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# LOCAL GOVERNMENT AND BIODIVERSITY CONSERVATION:

*A Case from the Bolivian Lowlands*

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Pablo Pacheco, Iciar Pavéz, J. Montgomery Roper,
Cristian Vallejos, and Roger Vélez

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# LOCAL GOVERNMENT AND BIODIVERSITY CONSERVATION: A CASE FROM THE BOLIVIAN LOWLANDS

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## Introduction

In 1994, the government of Bolivia initiated a far-reaching process of decentralization that greatly strengthened municipal governments, changed the role of departmental governments, and created new opportunities for popular participation in decision-making. Biodiversity conservation was far from the minds of the politicians who led this process. Nevertheless, decentralization has already begun to influence many conservation-related issues, including protected area management, indigenous territorial rights, policies affecting agroforestry and forest management, land-use planning, and road construction. The influence of decentralization on conservation will probably be even greater in the future.

This case study analyzes the origins and causes of decentralization in Bolivia, how the process has begun to affect tropical forest management, and the initial impacts of decentralization on the distribution of benefits from these forests. We particularly stress the impact of the Popular Participation Law of 1994, which bolstered municipal governments in general, and the Forestry Law of 1996, which gave municipal governments a key role in forest policy.

The study focuses exclusively on lowland Bolivia, an area comprising some 763,000 sq. km that covers almost three-quarters of the country (Montes de Oca 1989). Within this geographical context, the study focuses mainly on some 40 municipalities that contain substantial forest resources or important protected areas.

The material presented here is derived largely from four data-collection exercises conducted between December 1996 and November 1997. The first exercise was an exploratory mission to the municipalities of Rurrenabaque, Santa Rosa, and Yapacaní. The second exercise consisted of interviewing key informants from government agencies, forestry projects, nongovernmental organizations (NGOs), international agencies, research centers, municipal governments, logging companies, and indigenous and small-farmer organizations in the

capital city of La Paz, and departmental capitals Santa Cruz and Trinidad. During these first two exercises, the authors interviewed 66 individuals.

The third exercise consisted of a pilot case study of the municipality of San Ignacio de Moxos, which was used as a model for subsequent case studies. The fourth exercise involved preparing additional case studies for the municipalities of Ascención de Guarayos, Riberalta, Rurrenabaque, Samaipata, San Ignacio de Velasco, and Villa Tunari. These municipalities were chosen for their diversity of ecological conditions, ethnic composition, resource management issues, and types of forest exploitation. To prepare these studies, we interviewed an average of 25 individuals in each municipality.

In the sections that follow, we first provide basic background on the demographics, economy, ecology, and natural resource management of the Bolivian lowlands. Next, we trace the evolution of decentralization and describe the current institutional framework in the country, and local governments' rights and responsibilities regarding forest management and conservation under Bolivian law. Then, we analyze municipal governments' capacity for natural resource management, the interest groups these governments represent, and the resource-related activities in which they have been involved. Finally, we summarize our findings about how Bolivia's decentralization has affected local groups' access to, control of, and benefits from natural resources and biodiversity conservation.

**Background on Lowland Bolivia and Its Forests**

The Bolivian lowlands, as we use the term, include all of the departments of Beni, Pando, and Santa Cruz, as well as the tropical areas of Cochabamba and La Paz departments. Most of the region is located below 500 m above sea level, although some areas of the Yungas of Cochabamba and La Paz are located at higher elevations (Montes de Oca 1989). Forests cover some 440,000 sq. km, or 57 percent, of the lowland region (MDSMA 1995).

Ecologically, the lowlands can be divided into five major zones: 1) humid forests of the Amazonian lowland; 2) Beni plains, characterized by natural savannas and small patches of forests, much of which is seasonally flooded; 3) Chiquitanía region, whose semi-deciduous forests are typical of slightly drier areas; 4) semi-arid Chaco region, with less productive forests that are adapted to its dry climate; and 5) hilly and humid Yungas region, which forms

a natural transition between the Bolivian tropics and the country's highlands and valleys (MDSMA 1995).

In 1992, the Bolivian lowlands' population was approximately 2.1 million; 810,000 of these people lived in rural areas, meaning that the average rural population density was only slightly greater than one person per sq. km (INE 1993). Of the 810,000 rural inhabitants, between 180,000 and 220,000 were indigenous peoples, including Ayoreos, Chimanes, Chiquitanos, Guaranis, Guarayos, Mostenes, Moxeños, Tacanas, Sirionos, and Yurarcares (Díez Astete and Reister 1996). Most of the lowlands' rural population is concentrated in the agricultural colonization areas of the plains, near the city of Santa Cruz and in the Yungas regions of Cochabamba and La Paz, which have also been areas of intensive deforestation.

During the last 40 years, portions of the lowlands have undergone rapid urbanization. Major improvements in transportation infrastructure have opened new forest areas to exploitation and linked the lowlands with the rest of the nation and neighboring countries. In Santa Cruz, the lowlands' largest city, the population grew from 59,000 in 1950 to 785,000 in 1992, and may now be approaching one million (Grupo DRU 1996).

Major rural economic activities include commercial farming and ranching, small-scale food production, coca cultivation, logging, and collection of non-timber forest products (NTFPs), including Brazil nuts (*Bertholletia excelsa*) and palm hearts (*Euterpe precatoria*). Other important activities are mining and petroleum and natural gas extraction. Large-scale, mechanized soybean production has expanded greatly over the past ten years, and soybean products are now among Bolivia's main exports. Commercial logging, which became important during the 1970s, has grown sharply in recent years. Four species—mahogany (*Swietenia macrophylla*), cedar (*Cedrela sp.*), oak (*Amburana cearensis*), and "ochoó" (*Hura crepitans*)—accounted for 60 percent of the wood produced between 1985 and 1994 (Quiroga and Salinas 1996).

Little reliable information is available on the current land-tenure situation in the lowlands, and in large areas, there are conflicting claims regarding ownership and legal status. Official government statistics show that the Bolivian government distributed approximately 30 million of the region's 76 million hectares (ha) to different groups between 1955 and 1994.

About 23 million ha went to medium- and large-scale commercial farmers, and three million to small-scale agricultural colonists. Some of this 26 million ha was fully titled, and some was not. Three million ha, all titled, went to indigenous peoples (Pacheco 1997). Nevertheless, a much larger proportion of the land has come under de facto private control through various quasi-legal and illegal means, mostly by large commercial farmers and ranchers. To obtain land, these parties, in many cases, have falsified documents, bribed government officials, failed to comply with legal requirements, or purchased land they knew had been illegally acquired.

As of 1994, the Bolivian government had also assigned 185 logging areas, covering nearly 21 million ha, to 173 timber companies (Quiroga and Salinas 1996). Many of these areas were located within privately-owned properties, since Bolivian law distinguished between ownership of land and ownership of forests, with the state being the sole owner of all forests. However, with the passage of the Forestry Law of 1996, landholders obtained the exclusive right to exploit forests on their land for the first time. Because of this, along with changes in the timber taxation system, the area in designated forest concessions fell to 5.8 million ha in 1997.

During the 1980s, indigenous groups became increasingly organized and adamant in their demands for territorial rights, which led to the March for Territory and Dignity in 1990. This event helped convince then-President Jaime Paz Zamora to issue a decree establishing four indigenous territories. Subsequently, the government recognized five additional territories which, together with the previous four, constituted the three million ha distributed to indigenous peoples (Quiroga and Salinas 1996).

The Agrarian Reform Law passed in 1996 by the Bolivian Congress mandated the government to delineate and title indigenous communal lands within ten months of the law's passage. Under this law, the National Agrarian Reform Institute (INRA) issued "immobilization" decrees, covering 11.5 million ha, in July 1997. These decrees prohibited the government from assigning or titling any new lands in 16 areas demanded by indigenous peoples until those demands had been studied and appropriate action taken (Pacheco 1997). However, indigenous peoples would only receive title to an unspecified portion of that land.

