

# Social, Environmental and Economic Dimensions of Forest Policy Reforms in Bolivia

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## FOREWORD

During the last fifteen years, Bolivia has carried out a broad program of structural reforms centered on achieving greater macroeconomic discipline and a more efficient and smaller state. Radical changes swept across the national political and economic landscape. All these reforms have had a decisive influence on the forestry sector. New laws and regulations affecting forest resources were approved, culminating with a new forestry law in 1996.

This paper looks at the experience of designing and implementing policy reforms in the Bolivian forestry sector. It does not attempt to evaluate the process of reform itself but rather to examine the main obstacles faced in its planning and implementation and how the lessons of the Bolivian experience could be transferred to other countries attempting similar changes.

Given the drastic nature of reforms, the large informal sector and the weakness of government institutions when reforms started, it is not surprising that problems along the way were numerous. However, despite difficulties, progress has been significant. This, largely, was due to a successful alliance between committed Bolivian reformers and a very effective effort by international assistance agencies.

Much remains to be done. However, the Bolivian experience shows that a dedicated government can do much to modify the management of the national forest resources. How reforms are being achieved is, no doubt, of interest to policy planners and decision makers elsewhere.

Forest Trends and CIFOR wish to thank the authors, Arnoldo Contreras-Hermosilla and María Teresa Vargas Ríos for their exemplary work, as well as the local collaborators who supported this study by giving their time and knowledge. Bolivians have taken a series of courageous steps in the forestry sector. Without a doubt, Forest Trends and CIFOR, as well as many other institutions and governments will benefit from this experience.

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## INTRODUCTION

Bolivian forests cover some 53 million hectares - or almost half of the total area of the country-mainly in the departments of Santa Cruz, Beni, La Paz, Pando and Cochabamba.

During the last decade or so, there was a growing concern that the nation's forests were increasingly under threat and that there was a need to utilize them more efficiently in order to promote economic and social conditions that were compatible with environmental quality. There was growing awareness that mistaken government policies, the use of forest resources for political patronage as well as illegal exploitation were playing a role in the degradation of the forest resource wealth of the country.

During the mid nineties the government began to organize efforts for improving governance, and introduced sweeping policy and institutional reforms based on intensely participative processes and expert design often helped by international assistance agencies, in many cases conforming to "textbook" models of forest administration. This paper looks at the Bolivian reform events in the forestry sector and seeks to distil the most important lessons of this unusual experience. The first section of the report contains a summary description of the features of the institutional and policy environment existing in Bolivia before the introduction of the forest policy reforms in the mid nineties. The second section describes the process that led to the adoption of policy reforms, while the section after that describes the main features of the policy reform package. That is followed by a section focusing on the economic, environmental and social dimensions of reform and the lessons that can be derived from the Bolivian experience. The final section of the report sums up the main findings of the Bolivian experience.

The study was based exclusively on the extant literature and interviews with numerous specialists and representatives of the most important interest groups in the matter. Under these circumstances, the history of the Bolivian case presented in this document suffers from certain data limitations, particularly with respect to analyses of causal relationships and quantification of the impacts, as well as the reform's successes and failures. It bears mentioning that the opinions and comments issued in this document are the sole responsibility of its authors and do not necessarily implicate the institutions that sponsored this investigation.

### PRE-REFORM BACKGROUND: MAIN FEATURES OF THE PAST ADMINISTRATION OF THE BOLIVIAN FOREST-BASED SECTOR

In Bolivia, Forestry Resources belong to the State. Until the Forest Law of 1996, --Decree Law 11686 of 1974 regulated the management of timber resources in Bolivia. All forest resources were legally owned by the State, and their exploitation and management took place under the form of utilization concessions granted by the government to actors of the private sector. Unfortunately, these modalities of managing the national forest wealth suffered from several problems.

First, although the law allowed concessions extending for up to 20 years, these required approval by a Presidential Supreme Decree and were difficult to obtain. Most operations were ruled by short-term contracts (between one and five years) thus providing few incentives, if at all, for investing in long-term sustainable management methods. Although the law required private logging operators to implement forest management plans, concessionaires generally ignored this seldom-enforced obligation. Instead, most operators did their best to obtain quick profits and avoid the problems of implementing long term sustainable forest management practices producing benefits that they likely would be unable to reap.

Second, contractors would pay the government timber fees based on volumes extracted, independently from the size of the forest area they controlled. Under this system, there were powerful incentives to both obtain control of as much public forestland as possible and to concentrate operations in the extraction of the most

valuable species of timber. The politically influential had the upper hand and there was great concentration over the use of forest resources with as few as 50 companies operating in 185 concessions with an aggregate area of more than 22 million hectares, or some 40 percent of all forests of the country. Moreover, the nation's forests were "creamed" of its most valuable species, particularly mahogany ("mara", *Swietenia macrophylla*) but also Spanish Cedar ("cedro", *Cedrela fissilis*.) and oak ("roble", *Amburana cearinsis*) (Pacheco, 1998). The dominant system of forest utilization during those years led to the virtual elimination of these valuable species in accessible areas.

Third, because the system favored the powerful, it also tended to lead to inequities and social conflict as peasants and indigenous populations with traditional - but not officially recognized - ownership or access rights to forest resources - were often pushed aside by much more powerful loggers leading to increased conflicts due to overlapping rights. The proceeds from forest exploitation were concentrated in the 50 companies mentioned above with local poor populations receiving nothing or very little of the benefits. Thus, logging operations were detrimental to the well being of local populations. Under these conditions there were few incentives for rural populations to take on sustainable forest management projects.

Fourth, the public forest administration seldom enforced compliance with the forest management obligations stipulated in timber concession contracts (Kaimowitz et al, 1998). The main control instrument was policing the movement of timber along roads but this proved to be an inefficient method plagued by corruption. Declared timber volumes and values were suspect and revenues collected by the government unusually and unexplainably low (Tecklin, 1997; Roper, 2000). For example, some studies suggest that tax evasion in Santa Cruz – the main timber-producing Department of Bolivia - reached at least 41% and according to observers, this may be an underestimate (Robbins et al, 1995). Some analysts estimate that, in reality, said evasion exceeded fifty percent (STPC, 2000).

Fifth, since under these conditions, harvesting of high value timber was profitable, there was no great incentive for investors to integrate forest exploitation either with downstream processing facilities or to induce the utilization of lesser-known species in the manufacturing of value added items such as furniture. Entrepreneurs preferred to export timber with no value added and the search for new markets was not a priority since buyers of raw forest products paid in advance and would come into the forest to acquire the wood. There was limited incentive to increase the efficiency in either harvesting or preparation of forest products for export (such as standardized dimensions, adequate drying, etc.). As a result, the abundance of forest resources that bless Bolivia did not translate into significant industrial forest development. In addition, the focus of the export activity on a limited number of species and products limited flexibility to adapt to world market conditions and - as later became evident - greatly increased the economic and market vulnerability of the sector.

Sixth, various shortcomings affected the effectiveness of the public forest administration. The institution was dominated by vested interests and its decisions were shaped by short-term political considerations. The administration allocated concession contracts in ways that lacked transparency and objectivity and the day-to-day management of forest resources (or rather the lack of) was largely left to the exclusive discretion of the concessionaires (Roper, 2000). The Head of the public forestry administration served at the discretion of the Minister and the stability of the position depended on the direction of uncertain political winds. A majority of its staff lacked professional training. The public administration was also excessively centralized and overloaded with a number of responsibilities that, given its inadequate technical, financial and managerial resources, could not possibly fulfill (Andaluz, 1995).

