further their goals. The conflict does not subside, in large part because of the inability of the state to create any norms and resolve the discrepancies that are present in land tenure in the area.

There are important ironies here. Most notably, groups that identify themselves as being different are now acting more and more alike. This point merits emphasis in light of the political ecology literature, which makes much of the fact that unequal groups generally use very different tactics. Here I have witnessed, however, a bit of an innovation/deviation from the generalizations/assumptions presented in the political ecology literature, though it is perhaps not surprising since the two groups are not as unequal as, say, a community and a trans-national corporation.

Despite the similar tactics used in the case of Santa Rosita, there are distinctions that may be drawn between the two groups of actors. The Cambas in and around Santa Rosa del Sara are concerned about the dwindling remains of the forests by which they have made part of but not their whole livelihood. The Kollas on the other hand had only the cleared forest to use for their livelihood. The cases of both El Recreo and Santa Rosita stressed the need to conserve their forests. Unfortunately, forests are seen as unused land and become the target of colonization by Kolla syndicates.

The community of Santa Rosita remains an anomaly in which a Camba community actually invades and settles the forest, in an area already inhabited by Kolla syndicates seeking INRA sanction. To date the final forested areas in the Northern extremes of the Province that represent the Municipal Forest Reserve have not been settled by Cambas. Instead, new Kolla syndicates continue to expand in the last bastion of forests in the municipality.

In my research, I found that there were very distinct divisions in the municipality of Sara between Cambas and Kollas. These were not only the views of the Santa Cruz elite but also distinct ethno-regional groups. The Kollas have adapted to social exclusion by creating a series of strategies that give them access to land.

There is, however, a very real resentment amongst the Cambas concerning land invasion. Many common people including second generation Kollas were concerned about the future of the department of Santa Cruz. There were very real perceptions of the damage that was being done to forests.

Timber Markets and Illegal Logging

Illegal acts were widespread in Santa Rosa del Sara, even though the forestry sector underwent important reforms in the mid-1990s aimed at promoting more sustainable forest management and democratizing access to forest resources. It was estimated that about half of the

total domestic consumption of wood was illegally extracted from non-managed forest and that more than four-fifths of deforestation was illegal (Cordero, 2003). In the Department of Santa Cruz, results showed only 39% of the barracas and sawmills surveyed were registered with the Forestry Superintendent, so 60% were illegal.

Results drawn from both participant observation and interviews with loggers and sawmill owners showed the diverse ways through which illegality operated in practice, including logging in non-allowed areas, invasion of protected areas, falsification of inventories, and illegal trade of transportation permits (CFOs). Results from analyzing the amount of wood approved by the forest management plans compared to the amount extracted showed that forest management plans were being used to illegally harvest wood. The underlying causes explaining the persistence of illegal practices were diverse. The forestry regulations have been devised in order to meet an ideal scenario of sustainable forest management in which all forest rights were clear, land tenure was secure, and the forest users have the incentives to implement good practices of forest management (Cordero, 2003; Contreras-Hermosilla and Vargas Ríos, 2002). In practice, the reality has proved to be more complex. The implementation of the forestry reforms has been slower than expected, and the forest users, mainly small farmers, indigenous, and small-scale loggers have had to adjust gradually to the new rules of the game. Some have failed to do that because they cannot afford to pay the embedded costs, which over time operated as barriers to entry (Pacheco, 2003; Pacheco, 2006). In this regard, the new forestry regulations have tended to establish homogeneous norms; but with some operators better than others at adapting themselves to the new legal framework.

Not all the forest users were equally able to pay for the transaction costs originated from the formulation and implementation of the forest management plans, which constituted a barrier

to enter the formal forestry sector for small-scale operators and small farmers without capita (Contreras-Hermosilla and Vargas Ríos, 2002). Hence, they wanted to make some profit from their valuable standing trees and often sold them without permits. This introduced severe distortions to the market since the timber extracted from non-managed forest areas tended to be undervalued, and competed with the timber logged from areas with formal and legal forest management plans. This made legal logging and forestry in general an unattractive livelihood option for farmers (Davies et al, 2000). Furthermore, the small-scale landholders benefited little from their forest resources since they did not have the necessary skills to negotiate with sawmill operators and forest concessionaries to obtain better prices.

The lack of institutional transparency and participation, when coupled with the high cost of legal forestry fostering illegal logging, created an environment in which there is increasing tension. As forest resources disappeared due to land invasions, there was increased pressure to secure resources for the future.

Implications of the Study

This study shows that the effects of the decentralization reforms in Bolivia's forestry sector depend to a great extent on the prevailing conditions for local people to solve a series of dilemmas. By employing the tools and methods of institutional analysis and drawing from the findings, the study has been able to identify institutional factors which seem to determine whether the conditions for successful decentralized governance of forest resources exist.

Implications for Increasing Participation and Transparency within Land Reform in Bolivia.

The problems in achieving rapid and efficient application of the INRA Act has led to a lack of communication between the different parties and stakeholders interested in the land reform process. The constant communications and negotiations essential to build consensus and

solutions were lacking, and local social actors related to INRA only in times of crisis. The lack of mechanisms in INRA by which local groups solicit information on the land titling process has created suspicion and charges of corruption. Therefore, not only has the central government alienated the social actors from the process by a lack of participation, but also they have made the social actors suspicious by failing to maintain transparency.