Beginning in the 1970s, and particularly since the mid-1980s, the portion of the Bolivian lowlands incorporated into protected areas has become quite significant. By 1995, 12.8 million ha (17 percent of the lowlands region) had been assigned some form of protected area status, although the legal designation of 1.9 million ha of this land had not yet been specified, and only a small fraction of the total was protected effectively (Pacheco 1997). Among the most significant lowland protected areas are the following: Amboró, Noel Kempff Mercado, Kaa-iya National Parks (Santa Cruz), Isiboro-Sécure National Park (Beni), and the Pilón-Lajas Biosphere Reserve (Beni and northern La Paz).

Despite recent efforts to clarify designations, protected areas still overlap significantly with indigenous territories, logging and mining concessions, private farms, and areas used for small-scale logging and collection of NTFPs. This overlap generates endless conflicts that inevitably require the intervention of both national and local governments.

The principal threats to the region's biodiversity are forest clearing for agriculture and logging. Deforestation rates in the Bolivian lowlands have been considered low by international standards; less than 0.2 percent of Bolivia's Amazonian forests were cleared annually between 1985 and 1990 (CUMAT 1992). In recent years, however, deforestation has increased significantly, particularly in Santa Cruz, where annual deforestation rates rose from approximately 40,000 ha (1985-1990), to 78,000 ha (1989-1992), to 117,000 ha (1992-1994) (Pacheco 1997). The expansion of large-farm soybean production in the Pailón-Los Troncos area of Santa Cruz was responsible for most of this increase. Small-farmer shifting cultivation in northwest and northern Santa Cruz, northern La Paz, and the Chapare of Cochabamba, as well as large-scale ranching in eastern Santa Cruz, was also involved, but to a much smaller extent.

Large-scale logging companies, smaller informal loggers and chain-saw operators are all important in Bolivian timber harvesting. Since logging in Bolivia is highly selective, with low volumes of timber logged per ha, damage to the unfelled trees tends to be limited (Gullison and Hardner 1993). Even so, some species, such as mahogany and cedar, are clearly being logged at unsustainable levels, with little effort made to ensure their regeneration.

The selective nature of logging has limited the regeneration of some species that require larger forest clearings in which to mature. Current logging practices have also negatively affected certain mammal and bird populations, as a direct result of timber extraction and the hunting of local animals to feed logging crews (López 1993). In some instances, loggers using "ochoó" wood for constructing temporary bridges have decimated fish populations susceptible to the caustic latex found in the bark of that tree. Frequently, road construction by logging companies has facilitated subsequent forest clearing by farmers.

**The Process of Decentralization and the Institutional Framework**

This section first looks at the more general process of decentralization in Bolivia, which culminated in the Popular Participation Law of 1994 and the Administrative Decentralization Law of 1995. It then discusses the specific factors that influenced decentralization of responsibilities for forest management and biodiversity conservation. Finally, it analyzes the 1996 Forestry Law and its implications for the institutional framework of forest management and municipal governments.

***Decentralization and Popular Participation***

Like most of Latin America, Bolivia has a long tradition of highly centralized government. Historically, the national government in La Paz has made most of the important decisions. Bolivia has nine departments, which are divided into 112 provinces and 311 municipalities. The national government traditionally appointed the departmental governors or "prefects," who concerned themselves mostly with maintaining public order, along with municipal mayors. Within this context, the lowland region was further marginalized from national decision-making until the 1970s because of its limited economic importance and sparse population.

In the late 1970s, in response to growing pressure from regional groups, the national government took its first significant step toward decentralization. It established departmental development corporations to carry out regional planning and invest in development projects. By that time, rapid growth of petroleum and natural gas exploitation, commercial agriculture, and logging enhanced the lowlands' political and economic power. The departmental development corporations' income came mostly from petroleum, gas, mineral, and timber royalties and from the national treasury. By 1992, these corporations had a combined

investment budget of US$114 million (Blanes 1993). Lowland departments like Santa Cruz that benefited from substantial natural gas and petroleum revenues developed strong corporations. In poorer lowland departments, such as Beni and Pando, corporations were much weaker. Within each department, the capital cities and other major towns benefited disproportionately compared to rural areas.

The corporations provided lowland elite new opportunities to influence policy by incorporating local representatives into their boards of directors. Nevertheless, the central government continued to appoint the corporations' presidents, and no popular elections were (or are) held at the departmental level.

Throughout Bolivia, municipal governments were confined to urban areas, had minimal revenues, and focused almost exclusively on issues related to urban infrastructure. Even though the 1985 Municipalities Law granted municipal governments certain broader responsibilities, in practice, the central government restricted municipalities' opportunities to participate in those activities. For example, though the law gave local governments a general mandate to "preserve the environment, control pollution, and maintain ecological balances," this was never translated into concrete responsibilities corresponding to specific actions.

Then, in the mid-1990s, President Gonzalo Sánchez de Losada made decentralization a central theme of his government. His decision was influenced by growing pressure from various regional groups for greater control over their own affairs, the general trend toward decentralization in neighboring countries, and support for the concept of decentralization from international aid agencies. At the center of Sánchez de Losada's decentralization policies were two laws: the Popular Participation Law that the Bolivian congress passed in 1994 and the Administrative Decentralization Law, which was approved in 1995. The first law fundamentally changed the role of municipal governments, while the second modified the structure and functions of the departmental prefects.

The Popular Participation Law expanded municipal governments' jurisdiction beyond the urban centers to the entire territory covered by the previously existing provincial sections, and made municipalities responsible for local schools, health facilities, roads, and water systems (SPP 1994). To finance these new responsibilities, the law allocated 20 percent of the

national budget to municipal governments, to be distributed proportionately, according to each municipality's population. Rural and urban property taxes were also earmarked for the municipal governments, who now administer their collection.

This law sought to introduce community control over municipal governments by recognizing territorially-based grass-roots organizations (OTBs), and permitting them to influence municipal investment decisions and elect oversight committees to monitor municipal finances. Under the law, local farmer organizations, urban neighborhood committees, and indigenous groups could become OTBs by simply registering as such.

Initially, many small-farmer and indigenous organizations opposed the creation of OTBs because they believed the government was seeking to create alternative parallel structures that would compete with the traditional rural "sindicatos" and indigenous "capitanías," which had served as village-level governments since the Bolivian revolution of 1952. Their position changed somewhat when it became apparent that, in many (although not all) cases, the traditional local government could register as an OTB, and that the new law strengthened its legal standing and legitimacy, albeit under a different name.

The Popular Participation Law strengthened municipal governments and helped them to become more democratic. In recent years, municipal governments and the departmental prefects have accounted for an increasing proportion of total public investment in Bolivia. To promote the law's implementation, the central government created the National Secretariat of Popular Participation (SNAPP) and spent substantial resources on disseminating information about the law, providing municipal governments with training on planning and administration, and contracting consultants to help local governments formulate their plans. Municipal budgets grew dramatically and the rural population gained the right to participate in municipal elections. The changes also gave municipal governments more political power and strengthened their bargaining position with other actors.

The Administrative Decentralization Law complemented the Popular Participation Law, although its effects were less dramatic. The Administrative Decentralization Law abolished the departmental development corporations, transferring their responsibilities and most of their assets to the prefects, who were expected to become involved in more technical issues,

in addition to their traditional role of maintaining public order. This law also created councils to oversee the prefects.

***Factors Influencing Decentralization of Natural Resource Management***

Three major factors influenced the decentralization of natural resource management responsibilities. In part, natural resource management decentralization was an indirect outcome of the broader decentralization process. It also resulted from specific regional struggles to ensure that forested regions benefited from logging activities. In addition, this decentralization responded to the growing international consensus favoring increased local participation in protected area management.