Seventh, while the ownership of forests was clear, land ownership was (and still is) frequently uncertain. Boundaries were seldom demarcated and official ownership rights were rare. In many cases there were overlapping forest concessions and various tenure or use rights coincided on the same piece of land. Land use

regulations were seldom enforced (Roper, 2000). The absence of clear property rights induced rent-seeking forest activities where the main objective was to harvest valuable species as fast as possible with little concern for the sustainability of forest resources. Since deforestation proved de facto possession and the basis for obtaining land legal rights, there was an incentive to deforest and use the land for agricultural purposes independently of its land use capacity (Robbins, et al, 1995, SCTP Engenharia de Projetos Ltda, 2000).

In addition to the shortcomings of the forestry legislation as such, other laws, policies and institutional practices contributed to unsustainable forest management. For example, until the approval of the new agrarian law, INRA, some institutions of government saw forestlands as little or no value, which needed to be converted to agriculture or other uses considered more productive.

Given this dismal legal framework, the law generally was not enforced and private gain prevailed over society's priorities in the utilization of the country's forest resources (Mancilla and Andaluz, 1996; Andaluz, 1995).

## THE PROCESS THAT LED TO REFORM

*The evolution of the policy and institutional climate leading to the formulation of the new Forestry Regime.*

During the nineties the drive for redefining the role of the state gained momentum and gradually a reformed institutional and policy framework for the management of the forestry sector was conceived and implemented.

Unfortunately, the first attempts to rationalize the management of national forest resources failed. In 1992, the government imposed an "Ecological Pause" (Pausa Ecológica Histórica) aimed at combating the unplanned and uncontrolled exploitation of natural resources.<sup>1</sup> The Ecological Pause prohibited new timber concessions for five years and mandated the classification of forests according to economic and environmental criteria. Unfortunately, this attempt to better organize the administration of the national environment was generally a failure. There was a lack of political will to implement the new rules, corruption was widespread, and apathy in the operational levels predominated. Imperfect information and faulty operational design, including an unclear allocation of responsibilities and penalties, excessively complex bureaucratic procedures and poor inter-institutional coordination, compounded problems (Andaluz et al, 1998, Honorable National Senate, 1998).

Possibly due to a surge in political will, subsequent efforts to reform the system were more successful and had a lasting impact on forest management. During the 1990's, legislators modified the Constitution and approved a number of laws that affected the management of forest resources. For example, an umbrella environmental law ordered the "relevant authority" to regulate the use of forests, classify them according to objectives of conservation, protection and production, and issued various other prescriptions aimed at the industrial private sector.<sup>2</sup>

There was also a strong push for decentralization and for recognizing the traditional rights of indigenous populations and local communities. Bolivia's 1994 Popular Participation Law decentralized a number of responsibilities – including some related to local land use regulation and planning - to municipal governments and tied this to a share (20%) of the national budget. Municipal governments also acquired control over local taxes (Kaimowitz et al, 1998). The law increased the role of local communities in running the municipal governments, recognized local grass root organizations - farmers, local committees, indigenous groups Community and Land Based Organizations, (*Organizaciones Territoriales de Base*, OTB) -- and entrusted

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1 Decree 22407 of 11 January 1990.

2 Environmental Law 1333 of 27 April 1992.

them with a degree of control over local government budgets. Additional legislation made possible forestland ownership by indigenous communities (Tierras Comunitarias de Origen, or TCOs)<sup>3</sup>. In 1994, an amendment to the Constitution gave indigenous communities the exclusive right to their lands and territories<sup>4</sup>.

Additional legislation decentralized the functions of Prefectures (Departmental governments) and their structure. This legislation abolished departmental development corporations, transferred their responsibilities and assets to the Prefectures, and created departmental councils to exert control over the activities of the Prefectures<sup>5</sup>.

In 1996, the legislature approved an Agrarian Reform Law, and created the National Agrarian Reform Institute (INRA)<sup>6</sup>. The law committed the government to demarcate and title lands. INRA “immobilized” more than 11 million hectares claimed by indigenous peoples that could not be assigned to other uses until land rights were properly established. This legislation was of great importance for the future forest law, which on many aspects came to depend on the legalization of various land ownership claims.

These multiple attempts to improve the national public administration created a complex web of interactions between institutions, laws and regulations all of which increased the need and challenges for harmonizing the drafting of the new forestry law with related pieces of legislation.

#### *The process that led to the formulation of Forestry Law 1700*

One of the key factors in the reform process was the emergence of political conditions favorable to democratic participation. As a result, an intensive dialogue on forest sector issues engaging many stakeholder groups took place. Main actors included private forest entrepreneurs, environmental NGOs, indigenous groups from eastern Bolivia, the central government, political parties, international assistance agencies, the group of “informal chain saw operators” (“motosierristas”), farmers and settlers, the municipal governments and the media. Although some point out that the participation of some of these stakeholders was not very effective and that some other actors, such as collectors of non-timber forest products, did not participate at all, the debate on forestry issues was the first time that Bolivia had experienced such a broad process of democratic participation in the design of a law (Pavez and Bojanic, 1998).

Democratic participation contributed to a redefinition of the political influence of different power and interest groups. As time passed, the relative power of the different actors and their influence in shaping the new law shifted according to the issues of the debate. For example, the group of forest entrepreneurs, represented by the National Forestry Chamber (Cámara Nacional Forestal, CNF), thought to have an overwhelming power in the policy making process, faced challenges organized by other sectors considered less influential, such as indigenous and conservation groups. Eventually, its authority and influence proved to be less important than the image it projected (Pavez and Bojanic, 1998).

International assistance agencies also influenced the policy and law-making scene. They contributed to the debates by providing technical information and advice to decision-makers. The World Bank carried out various studies that examined options for reorganizing the forestry sector. FAO contributed with technical data and analysis. The USAID BOLFOR project added to the conceptualization of many of the elements of the law and to the reconciliation of contrasting interests (Pavez and Bojanic, 1998).

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3 Law 1257 of 1996 which ratifies Agreement 169 of the International Labour Organization.

4 Article 171, paragraphs 1 and 2.

5 Decentralization Law of 1995.

6 INRA Law N0. 1715 of 18 October, 1996.

Other external influences also played a role in securing the approval of the forestry law. December 1996 Bolivia hosted the Summit of the Americas. The Summit was to examine regional environmental issues and there was a considerable interest in political circles on having the country's image enhanced by the approval of the forestry legislation (Nittler, 1996).

Undoubtedly the leadership and commitment of several legislators from different political parties who remained united during the entire effort of approving the new law was crucial. The President himself intervened at crucial points in the process to speed up the approval of the law, which finally became reality in July 1996 (Nittler, 1996). The most important part of the process was that a critical mass was truly achieved with respect to the political will required for i) substantially reforming sectoral management systems in an environment that already accepted fundamental changes in the manner in which the nation was being governed, and ii) carrying out this job in an intensely participatory way. These were exceptional circumstances that facilitated change but and not always present during attempts to drastically reform the policies and institutions of the forestry sector.

*The Forestry Reform Package: the National Forestry Regime.*

The Regime is the set of norms that regulate the utilization of forest resources. It includes the Forestry Law and its associated regulations.

As mentioned, the government approved the Forestry Law 1700 in July 1996. In December of that year, the government issued various legal norms and regulations<sup>7</sup> Various technical regulations came on stream during 1997 and 1998. Earnest implementation of the National Forestry Regime did not start until 1997.

With respect to coverage, law 1700 gives preferential attention to wood products and to the Bolivian lowlands. It treats the Andean and Amazon regions and non-wood forest products in a much more marginal manner. The law is also silent about various other sector issues such as industrial development, international trade and incentives for motivating operators. Thus, the law is not truly national or inclusive of sector linkages to production and trade of forest products.