There thus needs to be a renovation of the process that will allow for an efficient resolution of the land titling procedure, while creating mechanisms for a voice for local actors and groups in the process. They need access to information, and finally a manner in which they may appeal decisions to ensure that the reformed institutions are accountable. Without such reforms, the land reform itself is a time bomb as complex as any facing Bolivia (International Crisis Group, 2007).

Implications for Increasing Participation and Transparency within the Forestry Law in Bolivia.

Results showed that the Forestry Superintendent attempted to devolve responsibility to local groups but the rest of the administrative apparatus in the forestry sector remained centralized. Because of the actual presence of the Forestry Superintendent in the municipalities, overall the institution was rated as centralized with several devolved portions.

The majorities of the policies, however, still came from the Forestry Superintendent and then were imposed on the local actors. The current levels of participation did not allow the flexibility necessary to adapt to the needs of the local institutions but rather makes the institution almost as inflexible as INRA.

The limitations of institutional participation have promoted conflict throughout the enactment of the law from the Forestry Superintendents. The local loggers and sawmills faced grave problems and their continuing financial losses have ultimately forced either closure or

illegal logging. The reasons for this depressing performance are multiple, however, and are in large part due to land conflicts in timber concessions and lands assigned to ASLs or to private property.

With respect to the legal framework governing natural resource management, I observed that the Forestry Superintendent had a stake in the centralized control of the nation's vast forestry sector. Yet in Santa Rosa del Sara, the central government failed to detail the specific government agencies or levels of government that had responsibility for particular administrative functions, and allowed the Forestry Ministry to retain decision-making powers over large-scale decisions regarding the forestry estate. Subsequent regulations in the forestry sector accentuated this trend, with the Forestry Ministry attempting to leave only operational matters in the hands of the districts and municipalities.

The failure of these reforms to redistribute power and decision making to local populations did not change the dynamics of repeated conflict. Rather there has been an exacerbation of the conflict. Local institutions organized themselves around their ethno-regional origin. Realizing that resources are growing ever scarce, they began to utilize violence to gain access to these resources.

Implications for Forestry Decentralization

When structures of local transparency and participation are not in place, local governments are often at the mercy of local power elites, who may frustrate the goal of achieving public delivery to the general populace of social services, infrastructural facilities and conditions conducive to local business development (Bardhan, 2002). This means that for decentralization to be really effective, it has to be accompanied by serious attempts to change the existing structures of power within communities and to improve the opportunities for participation and voice, engaging the hitherto disadvantaged or disenfranchised in the political process. After all,

the logic behind decentralization is not just about weakening the central authority, nor about preferring local elites to central authority, but it is fundamentally about making governance at the local level more responsive to the felt needs of the large majority of the population (Schou and Haug, 2005).

The first step is to be aware of the ways in which specific arguments and mechanisms are used to compromise democratic decentralization, and to recognize that the real reasons behind those arguments and mechanisms are not the ones being stated. Central governments, regardless of official rhetoric, policy, and legislation, erect imaginative obstacles in the path of decentralized institutions and choices (Ribot, 2002).

Second, downwardly accountable institutions should be constructed at various levels of government. Mechanisms of accountability go beyond the electoral process. Multiple accountability mechanisms—providing information and enabling sanction—can be applied. At a minimum, they should include information sharing across governmental levels and with the general population, and civic education of local peoples and authorities so that people know what they can demand—what they can hold local authorities accountable for—and so local authorities know what they can offer (Sharma, 2005; Sharma, 2006).

Third, accountable local officials should possess discretionary powers that offer a secure domain of autonomous decision-making, and funding that allows these decisions to be implemented. Those powers, and the limits to them, should not be seen as simple technocratic or scientific judgments, but rather recognized as political decisions. Hence, a broadly participatory political-institutional process should be constructed through which such decisions could be debated (Ribot, 1995, Ribot, 1995a)

Finally, in order to overcome central government resistance, broad coalitions that bring together a diversity of interest groups from different sectors of society and government could provide an effective institutional forum for the promotion of democratic decentralization. Such coalitions are needed to counter-balance the centralizing tendencies of national governments, and as such might serve as important political allies for the long-term development of a real, democratic decentralization.

Yet decentralization does not always yield the desired success or bring about sustainable development. In the short term at least, there will also be losers in any reform process entailing a substantial redistribution of political power, competencies and resources, and account must be taken of their interests and possible resistance (Andersson, 2002). For instance, decentralization means holding local elections even if ethnic groups emerge with a majority different than those at the national level, or when traditional authorities forfeit power and influence due to the establishment of new, decentralized administrative structures. By their nature, then, decentralization processes generate conflict – they can aggravate existing conflicts between ethnic or social groups or create new ones. For decentralization to achieve beneficial impacts, potential risks must be identified and analyzed and mechanisms implemented to prevent them (e. g. measures to prevent conflict or corruption or to promote social equality). In the individual case, the costs of each decentralization process must be weighed against the anticipated benefits (Andersson, 2001).

