

## Law Compliance: Bolivia Case Study

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### Introduction

In the last years, many countries in the developing world have undertaken serious steps to modernize their forestry sectors, to make forest extraction more equitable to forest users, and to involve different levels of government on overseeing forest resources use. In spite of the efforts spent on changing the rules of the game for forest resources use, mainly seeking to establish more proper conditions for enabling sustainable forest resources management, still persist illegal activities that affect the management of the forest sector in many countries but specially so in developing forest rich ones (Contreras-Hermosilla 2001)

It is not uncommon to find, in several countries, that the illegal timber harvest exceeds legal extraction, and this has decisive implications on the functioning of legal markets of forest products. Illegality adopts so many forms either during logs extraction in the field to timber processing, commercialization, or exporting. There are some studies available focus on characterizing the causes of illegal logging, the forms it adopts, and its consequences (Contreras-Hermosilla 2002, Tacconi *et al.* 2003). In several cases, many illicit acts are associated with corruption of public officials at all levels of government, and often favor to wealthy groups due to their ability to pay large bribes. Illegal forestry deprive government of substantial amount of financial resources in tax revenues, and cause environmental damage because it threaten forest. Nevertheless, the control of illegal logging may also affect livelihoods from people who depend on forest resources to survive (Kaimowitz 2003).

In Bolivia, dramatic changes in the forestry regulations have been implemented seeking to arrest illegality and informality within the forestry sector, and to enable clearer legal frameworks and institutional conditions for promoting the introduction of good practices for forest management. Yet, illegal logging is still a relevant issue in Bolivia because illegal logging practices, and illicit actions associated to transportation, and processing of timber is still widespread. Nevertheless, the catalogue of illegal acts in the sector might be long since those actions could include illegal trade and timber smuggling, and inappropriate accounting practices. This work seeks to contribute to the debate on law compliance and illegality in the forestry sector, and the initiatives to arrest it, by looking at the Bolivian case.

This work fits within a broader effort to improve law compliance in the forest sector. The Food and Agriculture Organization of the United Nations (FAO), and the International Tropical Timber Organization (ITTO) are producing guidelines for improving law compliance in the forest based sector of developing countries that could be used by decision makers and public sector executives for securing greater compliance with the legal framework in the forest sector and greater governance. Several countries that have attempted to achieve improved law compliance have tried different mechanisms. This work, therefore, attempts to take a closer look at the approaches and mechanisms used in the Bolivian case.

This paper is organized in five sections including this introduction. The second introduces the Bolivian forest, along with the main social, economic, and institutional features of the forestry sector highlighting the way in which forest are managed, the structure and ownership and government control. The third focus on describing the forest policy and regulatory framework issued in the mid-1990s, and their main implications for forest use and management. The fourth concentrates on identifying the illegal acts in the use of forest resources along the timber

production chain since extraction to marketing of final products, identifying the agents involved on the informal timber sector, and their motivations. It also assesses the broader social, and economic implications of weak forest compliance. The last section looks at the corrective measures planned or adopted to arrest such illegal acts.

### **Forestry and forest users in Bolivia**

Bolivia is a country comprising an area of 1,098,581 sq. km, of which about 70% is located in the eastern portion of the country, in areas below 500 meters above the sea level, which correspond to which is called Bolivian lowlands. The two other country's natural regions are the *altiplano* in the west portion of the country, and the valleys. The country's total forest area is about 534,000 sq. km (48.6% of the country's total area) (MDSMA 1995). About 80% of the total forest area occurs in the Bolivian lowlands ranging from humid evergreen forest in the north to dry deciduous forest in the south (Montes De Oca 1989).

The species abundance for timber production is higher in deciduous forest, while the estimated logging potential volume is greater in the evergreen forest. The most valuable timber species such as mahogany (*Swietenia macrophylla*); cedar (*Cedrela* sp.); and *roble* (*Amburana cearensis*) have become the least abundant because they have also been the most intervened species by logging activities in the last four decades. Conversely, the less valuable species such as *curupaú* (*Anadenanthera colubrina*); *momoqui* (*Caesalpinia pluviosa*); *ochoó* (*Hura crepitans*); *bibosi* (*Ficus* sp.) and *verdolago* (*Terminalia amazonica*), are the most abundant ones (Dauber *et al.* 1999). In Bolivia, timber extraction has traditionally been quite selective taking advantage of only the most valuable species. In 1999, about 43% of total timber extraction was still concentrated in five species of a total of 200 (STCP 2001).

The state held the property rights over all forest areas in both public areas and private properties until the mid-1990s. By then, about 20.7 million hectares, of the 76 million hectares that comprise the Bolivian lowlands, were granted to forest companies through a system of contracts, most of them of short and medium-term, although only three million hectares were actually harvested every year (Hunnisett 1996). That system led to an excessive forestlands concentration in just a few hands of timber companies. In the second half of the 1990s, that situation reversed dramatically due to the fact that the contracts systems, based on a volume-based fees, was replaced by a system of forest concessions to large timber companies supported on an area-based taxation system. The total area under forest concessions declined to 5.8 million hectares in 1996, and it shrunk to 5.3 million hectares in 2002 due to the devolution of three forest concessions back to the state (SF 2003).

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

The rise of environmental concerns has led to the Bolivian government to declare about 15 million hectares as protected areas in the lowlands, though only a small proportion has effective protection. The information presented above suggests that 71 million of the 76 million hectares that embraces the lowlands Bolivia have some type of property rights. The figures mentioned above, however, do not account for areas in which there are uncertain, competing or overlapping rights which are still important though tended to decline respect to the past. Furthermore, there is not reliable information about how much area remains as public forest, and only 3 million hectares have been identified as such. There are no estimates about how much forest there is within indigenous territories, and private landholdings. While indigenous territories are still covered by a large proportion of forest, an increasing process of clear cutting has been taking place in private properties for agricultural expansion.

While indigenous people, local communities, and private properties have gained the rights to use their forest resources with commercial objectives, it is still small the area with formal management plans approved by the Forestry Superintendence, even though it is growing over time (*Superintendencia Forestal, SF*). Indeed, the forest area managed with formally approved forest management plans by community forestry groups grew from 20,000 hectares in 1998 to about one million in 2002. A portion of 560,000 hectares corresponds to indigenous people, 430,000 hectares to associations of local forest users (*Asociación Social del Lugar, ASL*). Furthermore, only 544,000 hectares within small- and large-scale private landholdings had a formal plan of forest management as of 2002 (SF 2003).

In spite of the fact that approved forest management plans correspond only to a little portion of forest areas within private properties, either individual landholders, and communities, these groups along with ASL's are starting to supply growing volumes of wood respect to larger-scale forest concessions, and the two together exceeds the timber coming from forest concessions, according to data provided in Table 1 which accounts only for legal forest extraction. The latter, in the last four years, remained in the 220,000 m<sup>3</sup> level, but 2001. The increasing contribution of private landholders is due to the fact that a larger number of them incursion in forest management, and hence expand the areas under approved forest management. That is the same case for indigenous people, ASLs, and local communities. It is likely that the areas under forest concessions will not increase over time, hence it will be even more important to future the contribution of private landholders in the timber supply.

Table 1 below shows that the silvicultural activities, in which are included primary forest extraction contributes little to the GDP. Chavez and colleagues (2003) estimated the contribution of timber and non-timber forest products extraction in about one percent, and others mention that it would equivalent to 3% but without supporting such estimate (*Jordan et al.* 2002). In terms of employment, the forestry sector is directly responsible for 90,000 jobs and an additional 150,000 jobs indirectly. The small contribution of the forestry sector to the national economy is in part the result of the little growth of timber extraction, linked to the difficulties for expanding the processing capacity, and to expand the timber exports due to the small size of the domestic demand. The potential production for timber in Bolivian forest is estimated to be 20 million cubic meters per year (STCP 2001), but only a small portion of this potential is currently utilized.

The annual timber extraction was about 581,800 cubic meters in 2002, and there is no reliable estimates of illegal extraction. The official figures of the timber extraction's total volume show that it has grown little in the last two decades, considering that it was equivalent to 445,000 cubic meters in 1980. The type of species intervened, however, has tended to changed dramatically due to the over-harvesting of the most valuable species, due to the fact it is more

economically efficient to increase the harvesting rates, and because some mechanisms have been set to promote more integrated forest management (SF 2003).