Despite not being comprehensive, the Forestry Regime addresses many of the main obstacles to sector development, including poor incentives to sustainable forest management, the imperfect system of forest fees, the prevalence of illegal acts, the poor stimulus to local community management of forests and the weak institutional framework. Table 1 on the next page presents the key changes in the new forest regime.

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<sup>7</sup> Supreme Decree 24453.



**Table 1 - The National Forest Regime: Reforms to the Most Relevant Policies**

Previous Policies	Limitations of Previous Policies	Reforms
Timber Concessions	Timber concessions limited to a maximum 20 years but in practice limited to 4 or 5 years: lack of incentives for long term forestry management and industrialization of forestry products.	Term of contracts: up to 40 years.
	Administrative difficulties in obtaining of transparent concession contracts: propensity for corruption and the political utilization of the concession system. Lack of incentives for sustainable forest management.	Access to resources via international public bid process or more transparent processes.
	Contracts are for non-transferable concessions: lack of incentives for long term forestry management.	Contracts are transferable and renewable.
Forest Management	Rules of forestry management were not respected. Institutional weaknesses impeded effective compliance with the law.	Forestry professionals are responsible for creating and executing realistic forest management plans along with the annual operational plans. The law foresees the execution of 15-year audits, control of annual operational plans, surprise inspections by the Superintendence or third parties (civil society and local governments). Implicit incentive to become certified.
	Undefined forestry rotation.	20-year forestry rotation as a minimum. As a consequence, only 5% of the total concession area can be harvested in any given year.
	Lack of incentives for sectoral integration.	Rules of forestry management rules indirectly induce integration, sectoral industrialization and an increase in efficiency with the purpose of harvesting lesser-known woods in a more profitable manner.

Previous Policies	Limitations of Previous Policies	Reforms
System of Forest Concession Rates	Fees based on the volume of product extracted: incentives for obtaining the largest possible concession area which led to a concentration of forest resources in a few hands and conflicts with peasant and indigenous groups.	A fee is levied on the total concession area creating an incentive to return unutilized areas under concessions. Differentiated charges are established for indigenous and other rural communities, for private property owners and producers of non-timber forest products.
	Fees based on volume extracted: comptroller discretionality, corruption and low revenues for the Public Treasury.	A fixed fee per area eliminates discretionality and incentives for corruption.
	Fees based on the volume extracted: incentive for "creaming".	Per area fee and demands related to forest management reduce incentives for "creaming"
Institutional System	Political use of the public forest administration. Short-term vision.	Many options for political use of the public forest administration are shut down through the appointment of the Administration Chief by the President of the Republic chosen from a slate of candidates submitted by Congress and who may only be removed by the Supreme Court through due process.
	Instability of the Chief of Public Forest Administration and its personnel. Lack of qualified personnel. Administrative inefficiency and tendency towards corruption.	Administrative stability and independence of the personnel in public administration. Incentives for corruption are eliminated. This attracts more qualified personnel.
	Public Forestry Administration excessively centralized.	Decentralization.
	Lack of financial resources in the State Forestry Administration and related institutions.	Establishment of SIRENARE. For the forestry Superintendence financing is set up, independent of the Public Treasury and based on concession fees and other forestry income. FONABOSQUE is created.

Previous Policies	Limitations of Previous Policies	Reforms
Governance	Lack of transparency in public administration decision making.	Public hearings to explain public administration operations and previous to changes in policy. Free access to information concerning public administration's activities (aside from normal audits by the Comptroller's office). Participation of local communities in the decision-making of local governments. Forestry concessions under a system of public bids. Revocation of forestry rights with due process. Independent forestry audits, independent unannounced visits by NGOs. Forestry professionals with civil and criminal responsibilities working in the public trust helping to manage the forestry regime.
	Non-compliance with the law.	Extra effort made for enforcing the law: frequent inspections.
	Obscure decisions with respect to the use of concessions and other state assets.	The law foresees access to resources via public bids and with duly approved management plans in order to make optimal use the of the forest. Use of bids in the assignment of concessions and for guiding the disposition of other contracts with the State, such as those related to the sale of seized assets.
Popular Participation and Equity	Popular participation was lacking or non existent. Lack of incentives for forestry management for rural communities and propensity towards greater inequality in the distribution of benefits resulting from exploitation of the forest.	The process for the formulation of the new law was participatory. Acknowledgement of the exclusive rights of indigenous communities and preferences shown to local populations for forestry exploitation. Public Lands assigned for the exclusive use of local populations. Preferential fees.
Protected Areas	Existent but rarely respected.	Forest exploitation is only permitted outside protected areas. Stimuli for reforestation are created.

The main features of the package of forestry reforms are as follows (See also, Escalante, 1999):

- A pronounced and renewed emphasis in fostering sustainable forest management
- Installment of a new forest fee system
- An effort to combat forest crime and corruption
- Greater priority given to recognizing and consolidating indigenous rights and the values of the local population groups in order to reach a more equitable distribution in the use of national forest resources
- A new institutional structure

Furthermore, even though the subject was not explicitly considered in the new forestry regime, the new law also establishes new conditions for industrialization of the sector. These aspects are discussed below.

*Emphasis on fostering sustainable forest management.*

The reform process sought to increase the incentives for the application of sustainable forest management. Some of the elements of the policy measures related to sustainable forest management were not new, the previous legislation considered several norms related to sustainable forest management, but this time the government organized a consistent effort to increase compliance. These policies used to promote a more sustainable forest management included:

- efforts for organizing the use of land resources, the dichotomy between flight and forest are resolved, the forest concessions are exclusively for utilization of the forest, and other rights may not be granted, even those intended to develop secondary forest resources require the consent of the concessionaire,
- requirements to produce and implement long term Sustainable Forest Management Plans as well as Annual Forestry Operational Plans and commercial inventories,
- a minimum forest rotation of 20 years,
- a longer timber concession period of 40 years with concession rights that can be renewed and sold, and
- incentives to promote reforestation.

*Greater efforts towards organization of land use.* Respecting the advances in land classification that already existed before approval of Forest Law 1700, the new legal frame for forestry establishes five classes of land based on their major use capacity: a) protected lands, b) land for permanent forestry production, c) land with forest coverage for diverse uses, d) land for rehabilitation and e) land for immobilization. Said lands should be used according to their major use capacity, whatever its ownership or tenancy regime may be, unless it involves a change from an agricultural or livestock use to forest use or protected status (Art. 12, Law 1700). In all cases the law has established strict regulations according to territorial regulatory prescriptions and basically acts under the principle of *in dubio pro silva* (when in doubt favor the forest - use of -), a measure which attempts to reserve the rights of use over all permanent productive forests and regulate changes of use.

*Requirements for the development and implementation of long term Forest Management Plans, as well as Annual Operational Plans.* Second, the Forest Law imposed forest management plans for all forest concessions and for forest authorizations in private lands. The Forest Management Plan became the central feature of forest regulation. The forest management plan was to be drafted by a forest professional who should take the oath of “public trust”, which meant that authority for planning forest management was granted to a professional but with the stipulation that this privilege was associated with a civil or even criminal liability for the information contained in the plan. The sustainable forest management plans must be updated every five years. Legislation also established Annual Forestry Operational Plans (Planes

Operativos Anuales Forestales, POAF) as an important instrument for the implementation of long term sustainable forest management plans. The Superintendence analyses and, if found satisfactory, approves these plans every year.

*A minimum rotation period of 20 years.* Third, the forest law imposed a minimum forest rotation period of twenty years, which means that approximately only five percent of the total exploitable area can be logged in a single year.

*A longer Concession Period of 40 years with concession rights subject to renewal and sales.* Fourth, the new legislation allowed for concessions of a 40-year duration. If concessionaires follow the forest management plans, concessions are renewable. Concessions also can be traded and inherited. With this provision, the previous disincentive to implementing sustainable forest management due to the short period of utilization was effectively removed and the possibility of transferring responsibility for the implementation of the contract was established. Furthermore, a 40-year term and almost automatic renewal increases legal security for forestry operators.

