

Public Policy Reforms and Indigenous Forest Governance: The Case of the Yuracaré People in Bolivia

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Abstract

The recent surge in the efforts to reform forest governance—both through decentralisation and tenure reforms—has been coupled by an increase in empirical studies that assess the virtues and limitations of the new regimes. Despite an increasing body of literature, however, there is still limited knowledge about the effects of these reforms on the indigenous groups and their forest governance institutions. This study seeks to contribute to the empirical literature by analysing how policy reforms in Bolivia have affected one indigenous territory, its inhabitants, their de facto property rights regime, and their consequent efforts to govern their forest resources. The case study, about forest use decisions and actions among the Yuracaré people in the Bolivian lowlands, is an example of what the Amerindian indigenous societies face in terms of both opportunities and limitations associated with the implementation of formalised de jure rights over forests. We pay particular attention to the effects of the 1996 forestry reforms on the institutional conditions for governing common-pool forests resources. The study draws on primary field data that were collected both before and after the implementation of the reforms. We find that the introduction of formal rights has led to increased security in tenure rights and the emergence of more opportunities for diversifying the sources of income for the Yuracaré people. But there are also significant costs associated with the achievement of these benefits. The reforms induced the Yuracaré people to integrate with the surrounding public and private economies, but we find that these interactions have strained traditional governance arrangements.

Keywords: governance, indigenous people, property rights, public policy, Yuracaré, Bolivia

INTRODUCTION

Few public sectors in the developing world have been subject to as many public policy reforms as the forestry sector. In the last 20 years, a number of reforms aiming to change forest tenure and the degree of decentralisation in decision-making have helped transform the way public administrations govern forests—at least on paper. One of the core findings of research on local forest

governance is that political reforms do not always change the way things are actually done on the ground (Gibson et al. 2005; Lindsay 1998; Bruce 1998; Alston et al. 2000).

Nevertheless, based on governments' self-reported figures there is a major forest tenure transition underway by which more and more of the world's forest is controlled by rural communities and indigenous groups (White and Martin 2002). This transition is, in part, due to government-led land reforms that recognise the indigenous people's ancestral land rights. These reforms grant, to varying degrees, ownership of these lands to their historical stewards (White and Martin 2002). The changing distribution of forest lands has been welcomed not only by the indigenous people themselves, but also by policy scholars and practitioners concerned with the undervaluation of forest resources, associated with insecure land rights. Recent studies show, however, that the countries that have carried out land reforms have experienced mixed

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results with regards to delivering increased tenure security for the poor, forest-dependent, rural populations (Meinzen Dick and Mwangi 2008; Larson et al. 2008, 2010). Formalisation of rights, it appears, is an important first step towards improved forest tenure security but it does not seem to be sufficient for achieving improved governance outcomes. This observation raises the question as to which institutional conditions—in addition to *de jure* property rights—are conducive to socially fair, economically viable, and ecologically sustainable forest governance outcomes. Ultimately, that is the question that motivates this study.

There is an increasing body of literature that considers how forest policy reforms at a central level of government affect, or fail to affect, human decision-making about forests locally. However, there is surprisingly little systematic empirical research to assess the impact of the reforms on the indigenous populations, and their governance of forest resources. Scholars who seek to address this knowledge gap face several methodological challenges. One of the trickiest problems is related to the difficulty of attributing observed user patterns in the field to the enactment of the particular land reform. Part of the problem of establishing causality is due to the lack of relevant data on behavior and decision-making *before* the reforms were passed—the interest in assessing the effects of a particular policy often arise *after* the policy has been in place for some time. As a result, policy analysts and policy makers are still in the dark not only when it comes to the results of the reforms but also about the most appropriate policy adjustments that are needed to meet original policy objectives.

This study seeks to contribute to the contemporary empirical literature by analysing how forestry reforms have affected the indigenous forest users at the local level. We present the results of a longitudinal, in-depth case study of an indigenous territory, its inhabitants, and their efforts to govern their forest resources. The study draws on primary field data that were collected before *and* after the implementation of the public reforms, which enables us to test some of the main hypotheses about the effects of these reforms on the indigenous people and their governance arrangements.

The case study presented here is based on the International Forestry Resources and Institutions (IFRI) research program, which investigated these communities at two points (1996 and 2007), gathering qualitative and quantitative data which can be combined and compared across space and over points in time. In each one of the communities studied, we organised meetings with the majority of the local inhabitants, collecting data about local peoples' interactions with the forest. We also gathered genealogies of the primary local leaders of the Yuracaré people, and conducted semi-structured, detailed interviews with other community leaders. In both the 1996 and 2006 visits, the same forest areas were studied and surveyed.¹

The study is about the Yuracaré people whose ancestral territory is located in the Bolivian tropical lowlands. This case study represents an example of what the Amerindian indigenous societies face in terms of both opportunities and limitations associated with the implementation of forestry sector reforms,

in this case entailing parallel tenure and decentralisation reforms. Our analysis pays particular attention to how the reforms (especially regulations for forest management) have affected the institutional conditions for addressing a series of collective action problems that are inherent to all local efforts in managing common-pool resources.

We begin the paper by reviewing the contemporary literature about the issue of local forest governance and the indigenous societies. Drawing on the common-pool resource literature we then select a series of variables describing the conditions conducive to effective collective action, and use our observations of these variables to assess the effects of the forestry reforms. We proceed to describe the reforms themselves, followed by a description of the Yuracaré society. We conclude by assessing the degree to which the principles of self-enduring institutional conditions that are drawn from the common property literature help to explain the ways in which the Yuracaré people responded to the forestry sector reforms.

PREVIOUS RESEARCH

The literature on property rights has mostly been concerned with the types of tenure associated with better forestry conditions. One of the key findings of institutional analysis with regards to common-pool resource management is that well-defined boundaries (regarding where one person's right begins and where another's right ends), facilitate the effective governance of such resources (Ascher 1995; Baland and Platteau 1996; Dietz et al. 2003; Gibson et al. 2005; Meinzen-Dick et al. 2002; Ostrom 1999), by increasing the probability of sustaining local collective action (Gibson et al. 2000; Meinzen-Dick et al. 2002; Ostrom 2003).