With regard to the first factor, the Popular Participation Law did not give municipal governments any explicitly new functions related to natural resource management. However, a little-known clause of the implementation decree, which was issued in late 1995, did charge municipal governments with formulating municipal land-use plans (MASRENA 1997). This law indirectly contributed to some municipal governments becoming more involved in natural resource issues. As local governments have become more powerful political actors, the national government, local groups, and international donors increasingly have sought them out as partners in environmental projects. These players may also have become more responsive to local governments' wishes regarding how to resolve conflicts over resource tenure, although that is less clear.

Since the Popular Participation Law was enacted, municipalities have devoted most of their energies to improving education, public health, roads, urban infrastructure, and water supply. Nationally, these services received more than 90 percent of municipal investments in 1995. Only 1-2 percent of their budgets were allocated for natural resource management or agricultural activities (Rojas 1996). But even this limited amount represented a major increase compared to expenditures prior to 1994. Evidence from our case studies suggests that such spending continues to increase rapidly.

With regard to the second factor, struggles over timber revenues, regional movements have struggled for nearly 40 years to obtain greater participation in policy formulation and allocation of timber royalties to regions with substantial logging activities. Since its

formation in 1957, the Committee for Santa Cruz, commonly referred to as the "civic committee," has led many of these movements (Sandoval 1985). This committee includes representatives of business, trade, and professional groups; social organizations; and local government. It has independent chapters in each province, and is a powerful force within the Santa Cruz department. During the 1960s and 1970s, the Santa Cruz provincial civic committee chapters were particularly active in demanding that the national government retain a portion of petroleum royalties in provinces and departments where the petroleum was being extracted. Beni department established similar committees in 1967 (Navia 1989).

Within this context, the civic committees and governments of San Borja and San Ignacio de Moxos in Beni began a struggle in 1979 to increase benefits to local communities from logging by large companies from Santa Cruz department. To press their demands, the committees and governments blocked roads and conducted other types of protests (Navia 1989).

The social forces behind these movements cannot be easily characterized. A wide range of groups within Beni resented that outside logging companies were exploiting the department and that the national government was ignoring it. Many community, trade, social, and professional organizations with no material interest in logging participated in these protests, and there is no reason to doubt their sincerity. However, other key participants in the movement, who represented the traditional Benian ranching elite, may have been partly motivated by a desire to increase their own access to Beni's timber and limit outside competition.

The movement in Beni and elsewhere eventually led to the creation, in 1982, of an 11 percent timber royalty to be used for regional development. In Beni department, the companies began paying the royalty soon after it was announced. Local offices collected the revenues and used them to finance infrastructure and services in timber-producing provinces. In Santa Cruz and other departments, however, payment did not begin until several years later. Control over funds was centralized in each departmental capital. Funds often were not used for local development. In those departments, local people continued to complain about insufficient benefits from logging in their regions.

In the mid-1980s, Beni department was again at the forefront, this time in an effort to decentralize the Bolivian Forestry Service (CDF) and create a departmental forestry policy. This initiative grew out of the 1985 symposium on Forestry Resources and Regional Development in Beni, which involved the Beni congressional delegation, local governments, civic committees, chamber of forestry, universities, and other interested groups. Following the symposium, the government of Beni established an inter-institutional forestry commission to formulate a regional forestry policy. That policy was later sanctioned by a departmental decree. Among the commission's proposals were: increasing the physical presence of the departmental forestry service, making it more autonomous, and putting it under the control of a departmental board of directors. The commission also proposed to allow logging in one of the department's largest forests, the Chimanes, but only under strict regulations designed to make it a model of sustainable forest management (Navia 1989).

The movement in Beni department to decentralize the CDF used frequent demonstrations and other pressure tactics. It was accompanied by a similar effort in Santa Cruz department. Together, these movements achieved partial CDF decentralization in the two departments in 1986. However, these changes failed to result in more efficient or effective departmental CDF representation. In each department, the CDF continued to have a reputation for being corrupt, overly politicized, and ineffective (Quiroga and Salinas 1996).

During the 1990s, the regional movements' main focus shifted from Beni to Santa Cruz and northern La Paz. Local governments and civic committees in those departments demanded greater support from departmental governments and timber companies and established roadblocks to collect fees from passing timber trucks.

These conflicts, along with many logging companies' failure to pay timber royalties on time, led the government and logging companies of Santa Cruz to agree, in 1993, that logging companies would pay 80 percent of their timber royalties in-kind, directly to the provinces where logging occurred. This agreement permitted companies to provide tangible benefits to local communities, while at the same time, reducing their costs by inflating the declared worth of goods and services provided (Quiroga and Salinas 1996).

A third, and somewhat less important, factor that has influenced decentralization of natural resource management has been the international trend toward community participation in protected area management. Until 1993, the national CDF administered the country's protected areas. Hence, the previous discussion regarding the CDF's decentralization applies to protected areas, as well as timber exploitation. Following the Earth Summit in Rio de Janeiro in 1992, the government of Bolivia passed its first general Environmental Law, which formally established the National System of Protected Areas (SNAP). Shortly thereafter, it created the Ministry of Sustainable Development and the Environment (MDSMA) and transferred responsibility for the SNAP to the newly formed National Department of Biodiversity Conservation (DNCB) within MDSMA (Heinrich and Eguivar 1996).

Since its formation, the DNCB (recently renamed the General Department for Biodiversity, or DGB) has been centralized, with its only offices in the national capital. Nevertheless, its first director, Mario Boudoin, was keenly aware of an emerging international consensus: to achieve effective conservation results, local communities must participate in managing nearby protected areas. Boudoin became an active promoter of creating local advisory committees for each area (Boudoin 1997). This initiative continued under the next administration. Currently, most major protected areas have local advisory committees, although their level of activity and relevance varies greatly. Legally, the role of these advisory groups is limited. However, in certain instances, local groups have pushed the formal limits and obtained significant control over management decisions.

### *1996 Forestry Law*

Between 1991 and 1996, the Bolivian congress debated extensively about what to include in its upcoming forestry law, which was passed in July 1996 (Bojanic and Pavéz 1998). Two important questions in the debate centered on determining an institutional framework appropriate for public-sector participation in forest management and dividing tax revenues on forest products and forest clearing among potential beneficiaries. The questions of what role municipal governments should play in forest management, and what percentage of forest revenues they should receive, gained particular prominence in the discussions that followed passage of the Popular Participation Law in 1994.

Although these issues never acquired the prominence of such topics as privatization of public forests or the appropriate level for stumpage fees, clear differences did emerge about how to address them. A group led by Senator George Prestel fought to give municipal governments a major role in managing public forests for the benefit of local community groups, collecting forest revenues, and regulating logging companies. Prestel, who was sensitive to these concerns, came from eastern Santa Cruz, where small-scale, informal logging dominates the economy and local governments and civic committees have fought to increase benefits to local communities from logging. Prestel's principal opposition to the issue seems to have come from the National Chamber of Forestry (CNF), representing mostly large-scale loggers who perceived municipal governments as potential threats to their interests. Some CNF officials believed these municipal governments were often controlled by small-scale, informal loggers who competed with large-scale logging companies for timber, and that the local governments might seek to use any additional power they were given to obtain greater revenues from local logging operations (Avila 1997).

At the national level, one group of policymakers and lobbyists preferred to implement public forestry policy through a national forestry service (a sort of reformed CDF). Another group favored creating an independent forest superintendent, modeled after existing superintendents in the financial and utilities sectors. The group expected this superintendent to focus on allocating forest concessions, collecting forest revenues, approving forest management plans, and auditing those plans' implementation.