The small formal contribution of the forest sector is in part the result of the lack of production, or the low proportion of forest that is harvested and converted into commercial wood products, associated with the lack of modern industrial capacity, and capabilities to compete in the international markets given the small size of the domestic market. Only a reduced number of non-timber forest products are used commercially, the most important being Brazil nut production, and eventually palm heart, and some medicinal plants. In spite that the formal contribution is low, it is not visible the contribution of forest to livelihoods of forest dwellers, or poor people living near forest areas. There is a significant number of local communities either indigenous, small farmers, or colonists that withdraw some resources from the forest (mainly timber but also wild game, medicinal plants, building materials and fibers), as a way to complement their subsistence needs (Pacheco 2001).

Table 1. Summary of statistics: Bolivian forestry sector, 1997-2003

	1997	1998	1999	2000	2001	2002
GDP silviculture (million US\$) (a)	75	77	80	79	78	77
GDP silviculture / PIB total (%) (a)	0.95	0.91	0.96	0.94	0.97	0.99
Forest prod. exports (million US\$) (a)	119	98	103	109	69	68
. Timber products (million US\$)	88	68	73	75	41	41
. Non-timber products (million US\$)	31	31	31	34	28	27
Forest taxes (million US\$) (b)	9.1	10.0	7.3	3.9	3.0	3.3
Municipal taxes (,000 US\$) (b)	1,540	2,182	1,241	593	464	536
Average by municipality (,000 US\$)	15.4	21.0	11.4	5.1	3.7	4.8
Timber extraction (,000 m <sup>3</sup> ) (b)	NA	NA	502.4	495.8	559.2	581.8
. Concessions	NA	NA	224.3	222.0	151.6	221.1
. Private landholdings	NA	NA	39.5	112.8	313.8	221.3
. Community forestry	NA	NA	-	-	-	27.6
. Clear cutting	NA	NA	161.0	86.9	93.8	77.0
. Others	NA	NA	77.6	74.2	-	34.8

Sources: a. Taken from UDAPE (2003) based on Instituto Nacional de Estadísticas and Banco Central de Bolivia, b. Baded on Superintendencia Forestal (2003). Adapted by author.

There is no reliable information about primary manufacturing capacity of timber. It is estimated that there are approximately 300 sawmills scattered around the major forested areas with the highest concentration in the state of Santa Cruz and Cochabamba. Yet, about 70% of the operations are classified as very small (< 1.000 cubic meters/year) or small operations (1.000 – 15,000 cubic meters/year) with no single large sawmill dominating the industry (Jordan *et al.* 2002). According to this source, most of the sawmills are labor intensive, use outdated machinery. Furthermore, there are approximately 45 dry kilns with a production capacity of about 50,000 cubic meters of sawn wood, which does not even meet the current underutilized sawn wood capacity. With few exceptions, dry kiln designs are inadequate to produce an efficient, consistent supply of quality lumber. Few mills have invested in kiln drying equipment, limiting expanding markets beyond rough lumber (Jordan *et al.* 2002)..

In the last years, there have been sustained efforts to increase the secondary manufacturing, particularly in the production of furniture, furniture components, doors, and flooring. Approximately 50% of value-added products are sold domestically, and most of the remained furniture is exported to North America. An undetermined amount of the rough lumber and planks are re-sawn by secondary

processors for the manufacturing sector. Most of the value-added businesses are family-owned companies that have developed in the last four decades to serve the domestic market and limited international market (Jordan *et al.* 2002). It has been mentioned that the problems that face the secondary manufacturing are the inefficient use of material, the lack of industrial security, and a weak quality control of the process.

It is estimated that about 40% of the total timber production is exported, and 60% is consumed within the domestic market (CFV 2002). Yet the export values of forest products have dramatically declined since the late 1990s, though they have tended to recuperate since 2003. The total export values were US\$109.0 millions in 2000, and shrunk to US\$68.0 millions in 2002, although they were not so much higher in 1994, about US\$97 millions. It is worth to mention that non-timber forest products have increased notoriously their share in the total of forest product exports reaching a total of about US\$27.0 millions in 2002. The latter means that the share of timber products respect to the total has tended to decline gradually. The composition of the timber forest products' exports has tended to change over time. For instance, 76% of such exports corresponded to sawn and semi-processed wood in 1992, while the proportion of processed wood products increased to 75% in 2001 (Chávez *et al.* 2003).

The downward trend of timber exports has been driven by their main destination markets' economic depression, mainly Argentina, and the declining trends of the wood's international prices. The wood exports to Argentina shrunk from US\$ 33 million in 1988 to US\$ 3 million in 2001 (Jordan *et al.* 2002). The latter has substantially altered the export destination. By today, the main export markets constitute both North America and the European Union, which demand mostly processed and certified wood products.

Besides the exports contraction, the forestry sector in Bolivia is facing urgent problems, most of them rooted on structural factors. A variety of problems including lack of financing and investment, poor infrastructure, high transportation costs—estimated in about 60% of production costs—and poor business practices are often mentioned as obstacles to growth (Jordan *et al.* 2002). In turn, Chavez and colleagues (2003), assessing the factors that influence on the Bolivian forest sector competitiveness, mention that the people involved in forest management and commercialization activities often lack of training, and there is little knowledge of market information. Also, there are no credit lines for forest users to access to capital to develop their forest operations, or to expand their investments in forest management, and primary manufacturing. Even more, the organizational development of the forest users, mainly of the recently created local forest users' associations, is still limited.

Illegal forest activities are widespread in Bolivian lowlands. Cordero (2003), based on estimates for the year 2001 prepared by CAF, mentions that at least 50% of the domestic consumption of timber comes from illegal sources. According to this estimate, the average timber domestic consumption ratio could reach about 0.0546 cubic meters person/year which accounted for a total domestic consumption of 451,778 cubic meters in 2001, year in which the total timber extracted consumed domestically was about 224,134 cubic meters. It is worth to mention that the estimated timber domestic consumption is far below the one estimated in other countries (1.7 cubic meter person/year in USA, and 0.11 cubic meters in China).

Illegal forest clearing is extensive. Contreras (2001:6), considering an annual deforestation of 250,000 hectares between the mid-1980s to mid-1990 (based on Steininger *et al.* 2000), estimates that illegal clear cutting for forest removal would reach about 80% of total deforested area. Nevertheless, more recent estimates mention that the annual rate of deforestation was about 171,000 hectares/year between the mid-1990s and 2000 (Pacheco 2004a). Considering

that the area with authorized permits for forest clear cutting was about 20,400 hectares in 1998, and 25,300 in 2001 (SF 2003), hence the total illegal deforestation ranged from 85 to 88% during the mentioned period. The same source mention that the deforested areas without authorization were of 65,400 hectares in 1998, and they drop to 6,500 hectares in 2001. This evidences the acute problems of illegal deforestation underway in the country since the actual deforestation was quite larger than the official estimates.

There are two subjects in which there has been some improvement in last years, mostly as result of the new forest legislation implementation. The first has to do with the fact that the state is appropriating larger amount of rents from forest resources respect to the past in those areas allocated to private users for forest resources extraction, and it is distributing more equitable such financial resources among the different levels of government, including municipalities from where forest resources are extracted. The second is that there is a better compliance of good practices for forest management, stipulated in the new legislation, evidenced by the larger expansion of certified areas (Pacheco 2003, Quevedo 2004).

In regard to the first issue, there is the perception that the state appropriate larger forest rents than in the past, though the evidence supporting such argument is slim. This is argued because there was a generalized corruption in the past that allowed timber companies avoiding paying taxes with a very low probability of being sanctioned for that. By now, there is a more transparent system of forest fees collection which has faced some amendments due to the fact most forest concessions were not paying their taxes. Hence, what after the new forest law approval was sanctioned as a US\$ 1 per hectare of the total forest concession, since 2003 the same forest fee is paid exclusively for the total annual intervened area. This system adjustment has entailed the reduction of resources captured by the state in about two thirds –from US\$ 10 million to about US\$ 3 million, from 1997/98 to 2001/02 respectively) (see Table 1). The share of municipalities decreased from US\$ 1.5 million to US\$ 500 thousand in the same period. The distinctive feature is that they never before received no financial resources for this concept.