Another central result of recent empirical work is that tenure type is not as important as tenure security (Gibson et al. 1998; Tucker 1999). Moreover, McKean (2000) argues that common property is the type of tenure that is most suitable for forest management because holding forests as a commons diminishes many of the risks and externalities involved with managing fragmented forests.

Much of previous research on forestry reform in developing countries focuses on how public policy reforms affect government decisions and actions at various levels of governance, especially in the case of decentralisation reforms (Ferroukhi 2003; Kaimowitz et al. 2001; Larson 2002; Andersson 2003; Pacheco 2002). Few studies specifically address how the indigenous institutions are affected by these reforms (Pacheco 2008; Larson et al. 2008; Andersson and Pacheco 2006 address this issue). It is now widely recognised however, that forest user groups at the local level play a crucial role in crafting and enforcing forest governance rules (Becker and León 1999; Gibson et al. 2000).

Agrawal and Ostrom (2001) point to the importance of considering the role of local user groups when analysing how decentralisation and land reform policies affect forest outcomes. In a comparison between forest communities in northern India and Nepal, the authors find that local communities who have

been given more extensive formal property rights through the reform process tend to be more motivated to govern forests, and in general do so more effectively. Agrawal and Ostrom (2001) further suggest that reforms are not likely to succeed in contributing to improved conditions for forest self-governance unless local forest communities are recognised as proprietors of the forests they use. In this paper, we build on the approach developed by Agrawal and Ostrom (2001) and study how a government-led effort to reform the forestry sector in Bolivia has affected one particular local user group, their property rights regimes, and their struggle to govern the vast forestlands. In doing so, we seek to combine insights from the literature on property rights and natural resources governance.

The role of the indigenous common property institutions in local forest governance regimes is not without controversy. Ribot (2001: 22), for example, suggests that customary authorities are not “necessarily representative, legitimate or even liked by local populations”. The presence of local strongmen or corporatist dictators is another aspect of the organisational challenges facing many indigenous institutions (Baland and Platteau 1996). Other problems include how the larger indigenous organisations may continue to make decisions by consensus, how to complement small size communities with larger communities to be successful in the provision of important larger-scale services, and the extent to which the local governance organisations are able to match the preferences of a variety of actors within smaller communities (Chandra 2001; Coleman 1990; Ostrom et al. 1993).

What these studies point out very clearly are the multiple organisational challenges that face the indigenous social organisations in developing countries today. As national governments begin to pass reforms that recognise the political and social stature of the indigenous groups, it is important for scholarship to assess the extent to which such reforms affect the organisational capabilities of the indigenous groups. Also, because the indigenous institutions have become an increasingly important actor in many national forest governance regimes—as is the case in Bolivia—it is important to consider the extent to which reforms have altered ways in which forest governance decisions are made.

BACKGROUND: BOLIVIA AND THE YURACARÉ

The Bolivian lowlands represent an appropriate study area for the study of the relationship between policy reforms and indigenous forest governance for at least three reasons. First, the country is widely viewed as a leader in Latin America when it comes to recognising territorial rights of the indigenous populations (IABD 2004). Second, an extensive process of political decentralisation has been implemented since 1994, seeking to improve public service performance by bringing the government closer to the people. Third, the majority of the indigenous territories are located in forest-covered areas, and the indigenous lowland populations manage multiple forest products as important sources of their livelihoods. The indigenous commons in Bolivia encompass an area up to 20

million ha, which represents about a third of the total Bolivian lowlands and a large proportion of the country’s forest areas.

The Yuracaré people live in a territory of 247,165 ha. This territory is located in two municipalities (Chimore and Villa Tunari), and in two departments (Cochabamba and Beni), which are in dispute over who has jurisdiction over this territory. The Yuracaré people were one of the first groups in Bolivia to acquire a government-approved forest management plan, which officially gave them the formal rights to use the forests to meet their household needs and commercial uses.

This achievement gave them a fairly complete ‘bundle of rights’ (Larson and Puhlin This issue; Cronkleton This issue) with regards to their use of the forests. This process was supported by the Center for the Study of Economic and Social Reality (CERES)-Bolivia, which has been engaged in collaborative research activities with the Yuracaré people since 1993 to the present. The references related to the Yuracaré society in this paper are the result of the field research in two time periods, one between 1994 and 1996 and a repeat study that took place between 2005 and 2008.

The Bolivian forestry reforms

Beginning in 1986, Bolivia started to launch a series of reforms to ‘modernise’ the state to meet the criteria laid out in Structural Adjustment Programs supported by the World Bank and the International Monetary Fund. In turn, in order to mitigate the negative social and environmental impacts of such programs, a set of ‘second generation’ reforms were launched. These included the Popular Participation Law (1994), the Land Reform Law (1996), and the Forestry Law (1996). The formulation of these regulations was influenced by several sources, including international agreements and conventions, historically unresolved local demands for increased autonomy, new political party strategies that responded to local interests, as well as a new national constitutional order (Urioste and Pacheco 2001; O’Neill 2003). In Bolivia, forestry sector reforms were characterised by efforts to democratise the public policy process and to revise the previous forestry regulatory framework, which was considered outdated and increasingly irrelevant (Pacheco 2004). Of these three laws, only the Forestry Law (1996), explicitly focused on the forestry issues. In addition, the Administrative Decentralisation Law (1995) and the Law of Municipalities (1994) could be added to this list (de Jong 2004), but these laws were designed as complements to the first three laws mentioned earlier.

We continue with a short chronological explanation of each of these laws, identifying the importance of each law and its relation to the forestry sector, as well as the possible effect of each law on the indigenous communities’ land tenure.