Implications for the Informal Economies

In the case of Santa Rosa del Sara improvements in title regularization are needed in areas with significant proportion of forest resources. In the Forest Reserve El Chore there is an urgent need to protect the remaining public lands, and to designate such areas as municipal forest reserves, or to reserve them to be auctioned as forest concessions.

Another important implication of these results in Santa Rosa del Sara is the need to simplify the rules and regulations for forestry management (Peluso, 1992). It is important to adjust the regulations to make them more flexible to adapt to the needs of forest users, and to remove the unnecessarily high transactions costs that prevent many from having legal forest management plans. The identification of critical issues should be addressed through participatory policy analysis and consensus building approaches to capture stakeholders' views of the problems, to develop alternative ways of confronting these problems, and to build a consensus among a diverse group of forest stakeholders united behind common interests (Ostrom, 1990). The regulatory reform should focus on the following issues: tenure and access, cost of regulatory compliance, effectiveness of regulations under varying regional conditions, effect of high discount rates and long timber horizons, and fiscal policies. Furthermore, there should be clearer rules of the game for forest users which demand the compliance with technical norms, mainly forest management plans and annual operating plans (Contreras-Hermosilla, 2005).

There are still some initiatives that could be adopted to deal with illegal acts in the forestry sector, among them: improving collaboration for title regularization, and simplifying the rules and regulations to avoid undesired effects. These issues, however, should be discussed among the different stakeholders and public institutions in order to find ways to improve in the long run the contribution of sustainable forest management to development, based on a more equal social distribution of their benefits.

Implications for Property Rights and Natural Resources Extraction

Property rights are key determinants of natural resource use. When property rights are insecure, it is difficult for politicians and citizens to make credible, long term commitments to compensate those who would lose from the change in resource use (Alston and Mueller, 2003;

Libecap, 1989). A successful strategy of land invasions has forced the Bolivian government to expropriate land in the favor of colonists. This strategy for land reform has led to high levels of rural violence and has been shown to give incentives to both landowners and squatters to clear forests prematurely, so as to solidify property rights. Clearly, this property rights arrangement has been wasteful.

Insecure property rights prompt claimants to excessive or premature investment in the hopes of strengthening their claims. They prevent the landholder from using a resource as collateral, and they reduce potential gains from exchanging assets. Ownership of cleared land is generally more secure than forested land, which has the effect of rendering forests highly insecure (Anderson and Hill, 1990).

The Ley Forestal and Agrarian Reform laws (Ley INRA) were passed in tandem and the institutions set up to implement the laws were established at the same time. Failure to aggressively implement the INRA law has served as a major obstacle to effective implementation of the new forestry paradigm. Without secure tenure, private producers are reluctant to invest in sustainable forestry practices and there is little protection of much of the forest, leading to high levels of illegal logging and encroachment. Finding both the political will and the administrative ability to fully implement land reform and secure resource tenure in the lowlands is key.

Implications for Future Research

Future research could supplement this study by expanding the institutional analysis of municipal forest governance initiated here. One approach would be the incorporation of information about forest users' decision-making prior to the decentralization reforms in the mid-1990s. Such a study could look at whether the conditions for these community members' access

to formal property rights have changed, and if such changes have affected the local people's perceived forest tenure security.

Another avenue for future research would be to study the Guarayos forests under the TCO management and use GIS information systems to measure the extent of the forests left in Santa Rosa del Sara and Guarayos. Given the dire predictions of many of the people in Santa Rosa, that their livelihoods would soon be a thing of the past and the El Chore Reserve would disappear, in two or three year's time. It would be useful to see if in fact this is the case.

To get a firmer grip on the biophysical impacts of the reforms and the activities carried out by municipal governance actors, future research could expand the analysis of forest cover change to the entire country. It would be particularly useful to get a forest-cover time-series dataset that includes the periods just before and after the passing of the 1996 forestry law.

As a complement to the national-level studies, remote sensing technology can also be used in studies at the local level, linking community case studies with changes in the local biophysical environment. If carefully selected, such microlevel studies could test the hypothesized relationships between macro policies, user decisions, and outcomes in terms of forest conditions at the local level.

Finally, future research efforts should harness the power of comparative analysis. It would be particularly interesting to compare Bolivia to other countries in Latin America, some of which have undertaken decentralization reforms in their forestry sectors around the same time as Bolivia (e.g., Guatemala, Honduras or Colombia), while others have not carried out such reforms (e.g., Peru or Venezuela). Such a research project would be able to construct empirically grounded theory to explain how and why local political actors respond to decentralized forestry policy, and what impacts such policy might have on the natural resource base.

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BIOGRAPHICAL SKETCH

Carlton Pomeroy has more than 12 years of experience in natural resource development (forestry, agriculture, and fishing), particularly in community development, participatory methods, gender, economic and livelihood diversification, institutional strengthening, and product export. His experience includes teaching, tutoring, training and adult education experience in both the academic and development arenas. He has also experience in both quantitative and qualitative research methods and project design, implementation, monitoring, and evaluating.