In regard to the second issue, there are eleven forest concessions, one private enterprise, and one indigenous operation certified as of July 2004. These operations encompass an area of about one million and a half hectares of certified forest. The area certified under forest concessions range from 60,000 to 180,000 hectares, and only one company, which holds three different concessions, has certified about 336,000 hectares. Furthermore, there are three forest concessions in process of certifying their forestry operations from the Forest Stewardship Council (FSC), which all them together comprise an area of 754 thousand hectares. An indigenous community did not renovate its contract of certification after five years of operation, and its forest operations are currently in process of re-evaluation (CFV 2004).

### **The forest policy and regulatory frameworks**

In the mid-1990s, Bolivia underwent significant policy changes in the land and forestry sector, which made part of a broader package of reforms as part of the “second generation” of structural adjustment reforms, which included policy reforms in the health, educational, and financial system, along with a drastic institutional reform of the public administration that included a process of decentralization and popular participation. Though some of the reforms did not have implications in the forestry sector, others did influence indirectly on it, mainly the institutional reforms linked to decentralization. This sections will not discuss the broader set of reforms but only the ones that have had direct implication on forest management –such as the forestry law and its regulations-, as well as the ones that influenced indirectly on the way in

which forest resources are accessed and managed such as the new agrarian reform law, and the Law of popular participation.

The different laws mentioned above sought to achieve three objectives: first, the new forest regulations aimed at stimulating the adoption of good practices of forest management as a way to ameliorate ongoing dynamics of forest depletion. Second, a new agrarian reform was devised to provide mechanisms to facilitate a process of land regularization, and land titling in order to enhance land ownership rights. Third, to move forward a process of the public administration decentralization to improve their efficiency levels on public services deliver particularly at the municipal level, and to match them better with people's needs. Finally, there have been issued other legal provisions that affect to some extent to forest such as the ones regulation on protected areas, and mining and hydrocarbon concessions. This section will attempt to summary the main legal provisions of each of the main laws, and it will discuss their implications for forest and forest users.

#### *Regulations for stimulating good forest practices*

Four are the aims that frame the rationale of the forest legal framework issued in 1996. First, it attempted to suppress the uncertainty from insecure access to forest resources through the change from a system of forest contracts to another of long-term forest concessions. Second, it aimed to democratize the access of the different forest users to forest resources. Third, it was to enforce logging practices targeting good forest management. Finally, it aimed at improving the system of forest fees collection, and distributing such resources with the regions more equitably. Below are approached the mechanisms stipulated in the law. Table 2 below shows the main policies and instruments adopted to regulate forest management in Bolivia.

The Forestry Law is the major law governing forestry in Bolivia. This law, issued in 1996, replaced an older legal instrument passed twenty years before which was hardly implemented due to diverse factors. The new law creates what is labelled the "National Forest Regime" which is defined as "the set of public standards that regulates the sustainable utilization and protection of forests and forest lands, and the legal regime that grants rights to private persons, stipulating clearly defined rights and obligations" (Forestry Law, art. 3, inc. e). This is, in other words, the whole of regulations that redefines the conditions for forest users to get access to, and regulations stating the conditions under which it is legally feasible to make use of forest resources. The latter includes several technical norms determining the better practices and techniques that should be used to allow for forest regeneration.

The public institutional system in charge of implementing the forest policy and its regulations is constituted by the Ministry of Sustainable Development and Planning (MDSP) as the ruling entity; the Forestry Superintendence (*Superintendencia Forestal*, SF) as the monitoring entity, and the National Forestry Development Fund (FONABOSQUE) as the financial one. The SF is a central piece of this system because it is in charge of the following: granting forest concessions, authorizing logging permits, approving management plans, and raw material supply and processing programs, monitoring forest products transportation, confiscating illegal timber, and supervising the activities of forest management (SF 2003). In the facts, the SF is responsible for issuing the technical norms, or adapting the existing ones, which gives it some degrees of freedom to reorient the content of the technical guidelines. While the adoption of the new forestry regulations was based on a wide participation of stakeholders, changing technical norms does not require of social participation.

Table 2. Main forest policies and regulations in Bolivia

Policies	Instruments	Expected outcomes
Land allocation and titling	<ul style="list-style-type: none"> <li>▪ Title regularization</li> <li>▪ Land titling</li> </ul>	Reducing overlapping rights and securing ownership rights
Redefining forestry rights allowing for fair access to forest resources to forest users	<ul style="list-style-type: none"> <li>▪ Forest concession system</li> <li>▪ Municipal forest reserves</li> <li>▪ Merging forest and land tenure rights in private properties</li> <li>▪ Exclusive right to forest inside the indigenous territories</li> </ul>	Securing clear rights of access to forest resources to different forest users stating specific conditions for maintaining such rights in order to promote long term perspectives of forest use
Promoting good practices for sustainable forest management	<ul style="list-style-type: none"> <li>▪ Forest management plans</li> <li>▪ Annual operation plans</li> <li>▪ Forest audits every five years</li> <li>▪ Land use plans at the plot level</li> <li>▪ Prohibition of chainsaws use</li> </ul>	Forest management plans can contribute to implement good forest practices, stimulate the inclusion of less known species, and to reduce the logging costs
Monitoring of law and forestry regulations compliance	<ul style="list-style-type: none"> <li>▪ Forestry service inspections</li> <li>▪ Privatization of forest control checkpoints in selected points</li> <li>▪ Forest control by local governments, and citizens</li> </ul>	Effective operations of forest control will be able to stop forest crime and tax evasion. Citizen's engagement may help to reduce institutional corruption
Implementing a transparent system for forest fees collection	<ul style="list-style-type: none"> <li>▪ Area-based forest tax system (US\$ 1/ha) corresponding to the are intervened each year</li> <li>▪ Land clearing corresponds to 15 times logging forest fees</li> </ul>	An area based system of taxes collection may reduce corruption, ensure transparency, and reduce speculative accumulation of forest areas

Source: Adapted by author based on Forestry Law (No. 1715).

In relation to the first goal, that of achieving a more secure access for forest resources use, and to protect private investments in forestry operations, the legal provisions state the change from a system of forest contracts to other of forest concessions, along with the move from a volume-based forest fee to other area-based. In this new system, the forest concessions are granted for a period of 40 years to private companies—though there is still the figure of social forest concessions—, which are renewable every five years after an independent forest audit is carried out, which determine the compliance of the forest concessions to the current legal framework. Furthermore, the transaction of forest concessions among parties is also allowed in order to incentive private investments in forestry. The forest concessions with existing contracts previous to the new forest law approval were given priority to choose the areas which they wanted to keep, and the facility to hand over the remaining areas. To promote secure ownership, indigenous people were given exclusive rights to use their forest resources within their territories –in process of demarcation and titling-, and private properties were devolved the ownership of forest resources within their owned landholdings.

In regard to the second aim, the democratization of access to forest resources, the previously mentioned steps, those of legally recognizing rights to private landholders, and indigenous people to use with commercial ends the forest resources within their owned areas, constituted by itself an important steps to make the access to forest resources more democratic. It is worth to mention that, in the past, logging was restricted to timber companies in areas granted by the state, a good deal of which overlapped with private claims. Even more, in the past, a large

but unknown group of local forest users developed, out of the law, their forest operation under forest concessions areas, or protected areas. In order to bring them into legality, a system of social forest concessions was created. Nowadays, forest local users can get organized in groups of local forest users (*Asociaciones Sociales del Lugar*, ASL), and to demand for forest concessions within municipal forest reserves. Yet, the process of delimiting such municipal reserves has been long and bureaucratic, because much of their results depend on the outcomes of the process of land regularization which will be described below.

The third goal was aimed at stimulating the introduction of good practices of forest management, whatever the scales of operation. This is expected to achieve through the compliance of forest management plans. The non-commercial forest uses do not require authorization, and a forest management plan is an essential requirement for all types of commercial forest activities. Hence, forest concessionaries as well as private landholders are obligated to design management plans as an instrument to regulate commercial logging activities, including forest inventories and mapping. Forest management plans have to comply with many technical requirements. These practices included: respecting a minimum cycle of 20 years between logging operations on the same area, and a minimum cut diameter, comply with restrictions to cut less abundant species (less than 0.25 trees/ha), and the mandate to leave 20% of the harvested trees as stand trees to guarantee a security margin for the specie preservation. This practices have to be registered in the forest management plans, as well as the measures to be taken to open and maintain roads within the concession areas, as well as other infrastructure such as bridges, and the protection of streams and other water sources. The guidelines for forest management are contained in technical norms.