The Popular Participation Law (1994) was, essentially, a municipal decentralisation law. It created municipal governments in both rural and urban areas, with popularly elected authorities who were granted the power to manage local government finances. The most substantial source of local government financing in Bolivia comes from transfers from

the central government, but local governments also have the authority to raise small amounts of money from taxes and fees. Another important characteristic of this process was the creation of oversight committees (*Comités de Vigilancia*), composed of representatives of civil society present in the municipality, referred to in the law as basic territorial organizations (*Organizaciones Territoriales de Base*). These basic territorial organizations are charged with participation in the municipal planning process, which essentially means identifying needs in each group's area of influence. The Popular Participation Law (1994), however, does little to direct the management of forests and provides few specific powers for doing so.

The Land Reform Law (1996) ratifies the de facto rights obtained by the indigenous peoples in mobilisations during 1990, recognising the indigenous lands as original community territories. The strongest effect of this reform has been the process of titling of the indigenous lands, in which the indigenous groups demanded 29 per cent of the national territory as original community territories. By 2003 in the lowlands, 51 original community territory demands covered between 17.5 and 19.5 million ha (Cronkleton and Alborno 2004; Pacheco 2008), but as of 2008 only 4.2 per cent had effectively been titled (Pacheco 2008: 17).

Finally, the Forestry Law (1996) specifies the method of access and use of forest resources. In doing so, it radically changes the structure of incentives for forest users (Contreras-Hermosilla and Vargas 2002) with the goal of promoting sustainable forest use. For example, forest concessionaires now pay a flat fee per hectare of concession land to the government, instead of paying the fee per volume extracted as used to be the case during the old regime (Pacheco and Kaimowitz 1998). The Forestry Law recognises the exclusive rights of the indigenous people to extract forest resources from their original community territories. All forest users, however, are formally obligated under the 1996 Forestry Law to develop a forest management plan before any commercial extraction activities may take place. This implies organisational and technological problems for local forest users who, for example, are not permitted by the law to use chainsaws but required to use other modern technology (that is less accessible to the local groups).

Possibly the most striking feature of the reforms was the devolution of the forest property rights to the indigenous people who now hold these rights over indigenous territories in common property regimes. In the forestry sector, the central government transferred some governance responsibilities and decision-making powers to municipal governments. The local governments are often struggling to perform their decentralised mandate because of lack of funding and qualified human resources. In addition, there are often jurisdictional problems between municipalities and the indigenous groups that can produce a great deal of local tension between these groups (Hernández and Pacheco 2000).

Devolution of property rights to the indigenous people

Ever since its foundation in 1825, Bolivia's government has

sought to claim control over its vast and sparsely populated territory of forests and lands. The indigenous population has historically been displaced and pushed away from their ancestral lands. Until recently, the indigenous people in Bolivia held fewer formal rights than the non-indigenous citizens, reflecting prejudice that persisted and was reflected in policy until the late twentieth century (Van Cott 2000). According to the dominant thinking of the late nineteenth and early twentieth centuries, the bulk of the lowland area was not inhabited but 'ill-inhabited' (Fawcett 1910).

The International Labor Organization's Convention No. 169, which was ratified by Bolivia in 1996, had an important effect on the country's indigenous land tenure issues. This convention deals with land rights as part of the basic human rights of the indigenous and tribal peoples in the member countries of the United Nations. The convention requires signatory countries to recognise property rights of the indigenous populations over forestlands as common property, in areas that had previously been considered as public or open access. Meeting the requirements of the convention, Bolivia's Land Reform Law (1996), recognised the indigenous territories as indigenous common property through a title regularisation process for the entire country. This included rights over both forests and lands, offering new opportunities to the indigenous communities for managing forests, although many of these communities have not yet succeeded in capitalising on these opportunities (for a similar case, see Cronkleton This issue). Through this process, the indigenous communities have been granted rights of access, withdrawal, management, and exclusion (but not alienation rights) to the land. Moreover, the legislation recognises the social, cultural, and economic rights of the indigenous peoples, and allows these groups to rely on their traditional forms of governance institutions and customary rights.

The indigenous Yuracaré society

The Yuracaré group is one of the 32 indigenous groups in Bolivia, located in the Chapare river basin. The river constitutes a natural border between the provinces of Chapare and Carrasco, both part of Cochabamba, and is over 300 km long. This river basin is a mostly unexplored zone of forests and humid natural pastures, with some crude oil and natural gas, and a deficient road network. The only road access is through a small road to the entrance port of the area, Puerto Cochabamba. The Yuracaré people have been located, for centuries, throughout the Chapare region; however, the process of colonisation has moved them to their current settlement. In this way, the actual Yuracaré Territory, with an extension of 247,165 ha is just a small part of the spatial extent that the Yuracaré people have occupied historically. This area has been progressively reduced as other settlements appeared (Becker and León 2000).

The Yuracaré people are in a process of changing their traditional patterns of forestland use from highly mobile households over large areas of forests to more permanent settlements. However, the Yuracaré people still live on the river banks and continue to hunt, fish, gather forest products,

cultivate subsistence crops, and extract timber and non-timber forest products as their main sources of livelihood. Today, this indigenous society has contact with market networks, and through these, other parts of Western society. Their lifestyle is undergoing a rapid process of change, in which they adapt to the socio-economic dynamics of the modern Bolivian tropics. They are also impacted by substantial illegal coca leaf production, which is closely connected to the international economy (Uberhuaga 2001: 46).