Ultimately, congressional representatives gave municipal governments unprecedented resources and power (MASRENA 1997). Under the new law and accompanying regulations, municipal governments are supposed to receive 25 percent of royalties from forest concessions and forest clearing, to be used to promote sustainable forest resources use and for social infrastructure. They are also expected to administer up to 20 percent of public forests as municipal forest reserves to be used by local community groups (ASLs) and have a role in ensuring that timber concessions and sawmills comply with forestry regulations.

**Box 1. Mancomunidades**

To carry out their responsibilities, municipal governments are expected to create municipal forestry units within six months after receiving their first timber royalties. These units can be created either by individual or groups of municipalities known as "mancomunidades." Their responsibility is to identify and request areas for municipal forest reserves and participate in deciding who should receive those forest allocations. They are also responsible for helping local organizations prepare forest management plans, monitoring compliance with forestry regulations and management plans, promoting forest plantations and agroforestry, and maintaining a register of forest plantations and natural forests located on private lands within their jurisdiction. They can intervene to deter activities that present immediate threats to forests. If the municipalities fail to create forestry units, they can be deprived of access to timber royalties, and their forestry functions revert to the national government.

At the national level, the congress did end up opting for a forest superintendent, although both the Ministry of Agriculture (MAGDR) and the MDMSA continue to have some forestry-related functions. Several departmental governments (prefects) have their own forest services or plan to create them, although these agencies' precise roles remain unclear. One potentially important function of these services would be to train and advise the municipal forest units.

According to the 1996 Forestry Law, the forest superintendent's office should help determine the municipal governments' exact functions and monitor their performance. Municipal governments suspecting timber concessions of violating forestry regulations are generally expected to request the forest superintendent to intervene, rather than do so themselves.

Under the new system, the process of assigning public forests to local community groups begins with the mapping and classification of all public forests by the MDSMA. Once this is done, the MDSMA, in collaboration with municipal governments, must provide the forest superintendent a list of areas suitable for municipal forest reserves. Then the municipal councils propose appropriate recipients of forest assignments, municipal oversight committees approve those proposals, and the forest superintendent assigns the forests to those groups chosen. Existing concessionaires of logging areas are expected to declare which areas

they will retain under the new system, after which municipalities get the first opportunity to claim their portion of public forests that are not within any pre-existing concession.

Other significant changes in the 1996 Forestry Law concern the allocation and duration of forest concessions and the system of forest taxation. Previously, most logging areas had been assigned on a short-term basis and could not be sold or transferred. This has been changed to a system of 40-year forest concessions which, every five years, after review, can be extended for another 40 years if concessionaires comply with logging regulations. They can also be sold and inherited. Companies that already had logging areas were given the opportunity to convert them to concessions. If they chose not to, they could either continue to operate under the old system until their contract ran out or allow the areas to revert to the government. Reverted areas not on private property, indigenous territories, or protected areas theoretically will be auctioned off as concessions to other companies or made available for logging by local community groups. As mentioned previously, private landowners and indigenous peoples with legally recognized territories now have, for the first time, a quasi-automatic right to exploit forest resources on their land. However, they must pay a royalty based on the area logged and follow an approved forest management plan.

The law replaces all volume-based timber taxes with an area-based royalty of at least US$1 per ha for timber and US$.30 per ha for NTFPs, such as Brazil nuts. This gives loggers an incentive to reduce their concession size. It also largely explains why, since the law was passed, the area controlled by timber companies has declined from 21 million ha to less than 6 million ha.

**Initial Experiences with Decentralized Resource Management**

The field research section of the study was conducted only one and a half years after passage of the 1996 Forestry Law, when the general decentralization process had been under way for less than five years. Thus, it seems somewhat premature to predict exactly where these changes will lead and their potential impact on biodiversity. Nevertheless, some important insights can be obtained from the initial experiences with more decentralized natural resource management, which is the focus of this section. In this section, we begin with a general discussion of municipal governments' capacity to undertake activities related to natural resource management. Next, we analyze the interests that municipal governments serve.

Following this analysis, we review specific experiences of municipal involvement in land-use planning, protected-area management, and production forests and agroforests.

***Municipal Governments' Capacity***

Given that municipal governments had no formal jurisdiction over the rural areas within provincial sections prior to 1994, it is not surprising that they have limited experience in rural development or renewable natural resource issues. Over the past few years, their interest in these topics and the resources they devote to them have grown rapidly; however, in absolute terms, their capacity in this regard remains weak.

Many municipalities in the forested regions have weak planning and administration, petty corruption, technical deficiencies, are over-politicized, and lack continuity. These deficiencies also characterize most national agencies, whose roles they have partially replaced. Local governments find it difficult to pay attractive salaries, and the local human resource pools from which they hire are weak. Frequent mayoral changes lead to large staff turnovers because new mayors replace staff with their own supporters.

Depending on a municipality's size, its local budget can range from a few hundred thousand dollars to a few million. Potential sources of financing for municipal activities related to natural resources and the environment include taxes and royalties from timber products and NTFPs, the national treasury, and foreign donors. Often, the municipalities' annual budgets and actual expenditures differ markedly and, in many cases, planned activities are not implemented because of a lack of administrative or technical capacity.

Under the 1996 Forestry Law, if the current area in forest concessions does not change substantially, municipal governments should receive slightly less than US$1.5 million from concession royalties. Since most concessions are concentrated in some 30 municipalities, these municipalities might receive, on average, about US$50,000 each from this source, with some getting substantially more and others less. Municipalities also have the right to receive 25 percent of the revenue for fees for forest clearing, NTFPs, and other forestry taxes, but no reliable estimates exist on how much additional revenue these sources might provide.

Even though one major argument in support of the new system of forest revenue allocation was that it would benefit municipalities in forested regions, it remains uncertain whether that will be the case. Because of the sharply reduced area in logging concessions and the elimination of certain previously existing (semi-legal) local taxes on forest products and logging trucks, our case studies suggest that many municipalities may receive less income under the new system than they did previously. One major difference, however, is that previously most forestry royalties going to forested regions were used to finance social infrastructure, while now they should go directly to municipal budgets and be used mostly—though not entirely--to promote sustainable forest management.

How this system will work in practice remains unclear. 18 months after passage of the 1996 Forestry Law, few municipalities had received any of the income due to them from concession royalties; those that had, received only small amounts. According to the forest superintendent's office, the following factors were largely responsible:

- The Forest Superintendent's office did not start to function until mid-1997. Between July 1996 and mid-1997, forestry royalties and fees were collected by the prefects, who were supposed to turn them over to the superintendent's office once it was created, to be distributed among the recipients specified in the law, including municipal governments. In several cases, the prefects failed to account for the money they had received and turn it over to the superintendent. Rumor has it that much of that money was spent on electoral campaigns of the outgoing government, which left office in July 1997 (Kaimowitz and Bojanic 1998). The superintendent's office argues that, without a clear accounting of the money received by the prefects, it cannot establish how much it owes the municipal governments.
- Indigenous groups have questioned the legitimacy of a number of concessions allocated by the Superintendent's office under the 1996 Forestry Law because they involve areas "immobilized" by INRA decree in response to indigenous territorial demands. According to these groups, the immobilization decrees prohibit the government from allocating rights over lands and forests in those areas until INRA has formally determined which land should be titled to indigenous communities. Thus, any forest concessions assigned in those areas after those decrees went into effect are automatically void. The superintendent's office has used this as an excuse not to distribute concession royalties from the disputed areas to municipal

governments until the disputes are settled. It argues that the money cannot be distributed because it may have to be returned to the logging companies if the latter lose the right to convert their concessions to the new system (Vallejos 1998). This rationale may be a tactic on the part of the superintendent's office to dissuade municipal governments controlled by indigenous groups from pursuing their territorial claims against the forest concessions by emphasizing to them the forest royalties they might lose as a result.