In the same way, clear cutting operations require formal authorizations based on clear cutting annual plans, which on its turn have to be formulated based on land use plans at the parcel level. The clear cutting fees are equivalent to fifteen times the forest tax (US\$ 15 per hectare), plus the equivalent to 15 percent of the logged timber's value. Furthermore, clear cutting operations up to five hectares, accumulated over time, are exempted of fees payment.

As mentioned before, as a way to promote a more integrated forest extraction, including less valuable species, was implemented an area based system of US\$ 1 per hectare for the total concession area, which was equivalent for the annual intervened area for the rest of forest users. Yet, in 2003 the system of taxation was amended to the annual intervened area for all forest users.

The final goal of the forest policy reform was to make more transparent the system of collection of forest fees. The total volume of resources captured from forest taxes is for sure more than it was collected in the past, not only because the system has change, but mainly because the compliance of forest fees payment is easier to verify, and hence the whole system is less exposed to corruption. During some time, right after the implementation of the new regulations, persisted the payment for volume in forest operations carried out in private properties which has been adjusted slowly over time. The collection of forest fees in the case of non-timber forest products – such as Brazil nut- has been more difficult to enforce, and hence a system of payment for volume continues in place.

The regime to be applied to non-timber forest products (NTFP) is quite similar to the one defined for the timber products, with the exception that they have to pay a lower fee. The forest concessionaries can subscribe contracts with third persons for NTFPs use. Forest concession can be allocated for NTFPs only in forest areas where they are predominant; in this case NTFPs fee is equivalent to 30% of the forest tax (US\$ 0.30 per hectare/year). The NTFPs also have to be regulated by forest management plans and annual operation plans in the same way that it applies to timber products. The guidelines for managing NTFP are not well developed thought.

### *The adjustment of forest regulations over time*

The forest regime implementation has confronted different obstacles. Nevertheless, in order to promote a more progressive adjustment of forest users to the norms, the SF had to approve some additional measures called “exception regimes”. Three main exception norms have been issued by the SF: 1) one allowing forest logging in private properties equal or less than 200 ha, by which land owners could log timber were exempted from the management plans, though this regime lasted until late 1998, 2) one allowing allowed small farmers to log timber in areas less than three hectares without the presentation of land use plans at the parcel level, and 3) the one approving small-scale timber producers to initiate their forest operations only with a logging annual plan, and within areas not formalized yet as municipal forest reserves due to the bureaucratic steps required to set them up (Pacheco 2000).

The permits for logging in areas less than three hectares (ITE No. 087/2000, March 2000), were approved as a way to facilitate that small landholders could extract timber from their lots without having to elaborate a forest management plan, but just an inventory of the commercial species to be exploited, and without them to use forest clear cutting permits only to justify timber extraction. The only constraint was that these permits were issued by only one time for each rural landholding. The approval of three hectares permits for logging timber was quite straightforward. Cronkleton and Albornoz (2003) suggest that these logging permits were not used as was originally expected and not necessarily favoured to small-scale landholders but to unscrupulous timber buyers that even altered the tree inventories.

Another exception regime issued by the SF (ITE No. 09/98, June 1998), was the one allowing ASLs to initiate their forest operations even without having approved their forest management plans, and within not formally constituted yet municipal forestry reserves. These measures attempted to correct some problems arising from the process of creation of municipal reserves, mainly linked to the difficulties to speed up the title regularization program led by the state agency of agrarian reform (INRA). In several municipalities, there was not enough information from INRA about available public forest to delimitate the municipal reserves which made difficult the creation of municipal reserves, and hence for municipalities to granting these areas in forest concessions to ASLs. The exception norms, therefore, facilitated to some ASLs, to those that at least had logging annual plans to 2001, to initiate their forestry operations in their expected areas to be ratified ahead in the process.

In theory, the two last exception norms attempted to facilitate forestry operations to small-scale landholders, including indigenous people, and small-scale timber extractors grouped in ASLs. These exceptions were issued because the original forestry regulations were not easy to comply for small-scale farmers, and informal loggers trying to adapt to the new regime. It can be the case, however, than the exception norms have become the norm instead of the exception.

### *Land regularization and titling*

In 1995, the World Bank approved a Land Administration Project to establish a land registry agency that would carry out land mapping on three million hectares, and to regularize the land tenure situation wherever possible during a 4-year period. In that same year was intervened the state agency in charge of the agrarian reform. The Intervention Commission (*Intervención Nacional de Colonización* CNRA-INC) was in charge of the implementation of this project. The process of land regularization moved quite slowly, but the commission succeeded to prompt the approval by Congress of a Law of Agrarian Reform in 1996, better known as the INRA Law in

1996. This legal instrument introduced substantial changes respect to the past in the consolidation of land cadastres based on land titling.

The INRA Law attempts mainly to: 1) establish a legal cadastre registry of the rural property; 2) formulate a process of title regularization integrated to the cadastre, labelled Cat-San (*Catastro con Saneamiento*), to provide a reliable, up-to-date, authoritative record of existing tenure rights; and 3) to move forward a process of demarcation and titling of indigenous territories which are areas claimed by indigenous groups all over the Bolivian lowlands. The process of legal regularization of land ownership should allow for establishing legal cadastres managed by the municipal governments, which have been granted the functions of collecting land fees. Furthermore, the INRA law states that small farmers with little or without land should have privileged access to the areas in which there are no ownership claims, hence in the areas remaining as public lands. This law forgets to mention whether such land should have either forest or agricultural vocation according to their major land use. In parallel, the forest law mentioned that the forest areas identified as public lands should be auctioned in public contests to timber companies interested on getting them.

Both small-scale farmers and indigenous territories are exempted from paying the land tax, while medium and large farmers have to pay it. Land tax is estimated through a self-valuation system in which each landholder estimates both the value of the land and the improvements made on it. Self-valuation is expected to simplify the system of tax collection, although it may promote under-valuation of properties. Moreover, it may drop the estimated fees to be collected. The INRA law also stipulates that landowners, from small to large ones, must justify how their landholdings fulfil a socio-economic and ecological function in order to hold their ownership rights. However, in the case of the medium and large property, tax payment was considered a mechanism that allows landholders to justify land ownership.

The National Institute of Agrarian Reform (INRA) is the entity in charge of implementing the land policy. Furthermore, it is responsible for monitoring the implementation of the rural cadastre, the delimitation of public lands, and the expropriation of private lands, among its most important functions. Furthermore, the INRA Law created the Agrarian Superintendence (*Superintendencia Agraria, SA*), in charge of the process of land classification according to its potential use, and also of granting public lands to conservation of the biodiversity, research and eco-tourism uses; determining the value of the land; and developing all the actions needed to guarantee land uses according to its classified potential use. The INRA law establishes that all rural properties in the tropics should develop a land use plan at the plot level. The most important function of the SA has been to develop the guidelines, and to monitor the process of formulation of rural properties land use plans.

An important step in Bolivia taken by the INRA law has been the creation of an independent Agrarian Judicature. This judicature operates independently from the INRA, and includes the National Agrarian Superior Court, and the Agrarian Judges, which have the functions ruling on land rights, on the interpretation of the land legislation, and on processing demands and resolving land tenure related conflicts. The Executive Branch, therefore, no longer has to participate in land conflict resolution directly as it did before.

#### *Decentralization of forest management*

The Popular Participation Law issued in 1994 has expanded the municipal government's jurisdiction beyond the urban centers to the entire territory covered and made municipalities responsible for local schools, health facilities, roads, and water systems sections. To finance these

new responsibilities, the central government allocates 20% of its budget in favor of the municipal governments. These resources are distributed among municipalities in proportion to each one's population. Rural and urban property taxes have been earmarked for the municipal governments, who now administer their collection.

The mentioned law has sought to introduce community control over municipal governments by recognizing local social organizations as territorially based grass roots organizations (OTBs); permitting them to influence municipal investment decisions and elect oversight committees to monitor municipal finances. To some extent, these mechanisms have strengthened local participation and made municipal governments more democratic. The Administrative Decentralization Law passed in 1995, which basically granted some administrative functions to the departmental governments –Prefecturas– complemented the Popular Participation law, although its effects have been less dramatic.