Today, the Yuracaré population encompasses roughly 3,000 inhabitants dispersed in 18 communities along the Chapare river.³ The main social unit institution of the Yuracaré population is the clan—a consanguineous population—which constitutes the lowest unit of decision-making. In ancient times, each clan was located in a settlement called a port, since the river was the main ecological feature ordering the territorial arrangements of this population. At a higher level of organisation, the Yuracaré people are organised into ‘corregimientos’, which are groups of extended and nuclear families holding rights over a larger territory, electing their representatives usually by consensus. As illustrated by Figure 1, at the highest level of organisation, there is a Yuracaré Council, consisting of a cacique mayor and eight secretaries (CERES 1997: 14–15).⁴

The Yuracaré territory is located in a flood zone in different stages of succession formed by different ancient riverbeds of the Chapare river, which form potential areas for the reproduction of fish and fauna in general. The territory holds extremely high biological diversity, and settlement areas correspond to

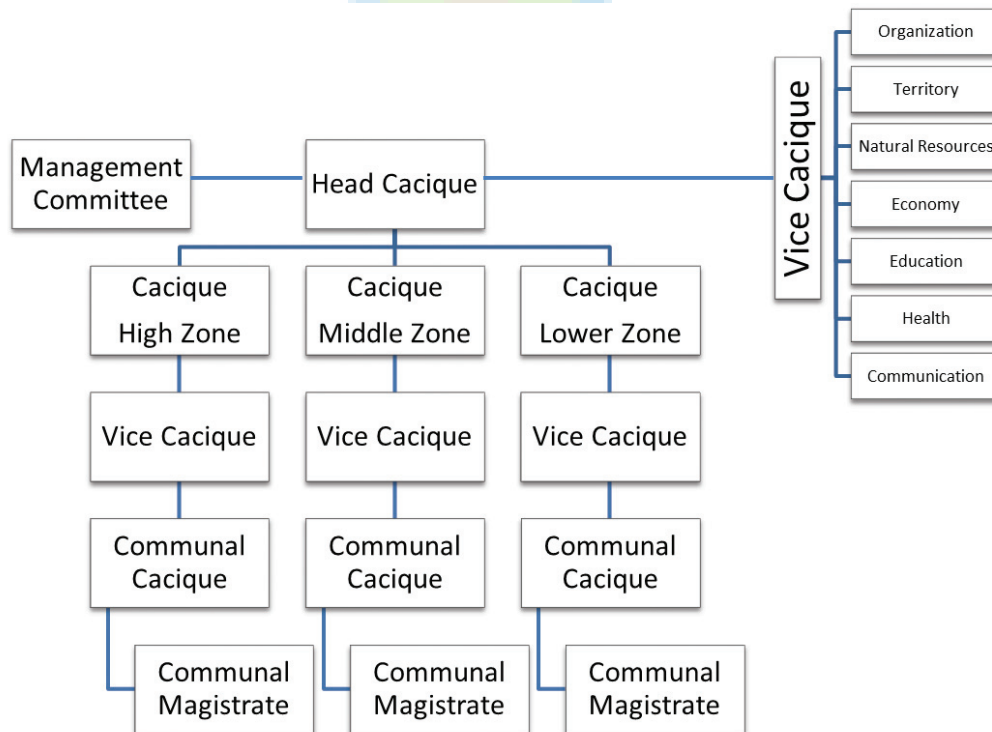
the riverbed forests located in the high terrace areas where they develop agrosilvocultural practices (Uberhuaga 2001: 46). The management of this area is through trough rotation cycles of farming plots named *chacos y barbechos* (clearings and fallow).⁵

The Yuracaré population, based mostly on seasonal agricultural practices, depends on the forests as the main source of food. From the forests, they obtain game and fish, fruits and seed for food and medicine, harvests of rice, yucca and bananas, construction materials for building their dwellings, and timber products to sell in the marketplace. Thus, their economy is based on the supply of forest products, which are subject to the internal and external market demand dynamics.

The Yuracaré population also interacts with Western society, as a result of interaction with the market. The efforts of the Yuracaré people to insert themselves into the Bolivian society were motivated by a combination of wanting to generate increased income from timber sales and the desire to acquire legal recognition and formal property rights for their land and natural resources.

ASSESSING THE REFORM EFFECTS ON LOCAL FOREST GOVERNANCE

Robust forest governance requires strong local institutions because forests are common-pool resources making the exclusion of potential outside users difficult and costly (Ostrom 1999; Gibson et al. 2000). Forests have important externalities



Source: Authors' elaboration based on field observations 1996–2009

Figure 1
Structure of authority

with regard to atmospheric, hydrological, and biological services. Forests (and their associated subsystems) take far longer to develop than the sitting terms of parliamentarians or presidents, and forests are complex; they can generate multiple products, e.g., wood for construction and/or fuel, wildlife, water, leaves, fruits, fodder, seeds, straw, shade, fertile soil, stones, etc. These products may be consumptive or non-consumptive, mature at different rates, and have the characteristics of common-pool, private, or public goods providing ecosystem services for regions, countries, and continents. In other words, forests are complex resources and as such they defy simple policy solutions (Andersson and Ostrom 2008).

Any systematic assessment of the effects of political reform must develop a set of applicable criteria and indicators that reflect the objectives of policy reforms. To assess the extent to which the set of reforms have affected the indigenous community forestry activities we draw on previous research by Ostrom (1999) that highlights the principles that characterise long-enduring common-pool resource institutions. We argue that the effects of public policy reforms on these indigenous institutions depend on the degree to which the reform process helps in creating institutional conditions that are more supportive of robust, self-governing institutions. We draw on a selection of Ostrom's institutional design principles to assess how the reforms have influenced these conditions for effective self-governance (Ostrom 1990, 1992, 1999).

We expect reforms to produce positive governance outcomes for the indigenous people when local conditions for developing robust local institutions are supported rather than challenged (Dietz et al. 2003). According to Ostrom's (1990) institutional design principles, these conditions include: rules that are congruent with ecological conditions, clearly defined boundaries of resources and user groups, accountability mechanisms for monitoring, applying incremental sanctions for violations, low-cost mechanisms for conflict resolution, the inclusion of interested parties in informed discussion of

rules, allowing adaptive governance at multiple level, and the employment of mixtures of institutional types.

We choose to use Ostrom's design principles as our main evaluative criteria for self-governance performance because many, if not all, of Ostrom's design principles have been corroborated by a large number of empirical studies. These studies have involved experimental work (Ostrom et al. 1994; Ostrom 2003; Cardenas 2000; Janssen et al. 2010), quantitative studies (Gibson et al. 2000, 2005; Agrawal and Chhatre 2006; Chhatre and Agrawal 2009; Van Laerhoven 2010), comparative case studies (Andersson and Pacheco 2006), and spatial analyses (Nagendra 2007; Ostrom and Nagendra 2006). Hence, there is a strong empirical and theoretical justification for using these as self-governance performance criteria.