*Promoting Reforestation.* Fifth, to promote reforestation and divert pressures away from the natural forests as well as encourage land rehabilitation, the law exempts entrepreneurs that reforest degraded lands from the forest fee and grants them ownership rights if reforestation takes place on public lands. It also favors them with technical assistance and preferential tax treatment.

#### *New system of forest fees.*

Despite the generally recognized soundness of methods based on both the volume and expected value of extractions, (that is to say, taking into account factors such as composition and volume of species, location of the resources, etc.) the government instead applied a minimum uniform rate to the whole forest area under concession<sup>8</sup> The reasons behind this were many but a main one was the need to simplify the administration of the system. Another reason was to avoid discretionary powers in the hands of forestry officers and thus reduce the opportunity for corruption: a flat area rate is transparent (Simeone, 1998).

In order to discourage conversion of land to other uses, the law also imposed a charge for deforestation permits (change of land use) equal to 15 times the minimum area fee as well as an additional charge equal to 15% of the value of the wood harvested. In addition, buyers would be taxed with a charge reaching 15% of the value of the wood.

The preoccupation of legislators with the inclusion of private property owners and poor and indigenous communities is evidenced in the differential forestry charges applied to their forests. In the case of lands belonging to indigenous communities, the fee is the same as that charged for timber concessions but applicable only to the area being exploited in a particular year. Thus, in fact the fee in these cases is about one-twentieth of the one charged in timber concessions, since the latter (\$1 per hectare per year) applies to the whole concession area (of which a maximum of 5% can be exploited per annum, given the 20-year minimum rotation period). In another effort to favor poor rural populations and especially ex-motosierristas, or informal sector workers, organized in local associations is the differentiated charge of the fees which fluctuate between US\$5 and US\$8 per hectare exploited according to criteria related to accessibility, the average per hectare volume, the size of the assigned forest area and the quality of

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<sup>8</sup> Strictly speaking, up to 30% of the concession area can be exempt from the fee, if this proportion is either dedicated to conservation purposes or for some reason cannot be utilized for timber extraction.

resources. Conversions of lands comprising less than five hectares are exempt from forestry fees thus favoring the smallest and poorest landowners. The indigenous communities do not require prior authorization for rights to traditional and domestic use of the forestry resources for non-commercial purposes.

The law also established incentives to private forestry in the form of preferential forest charges as well as reduced taxes. Private landowners pay the standard forest fee but, as in the case of the indigenous communities, this fee applies to the area under exploitation only. Private landowners also are exempt from agrarian taxes if their land is under forest management. Moreover, the INRA law now explicitly recognizes that land under forests constitutes a productive use of land thus eliminating previous biases against forest uses. Reforested public lands are not charged with forest fees. For concessions related to non-timber forest products the fee was set at \$0.30 per hectare per year.

### *Combating forest crime and corruption*

The 1700 Law provides for a number of procedures to ensure law enforcement and reduce the impact of forest crime and corruption. Controls include the examination of planning documents (the forest management plan, the annual operations plans, annual and quarterly reports from the raw material processing centers), the use of independent inspecting agents and well as inspections by the Superintendence itself, and the control of transport of forest goods by either independent agents or the Superintendence. The Superintendence can carry out inspections anytime, at its own initiative, or at the request of an interested third party denouncing an illicit act. It can carry inspections at roads, the forest or at timber stockyards and sawmills. Forest audits must take place every five years by an independent party. As mentioned, the professional foresters involved in the implementation of forest management plans are liable via civil or criminal processes. Forest officers of the Superintendence not performing their law enforcement duties face swift dismissal.

The Forest Regime 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. A number of sanctions including the confiscation of illegal timber and of equipment as well as imprisonment are included in the legal texts (Duchén, 1998).

The Regime also provides for special facilities for the public to become directly involved in forest law enforcement. The new legislation introduces an innovative procedure by which private citizens can contribute to law enforcement by utilizing a special authorization or warrant granted by the Superintendence, to inspect forest field operations (*libramiento de visita*).

As stressed, one of the reasons for imposing a flat fee on timber concessions was aimed at erasing the discretionary power of corrupt forest officers controlling the implementation of concession contracts.

Furthermore, to make decisions more transparent, the Superintendence is empowered to consult with various stakeholder groups of the civil society and decisions are no longer within the exclusive discretion of bureaucrats, but are instead done under public scrutiny and with public participation. Thus, open auctions will govern the allocation of all new concession contracts. Open auctions also rule the sale of confiscated forest products and equipment. The regulations foresee the revocation of previously granted rights with due process, guaranteeing people's rights and endeavoring to find a greater balance between regulators and the regulated. Moreover, the Superintendence 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.

In addition, the Regime sanctioned the legal establishment of Local Community Associations (Asociaciones Sociales del Lugar, ASL) partly as a way to establish a more effective system of checks and balances at the local level by integrating local populations in the decision making processes of decentralized government institutions. ASLs are groups of traditional forest users, peasant communities and indigenous populations that depend on forests within the jurisdiction of the Municipality (Cordero and Andaluz, 1998). The ASL scheme legitimizes collective entities conformed by actors that previously were stigmatized and illegal operators that extracted wood from public forests, protected areas, forest reserves, and even private lands.

*Preoccupation for respecting indigenous rights and local priorities, and for achieving greater efficiency and equity in the access to and management of forest resources through a decentralized public administration*

The preoccupation with the condition of disadvantaged groups is evident in several of the provisions of the forestry law, wherein a positive bias in favor of certain parties is proposed. The preferential treatment towards indigenous and poor, rural population groups with respect to forestry fees has already been mentioned. Also, the Forestry Law inserted itself within a pre-existing model of decentralization that granted greater responsibility and resources to departmental and municipal governments, recognizing the importance of the demands made by local peasant and indigenous organizations. The Forest Regime puts a great emphasis on decentralization with a number of responsibilities and financing transferred to Prefectures (departments), which are now responsible for implementing forestry development plans at departmental level. Also, municipalities or union of municipalities (mancomunidades) became responsible for implementing local management plans and for carrying out monitoring and control activities within their jurisdiction. Under the forestry law and associated regulations, to finance these responsibilities Prefectures receive 35% of the timber concession fees and 25% of forest conversion (authorizations to deforest) fees. Municipal governments receive 25% of the government receipts for concession and forest conversion fees.

The Forestry Regime also entrusted Municipalities with the administration of up to 20% of public forestlands - the Municipal Forest Reserves - which must be used for the benefit of local communities, known as ASLs as mentioned above.

To comply with their newly acquired forest-related responsibilities, municipalities or unions of municipalities (mancomunidades) are to create Municipal Forestry Units (Unidades Forestales Municipales, UFM), which are responsible for identifying areas that will constitute the Municipal Forest Reserves and for fulfilling several other functions such as helping local communities to produce management plans, monitoring and controlling compliance with these plans, stopping activities that are contrary to the sustainability of forest resources, and promoting forest plantations and agroforestry (Kaimowitz et al, Winter 1998/1999).

Thus local groups functioning as ASLs can now legally access public forests through the preferential concession system. ASLs can access concessions without going through the public auction process reserved for other timber utilization contracts.

The government recognized the exclusive right of indigenous communities to utilize their traditional, original, community lands or TCOs (Tierras Comunitarias de Origen), as long as they would protect the integrity of their territories.<sup>9</sup> While commercial uses of forests must comply with forest management

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<sup>9</sup> Law 1725 of 1996

plans, traditional and non-commercial uses of forests do not require authorization from government (Lobo and Duchén, 1999).