The municipal governments, over time, have made significant progress in establishing boundary districts within their jurisdictions, which allows them to deal with planning processes at a district level by both formulating and implementing District Development Plans. Furthermore, municipal governments are responsible to formulate land use plans at the municipal level by scaling down the land use plans developed at the departmental level. In the beginning of the process, municipalities were not granted any relevant function related to land tenure administration. Nevertheless, recently has been stipulated that municipalities can request for INRA to undertake land regularization (*saneamiento*) within their jurisdictions if they are able to co-finance it. It has been considered over time that municipalities should participate more actively in land conflicts. In some cases, they handed certificates of land occupation to justify land ownership to groups of small farmers that possess any title of their landholdings.

The new Forestry Law has transferred a number of powers to prefectures and municipalities. Prefectures' responsibilities include implementing programs and projects of public investments related to the forestry sector at the departmental level, formulating forest policies at the departmental level, and developing programs for strengthening municipal technical capacities. In turn, municipal governments' functions include helping to the SF to monitor logging activities, compliance of clear cutting permits, and inspecting raw material supply to sawmills located in their jurisdictions. Municipalities are also in charge of identifying and creating municipal reserves over an area up to 20% of the public forest within their jurisdictions. To carry out their new forest-related functions they have to install municipal forestry units (UFMs). In theory, this institutional system should be entirely financed with the revenues coming from both concession and clear cutting fees<sup>i</sup>.

#### *Protected areas and biodiversity conservation*

The Environmental Law, passed in 1992, declares that protected areas constitute a state patrimony, and that they must be administered according to their categories, zoning and regulations based on management plans. In 1994, the Congress passed the Law No. 1580 which ratified the Biological Diversity Agreement passed by Congress in 1994, and in 1997 was issued the DS 24781 which regulates the Bolivian system of protected areas.

The relevant points included on that regulation are: 1) it creates the National System of Protected Areas (*Sistema Nacional de Areas Protegidas*, SNAP); 2) transfers the financial responsibility of the system to the National Environment Fund (*Fondo Nacional de Medio Ambiente*, FONAMA); 3) establishes land use restrictions within the protected areas, and defines compensation to landholders in case of verified economic harm; 4) defines legal actions against

people threatening the natural resources that the protected areas intend to preserve; and 5) finally, determines the instruments to be used to manage the areas, and creates a kind of multi-partner management councils (*Comités de Gestión*), composed of representatives from a wide array of local organizations (World Bank 2000).

The DS 25158, issued in 1998, created the National Service of Protected Areas (*Servicio Nacional de Areas Protegidas*, SERNAP) as the entity responsible for administering the SNAP, with technical and administrative autonomy, depending of the Vice-ministry of Environment, Natural Resources and Forestry Development (*Vice-ministerio de Medio Ambiente, Recursos Naturales y Desarrollo Forestal*, VMARNDF). The SERNAP's major functions are those of defining the biodiversity conservation policies, supervising the integral management of the protected areas, and promoting the social participation of indigenous populations and local communities in the protected areas management. Also, regional offices have been created for the country's four main eco-regions (Andes, Sub-andes, Chaco and Amazon) (DS 25518). Only a few portion of SERNAP revenues comes from the national treasury, and the rest is supported by the international cooperation, mainly from GEF.

The system described before has not functioned in the way in which it was proposed. The FONAMA's administration was a complete failure, then the Government promoted the creation of a Trust Fund managed by and independent Foundation for the Development of the National System of Protected Areas (*Fundación para el Desarrollo del Sistema Nacional de Areas Protegidas*, FUNDESNAP) involving public/private partnership. This new institutional system had as their main aims: 1) to stimulate the decentralization of the protected areas; 2) to analyze financial alternatives to support the system; and 3) to make more effective participation of local communities, as well as to develop initiatives to transfer economic benefits to them (World Bank 2000). Yet, in practice the SNAP, besides some few protected areas whose administration was delegated to private organizations, was financed with resources from GEF until quite recently. In the short past, the government has cut some resources off the system, which has created financial problems for the whole system.

#### *Other sectoral regulations affecting forest resources*

Law regulations of mining and hydrocarbon policies have been also modified in the mid-1990s, though the state keeps rights over underground resources, which can be granted only through a system of concessions. The main goal of such changes was to minimize the risk for foreign capital to expand their investments in such sectors. The activities of exploration and extraction, therefore, have been given status of public utility, and hence mining and gas natural extraction have preferential rights over competing land uses. Nevertheless, some provisions have been included in the mining and hydrocarbon legal frameworks allowing private landholders – individual or collective – to negotiate compensations if they are affected by the development of such type of operations.

### **Illegal acts in the use of forest resources**

This section describes the main illegal practices prevailing in the forestry sector in Bolivia, and explores the causes and contributing factors that either induce and/or force forest illegal activities. As was showed in the previous section, the country spent a lot of effort to set up a new regulatory framework, and to adapt the public institutional system including the involvement of local governments, in order to enforce the new forest and land policies, which in theory would promote an enabling environment for sustainable forest management to expand, for local forest users have secure legal access to forest resources, and to promote private investments

in the forestry sector. In spite of such effort, the new policies have not achieved their expected outcomes due to several reasons which will be analyzed below. As result, while illegal forest crime could be diminished respect to the past there are still illegal acts in the Bolivian lowlands' forest resources use involving different forest users.

*The illegal practices in the forestry sector*

This sections reviews illegal acts taking place in Bolivian lowlands, which are classified in five groups following to Contreras-Hermosilla (2002) (see Box 1). The first group of illegal acts are related to the occupation of forestland, often carried out by small farmers and colonists, cattle ranchers and agricultural producers, either in private properties (i.e., the most common cases is the encroachment of indigenous territories), or public areas that have been allocated to forest concessions or to protection aims. The second group corresponds to illegal logging per se with several variants ranging from logging without permits to the no compliance with forest regulations. The third group of illegal acts is related to illegal timber transport from extraction areas to centers of primary and secondary transformation, and smuggling of timber illegally harvested. The fourth group is related to activities of timber processing which use illegally obtained wood. The last group corresponds to timber companies' illegal accounting practices.

*Box 1. Illegal practices in the forestry sector in Bolivian lowlands*

*Illegal occupation of forest lands*

- Encroachment of areas granted with some type of forestry rights either for communities (i.e., indigenous territories), or forest concessions (i.e., municipal forest reserves)
- Invasion of public forested lands without forestry rights for farming activities
- Farming expansion without complying with management plans

*Illegal logging*

- Logging within protected areas, and outside concessions boundaries
- Logging within private properties within legal authorization
- Logging and farming in prohibited areas (i.e., steep slopes, and water catchments)
- No compliance with forest management practices (i.e., logging of protected species)
- Falsifying information in the elaboration of forest management plans
- Extraction of non authorized species, and higher volumes than authorized
- Falsifying and/or selling documents for certifying timber origin (CFOs)

*Illegal timber transport and trade*

- Transporting logs (legally or illegally harvested) without authorization
- Reusing non filled out documents for certifying timber origin (CFOs)
- Smuggling timber to Peru and Brazil from the northern part of Bolivia

*Illegal forest processing*

- Small sawmills operating without a processing license
- Using illegally obtained wood in industrial processing

*Illegal accounting practices*

- Evasion of forest fees payment primarily by large-scale forest concessions
- Manipulating volumes of timber processed to avoid taxes payments

It is common to find in practice that one illegal activity drives sequentially along the process to another, and the continuum of the illegal harvesting, transportation, processing, and marketing contributes to the functioning, and reproduction of the informal economies, which constitutes complex systems of forest resources use from which diverse agents (i.e., small farmers, colonists, indigenous, chainsaw operators, and large-scale forest concessionaires) withdraw some profit of illegal acts, which can be hidden actions or relatively visible practices. Yet, it is difficult to separate the formal from the informal practices of timber extraction, transportation and processing, mainly due to the fact that the multiple forest users tend to obscure illegal acts by performing them within formal and legally allowed practices. In this regard, the forest users responsible of illegal practices, might be the same operating in the formality.