- Since the passage of the Popular Participation Law, numerous conflicts over municipal and departmental boundaries have surfaced that were previously of only marginal importance. Prior to passage of the law, the importance of these boundaries was largely symbolic, but now they form the basis by which the central government determines the population and number of forest concessions each municipality has, and thus how much revenue it should receive. Because of these disputes, the superintendent's office claims it often does not know what proportion of a given forest concession, and thus what proportion of the concession royalties, belong to each municipality (Pacheco 1998). Similar problems have occurred in contexts where forest products from one municipality are processed in a second municipality, and each claims the products were taken from its own forests (Kaimowitz and Bojanic 1998).
- The 1996 Forestry Law clearly states that municipal governments do not have to create their Municipal Forestry Units (UFMs) until six months after they receive their first payment of forest royalties and fees. Nevertheless, in at least one instance, the local superintendent's office said that it had not handed over the funds owed to the local government because the municipality still did not have a consolidated UFM, and had not yet submitted a plan for the UFM's work (Kaimowitz and Bojanic 1998).

Another possible reason the national superintendent's office has not turned over the funds legally owed to the municipalities might be that it intends to keep them for itself, although there is no way to verify this. Even though the Bolivian government anticipated that the total area in forest concessions would decrease as a result of the 1996 Forestry Law, it probably did not expect such a great decline. Since concession royalties and other forestry fees are the only source of public funding for the forest superintendent's office, its income has been much

lower than it initially projected, which has pressured it to find alternative sources for funding its operations.

The superintendent's office's failure to turn over funds to the municipal governments has not only limited those governments' capacity to carry out their forest management responsibilities, it has also provoked conflicts between the two entities. This factor, along with the others discussed below, has made it more difficult for the two entities to collaborate effectively, although such collaboration is a prerequisite to the success of the new institutional framework for forest management. In one instance involving three tropical municipalities of Cochabamba, these conflicts became so severe that the municipal governments blocked more than 200 timber trucks from entering or leaving the municipality for two days. The conflict was not resolved until the forest superintendent's office and the departmental government signed an agreement to pay the funds owed to local governments within a two-month period (Johnson and Vélez 1998).

The superintendent's limited transfer of funds has also meant that the relatively few municipal governments that have already created UFMs or devoted funds to forest-related activities have done so using funds from their regular budgets or externally-financed projects. Examples identified in our case studies include the following:

- Riberalta's UFM, which with its 11 employees may be the country's largest, has been funded through the regular municipal budget and a Dutch-financed protected areas project administered by the DGB. In 1998, additional resources were to come from a Dutch-financed degraded areas regeneration project. The municipality also had the prospect of receiving a full-time Dutch forestry advisor, as well as technical assistance from the U.S.-financed BOLFOR project (Kaimowitz and Bojanic 1998).
- Villa Tunari formed a UFM, with a technical staff of two, with financing from its regular budget. It has also received support from the Food and Agriculture Organization (FAO) forest management project for Tropical Cochabamba, as have the neighboring municipalities of Chimore and Puerto Villareal (Johnson and Vélez 1998).
- Rurrenabaque's UFM has two agronomists and a director, who were hired with municipal funds. All three have received training and transportation from

Veterinarians Without Borders, an international NGO that also administers the Pilón-Lajas Biosphere Reserve (Pavéz 1998).

- San Ignacio Velasco converted its previously-existing parks and gardens department into an agriculture and forestry department, staffed by an agronomist (Pacheco 1998).
- Ascención de Guarayos used municipal funds to finance several studies by the Christian Women's Association, a Bolivian NGO, on how the municipality might take advantage of the 1996 Forestry Law (Vallejos 1998).
- San Ignacio de Moxos also used municipal funds to hire two technicians for its UFM.
- The Institute for the Promotion of Humanity and Ecology, another Bolivian NGO, plans to administer the UFMs of the municipalities of Gonzalo Moreno and Sena, at least initially. They expect that eventually these UFMs will be financed from forest product royalties and fees. Meanwhile, they have been willing to make some initial investments (Zontla 1997).

The fact that certain municipalities have been willing to devote their own resources to forest management activities reflects, at least in part, their genuine interest in forest management. In several cases, it also reflects their belief that spending money on these activities will help them attract external funding from agencies and the forest superintendent. It remains to be seen, however, whether Bolivia's municipalities will ever have sufficient financial and human resources to fulfill their responsibilities effectively under the 1996 Forestry Law, even if they do receive the funding to which they are legally entitled.

In several cases, municipalities have discussed overcoming some limitations by joining together to form "mancomunidades." Municipalities in the Chiquitania, the Chapare region of Cochabamba, and the Province of Guarayos have all made initial agreements to this effect, but none of the "mancomunidades" have gone beyond this initial stage with respect to forestry and conservation issues.

### *Whose Interests Do Local Governments Serve?*

Decentralization processes inevitably affect the balance of power between groups involved in resource management, which, in turn, has important implications for resource conservation. For example, if decentralization strengthens indigenous territorial rights, and indigenous people conserve their resources more effectively, then decentralization will have indirectly

supported conservation, even if that was not its explicit goal. If, on the other hand, decentralization helps to consolidate the local elite, whose interest is widespread forest clearing or unsustainable extraction of forest products, then it could have the opposite effect.

A priori, it is difficult to predict which groups decentralization will favor. Indeed, this may be one reason why decentralization policies have won such widespread support from such diverse groups of actors. Much uncertainty also remains regarding which local groups may be most likely to protect their natural resources. Each group tends to claim that it has the least detrimental effects on forests and that the groups competing with them for resources cause more damage.

Evidence to date suggests that popular participation and the recent forestry reforms in lowland Bolivia have had diverse outcomes on the balance of power. They have opened new doors for indigenous people, small farmers, and foresters; but these groups have not always been able to take advantage of these opportunities. When they have not succeeded in effectively organizing themselves, local elite have consolidated their own power. In general, outside elite, defined as politically and/or economically influential groups who reside outside the municipality, seem to have been net losers, but they continue to exercise decisive influence in many places.

As a result of the changes associated with the Popular Participation Law, many municipalities have elected indigenous people and small farmers to office for the first time. Municipalities in which indigenous people were elected mayor or municipal council member include Ascención, Charagua, Concepción, El Puente, and Urubichà. Small-farmer representatives were elected in Chimore, San Julià̀n, Santa Rosa, Puerto Villaroel, Villa Tunari, and Yapacaní, among others. Formally, these individuals represented a variety of political parties, as Bolivian law does not allow for independent candidates. In most cases, however, their principal allegiance was to the indigenous organization or small-farmer federation that nominated them.

The well-organized small coca producers swept the elections in the Chapare region of tropical Cochabamba, and the peasant federations now effectively control the region's three municipal governments (Johnson and Vélez 1998). In certain municipalities of Santa Cruz

with many agricultural colonists, small-farmer federations were similarly able partially to displace town-dwelling traditional elite from the municipal governments. These farmer groups have often been willing to participate in small-farmer forest management or agroforestry projects, although they have not always been equally enthusiastic about creating indigenous territories or protected areas. When the Center for Research and Small Farm Development (CIPCA, an NGO operating in Santa Rosa, Santa Cruz) tried to organize a small-farmer forest management project, including a cooperatively owned sawmill, the local mayor initially refused to allow it to operate. CIPCA representatives said he was under pressure from local sawmill operators to restrict competition. Subsequently, however, the small farmers succeeded in electing a representative to the municipal council, who was able to gain municipal support for the CIPCA project (Villagra 1997).

Several municipalities in Santa Cruz have elected indigenous mayors. A number of indigenous municipal districts created within various municipalities have elected their own deputy mayors. This process has proceeded parallel and complementary to the creation of local indigenous governments responsible for managing the indigenous communal territories. In some municipalities, such as Charagua, indigenous municipal districts and the municipality have had good relations and the municipality has turned over the funds corresponding to the district's population for their own budgeting and use. In most cases, however, municipal governments have been unwilling to fully respect the wishes of the indigenous municipal districts within their borders. In some instances, such as with the Izoceño Indians in Charagua and the Chiquitano Indians in Concepción, indigenous local governments have demonstrated exemplary behavior with regard to natural resource conservation. The Izoceño promoted and now manage the Kaa-iya National Park, and the Chiquitano Indians operate the only certified timber operation in Bolivia.