Our analysis of forest self-governance performance compares the institutional conditions for effective governance for the Yuracaré people before *and* after the policy reforms, in particular the impact of the forestry reform of 1996. We expect that some of the principles are more affected than others by the institutional reforms, organisational transformations, assignment of new rights and responsibilities. Table 1 summarises the findings of the intertemporal comparison.

Devise rules that are congruent with ecological conditions

The formal legal reforms in the forestry sector imposed regulations with regards to forest management that were not mindful of the local traditions, knowledge, or governance arrangements of the Yuracaré peoples. The expectation on behalf of the central government's forestry agency was that the Yuracaré would adopt a Western scientific model of forest management, which was very different from their own traditional approach. It is not surprising that many problems occurred as the Yuracaré people began to manage forests in accordance with these new rules of the game. After trying for about three years to run a formal forest management operation

Table 1
Comparison between governance indicators before and after 1996 reforms

Indicators	Before	After
Congruence of rules with ecological conditions	High—flexible system that was adaptive to the needs and productive preferences of individual families	Low—top-down imposition of regulations that are identical for everyone, regardless of local institutional context
Clarity of boundaries	Moderate—de facto rules of access not always respected	High—de jure property rights and title acquired from government
Accountability of monitors	Moderate—spatially extensive monitoring without external back-up	Low—formalised monitoring and control activities limited to the area for the forest management plan
Application of incremental sanctions	Active—self-organised system that relied on social pressure	Inactive/emergent—the formalised system does have incremental sanctions but these are not enforced locally
Low-cost mechanisms for conflict resolution	Available—less need for external intervention since most conflicts were localised and few in number	Less available—more demand for external interventions because of more conflicts concerning land use and market transactions
Involve stakeholders in rule creation	Moderate/high for Yuracaré members—no external stakeholders recognised by rule systems	Low—top-down imposition of new legislation regardless of local institutional context
Adaptive, multi-level governance	Moderate/low—self-regulation with minimum external intervention	Moderate—centrally enforced rules and regulations with some co-production of monitoring and enforcement
Mixtures of institutional types	Diverse and complex social structure	More homogenous institutional arrangements imposed from the top

according every detailed rule and regulation of the forest management plan, they decided to stop because of a host of problems related to the operation of the sawmill, difficulties with commercialisation, organisational complexities, and limited buy-in from most of the people. Their formal forest management activities began in 1997 and ceased in 2000. At the end of the third year, the community decided to stop because, in essence, formal forest management appeared to have become too costly for the group (cf. Larson and Pulhin This issue).

Just as Holt (2005: 212) argued for a return to people-centered conservation strategies that allow for social learning “in a culturally respectful manner”, our analysis suggests that in order to make sustainable forest management work in the Yuracaré territory and in the other indigenous territories, legal regimes must be flexible to the local context. However, Bolivian forestry reforms did not permit this flexibility; instead they induced the Yuracaré people to modify their collective choice system and their constitutional rule system to accommodate the new operational rules, to learn new technological processes, and to adapt to new production processes.

Before the reforms, *de facto* rights to carry out commercial forest extraction were held by Yuracaré individuals or families. Extraction formed part of a highly mobile pattern in which logging activities were spread out throughout the vast forestlands in the Yuracaré territory. One of the implications for this traditional management system as a whole was that it allowed participants to gain a deep knowledge of the forest ecological system and its complexities (Becker and León 2000). By 1992, the Yuracaré people had organised a forestry association which received an annual government logging permit from the national forestry agency at the time—the Center for Forestry Development. Within the association, each Yuracaré negotiated the amount of timber to be harvested individually—according to the needs and preferences of the participating individuals and their families.

Rules for forest practices during this pre-reform era were rather general in nature and allowed for local adaptation by the Yuracaré people. Moreover, the monitoring and enforcement activities of the Center for Forestry Development were highly irregular and ineffective, making the *de jure* regime less relevant for local forest governance activities. For example, before the reforms, there were no specific technical rules for cutting trees (in terms of size). The Yuracaré people had their own indigenous rule system for timber harvesting; each individual authorised internally to harvest products had to abide by the Yuracaré’s own forest classification system and rules related to the maturity of the product. The overarching principle that guided all forest use was “use without depleting” (León 1993: 10). This general rule reinforced the group’s knowledge of the territory as a whole. According to the resource users and professional foresters who jointly conducted the forest mensuration activities during our first site visit (between 1994 and 1996), the ecological conditions of the Yuracaré territory forests were healthy and in better condition than forests adjacent to the territory. At the time

of our second visit, about ten years later, forest conditions remain stable throughout the Yuracaré territory. Comparing basal area and species diversity values from 1996 and 2007, we found no statistically significant differences for any of these variables.

However, what had changed during this time period were the institutional conditions for effective forest governance. Our field observations during the second visit, ten years after the reforms, revealed that much of the previous pattern of forest governance had indeed changed. The Land Reform Law of 1996 (Law INRA, n° 1715) combined with the forestry decentralisation reforms of 1996 (outlined in the Forestry Law n° 1700) not only recognised the territorial land rights of the Yuracaré people and granted them land title but also gave the group the opportunity to formalise their management system and comply with the new forest management regulations as laid out in the Forestry Law (1996). The forest reform acts promoted commercial timber harvesting in the indigenous societies and offered tax incentives for timber harvesting. However, formal forest management plans were required for the implementation of commercial timber harvest.

The Yuracaré people developed a forest management plan, and purchased a sawmill to begin the production under their forest management plan. A forest engineer was hired, and timber harvest was carried out in three-month periods, with careful measurement of the timber extracted. Over the first three (three-month) periods, timber harvest increased, from 8700, to 11000, and 36000 board feet respectively, shipped to the city of Cochabamba by logging trucks.

Prior to the implementation of their forest management plan, it was difficult to estimate the amount of timber harvested, as timber harvest was conducted in small quantities by family groups, with timber sold only locally. Typically, individual families’ timber harvests before the introduction of the formal forest management plan was not sufficiently large to require the use of logging trucks (Freddy Cruz pers. comm. March 12, 2007).