The reforms introduced in the Bolivian legislation seeking to clarify land ownership, and to reduce overlapping claims have led to dramatically reduce the conflicts over land, but they still continue as long as the process of title regularization will not be completed. The uncertainty about land tenure has often driven illegal occupation of forestlands. The most common cases have been the illegal occupation of public areas allocated as permanent forest reserves without concessions (i.e., the systematic invasion of large portion of the permanent forest reserve of El Chore), or areas with established areas concessions (i.e., some concessions in the Guarayos Province in Santa Cruz), and concessions that ceased temporarily their operations (i.e., forest concessions in Surutú) (Cordero 2003). Another case of invasion of forestland is the encroachment of colonists and cattle ranchers on indigenous occupied areas such as the constant pressures from colonists on the Yuracare people, or the unresolved disputes in Monte Verde, department of Santa Cruz area in which persist land conflicts between large-scale landholders and *Chiquitano* people who claimed the area.

A major part of the invasion over forestlands, either in forest production reserves, forest concessions, and indigenous territories is driven by agricultural expansion either to implant mechanized agriculture or cattle ranching, or to pressures from small-scale farming to develop slash and burn agriculture for subsistence uses. It is common to find that the dynamic of forestland encroachment is induced by loggers interested in occupying forest areas illegally for them to be able to harvest the forest resources contained in such areas. This practices are, however, related to the second group mentioned above which is linked to illegal logging.

There are different types of illegal logging. It embraces either logging operations that are carried out in areas not authorized for forest extraction, or logging activities that do not comply with the current forestry regulations. In the first case, it includes forestry operations that are carried out in areas allocated for other uses such as biodiversity conservation, or logging activities practiced outside the forest concessions, or private properties. In the second case, it refers to logging which is practiced without taking into considerations the current forestry regulations including harvesting of not allowed species, and extraction of volumes exceeding the permitted volumes. In some cases, these acts are covered by falsifying “origin forestry certificates” to transport the timber, as well as by altering the figures of timber harvested in forest concessions and/or private properties. These cases are documented below.

In Bolivia, there are several protected areas which are under pressure of external actors interested in logging some tree valuable species. The most vulnerable areas are closers to populated areas (i.e., Amboro National Park), or those containing valuable species such as mahogany (i.e., Pilón-Lajas Biosphere Reserve and National Park Madidi). The last two have underwent high pressure in the last two decades for local groups of chainsaw operators who earned most of their incomes from such activities (Pacheco 2000). The pressures from local loggers over the above mentioned protected areas have tended to decrease in the last years due to

the fact that more rigid administration have been set up in alliance with indigenous forest dwellers, though there are still some local groups operating illegally in the surrounding areas. In other cases, there are establishments devoted to Brazil nut collection operating within protected areas like in the Manuripi-Heath National Reserve in Pando, though it constitutes the closer case in Bolivia to a protected area whose existence is only in the paper.

The information about to what extent there are concessions supporting forestry operations outside of their concessions boundaries is slim. There is only some anecdotal cases about cases of concessions buying logs or inducing small farmers and indigenous to intervene their forest areas without management plans. It is more common to find situations in which forest concessions do not induce directly to surrounding farmers to cut their valuable trees, but the illegal timber market is stimulated by middlemen, owners of either trucks or chainsaws who demand timber to sell to small sawmills located in the intermediate urban centers. These type of situations are most common to find in the regions of *Chiquitania*, northern of La Paz, and the northern Amazon (Pacheco and Kaimowitz 1998). Nevertheless, these local markets are relatively small, and there is no available information about their articulation with the main urban centers' wood demand. In spite of that, the local markets offer important sources of income to local chainsaw operators, and truck owners, articulated to sawmill owners, which all constitute important actors in articulating the timber production chains in the local markets.

Finally, there is the group of illegal activities that result from the non compliance of the technical regulations of forest management in operations with authorized forest management plans. Cordero (2003), based on information gathered in the province San Ignacio de Velasco, department of Santa Cruz, suggest that two are the most common illegal acts: first, the extraction of timber outside of the authorized areas, and second the selling of CFOs obtained for authorized forestry operations. The legal permits to extract timber from forest management plans in some cases make possible to obtain CFOs for the transportation of the timber to be extracted from the area with management plan approved. Hence, there is a market of CFOs which are illegally sold and bought to justify the transportation of logs extracted in other areas. Furthermore, some forest users overestimate the volumes to be logged in their areas, for which are issued CFOs, in order to transport timber extracted from another areas of non managed forest. The latter are the most known "laundry operations of illegal logging" practiced in Bolivia.

The practice of overestimating volumes of timber available for harvesting has been massively used in the permits for logging in areas less than three hectares, which as was mentioned earlier, constituted one of the exception provisions seeking to reverse the extended practice in small farmers areas of asking for forest clearing permits to justify timber extraction since such permits had lower costs than formulating forest management plans. Cronkleton and Albornoz (2003), looking at the implementation of such plans in the province Guarayos, department of Santa Cruz argue that the three hectares plan have been extensively used to laundry illegal timber by inflating the volumes of valuable species reported in such plans, mainly *ochoó*, which is filled with timber coming from non managed forests. Nevertheless, the small farmers intervene little since they often sold the standing trees to low prices to local logging operators which have retained most of the profit from these plans. This mechanism, therefore, even though has facilitated that small farmers use their forest resources, it has not led them to obtain a decent profit from such resources.

Another group of illegal acts is linked to illegal timber transport and trade. It has been widely reported that there are loggers which transport logs without authorization. The trucks transporting illegal timber tend to camouflage the sawn wood under other products which makes more difficult the control operations. In other cases, the drivers travel with blank CFOs which

allows them to reuse them during several trips whether they are not detected and forced to fill them out (Cordero 2003). There are other illegal activities which embrace illegal timber transportation and trade such as timber smuggling to Peru and Brazil, particularly valuable species such as mahogany extracted in the northern Bolivian Amazon. While it is obvious to mention, there are not estimates about the amount of timber that is logged and exported without authorization to such countries. In that region, therefore, it is widely known that there are several roads going across those countries' borders which are used to transport timber originated in non managed areas in the Bolivian side.

There are different illegalities that can be found during timber processing as well. According to Cordero (2003), the sawmills not linked to forest concessions or to another source of stable supply of raw material, it is often to find that an important proportion of timber originate in illegal sources. That author mentions that it is normal to operate with a proportion of 60% of legal versus 40% of illegal timber. In order to camouflage the illegal timber employed, the sawmills tend to manipulate their registers of productivity, and the timing when the logs are sawn in order to recycle the CFOs issued to transport timber from managed forests. In some cases, according to the same author, the centers of primary processing become centers for stocking illegal wood to the risk of the sawmill owner who attempts for different ways to get the CFOs needed to document the origin of the illegal timber to their disposal. Another anomalous situation is the existence of sawmills operating without a license but its number is unknown.

Finally, it is worth to mention that since the approval of the new forestry law until the early 2003, a major part of the forest concessions did not comply with the forest fees payment corresponding to US\$ 1 per hectare of the concession total area. The lack of the law compliance, along with the weak power of negotiation of the Forestry Superintendence --since this agency heavily rely on the resources from the forest taxes to operate--, led to the renegotiation of the forest concessionaries' debts, and to redefining the criteria employed to collect the forest fees. The new norm stipulates that the forest fees are paid considering only the annual intervened area. In theory, the forest concessions which did not pay their taxes had to handed back their areas to the state, yet because the reason mentioned before, they were able to retain their areas. The latter situation has weakened the credibility in the institutional system, and the confidence on the existing legal framework which is rigid for some, and permissible for others.

#### *Causes and contributing factors to illegal acts*

This previous review shows that illegal logging, transportation, processing and trade is still widespread in the Bolivian lowlands, even in spite of the institutional efforts spent to promote a more sustainable forests management, and to facilitate both the access and use of forest resources for the different forest users. The causes for the reproduction of informal economies in the forestry sector are complex, and much of them are not only linked to the contents of the forest regulations since have structural roots such as the chronic institutional weakness, and the market distortions. This section reviews the causes and contributing factors that explain the persistence of illegal acts in the Bolivian forestry sector.

Box 2 shows that illegality in Bolivia has multiple underlying causes though they can be grouped in those linked to land-tenure related issues, to the contents of the legal frameworks, the institutional structures and behaviors, along with those more economic-related which are linked to the costs of implementing good practices and to the market incentives that lead to the forest users to adopt such practices. Finally the low engagement of the civil society, which on the other side has the large power of the public agencies on deciding what to do or not with the forest.