Local governments in the indigenous territories of San Ignacio de Moxos and in Alto Ivón in Riberalta patrol their areas to avoid encroachment from logging companies, ranchers, or agricultural colonists, as do several others (Kaimowitz and Bojanic 1998; Roper 1997). In other cases, local indigenous governments have suffered from petty corruption and have sold their timber resources to logging companies with little concern for sustainable production. This regional experience suggests that giving indigenous communities greater control over

their natural resources by strengthening both their land-tenure security and their local governments does not always positively affect resource conservation.

In other municipalities, traditional local elite have consolidated their control under decentralization. Living in the local towns, ranchers, loggers, sawmill operators, hotel and restaurant owners, doctors, lawyers, engineers, and priests continue to dominate local affairs (Flores 1998; Kaimowitz and Bojanic 1998; Pavéz 1998; Pacheco 1998). In most of the municipalities of Beni, as well as in many areas of Santa Cruz and La Paz, poorer rural populations remain largely marginalized from decision-making. In most cases, the municipalities involved have relatively small indigenous populations and few settlements of agricultural colonists from the Bolivian highlands. In a few cases, however, elite groups have managed to maintain control, thanks to their greater political experience and resources, despite the predominance of other groups.

Local elite control may reinforce municipal governments' strong pre-existing tendency to focus their investments in towns rather than rural areas. Riberalta is an interesting exception. Even though more than two-thirds of the population live in the city of Riberalta and the urban elite fully control the municipal government, the municipality has invested substantial resources in rural development (Kaimowitz and Bojanic 1998). In some places, hotel and restaurant owners or individuals interested in tourism development have begun to become aware of the opportunities that certain protected areas can offer as tourist attractions. On the other hand, sawmill owners and loggers often resent the restrictions designation of these areas imply.

Elite-controlled municipalities generally reject indigenous territorial demands, although in a few cases, such as Charagua and San Ignacio de Moxos, local elite have learned to co-exist with indigenous territories. After INRA immobilized 513,000 ha in response to demands in Riberalta, the municipal council there sent a letter to INRA's director that strongly opposed this measure and passed a (almost certainly illegal) decree "immobilizing" the immobilization (Anonymous 1997). In Concepción, the mayor sided strongly with local ranchers in their territorial disputes with the Chiquitano Indians, until a Chiquitano leader replaced him.

Regardless of whether local elite, indigenous organizations, or small farmers control the municipal government, decentralization seems to have at least marginally weakened the power of elite groups based outside the municipality. This is particularly evident with regard to the relations between municipalities and logging companies based in Santa Cruz, La Paz, and Cochabamba, although it also applies to certain groups exploiting palm hearts and Brazil nuts.

In such towns as Rurrenabaque, Ixiamas, San Miguel, and San Rafael, outside logging companies frequently enter into conflict with local informal loggers and chainsaw operators over access to timber. Such conflict apparently played an important role in Rurrenabaque's government deciding to support the expulsion of two outside logging companies from the Pilón-Lajas Biosphere Reserve (Pavéz 1998). Competition among local lumber, Brazil nut, and palm heart companies and outside competitors has also stimulated a somewhat negative attitude toward outside companies within Riberalta's government (Assies 1995; Kaimowitz and Bojanic 1998). However, the relation between logging concessions and informal loggers is complex. On the one hand, logging concessions often compete with informal loggers for timber, but, in certain instances, they may prefer to have the informal operators do the logging and then purchase the cut logs from them.

Municipalities where indigenous representatives have recently come to power, such as Ascención and El Puente, have a long history of disputes between outside logging companies and indigenous farmers. In these municipalities, local governments have opposed the conversion of pre-existing logging contracts to 40-year logging concessions, and generally have sought to assert greater control over the territory. In one case in El Puente, the municipal government distributed parcels to farmers along a road within a timber company's logging area, and forced the concession to abandon part of the area (Avila 1997).

Many municipal governments resent the damage to local roads caused by outside companies' large log-hauling trucks. Puerto Villaroel, Rurrenabaque, and Yapacaní have responded by establishing roadblocks and collecting fees from passing trucks. The CNF and the departmental governments have fought hard to stop this practice, but it has nonetheless continued in some places.

*Experiences with Land-Use Planning*

Potentially, land-use planning could be a powerful tool for promoting biodiversity conservation. In its 1992 Environmental Law, the Bolivian congress explicitly mandated the government to formulate national, departmental, and municipal land-use plans. It made the National Environmental Secretariat (SNMA) responsible for carrying out this mandate (MASRENA 1997). Soon thereafter, the SNMA was integrated into the newly formed Ministry of Sustainable Development and the Environment (MDSMA), which assumed its responsibilities. Nevertheless, land-use planning in Bolivia, as in most developing countries, continues to be more of a promise than a reality.

The most important land-use planning exercise to date was the Land Use Plan of Santa Cruz that was formulated by the departmental government, with support from German consulting firms. The result of that initiative was a national government decree in 1995 that regulated land use in Santa Cruz. A map, at a scale of 1/250,000, and a technical annex, specifying appropriate land use for each general area, accompanied the decree and were intended to guide government planners and credit providers (CORDECRUZ-KfW-Consorcio IPC/CES/KWC 1995). A similar decree approving a land-use plan for the Department of Pando was approved in September 1996. Initiatives are currently under way in the other lowland departments, with support from the Dutch government and the Inter-American Development Bank (IDB).

The 1/250,000 scale of these plans makes them inappropriate for regulating land use at the farm level, which require municipal- or even farm-level planning. As mentioned previously, the implementation decree accompanying the Popular Participation and Administrative Decentralization laws, issued in late 1995, specifically states that municipal governments should formulate municipal land-use plans "based on departmental land-use plans." These plans should take into account resource tenure, other socioeconomic considerations, current and potential land use, and existing infrastructure. It was expected that these plans would be given the force of law by being passed as municipal ordinances (MASRENA 1997). At the farm level, the 1996 Forestry Law requires that all large landowners have a land-use plan for their properties approved by the forestry superintendent or the agricultural superintendent.

Nevertheless, progress on these issues at the municipal and farm level has been slow. Since only Santa Cruz and Pando have adopted land-use plans, municipalities in other departments could not develop land use plans "based on departmental plans," even if they wanted to. In the two departments that do have land-use plans, most municipalities currently lack the necessary resources and technical skills to produce their own plans and, for most, this activity is not a high priority. Meanwhile, the forestry superintendent has been preoccupied mainly with defining forest concession rights and controlling illegal logging, while the role of the agricultural superintendent is just beginning to function.

The departmental government of Santa Cruz apparently intends to promote the creation of municipal land-use plans, with support from the departmental government and the German Technical Cooperation Agency (GTZ), but such efforts have only recently gotten under way. To test the methodology, the Micro-regional Development Program for the Provinces of Sara and Ichilo (PRODISA), financed by GTZ, sponsored an initial municipal land-use planning exercise in 1996. This exercise focused on the northern portion of the municipalities of Santa Rosa and San Carlos because this area has multiple long-standing conflicts among government agencies, colonists, and logging and petroleum companies. The effort brought together much of the available information on land use, provided a forum for negotiation among different actors, and eventually led to a land-use proposal and implementation plan. While the municipal governments did not lead the process, they were actively involved throughout (Prefectura del Departamento de Santa Cruz-PRODISA-Consorcio IP/CES/KWC 1996).