As a result of the Forestry Law (1996), operational rules on the ground for forest management were no longer imposed by the Yuracaré people themselves but rather by the central government agency for forestry (the forest superintendence). These new operational rules were based solely on technical criteria and with little regard for local norms or knowledge of the ecological system.

Following the rules of the new formal forest management plan of the Yuracaré people, which was officially approved by the national government in 1998 (the first in Bolivia), it no longer made sense for the Yuracaré people to carry out the spatially extensive forest activities like they did before the reforms. Rather, their forest management plan defined very precisely the areas in which products were to be harvested and these areas represented, for practical reasons, a small fraction of the land area that was previously accessed for harvesting. The forest management plan also determined the exact volumes of each species that the community members were authorised to harvest from each harvesting unit of the plan, all according

to the volume of growing stock as calculated in the plan's forest census. The exigencies of the forest management plan raised the costs and reduced the benefits for formal forest management for the Yuracaré people.

These observations point to a possible contradiction: If the reforms produced alterations in institutional conditions for forest self-governance—specifically external prescriptions that led to intensified logging activities in a geographically more concentrated area—why did these institutional effects not translate into observable differences in forest conditions? There are several reasons we did not observe significant changes in forest conditions between the two periods. First, the amount of time that the Yuracaré people actually conducted formal forest management was only three years—from 1997 to 2000—a relative short time period. Second, the harvesting technique used was selective logging of a limited number of commercially viable species. This means that the volumes of the wood harvested during this period represented a mere fraction of the total tree population even within the relatively small timber management area. Third, our assessment of forest conditions after the reform was carried out several years after the formal management activities had stopped, allowing the affected areas to regenerate to some degree. And finally, our forest condition assessment is based on tree measurements that are carried out in sample plots distributed throughout an area that is much larger than the relatively small timber management area. Hence the data from sample plots within the timber management area are mixed in with data from the entire Yuracaré forestlands, which are many times bigger than the area managed for timber between 1997 and 2000. For these reasons, it would require a major disturbance to the forest in order for our quantitative measures of forest condition to indicate a statistically significant difference between the two dates.

Clearly defined boundaries of resources and user groups

One of the most striking effects of the reforms has been the recognition of property rights for the indigenous ownership of land (land reform), which means involving rights for access, withdrawal, management, and exclusion (forestry reform). Partial alienation rights that are conditional upon the formal forest management rules were granted in the Forestry Law (1996). The indigenous populations in Bolivia are now the owners of at least part of their ancestral lands, but not of the forests that grow on them, as the Bolivian state has retained formal ownership of these forests. The current bundle of rights stands in sharp contrast to the pre-reform situation. For example, during our first visit to the territory in 1993, Juan Rojas (pers. comm.), one of the Yuracaré leaders told us:

We are tired of outsiders entering our communities and our territory to hunt and fish. They are abusing the animals, using dynamite to fish, and the fish are dying... These people don't respect anything and when we have confronted them they just tell us 'show us your papers' and 'you think you own this land or something?'... That is why we want

to learn how we might get the government to recognise our territory as our property as they have done with other groups like us. I think the law supports our cause.

In 1998, the Yuracaré people received the title to their land and can take legal action to protect their territorial integrity, and exclude or control outsiders' activities in their territory.

Another important impact of clarifying boundaries over the indigenous commons is that it has reinforced forest tenure security. The increased security, in turn, has induced more intensive timber harvesting. Before the entitlement, forests were thought of as resources to be used in emergencies—acting much as a savings account—by converting these resources into cash by selling timber. The law, however, recognised their rights of traditional uses but did not give them any power to sell wood. Today, however, rules limit forest exploitation without a forest management plan. For example, the Yuracaré people can use timber for personal uses, but they cannot sell this wood for cash or for emergencies as they used to before the entitlement. To sell wood, over which they have exclusive rights, they had to implement a forest management plan that prescribed large scale production according to the Forestry Law of 1996.

The Yuracaré territory, however, is in a process of internal fragmentation into three different sections. The causes of the division can be multiple and difficult to explain. One of the reasons, however, is the implementation of the Popular Participation Law (1994), which forces settlements to be legalised as territorial grassroots organisations to be included in municipal planning. Each grassroots organisation claimed a territorial area, leading to the fragmentation of the original indigenous territory. At the end of the process, the indigenous territory was divided into 11 formally recognised settlements—in contrast to the previous single territorial entity—each with legal state recognition and with political representatives. Moreover, since the 11 settlements were naturally clustered into three subgroups with relatively similar ecological characteristics, these subgroups became the three main subunits for the new governance regime, including the forest management plan (upper zone, middle zone, and lower zone). Each of these areas is governed by an independent governance arrangement. This internal fragmentation of groups makes the boundaries of each group's rights over resources less clear for everyone, including both internal and external actors.

Local monitoring and the accountability of monitors

Before the Forestry Law (1996), monitoring of the forests was mostly a collective enterprise in the territory, which was organised around personal observations by the individuals who were moving around the territory for hunting, fishing, and timber harvesting activities. This was an activity organised by the forestry association and its associates to whom the patrolling individuals reported any observed infractions.

After the Forestry Law (1996), local monitoring became

largely limited to the reduced areas of harvesting under the forest management plan. Further, monitoring was reduced to persons more knowledgeable about the operational rules and the structure of the formal forest management plan. Since the plan includes an explicit ban for entry to some of the areas under management, these areas have not been regularly monitored after the reforms. Much of the post-reform monitoring activities lie in the hands of the forestry professionals, which the government requires the forest management plan holders to utilise for periodic assessment studies.

The drawback of this monitoring arrangement is that the indigenous population no longer participates as actively in the monitoring of harvesting activities, thereby losing many potential observers throughout the territory—fewer eyes observing means less effective detection of rule infractions. Shifting responsibilities of monitoring and control from local inhabitants to professional foresters weakens the internal accountability system.