### *New institutional structure*

Changes in the legal and policy framework were accompanied by a restructuring of government institutions. It was evident that the previous institutional structure of the forestry sector was inadequate. Even before the approval of the new Forest Law, the national public administration, the old Forestry Development Center, CDF (Centro de Desarrollo Forestal) had been abolished and regulatory responsibilities for the forestry sector had shifted to the Ministry of Sustainable Development and Environment. Since then, the Ministry was supposed to provide strategy directions, issue policy decisions and produce plans and norms of national scope leading to the implementation of the Forest Regime. Among its responsibilities, the Ministry was entrusted with the classification of lands according to their use capacity, determining what forest areas would be auctioned under the concession system and what areas would be allocated to the ASLs, establishing reference prices for forest products, adjusting forest fees, planning and supervising watershed management, supporting research, extension and education, and managing foreign assistance.

To facilitate implementation the law established a national system for managing natural resources (Sistema de Regulación de Recursos Naturales Renovables, SIRENARE) also under the authority of the Ministry of Sustainable Development and Environment.

As part of the SIRENARE, the law created the Forest Superintendence. The Superintendence is responsible for the operational aspects of the Forestry Regime including the allocation of forest concessions, the collection of fees, revenues and fines as well as their allocation, keeping a national roster of forestry professionals that are allowed to produce sustainable forest management plans, monitoring of forest concessions and enforcement of the law.

The new legal framework accords the Superintendence a considerable degree of independence from political influences. The head of the Superintendence is selected by the President of the Republic from a list of three names submitted by the Congress. The period of the Superintendent appointment is six years, thus straddling the presidential period, which is 5 years. The agency also has financial independence as the law entitles it to keep 30 percent of the forestry fees.

The new Forestry Regime also brought into being the National Forestry Development Fund (FONABOSQUE) as another entity under the authority of the Ministry of Sustainable Development and Environment but with technical, administrative and financial autonomy. The Fund is to support the financial needs of sustainable forest management and of forestry development projects approved by the Superintendence. The Fund's financing comes from the forest concession fees, but also from the treasury and from financial transfers resulting from the Biodiversity Convention and Climate Change Convention<sup>10</sup>.

There are related government institutions entrusted with functions which impinge to a large degree on the operation of the forest sector. In particular, the National Agrarian Reform Institute (INRA) deals with the distribution, delimitation and titling of lands. The Agrarian Superintendence also plays an important role approving the POPs (Land Use Plans or *Planes de Ordenamiento Predial*) as defined in the Forestry Law as the ideal mechanism for land use changes in lands suitable for agriculture and cattle ranching.

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10 As mentioned, Prefectures receive 35% of the concession fees and 25% of the fees charged for deforestation operations. Municipal governments get 25% of both types of fees. The FONABOSQUE receives 10% of the concession fees and 50% of the forest conversion fees. The Superintendence gets 30% of the concession fees.



### *Industrialization, vertical industrial integration and the use of a wider range of species*

As mentioned, the law does not include linkages between forest management and industrial processing. While it is not strictly necessary for a forest resources law to include industrial development prescriptions, legal experts agree that the linkages between forest management and associated forest-based industrial development should be addressed in such a way that ensures an harmonic development of the sector as a whole. Obviously, regulations affecting the management of the resource will also affect the operation of industries that utilize that resource. Hence, the need for coordination arises.

While Law 1700 did not address industrial development issues explicitly, by imposing regulations on the management of forest resources it had important impacts on industrial processing. For example, the new system of forest management, limiting yearly exploitations to some 5% of the total area of the concession created a strong pressure to utilize a wider range of species of wood. The utilization of a greater number of forest species is easier if operations (not necessarily ownership of individual industries) are coordinated at the sector level. Many non-traditional and lesser-known species that are hard to sell can be exported in the form of processed products such as furniture, doors or windows. This sort of operation is more successful when the sector achieves harmonized integration from the harvesting of wood to industrial processing and to marketing activities overseas.<sup>11</sup> The utilization of a wider range of species also generates pressures for increased efficiency of industrial operations (previously, inefficient operations could survive by concentrating on creaming high value species). Thus, Law 1700 implicitly embodied various push drivers for industrial integration, diversification and increased industrial efficiency.

## IMPLEMENTATION

The preceding section described the principal characteristics of the new forestry regime. The present section focuses on a discussion of its practical application, its achievements and the most important difficulties that have been faced.

### *The mechanics of designing reform.*

As mentioned, an open discussion characterized the design of the reform package. The willingness to consult with a broad spectrum of the population obviously depends on the political philosophy of the government and in the case of Bolivia, there was an intense political desire to involve indigenous populations and other communities and individuals that previously had been marginalized in the debates on how to manage forests. According to various observers interviewed by the authors, these debates contributed to increase the flow of information and the understanding of the different perspectives and interests of stakeholders. Furthermore, the open and democratic discussions did contribute to alter the balance of power between stakeholders with the concessionaires, some losing their previous overwhelming weight and with other groups such as indigenous populations, “informal” operators and NGOs obtained a level of influence that was more in line with the importance of their numbers and their disadvantaged economic condition. This change in the balance of influence arguably would have been less effective without the openly participatory process that led to the formulation of the new law.

An additional advantage of open and participatory discussion was that most sectors accepted the new law (Nittler, 1999). The exception was the group of the concessionaires and timber industrialists, which were small in numbers but powerful in terms of economic and political influence. Furthermore, as was mentioned above, despite the opening, some groups remained relatively marginalized with respect to the debate and it may be supposed that their acceptance was less enthusiastic (unfortunately there are no

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<sup>11</sup> Evidently, integration is not a sufficient condition for success. Other factors such as size and specialization are also important. But integration provides greater possibility for an outlet for lesser-known species.

studies which can confirm this impression). In general, however, open debates were effective in resolving some of the conflicts between stakeholders and in facilitating a certain consensus concerning acceptance of the new law.

Some argue that all of the above came at a considerable cost in terms of effort, time spent in the discussions and therefore resulted in delayed decisions and economic opportunities lost. For example, it is said that the process was too slow to prevent the virtual disappearance of mahogany. However, while these arguments may have some merit, there cannot be a clear conclusion on this issue. It is impossible to ascertain what the costs of a less participatory process could have been. It could be argued as persuasively that a less open method of producing the law could have diluted some of the political attention and lengthen its design as well as reduced consensus and public support for the law. In fact, in general, most analysts coincide that a transparent and participatory process carries benefits that exceed the cost. This may be particularly the case where legislation affects a large number of people and when most of the directly affected are poor.

#### *Achieving a more sustainable forest management*

The new Forest Regime required concessionaires to produce sustainable forest management plans. Although this was not a new obligation, compliance in the past was practically non-existent. Thus, at the beginning of the reform process, the decided effort to enforce this requirement caught many entrepreneurs and forestry professionals unprepared and with little experience. In 1997, the Superintendencia approved only one sustainable forest management plan out of 88 that were presented. In view of this limited success the Superintendencia introduced one of the first exceptions to the law by allowing entrepreneurs to harvest timber, based only on their Annual Operation Plan, with a commitment to preparing the management plans within a reasonable term. Technical assistance would have been desirable during the preparation of the first wave of forest management plans.

Later, experience accumulated and this initial obstacle was not a major factor any longer. No doubt, one of the most important advances of the new legislation is that professionals are now designing sound management plans. Accomplishments in this respect are impressive: some 7 million hectares were under forest management plans at the end of 1999 (Superintendencia Forestal, 2001).