*Box 2. Factors explaining the persistence of illegality in the forestry sector*

*Underlying causes:*

- Insecure land tenure, and unresolved access to land to informal forest users
- Unrealistic rules with excessive power in the public sector, along with bureaucracy in the allocation of permits and high transactions costs that difficult forest resources use
- Institutional weakness for forest law enforcement and little vertical and horizontal collaboration among the institutions that make part of the public forestry system
- Little support for local forest users to develop sustainable forestry operations
- The costs of the forest regulations implementation, along with other economic factors
- Lack of information and of participation of civil society in controlling forest crime

*Contributing factors:*

- Low probability that non compliance of laws be penalized
- Vulnerability to corruption of public institutions
- Lack of governance in remote areas of agricultural frontier expansion

The next paragraphs describe in detail the causes mentioned above:

- *Insecure land tenure and unequal access to forest:* Even though the efforts spend on title regularization and titling, there still not are clear ownership rights, and persist competing claims in some areas with forestlands, mainly because the land regularization process has evolved slowly, and it is costly and bureaucratic. The policy reforms had the assumption that as result of the regularization program the remaining public forestlands would be identified in order to be allocated through concessions to forest uses. Nevertheless, the slow identification of such areas, along with the insecure tenure have both factors impeded that public forest be auctioned to forest concessions, and small farmers are demanding such areas to be devoted to settlements. Furthermore, the system of social forest concessions in municipal reserves has not worked as expected because there are not enough public forest to be allocated as such to attend the demands of the small-scale timber extractors, and local chainsaw operators. The difficulty of some of such groups to gain access to forests lead them to persist on the informality.
- *Little realistic and biased forest frameworks:* The forestry regulations have been devised in order to meet an ideal scenario of sustainable forest management in which all forest rights are clear, land tenure is secure, and the forest users have the incentives to implement good practices of forest management. In practice reality has proved be more complex. The implementation of the forestry systems has been slower than expected, and the forest users, mainly small farmers, indigenous, and small-scale loggers have had to adjust gradually to the new rules of the game though some failed to do that because the embedded costs in the process that they cannot afford to pay, which over time operates as a barrier for them to get included within the formal forestry sector and persist in illegality. In this regard, the new forestry regulations have tended to establish homogeneous norms, with some slight differences, that the different forest users have all to comply with, though in the practice their capacities and capabilities differ to adapt themselves to the new legal framework.

- *Institutional weakness and lack of incentives for collaboration:* Although the new institutional system has put large emphasis in developing institutional capacities for monitoring forest management and sanctioning forest crime, in practice the financial resources that the institutional public system of the forestry sector has available are not enough to operate in reasonable conditions. Furthermore, the whole system –since the Forestry Superintendence until the municipal forest units—has become dependent from the forest fees payments, mainly from the large-scale forest concessions which operates as a perverse incentive, mainly for the Forestry Superintendence to apply the sanctions as the law mandates (i.e., the negotiations around the forest fees payments mentioned above). The institutions --including the Forestry Superintendence, prefectures, and municipalities-- have little incentives to collaborate among themselves on monitoring forest crime. There are several mediations interfering on the willingness to collaborate, which are mainly political.
- *Support for forest users to develop sustainable forest management:* The lack of efforts on helping forest users to modernize their technologies, and to help them to insert more competitively in the regional timber markets, and to ensure that they will benefit from access to forest resources, constitute them factors contributing to small-scale chainsaw operators to persist on illegality, at least those who cannot find another sources of income. In this regard, it is not sufficient to set up a legal framework whether do not exist enough incentives for the local actors to engage in sustainable forest management. Even more, the local forest users have little autonomies to make decisions about the way in which they want to use their forest resources. The latter may work as a constraint for them to use their forest resources.
- *Economic costs and market distortions:* It was mentioned earlier that not all the forest users are in the same conditions to pay for the transactions costs originated from the formulation and implementation of the forest management plans, which constitutes a barrier for small-scale operators, and small farmers without capital to enter in the forestry formal sector. Hence, they want to make some benefit from their valuable standing trees, and often sell them without permits. The latter fact introduces severe distortions to the market since the timber extracted from non managed forest areas tend to be undervalued, and compete with the timber logged from areas with forest management plans. Furthermore, the small-scale landholders benefit little from their forest resources since they do not have the necessary skills to negotiate with sawmill operators, and forest concessionaries to obtain better prices.
- *Little engagement of the organizations of the civil society:* Although the current legal framework opens the room for citizens and organizations of the civil society to participate in the control of forest crime, in practice they have involved very little. There is no cases of citizens who have asked for audits in forest concessions, but there is little formal involvement of environmental organizations as well in activities tending to ameliorate forest crime. In the same vein, there are little agreements of collaboration between local civic organizations, and municipal governments to involve more actively in monitoring forest activities. Nevertheless, in the perception of the Forestry Superintendence, these activities should heavily rely in the public monitoring, but the resources are scarce for them to comply with such tasks.

The different causes mentioned above interact in complex ways, and they tend to create a synergetic effect that make more difficult to halt illegal acts in the forestry sector. There are some contributing factors that tend to help permeate informality in the forestry sector's economy. They are linked to: 1) the low probability that breaking the law could be penalized because it has almost never happened in the past and nothing suggest that it will happen in the future, 2) the vulnerability to corruption of public institutions –including the institutions from the central to the local level of government-, but even more important is the fact that such institutions adopt passive

behaviors in front of illegal acts, and 3) the lack of governance in remote areas, mainly in the zones where there is an active process of agricultural frontier expansion. In this area, it is more likely that forest crime benefit to the local elites, or social groups who because their local power have captured the local process of decision-making, and influence at the central level.

### **Corrective measures planned or adopted**

This sections focus on the government responses, both legal and institutional, to deal with the problem of illegality in the forestry sector. The first part, describes the main reforms that have been introduced in the forestry regulatory framework aimed to make it more flexible, and assesses their implications on illegal logging. The second part, suggests some ideas about how those mechanisms introduced so far could be amended to improve their effectiveness, and suggest some other ways that should be explored to tackle down with illegality in forestry.

#### *The government responses to illegality*

In Bolivia, the approval of a new national forestry regimes in the mid-1990s has implied a significant progress in the fight against forest crime, as suggested by Contreras-Hermosilla and Vargas (2001). The new Forestry Law provided a number of procedures to reduce the impact of forest crime and corruption including the examination of planning documents (the forest management plan, the annual operations plans, annual and quarterly reports from the raw material processing centers), and the use of inspections by the SF itself. The SF can carry out inspections anytime, at its own initiative, or at the request of an interested third party denouncing an illicit act, and may even ask for cooperation to the municipal forestry units.

The law, as was mentioned earlier, introduced the mechanism of the forest audits which should take place every five years by an independent party as a pre-condition to renew the forest concessions granted to private agents. The forestry regulations also aims at combating the illegal occupation of private, community or public lands and establishes procedures for facilitating and enforcing the rapid execution of corrective measures. From the moment such a criminal act is detected, the law must be enforced within 72 hours. The Superintendence can request action by the National Police or even the Army. It also states a number of sanctions for illegal transportation including the confiscation of illegal timber and of equipment. Furthermore, as was already mentioned, the law introduces innovative procedures by which private citizens can contribute to law enforcement by utilizing a special authorization or warrant granted by the SF to inspect forest field operations. As stated before, one of the main reason supporting the change in the forest fee system was to reduce discretionary power of corrupt forest officers controlling the implementation of concessions contracts and collecting such fees (Contreras and Vargas 2001).

Furthermore, to make of SF more accountable to the central government, it must submit reports to the government twice a year, hold public hearings once a year to explain work carried out, and provide an opportunity for the public to raise questions about performance. Any citizen can freely request copies of official documents. Likewise, the Ministry of Sustainable development can only modify regulations under its jurisdiction (technical regulations) in consultation with the interested parties through public hearings. The mechanisms described above have improved the transparence about how decisions are made, and improved the check and balances in an institutional system which granted discretionary powers to public officials.

The forestry regime, however, was devised having in mind large-scale forest concessions, and hence faced important difficulties for its implementation with other forest users. Hence, different exception norms –which were described in detail earlier in this document - were issued

aimed at accommodating the forest regulations to situation in which small farmers, and small-scale loggers could not fulfill some of the requests demanded to adjust themselves to the new forestry regime regulations. Two were the main perverse effects of the law: the first that the cost of forest management plan was higher than the one to approve forest clearing permits, and second that the efforts to control illegal logging were larger than those attempted to stop illegal deforestation. That led to expand forest clearing as a way to justify logging of valuable species.