A different set of circumstances inspired the municipal land-use planning exercise in Comarapa, Santa Cruz, where the economy depends partly on irrigated vegetable production. In recent years, local farmers have become increasingly concerned that clearing of cloud forests in the hillsides within Amboró National Park may threaten the supply of irrigation water. As a result, the municipality and local subprefect formed an inter-institutional committee to address the problem. The committee has met several times and hired a consultant, but there has been little success to date (Camacho 1997).

In both of these cases, most resources were allocated to information collection and meetings among key actors. Municipal governments have no formal power to enforce land-use

regulations, and their limited attempts to alter land use have met with little success thus far. Nevertheless, these attempts increased local awareness of land-use conflicts and promoted negotiation among the groups involved.

In other cases that involved planning initiatives promoted from La Paz, the role of municipal governments seems to have been largely limited to providing information and logistical support to the projects involved, and participating in occasional meetings. This was true for an IDB-financed, land-use planning project for Beni and for an FAO initiative in Samaipata designed to reduce deforestation and land degradation in the upper watershed of the Piraí River (Flores 1998).

***Experiences with Protected Areas***

Protected areas are probably not the most important means of conserving biodiversity, but they clearly have a role to play. Since passage of the Popular Participation Law in 1994, local governments have become more involved in protected area issues, although their participation remains modest. Local governments have participated mainly through membership in the parks' local management committees, although in some instances, their involvement has been greater. When municipalities do get involved, they often provide a needed voice for local concerns.

In a number of cases, establishment or expansion of protected areas has restricted pre-existing activities of loggers, agricultural colonists, and longstanding small-farmer and indigenous communities. Expansion of the Amboró and Noel Kempff Mercado parks, for example, created serious conflicts with small-farmer communities. In Amboró, communities even found themselves within the new park boundaries (Flores 1998; Pacheco 1998). In other cases, such as the Pilón-Lajas Biosphere Reserve and the Isiboro-Sécure Indigenous Territory and National Park, the Bolivian government declared the same areas as both indigenous territories and protected areas, which has generated land-use conflicts between the national government and local indigenous peoples. In the case of the Pilón-Lajas Reserve, the issue has been further complicated by the presence of local chainsaw operators, who fear their livelihoods will be threatened by restrictions imposed by park managers (Pavéz 1998).

When such situations arise, local governments often seek to protect the interests of the groups that have been negatively affected by the restrictions on their activities, either because local officials directly represent these groups or because of pressure to respond to their interests. In the case of Amboró, several of the eight municipal governments involved have supported attempts by small-farm federations to have park boundaries changed (Crespo 1997). The municipal council of San Ignacio de Velasco has pressured the Friends of Nature Foundation (FAN), administrator of the Noel Kempff Mercado Park, to find alternative sources of livelihood for three communities negatively affected by the park's expansion (Pacheco 1997). Rurrenabaque's municipal council has pressured for chainsaw operators to be allowed to operate in portions of the Pilón-Lajas Biosphere Reserve. Local governments of the indigenous territories that coincide with protected areas have opposed restrictions on resource use by indigenous people. In several instances, the economic interests of individual mayors or municipal council members have been adversely affected by a protected area designation. As one might imagine, this has prompted the officials to take a negative attitude toward the area.

However, it is not inevitable that municipal governments will become negative toward protected areas. For example, the local government of the Izoceño, indigenous territory in Charagua, was the principal proponent of creating of the Kaa-iya National Park and currently manages it. Riberalta's government has actively worked to create a large protected area in the southeastern section of the municipality, and has signed an agreement with the DGB to conduct joint studies (Kaimowitz and Bojanic 1998). Indigenous-led Ascención de Guarayos' government has expressed interest in managing the Rio Blanco and Negro Wildlife Reserve (Vallejos 1998). On a much smaller scale, the Urubichá government, which is controlled by Guarayos, has protected a local lagoon and created a botanical reserve in response to perceived threats from outside tourist companies (Tejada 1997). In El Torno, Santa Cruz, the local mayor prohibited a community from charging entrance fees to a local waterfall, but now wants the municipality to manage that area (Crespo 1997). In San Ignacio de Moxos, the municipal government's executive officer suggested in an interview that public forested lands, which under the 1996 Forestry Law would be made available to the municipal government for local community groups, could perhaps be maintained as protected areas (Roper 1997).

In a few cases, municipal support of protected areas seems largely the doing of one or two individuals with a particular interest in conservation. In other cases, local governments have sought to use an area's protected status to limit intrusion by external groups. The possibilities protected areas offer to attract foreign funding and technical cooperation have been an added incentive.

It is difficult to say to what extent local interest in ecotourism has contributed to municipal support for protected areas. Tourism in Buena Vista, Rurrenabaque, Samaipata, and other localities has grown rapidly and become important to local economies (Flores 1998; Pavéz 1998). Not all of this tourism focuses on parks, however, and there are few concrete examples of owners of tourism activities actively promoting park preservation.

Like the municipalities' attitudes toward the protected areas, relations between municipal governments and the international NGOs assigned by the DGB to administer the protected areas also defy broad generalizations. On the one hand, local governments sometimes resent the international NGOs' greater access to resources. They complain that these NGOs use those resources inefficiently, and emphasize that the NGOs should be based in the rural municipalities, rather than in La Paz or Santa Cruz. On the other hand, they often appreciate the technical assistance, training, and funds these NGOs offer. Despite past tensions, Rurrenabaque's government now collaborates closely with Veterinarians Without Borders in the operation of the UFM. They have also joined with local sawmill owners and chainsaw operators, as well as indigenous groups, to pressure the forestry superintendent not to grant forest concessions within the Pilón-Lajas Biosphere Reserve. In San Ignacio de Velasco, FAN and the municipal government have agreed to jointly finance rural development activities in the three communities negatively affected by the expansion of the Noel Kempff Mercado Park, although the government has complained that FAN has been slow in fulfilling its part of the bargain. Through a British-financed buffer zone project, CARE, the international NGO, has begun to work closely with several municipal governments near Amboró.

Other municipalities appear largely indifferent toward the protected areas, particularly when they do not involve major conflicts or benefits. This is the case in San Borja's attitude toward the Pilón-Lajas Biosphere Reserve, San Ignacio de Moxos' view of the Isiboro-Sécure

National Park, and Samaipata and Yapacaní's relation with the Amboró National Park (Flores 1998). Those municipal governments participate either marginally or not at all in park management committees.

***Forest Management and Agroforestry***

The initial exposure to forestry-related issues for most forested lowland municipalities was through disputes with logging companies over royalties and damage to local roads or through small-scale initiatives to reforest certain areas or promote perennial tree crops. Many municipalities have small nurseries that produce trees for urban beautification. Some also have nurseries that produce planting material for farmers or to be used in communal areas. Indeed, many municipal officials are under the mistaken impression that reforestation and forest management are synonymous. However, few municipal reforestation efforts have been successful, and none have had impacts significant enough to contribute to biodiversity conservation.

Only a few municipalities have created UFMs, whose main activities are as follows:

- Analyze and disseminate the 1996 Forestry Law and its regulations;
- Seek information about forest concessions and other forests within municipal limits;
- Pressure the forest superintendent to transfer funds from forest royalties and fees to the municipality;
- Participate in small-scale tree planting projects; and
- Provide small farmers with settlement certificates. (For a period of time, the forest superintendent accepted these certificates in lieu of land titles as proof of ownership in applications for forest clearing and logging on private properties.)

Some of the most important responsibilities given to municipal governments under the 1996 Forestry Law are to help identify public forested lands not currently part of concessions, request those lands on behalf of ASLs, and assist those groups with preparing and implementing forest management plans. The following obstacles have hindered progress in this regard:

- Limited availability of information regarding the extent and location of public forested lands outside concessions;
- Weak institutional capacity at all levels to produce that information;

- Indications in many municipalities that less public forested land exists than previously believed;
- Poor understanding by many key actors about what steps this process requires;
- Nonexistent UFMs or UFMs with minimal technical capacity; and
- Weak organizations at the community level, with minimal financial capacity to implement sustainable forest management as specified under the 1996 Forestry Law.