After the approval of law 1700, and due to the fact that holding large concessions now carried substantial costs, concessionaires had an incentive to reduce the concession area under their control. This pleased some environmentalists that assumed that the reduction of concession areas would promote the conservation of forests and increase social equality through the participation of a larger group of parties with forestry interests. However, the reduction in the concession area does not necessarily translate into better forest management and conservation overall. The net effects depend on what happens with the areas returned by concessionaires. Unfortunately there are no studies indicating what has happened with these lands that have been returned to the State. If spontaneous settlers or commercial agriculture now invade these areas, then the net effect on forest management may be negative. Furthermore, the area previously utilized by enterprises was not very different from the area they retained after the approval of law 1700. Much of the area returned superimposed indigenous lands, protected areas or private lands where numerous conflicts made logging difficult or impossible. Thus, in absence of more detailed assessments, the net effect of the new law on national forest conservation and the quality of forest management remains unclear.

In a related subject, some have speculated that since the Forestry Law, deforestation has increased. Certain studies indicate that between the 1980s and 1992-94, the level of deforestation was on the order of

250,000 hectares per year, or three times the levels of the 1980s<sup>12</sup>. These statistics do not seem to differ substantially from those that some believe represent recent deforestation levels. However, deforestation statistics are so unreliable that it is not possible to derive a definitive conclusion. Numbers produced for several years are not comparable or are not adequate for estimating changes induced by the new forestry regime. Furthermore, even if deforestation did increase after approval of Law 1700, there are no obvious reasons to suppose that such is due to the new forestry regime and not to other forces such as population growth or extra-sectoral pressures.

Law 1700 and its sustainable forest management prescriptions forced the harvesting and utilization of lesser-known species (Bojanic, 2001). However, the nature and the magnitude of such effects which can be attributed to the new legislation are doubtful, given the dwindling supplies of fine species would have forced the utilization of lesser-known species with or without the new forest regime.

There are other sources of uncertainty about the effect of the Forestry Regime on forest management and conservation. It is now becoming evident that despite the fact that some entrepreneurs embraced sustainable forest management plans as useful planning tools to guide their operations, others continue to see it as a bureaucratic requirement only (PRISMA, 2000). At least in part, the initial reluctance may be due to the perception that while sustainable forest management may be profitable, normally it is not as profitable as unsustainable activities, for example an economic analysis of 14 management alternatives in Bolivia's Amazon region revealed that unsustainable techniques are regularly more profitable (See Table 2). As a rule, sustainable forestry management, even when it can be highly profitable, simply cannot compete commercially with "traditional" unsustainable methods<sup>13</sup>. It is possible that this disadvantage with sustainable forestry management will lessen in the future with the adoption of modern methods for the exploitation of wood resources and the incorporation of other environmental services in corporate decision making systems, without which long term sustainability will not be commercially competitive.

In sum, the forestry regime has had success in promoting sustainable forest management plans. This is undoubtedly an advance compared to the lack of management which used to exist. However, it is difficult to determine the nature and the magnitude of the net impact of the forestry regime on the quality of forest management, deforestation and degradation of national forestry resources. It is also possible that the differences in profitability between sustainable forest management and the non-sustainable alternatives will continue to be an influence against the former. Unless this difference can be reduced by increasing the profitability of sustainable management and reducing that of non-sustainable alternatives (through the imposition of fines, for example, and more severe penalties for not respecting management plans and other illegal activities), the propensity to return to traditional forms of forestry exploitation and management will persist. This underscores the need to be able to count on an effective system of incentives and strict enforcement of the law.

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12 Pacheco, 2001, citing Steininger, M.K., J. Tucker, J.R. Townsend, T.R. Killeen, A. Desch, V. Bell & S.B. Hecht, 2000. Tropical Deforestation in the Brazilian Amazon. Paper submitted to Environmental Conservation.

13 For an analysis of the experiences in several parts of the world see Contreras-Hermosilla, 1999, Pearce et al 1999, Pearce, 1999a, Howard et al, 1996, Bojanic and Bulte, 2000, and for the specific case of Bolivia see Howard, A.F., Rice, R.E. and Gullison, R.E., 1996.

**Table 2 — Current Net Value per Hectare in 4 scenarios of forestry management and 4 theoretical prices (US\$)**

<i>Prices and Estimates</i>	Scenario A	Scenario B	Scenario C	Scenario D
1. Current Prices increasing at 1% per year	49	21	83	95
2. 20% reduction in current domestic prices	11	18	75	66
3. Three additional species are exported and a 20% reduction in domestic market prices	29	41	n.a.	90
4. Three additional species are exported and domestic prices are maintained	69	46	n.a.	104

Scenario A: Sustainable forestry management in conformity with the conditions of the new forestry regime. A total of 12 species are harvested, five that are valuable in international markets and seven less valuable ones that are sold in the national market.

Scenario B: Twenty-year harvest cycle, exploiting only five valuable species for export.

Scenario C: Fifteen-year harvest cycle concentrated on only five most valuable species for export (as proposed by the concessionaires)

Scenario D: Exploitation of the five most valuable species during the first five years and seven less valuable species during the next fifteen years.

Source: Bojanic, A. 2001. Balance is Beautiful: Assessing Sustainable Development in the Rain Forests of the Bolivian Amazon. PROMAB Scientific Series 4, Bolivia.

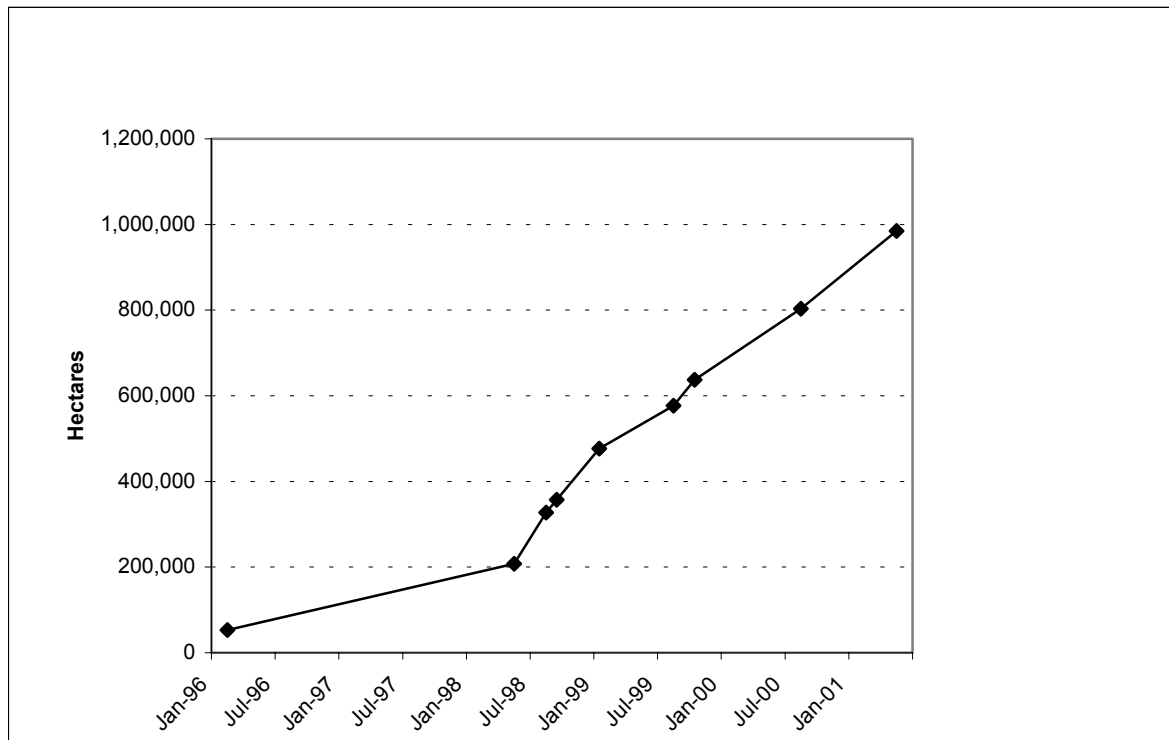
Several Bolivian businessmen hope that certification will be one of the ways of making sustainable forest management both financially more attractive and more competitive. Even if the new Forestry Regime did not require certification, as we shall see, it indirectly promoted its growth.