In this regard, some of the regulations were made more flexible –mainly regarding the formulation of forest management plans- to allow small farmers and indigenous people to harvest some forest areas in areas less than three hectares. Private properties less than 200 hectares were exempted from approving forest management plans, and in some cases were granted the right to harvest more than once in the same forest area. The regulations targeting forest management in municipal forest reserves were also made more flexible allowing some ASL's to initiate their forestry operations without having completing their forest management plans, and in areas that were still in the process of being declared as municipal reserves. These different measures have reduced illegal logging to the extent they have facilitated the legal use of forest resources. Yet these measures were not able to arrest other associated illegal acts but rather prompted them.

By date, little has been done to deal with forest management plans overestimating available species, extraction of higher volumes than authorized, and illegal transaction of CFOs to transport illegal timber. In the Bolivian case, it seems that the problem is that many of the instruments that could help to monitor illegal acts are not enforced in practice. Cordero (2003) ranked the different instruments of the national forestry regimen, based on the perception of interviewed staff of the SF, to determine which of these instruments are the most used and which not. He determines that the CFOs, along with the planning documents (the forest management plan, the annual operations plans), and forest inspections carried out by the SF. The less employed mechanisms have been the inspections of forest field citizens by private citizens, and the municipal participation in forest control and monitoring. Yet, research on municipal involvement in forest management showed that this is highly variable (Pacheco 2004b). In practice, the SF has had little cooperation from the municipalities, and even when it has requested the assistance of the police, the prefectures have not provided such assistance opportunely.

The SF attempted to implement a system of control checkpoints in strategic geographical locations to detect transportation of timber without permits coming from non managed areas. The SF, subscribed an agreement with a private company for it to administer this checkpoints. In 2002, however, due to economic constraints, the SF had to rescind the contract with such company since could no longer pay for its services, and the control operations returned to the local units of the SF, though with serious doubts about their effectiveness (Cordero 2003).

In order to make more effective their control operations, the SF has implemented two institutional reforms. The first is linked to gradual adjustments of the system to monitoring forestry operations, and the second, a process of progressive deconcentration of this system. In regarding the first, the SF afterwards their creation put excessive emphasis on checking the consistency of the planning documents (forest management plans, and annual operation plans) in the desk, activity highly centralized in the national office. Furthermore, the SF had no available clear procedures to carry out inspections to forest field operations, actions that also were constrained by limited financial resources. In regarding the second point, the SF has begun a process of deconcentration by transferring larger functions to the local units including more autonomy to undertake inspections to forest operations, though this process was limited to the department of Santa Cruz in which the local units are more consolidated. In parallel, in 2002 the SF developed and approved the technical procedures to carry out forest field inspections.

### *Enlarging the effectiveness of the corrective measures*

This paper acknowledges that the new forestry regime has made important steps to monitoring forest crime but there are still important steps to take to improve law compliance in the forest sector. There are some actions that can be undertaken to remove the barriers that impede some forest users to have legal access to forest resources, and to reduce the illegal acts that work in favor of reduced groups of people who enlarge their profits from illegality. A major part of the suggested actions below constitute ways to improve the governance of forest resources with a larger involvement of the private citizens and civil society organizations.

- *Improving collaboration for title regularization:* Additional efforts have to be done to complete the process of title regularization mainly in areas with significant proportion of forest resources, to delimitate the remaining public lands, and to allocate such areas as municipal forest reserves, or to reserve them to be auctioned as forest concessions. It is needed to make progress in the implementation of cadastres, and to make such information available electronically to public and private agents by computerizing the land records.
- *Redefining incentives for municipal governments:* The system of incentives for municipal governments to take part in forest management, mainly actions for monitoring forest crime have to be reconsidered. By date, municipal governments benefit from inspections to illegal forest clearing, but not from inspections of forest field operations. In this line, it is important to identify regulatory changes that can be quickly implemented to improve effectiveness at each level of government. Furthermore, has to be enlarged the level of awareness of municipal authorities and community leaders about forestry issues in their jurisdictions.
- *Simplifying the rules and regulations:* It is important to adjust the regulations to make them more flexible to adapt to the needs of forest users, and to remove the unnecessary transactions costs that prevent some of taking benefit from their forest resources under the current legal framework. The identification of critical issues should be addressed through participatory policy analysis and consensus building approaches to capture stakeholders' views of the problems and to develop alternative ways of confronting these problems to build a consensus among a diverse group of forest stakeholders united behind common interests. The regulatory reform should focus on the following issues: tenure and access, cost of regulatory compliance, effectiveness of regulations under varying regional conditions, effect of unfavorable discount rates and long timer horizons, and fiscal policies.
- *Increasing transparency in the dissemination of information:* Although the information generated by the forest public systems is in theory available to those who may request it, in practice there are several barriers that limit private sector, and civil society to have access to opportune and detailed information about the implementation of the forestry regime, and the outcomes of monitoring and control. Even more, there are not good channels to share information between the SF, prefectures and municipalities. Hence, there is need to set up better information flows to collect, process and disseminate the information as a way to improve transparency and to involve to the civil society in surveillance actions.
- *Looking for innovative ways to funding the forest public system:* The forestry agency and the municipal governments are going to have limited scope for action in monitoring and controlling illegal acts whether they do not improve the amount of resources available to operate in proper conditions. In the way in which the system is currently set up, the public institutions depend on resources coming from forest fees which constraint their degrees of

freedom to enforce the law. In this regard, there is need to look for innovative ways to funding the SF in order to overcome its already chronic lack of financial resources.

## **Conclusions**

This document makes the case that the illegal acts are still widespread in Bolivia, even though the forestry sector underwent important reforms in the mid-1990s aimed at promoting more sustainable forest management and to democratize the access of forest resources. There has been a lot of improvement, however, respect to the situation before the approval of the new forestry regimes since there is some progress in enforcing forestry right, corruption in the forestry agency is likely much lower than in the past, and decision-making is more transparent. Furthermore, there are clearer rules of the game for forest users which demand the compliance with diverse technical norms, mainly forest management plans and annual operation plans.

It is estimated that about half of the total domestic consumption of wood is illegally extracted from non managed forest, and that more than four fifth parts of deforestation is illegal. Diverse are the ways through which illegality operates in practice, since logging in non allowed areas, invasion of protected areas, falsification of inventories, and illegal trade of transportation permits, among others. The SF has no real capacity to monitor such illegal acts, and it has received, generally speaking, little support from prefectures and municipalities. The illegal acts are in part explained because some forest users have no conditions to develop their forestry operations within the legal framework –due to legal barriers, transactions costs, etc.-, but most of illegal practices are mixed with legal operations which makes hard to separate them.

The underlying causes explaining the persistence of illegal practices are diverse. In the Bolivian case, the main causes are related to the insecure land tenure and risks of invasions, unrealistic forestry regulations, institutional weakness of the national forestry agency, and the lack of participation of civil society in controlling forest crime. The structural factors contributing to amplify such practices are the low probability that law non compliance will be penalized, the vulnerability to corruption of public institutions, and the lack of governance, mainly in frontier areas. The SF has attempted to look for some solutions to arrest illegality, mainly through making some forestry regulations more flexible, but it has not yet resolved the problem.

There are still some initiatives that could be adopted as suggest this paper to look for more structural ways to deal with illegal acts in the forestry sector, among them: improving collaboration for title regularization, redefining incentives for municipal governments for taking a more pro-active role about forest resources monitoring, continue simplifying the rules and regulations to avoid undesired effects, disseminating better more accurate information, and looking for innovative ways to funding the forest institutional public system. These issues, however, should be discussed among the different stakeholders, public institutions, and the cooperation in order to find ways to improve in the long run the contribution of sustainable forest management to development, based on a more equal social distribution of their benefits.

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## Endnotes

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<sup>i</sup> Prefectures receive 35% of the concession fees and 25% of the fees charged for clear cutting operations. Municipal governments get 25% of both types of fees. The FONABOSQUE receives 10% of the concession fees and 50% of the clear cutting fees. The SF gets 30% of the concession fees.