The most advanced municipality in this regard is San Miguel, where a local loggers' association, with the support of a technical assistance project of the CNF (known as PROMABOSQUE) identified and quantified public forested lands within the municipality, and made a detailed request regarding which forests it could log under municipal supervision. The association financed these activities, although the municipal government agreed to reimburse it once it begins to receive royalty payments from the forest superintendent's office.

The association, which was formed some 15 years ago, has 120 members, but has only recently sought recognition as a legal entity. It is requesting a forest area of approximately 80,000-90,000 ha, and has hired a forestry consulting firm to help prepare its management plan. An 87-member loggers' association in the neighboring municipality of San Rafael has begun a similar, though less advanced, process requesting a forest area of 63,000 ha. Even in these cases, however, significant problems remain. Association members have yet to agree on whether they should manage their forested lands individually or as a group, and the forests they have requested may lack sufficient timber to provide sustainable livelihoods (Pacheco 1998).

By contrast, municipal officials in Riberalta have been under the mistaken impression that the 1996 Forestry Law allows municipalities to manage for their own benefit the forested lands assigned to them. They have also erroneously interpreted the law to mean that municipalities are entitled to administer 20 percent of all forests within their boundaries, rather than up to 20 percent of public forests. Based on this misinterpretation, the municipality has identified an area of some 300,000 ha that it plans to administer as a municipal forest reserve. It has also begun active negotiations with the government of the Republic of Cuba, aimed at establishing a joint venture between Cuba and the municipality to exploit the timber products and NTFPs

in a 100,000-ha area. Whether the municipality's misconceptions about its legal limits reflect lack of knowledge or a deliberate attempt to circumvent the existing law remains unclear (Kaimowitz and Bojanic 1998).

The municipalities of the Chapare in tropical Cochabamba represent a somewhat special case in that they have no forest concessions and little, if any, public forest outside of protected areas. Their case has led local municipalities and the FAO project that supports them to emphasize forest management and agroforestry on small farms; many of these farmers still have significant amounts of timber that can be sold for urban construction in the city of Cochabamba. Some actions taken to support these activities, like in the case of Villa Tunari, include construction of an access road to facilitate timber transport, the municipality's promise to purchase wood from participating farmers to build local infrastructure, and support in preparation of logging plans (Johnson and Vélez 1998).

Most municipal governments have done little to supervise or control logging activities. In our interviews, municipal officials were frequently critical of the unsustainable practices and illegal logging in forest concessions and, to a lesser degree, of smaller logging operations. For the most part, however, concrete actions have not been taken because of shortage of resources, lack of interest, ambiguities in the 1996 Forestry Law regarding the municipalities' role in regulating logging, and conflicts between the municipalities and the forest superintendent. The only cases where local governments have made significant efforts to monitor and control logging activities have been in a few indigenous territories, where local indigenous governments (which may or may not constitute an indigenous municipal district) have organized patrols for this purpose (Roper 1997).

In several places, conflicts have emerged between municipalities and the national forest superintendent because of the latter's tendency to favor owners of large logging companies and repress smaller local loggers and chainsaw operators. The town of Rurrenabaque has gone on record in opposition to a clause in the 1996 Forestry Law that prohibits the use of chainsaws to produce wood; this has put the town in direct conflict with the forest superintendent charged with enforcing that provision (Pavéz 1998). The town has also accused the forest superintendent of illegally assigning forest concessions and failing to provide information. In Ascención de Guarayos, the local government declined to publicly

support local chainsaw operators who had their logs confiscated by the forest superintendent. But, at the same time, it refused to allow the forest superintendent to take the confiscated logs to Santa Cruz for auction, demanding that they be auctioned locally with a percentage of the proceeds used locally (Vallejos 1998). Such tensions also exist between San Ignacio de Velasco's municipalities and the forest superintendent (Pacheco 1998). Yet, San Ignacio's government and the forest superintendent have collaborated to control unauthorized forest clearing; the municipality was motivated, at least in part, by an interest in obtaining revenue from forest clearing permits (Pacheco 1998).

**Conclusions**

While it is still too early to draw definitive conclusions, evidence to date suggests that, in Bolivia, decentralization will give those groups that have the most direct contact with natural resources greater power to decide how to manage them. These groups include formerly marginalized indigenous peoples, small farmers, timber producers, and local tourism owners. But equally often, these groups include medium- and large-scale loggers, sawmill owners, and ranchers.

Decentralization in Bolivia does not guarantee that poor rural people in heavily forested municipalities will necessarily increase their access to resources, political power, or income. However, concurrent with other processes, decentralization offers new opportunities for this access. There are clear examples where decentralization has allowed these groups to participate more in local government, have greater access to forest resources, restrict encroachment by large timber companies and ranchers, and influence forest policy.

The possibility that municipal governments could administer up to 20 percent of public forests to be used by local community groups offers a potential opening for these groups to obtain access to forest resources. Nevertheless, major obstacles remain, including difficulties in identifying appropriate public forests, weak municipal capacity and limited support from national and departmental governments, organizational problems among small-scale loggers who could potentially benefit, and limited capital and managerial skills to support these activities.

Whether decentralization will lead to greater conservation of natural habitats and reduced threats to biodiversity remains to be seen. Throughout lowland Bolivia, most of the politically and economically important groups have adopted a "green discourse," and have begun to express concern for the environment and natural resource conservation. However, their rhetoric may be inspired as much by a desire to seem politically correct as by real conviction, because their practices have changed little or not at all. Most groups involved are still more concerned about their access to existing resources and short-term gains rather than longer-term sustainable development. Many municipal governments have initiated forest management, wilderness conservation, agroforestry, and land-use planning activities. However, in nearly every case, these efforts are just beginning, are underfunded, and are often poorly staffed or ill-conceived. Compared to the powerful forces that currently favor increased forest clearing and degradation in the region, any efforts to reverse these trends have yet to go much beyond the stage of good intentions and symbolic actions.

The issue of protected areas is especially delicate, since these areas restrict the use of natural resources by certain constituencies represented by local governments. Other factors, such as NGO support for municipal governments, potential for ecotourism, desire to prevent outside logging companies from exploiting local resources, and genuine concern about resource conservation have led municipalities to support protected areas. This support often leads local governments to take an ambivalent or even opposing position. Still, in a few cases, municipal governments have led efforts to create protected areas to meet their own local needs; such efforts may have better prospects for success.

Municipal governments' positions regarding indigenous territorial rights largely depend on the extent of indigenous peoples' political power. This, in turn, seems to be a function of demographic factors, a particular group's organizational capacity, and support from the national government. Where indigenous people play a strong role in municipal governments, decentralization has strengthened their territorial claims; where they do not, their claims have been weakened.

Local governments require external assistance to bolster their support for sustainable resource management and to strengthen their capacity to promote such management. They need to operate within a policy context that is favorable to local initiatives. They also need clear

mechanisms for exercising their legal rights and carrying out their responsibilities. Unfortunately, national and departmental government agencies have done little in this regard to date. In some instances, they have indirectly undermined local government activities. Externally-funded projects and NGOs have provided municipal governments with technical assistance, training, and funds, with largely positive results. However, such support is insufficient for consolidating the local governments' natural resource management activities.

Having said this, what is most impressive about the influence of decentralization on biodiversity conservation in Bolivia is the diversity of the processes involved. Each municipality has a distinct dynamic that can lead to widely diverging social and ecological outcomes. Thus, it should come as no surprise that, in some cases, decentralization promotes biodiversity conservation, while in others it is a hindrance. Which of these effects will dominate remains to be seen.

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