Apply incremental sanctions for violations

Before the reforms, the sanctions among the Yuracaré people were based on their established social mores and norms, which implied that they should be adjusted to the situation of the infraction and, as a general rule, the punishment should be ramped up according to the severity and frequency of the act of breaking particular rules. In general, reforms have not produced changes in these forms of sanctioning. Social control functions are still very important. The sanctions for violations of rules were incremental in nature (from initial warnings to permanent suspension of harvest rights) according to the rules of the Yuracaré forest association. Compliance with these rules was relatively high, given the credible threat of social sanctions. If an individual broke a rule (like harvesting in a forbidden place, harvesting with a chainsaw, or selling illegal timber) local authorities would typically talk to the person, demanding the immediate cessation of these activities. The second time the same individual was caught, the infraction became an issue for discussion at the next communal assembly, which could potentially limit rights of access to the forest resources. The threat of losing face and personal reputation in front of the community authority worked remarkably well; during our first site visits (1994–1996) our team did not find evidence that suggested that the community assembly had to deny any community member access to the forests.

In the wake of the reforms, however, a formal design of incremental sanctions to the infraction of the new management rules has yet to be formulated and enforced. Because the new governance process is still in the process of consolidation, collective rules and their fulfillment are still emergent and only vaguely defined. Currently, no formal system of incremental sanctions exists. The general rule is that everyone has to follow the specifications of the forest management plan and any violation to the rule implies a loss of such rights. However, informally enforced social sanctions exist to regulate illegal

activities of the Yuracaré. This enforcement continues mostly through the workings of the family clans, even during the period after the introduction of the forest management plan. At present, a redefinition of the formal requirements of the management system is underway with the Morales-led government. This redefinition is also likely to affect the Yuracaré system of social control and sanctions.

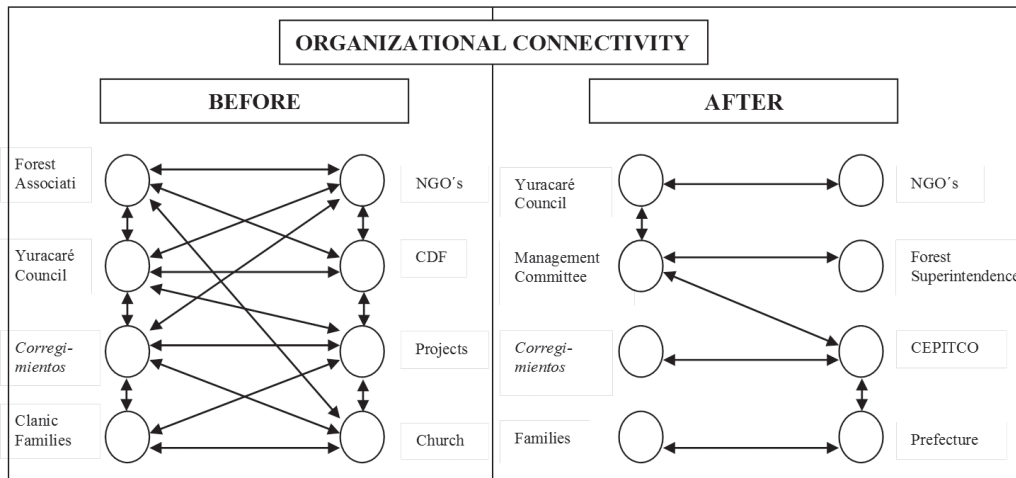
Establish low-cost mechanisms for conflict resolution

The Yuracaré people have traditionally resolved conflicts within their territory using their customary system, which means that all the problems are discussed in the communal assembly until reaching, to the extent possible, a consensus on the course of action for managing or resolving the dispute. The purpose of the deliberations in the assembly is to reach a consensus-based resolution, although leaders recognise that complete consensus is sometimes not possible and a compromise is then needed. The mechanisms for resolving conflicts vary in relation to the nature and intensity of the conflict as well as to who is involved. Often conflicts are resolved in a communal assembly, but there are some exceptions in which a couple of cases have been submitted to an external judge to make a ruling according to the national laws. The costs for using the Bolivian state's judicial system, however, are quite high. The high costs are related to the difficulty of mobilising all the concerned parties within the communities throughout the large territory to come up with a unified stance.

However, there are an increasing number of conflictive situations in which the traditional arrangements for conflict resolution are no longer adequate. We note that after the reforms, the role of external actors in community affairs have become more prominent, including relationships with representatives from the forest superintendence, the elected municipal government authorities, and the National Institute for Land Reform (INRA; *Instituto Nacional de Reforma Agraria*). In the post-reform era, there are more conflicts with external parties because of a general increase in the number of interactions with actors who are not indigenous Yuracaré people. This new reality puts new demands on the customary system for conflict resolution, and our field observations suggest that traditional forums for conflict resolution are no longer able to respond effectively to these demands. Although in theory it might make sense for the Yuracaré people to increase their reliance on the state judicial system to better manage the conflicts with outsiders—since the non-Yuracaré parties to the conflict may not recognise the legitimacy of the rulings of a the community assembly—in practice such a shift does not yet represent a viable alternative because of the high transactions costs associated with such a change.

Involve interested parties in informed discussions of rules

Before 1996, decisions about how and where to harvest forest products were made by clan families in agreement with



Source: Authors' elaboration based on field observations 1996–2009

Figure 2
Institutional relationships before and after reforms

the forest association and the local authorities (communal assembly). These rules had evolved over a very long time, and were closely associated with established norms of hierarchy and other forms of community structure. These rules were well understood by all members of the community and the decision-making process was such that it allowed possible amendments. The local rule system involved defining appropriate times for marking trees for harvest and defining actual harvest practice. All these constraints were defined as a function of the seasons of drought and rain, but there was flexibility built into the decision-making process so that every individual could define the exact timing of harvest so that it made sense for the broader production system of individual families.