### *Certification*

The first actions on certification started in 1994 involving the private and public sectors as well as the Forest Stewardship Council, FSC. The Bolivian Council for Voluntary Forest Certification (Consejo Boliviano para la Certificación Forestal Voluntaria, founded in Santa Cruz CFV) was established to produce national standards, which were field tested in December 1997 by a SmartWood team. The FSC endorsed these standards in 1998 (Jack, 1999). Simultaneously, the Program of Forest Certification CIMAR/Smart Wood, an entity composed of a national partner, the Center for Research and Management of Renewable Natural Resources (Centro de Investigación y Manejo de Recursos Naturales Renovables, CIMAR) and the US Smart Wood, was created in 1996. Soon after, two other certifying firms obtained FSC accreditation (SGS and Imo-Suiza).

The first certification took place involving 53,000 hectares in an indigenous community, the TCO of Lomerío. This has grown to 19 certified operations, 10 in forests and 9 involving the chain of custody. Around the middle of 2001, as shown in the graph, the certified area had grown rapidly to approximately 985,000 hectares (CFB 2001). This makes Bolivia the country with the largest area of certified natural forests among tropical countries.

**Graph 1 - Forest Certification in Bolivia**



Why is Bolivia adopting certification with such enthusiasm? First, once it was clear that the obligation to produce sustainable forest management plans was there to stay, the relative coincidence between these plans and the requirements of certification appears to have contributed to the expansion of the area under certified forests<sup>14</sup>. Certification is easier for law-abiding firms that agree to implement sustainable forest management plans. Certification is also desirable for entrepreneurs because certified forests are exempt from the government forest audit. Some concessionaires and entrepreneurs have indicated that they prefer to deal with an independent certifying firm rather than with the government bureaucracy (Jack, 1999). In this way, the new forestry law indirectly created incentives for adoption of certification.

Second, entrepreneurs perceived certification as a way to obtain international market advantages and therefore were willing to take the additional steps to obtain it. Initially, entrepreneurs expected certified products to command higher market prices and better access to markets. This belief was fuelled by some analysts who believed that certified wood could command a price premium reaching some 5-15% in the international markets (Crossley and Points, 1998). This premium has yet to materialize in Bolivia. Consumers in general are not willing to pay higher prices for certified products.<sup>15</sup> However, the expectation that certification will contribute to defend market shares or even expand them, is strong. According to some entrepreneurs, many markets for Bolivian products would have closed in the absence of certification. These perceptions have proven to be true. Exports of certified products have shown great dynamism: in the year 2000, exports of certified forest products, the great majority made up of finished

14 The treatment of social issues is more demanding in the case of Bolivian national standards of certification, which demands conflict resolution and measures to promote community organization.

15 It is interesting to note that even if consumers paid as much as 15% more for certified wood, studies show that the price premium would not be sufficient to tilt the commercial balance in favor of sustainable forest management: unsustainable options are still more profitable (Bojanic and Bulte, 2000).

products, reached US\$8.6 million (7% of forestry exports) which represents a 200% growth compared to the year before (CFB, 2001).

At the same time, independent certification is beneficial to the Superintendencia as it liberates scarce resources that otherwise would have to be dedicated to monitoring and controlling the application of sustainable forest management plans. This win-win situation goes a long way in explaining the rapid spread of certification in Bolivia.

#### *Forestry fees on timber concessions*

The new system of forest fees, which is transparent, simple to apply and does not allow for discretionary interpretations, probably reduced corruption, (although there are no serious studies which measure the incidence of such). Furthermore, by imposing the fee on all the concession area, it discouraged land control concentration. Concessionaires reduced the area under their control from some 22 to 4.9 million hectares in 2001 (Boscolo and Vargas, 2001).

From the beginning of the discussions over the new law, the fee amount and its effects were controversial points. The debate has centered around the following inter-related themes:

- The level of forest fees for concessions
- The distribution of revenue from forest fees
- The risks associated with basing the new forest regime as an exclusive source of revenue for the State
- The effects on the economic efficiency of the fee system

#### *The level of forest fees in concessions*

Evaluations carried out by consultants (Robbins et al., 1995) and the World Bank (World Bank, 1993) suggested that, if an area-based fee were adopted for existing timber concessions, the amount should fluctuate between US\$0.10 and 0.40 per hectare per year. Notwithstanding this opinion, other studies suggested fees of up to US\$20.00 per hectare per year. In light of the lack of definitive studies on the subject, it was politically decided to adopt an annual fee of US\$1.00 per hectare for existing concessions (new ones would be submitted to a public bid process), applicable to the entire area of the concession, without a prior detailed evaluation on whether this was too high or too low (Nittler, 1996a).

Since concessionaires pay the \$1 per hectare per year fee for the whole area of the concession and they can exploit annually a maximum of 5% of the total concession area “Triple A”: Annual Area Used (*Area Anual de Aprovechamiento*), the fee per hectare of exploited forest is \$20. If the time between rotations increases, the fee also increases, i.e. if the rotation is 30 years, then the annual fee per hectare used is \$30 so on. In this way, the fee structure discriminates against rotations of more than 20 years (however, there is not sufficient scientific evidence that would indicate with any certainty whether or not a rotation of more than twenty years would be more desirable from a forestry management point of view).

Concessionaires observe that the level of the forest fee is too high. Yet, some experts argue that the new system of a flat fee per hectare does not tax the concessionaire more than before, when volumes and species extracted served as the basis for timber payments to government (see for example, Nittler, 1996a STCP, 2000). A study sponsored by the Bolivian Forestry Department indicates that the fee is of minor relevance compared to other factors such as companies’ low productivity and the high cost of transportation. This study confirms that the fee incidence is directly related to the average volume of harvests (STCP 2000). It is also interesting and worth pointing out that certain recent evaluations in the Bolivian Amazon indicate that concessionaires’ profits with the present fees - and assuming that sustainable forestry management guidelines are followed - may even exceed, by wide margins, “normal”

profits obtained in other investment opportunities within the Bolivian economy (Bojanic, 2001). In other words, according to these evaluations, concessionaires who respect the law will still be able to pay all their forestry fees and make a profit that would be competitive with any other (legal) investment in Bolivia. The question that is yet to be answered concerns the profit differential between legal sustainable forestry management and unsustainable (illegal) systems.

*Distribution of Forestry Income.* With respect to the distribution of income derived from the exploitation of forestry resources, even when the new fees provide the State with a larger share of that income than the previous system, studies in the Bolivian Amazon indicate that there is still a substantial portion of this income that remains in the hands of the concessionaires, who see the extraordinary profits mentioned earlier<sup>16</sup> (Bojanic 2001).

*The risks of basing the forestry regime exclusively on the State's need for income.* Even when forestry operation profits under the new system that demands the payment of fees and the realization of effective actions under a sustainable forestry management regime, seem high, the implementation of fees induced a number of concessionaires to revert control of large portions of their timber concessions back to the State, in this way putting the Superintendence in a financially precarious position. If the return of forested lands under concession was to be expected, the intensity of the reaction was a surprise. Furthermore, and perhaps even more important, is that some of the concessionaires who remained in the program simply have not paid their fees. Since the Superintendence has not claimed collection on those debts, it has made nonpayment of fees more or less acceptable and something which does not bring about any punishment. This has fomented late payments, and the average fee per hectare has actually dropped. Concessionaires' resistance to pay the forestry fees has created deep financial problems for the Superintendence who depends on this income for carrying out its work. As of the date of this report, concessionaires owed around US\$3.2 million (CFB, 2000). Income derived from the fees has fallen from US\$9.1 million in 1997 to US\$5.9 million in 1999 (Forestry Superintendence, 2000a). Obviously, the fall in fees income has also negatively affected the Prefectures and Municipalities who depend on it for their respective sectoral initiatives.