After the reforms, however, the process of forest management acquired other mechanisms for operationalising the rules handed down by the forest superintendence. Thus, for forest harvesting, it is only the forest technician who transmits information about rules and regulations to community members, without discussion or much respect for the local ways of decision-making. This is a top-down process that largely ignores local knowledge, local needs, and customary ways of territorial governance. Moreover, the formal forest management model that was introduced by the 1996 reform package is based on the false premise that the indigenous production systems are collective in nature. Hence, regulations for the formal forest management plan presumed that the indigenous groups only want to harvest forests collectively, not individually, while individual harvest had been typical for many of the Yuracaré people. As a result of this vision of collective forest management, the Yuracaré people were introduced to the idea of forming a forest enterprise to organise a vertical chain of small-scale industrialised production, including the operation of a mobile sawmill. The technical decisions associated with this idea did not involve the broad participation of the indigenous people engaged in wood extraction, and therefore, regulations for wood extraction did

not take into account that Yuracaré, as well other ethnic groups, were accustomed to cutting wood from areas of easy access for each family. Under the new system, the forest management plan prescribed a more restrictive approach, in that the legal extraction had to be undertaken in a specifically designated area by everyone.

Allow adaptive governance at multiple levels

The nested Yuracaré system of forest management is in crisis because of the incongruence between exogenous changes and the local institutional response. Great technological changes at the operational level have produced changes in the organisation of collective decisions. These changes have resulted in a loss of clarity between the different levels of decision-making. For example, changes were imposed through the passing of the Forest Law (constitutional level) and its implementation by local policy actors (collective choice level) according to the technical specifications (operational rules), all of which are foreign to the local customs and traditions related to forest governance. Operational changes have modified the traditional patterns of forest access, limiting the timber harvesting management in a collective form under rigid schemes and calendars. These changes have not enabled the creation of alternative opportunities of access for inhabitants undertaking commercial small-scale timber activities, making it harder for families to harvest for emergency, which used to be the custom before.

Employ mixtures of institutional types

Relationships between the Yuracaré leaders and external governmental organisations used to be quite diverse. These developed slowly during a long period of time and responded to an indigenous logic of articulation. In the Yuracaré territory, an intense process of negotiation between local and external organisations mobilised both the internal and bridging social

capital of the Yuracaré people. These strategies of relationship building, however, have become less diversified as a result of reforms. Figure 2 illustrates how the configuration of the dynamic relationships has evolved over time.

As is evident from Figure 2, today's relationships respond to more individualistic articulations, with few relationships appropriate for the articulation of the general demands of the Yuracaré territory. Relationships have become particularised, and reforms have failed to create a governance structure that fits the Yuracaré institutional context. First, most of the indigenous families cannot participate in democratic municipal elections because they do not have the documentation to vote. Second, the municipalities' jurisdictions overlap with the indigenous territory in a contentious, not complementary, way. Third, outside settlers are envious of the indigenous Yuracaré populations since they consider their territories too large to be managed by few indigenous families. Our field observations lead us to conclude that the forestry reforms largely failed to create the appropriate mix of complementary competence among institutional arrangements at different scales.

CONCLUSION

This analysis of the Yuracaré case shows that although the forestry reforms favored indigenous forest tenure security by granting the indigenous groups legal access and title to their ancestral lands, the same process implied institutional adjustments that have been problematic for the Yuracaré people. Moreover, other indigenous groups of the Bolivian lowlands, 16 years after the reforms, still do not hold full alienation rights because of the slow bureaucratic procedures for obtaining such rights.

The forestry sector reforms brought a welcome recognition of the indigenous people's customary rights. The problem with the reforms, however, was the almost complete neglect of local institutional context, as seen by the reforms' assumptions of collectivist management schemes, which were out of touch with reality. Another problem was the disenfranchising of previously established monitoring arrangements—all powers of formal monitoring and control were granted to a professional forester—which weakened the role of the indigenous institutions of management. Moreover, forest management regulations imposed technology to cut and process wood in ways that in fact undermines the recognition of the indigenous customary rights (for a more detailed analysis of this phenomenon, see Larson and Pulhin This issue).

In the end, the introduction of the reforms produced a great deal of internal tension among the Yuracaré people. The Yuracaré example shows that the transition from subsistence to surplus-generating production through the market can be a difficult process to navigate (as shown by Pacheco This issue). Despite a rocky start, the Yuracaré people have had some success in making this happen. Although it is impossible to tell what would have happened in the absence of the reforms, most Yuracaré people do not want to go back to the way things

were before they gained their legal title.

One of the broader lessons that we can glean from the Yuracaré experience so far is that the formalisation of rights is an important step towards increased control and security of forest tenure, but to achieve increased benefits from the governance of forests, a host of other factors also need to be considered. Many other institutional characteristics—both internal and external—also influence the ability of the group to take advantage of the new opportunities for investment and production that come with increased tenure security.

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Notes

1. The International Forestry Resources and Institutions (IFRI) research program and its Collaborative Research Centre, the Center of Studies of the Social and Economic Reality (CERES), have carried out field research in Bolivian forest communities since 1993. One of the first IFRI studies in Bolivia took place in the Yuracaré territory and was called the 'Current Situation of Forest Management'. It had the objective of supporting the local people's territorial demand for this area and assisting the local communities in the elaboration of a forest management plan.
2. The colonisation brought people from the Andes to the lowlands. This started with the 1952 Agrarian Reform and continued until the 1970s (Uberhuaga 2001: 38).
3. The Yuracaré forest management plan indicates that 385 families are distributed all over the territory, 51 per cent in the north, 15 per cent in the middle, and 34 per cent in the south (CERES-CONIYURA 1988: 84).
4. The territorial order was based on three forms of 'order', all of which are associated with specific rules. These orders are in turn nested within a broader system of governance for the entire territory. There are two basic levels of governance: the settlements (the *corregimientos*) and the territory (CERES 1997: 14).
5. *Chacos* are farming plots (banana, rice, cassava, and corn), generally located around the family houses with extensions between ½ ha and 5 ha (CERES-CONIYURA 1998: 88). *Barbechos* (fallow) are areas left with farming activities for around 15 and 25 years, where residents plant perennial products (coffee, orange, and forest species).

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