The financial position of the Superintendence is now critical, to the point that the Ministry has been forced to take funds from FONABOSQUE in order to finance its operations. However, this is nothing more than a stopgap solution, since the FONABOSQUE's funding also depends on the collection of forestry fees. The almost exclusive dependence of the entire forestry regime (Superintendence, FONABOSQUE, Prefecture and Municipal forestry programs) on fee income makes it inflexible and particularly vulnerable to variations in said income.

*Effects on the economic efficiency of the fee system.* With respect to the economic efficiency of the present forestry fee system, critics have pointed out that different fees are applied to concessionaires and private property owners, ASLs and TCOs (who only pay fees on the areas harvested during a particular year) and have created "unfair" competition and distorted the assignment of economic resources in such a way that they work against sustainable forestry management on a national level. They maintain that this is the case because the new forestry fee system encourages the exploitation of areas with a lower per hectare fee structure, ignoring areas whose development might be desirable for sustainable forestry management. Notwithstanding the above, there are no convincing economic evaluations that prove this to be the case. If it is true that uneven fee structures favor private property owners, ASLs and TCOs, it is not obvious why

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<sup>16</sup> Economic rent refers to the difference between the market value and the production costs of forest products for the market. These costs include financial profitability and risk value of the best investment alternative. The differential excess between income values and costs over the best market alternatives (rent) if it is captured by investors, it constitutes an "excessive" return. It is generally accepted that the government should receive this return simply because it is the "owner" of the forest resources.

this would create forces against national forestry management. Furthermore the difference in fees can be justified with respect to fairness, private property, etc. The real question is whether the use of fees as a positive bias in favor of the most vulnerable groups was the best way to support the aforementioned values of fairness, or if other mechanisms, such as credit preferences, technical assistance, etc. would have been preferable.

The new fee structure also does not differentiate between areas with different levels of accessibility and therefore favors those areas that may be more easily harvested in terms of transportation. It is likely that this situation generates pressures that induce companies working in more difficult areas to use their concessions to extract only the most valuable species (“creaming”). This is already occurring in the Amazon basin.

In conclusion, the lesson to be learned from this experience with the implementation of a new forestry fee system, is that it is essential to carefully examine the economic implications for the different stakeholders, not only in terms of cash flow and profitability but also in terms of an analysis of the levels of dependence and the risks associated with said dependence. For example, having the public sector rely on a sole source of funding can create many risks. The success of a reform program depends fundamentally on the economic incentives and results generated for each of the principal stakeholders, in both the public and private sector.

#### *Institutional arrangements*

A recurrent theme is that a technically sound law will do very little in practice unless it is effectively implemented. Obviously, there must be a certain harmony between the prescription of the law and the institutional capacity to carry it out; otherwise the law will only make sense on paper. Here, the Bolivian experience has faced serious problems.

For example, INRA has been unable to clarify and legalize ownership rights on which many of the actions concerning sustainable forestry management depend. Since the definitive “legal sanitization” of land ownership rights defines many of the other pillars of the forestry law - the determination of municipal forest reserves and indigenous territories, establishing concession rights and auctioning of forest concessions - the slow INRA progress creates a bottleneck for the whole system of land and forest management.

Partly due to the radical nature of many of the policy reforms, government staff still imperfectly understands them. Actors, such as indigenous groups and industrialists share this problem. The Ministry has also been unable to promote extension and education in order to minimize it.

There are also other problems related to the fact that the Ministry has been unable to obtain a proper coordination both internal and with other institutions of the public sector such as the prefectures as well as with private sector (PRISMA, 2000). Authority and responsibilities given to the Ministry by the new legal framework are far from being commensurate with its institutional capacity.

When it comes to the operation of the Superintendence, most observers agree that the new entity is a considerable improvement over the old Center for Forestry Development. The Superintendence is less susceptible to political pressures and its staff is more professional. Corruption at this level has apparently fallen significantly.

But, for better or for worse, the Superintendence is often unable or unwilling to apply the full force of the law to control forest crime. For example, the Superintendence has been reluctant to seize and auction equipment (tractors, trucks, power saws) employed in illegal acts limiting its action to the confiscation of illegally felled timber. Or, to enforce the legal requirement that prefectures and municipalities must utilize



financial resources from the forest fees in forestry-related activities. Local governments instead tend to see these financial resources on an equal level as those for discretionary expenses.<sup>17</sup> Observers indicate that this is largely due to the limited political support the Superintendence receives from other branches of the Government. No matter what the cause for the lack of law enforcement may be, it has contributed to creating an image of weakness and indecision which in turn produces additional enticements among other stakeholders for not adhering to the law. It is possible that this problem will become more serious in the future because of parties who, not only evade the law, but who with greater frequency are turning to violent means in order to achieve their objectives.

On the side of the Prefectures, there are also some problems. These are mainly derived from the lack of clear policies and instructions from the Ministry, the lack of institutional coordination between them and other levels of government and the highly political nature of the main authorities of the Prefectures, which translates into their rapid rotation according to prevailing political conditions (PRISMA, 2000, World Bank 2001). Prefectures are extremely political institutions and are ill equipped to implement long-term forest development programs. Coordination between the Superintendence and the Prefectures is not effective.

Municipalities face their own institutional obstacles. Municipal governments resist certain aspects of the law, such as the creation of the Municipal Forestry Units, because such requirements are costly. In some cases, the additional income from forest fees is not sufficient to cover them. A recent study indicates that after four years from the start of Law 1700's execution, only 24 of 104 municipalities could cover the inception and recurring costs of establishing such units (Gandarillas, 1999).

The reform package, particularly the Popular Participation Law, clearly gave decentralized municipalities a great deal more power and some utilized this power to control the indiscriminate activities of loggers (Kaimowitz, 1998). However, in many cases, they faced similar operational problems as those of the Prefectures and the central government. Many of the municipalities with abundant forest resources are relatively isolated, with few links to other levels of government. Several Municipalities may have jurisdiction over segments of forest resource systems that need to be managed in a coherent manner (a watershed, for example) but they operate in uncoordinated fashion or with different or incompatible levels of management intensity. Other Municipalities do not have the capacity or the experience to deal with forestry problems and thus national policy coherence suffers. In other cases, willing municipalities do not have the technical and managerial capacity to implement forest management plans. Thus, the promotion of ASLs, in theory under their jurisdiction, has not taken place generally. Halfway through 2000, the government had only assigned 560,000 hectares to three municipalities (Pacheco, 2001) As in the case of the Prefectures, decisions at this level are sometimes dominated by party politics where local political elites wield power for their own benefit rather than that of the poor populations in their jurisdiction (PRISMA, 2000). Furthermore, coordination between Municipalities and the Superintendence is also poor and many of the problems observed at the national level are simply replicated at local level government.

This experience with institutional organization suggests, first, that while it is important in policy reform exercises to achieve proper design of *what* needs to be done to improve the management of the sector, the design of *how* plans and policies can be implemented is perhaps as important. As pointed out by one observer, some of the objectives of the legislation in Bolivia have been consistent and uniform for decades but the problem almost invariably has been the difficulty faced in implementation (Andaluz,

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17 As an example, municipalities or a community of municipalities had six months after receiving the first installment of their share from forest fees to establish the Municipal Forestry Units. If they did not create these units the Superintendence had the prerogative of asking the Senate to retain funds. This has not happened yet, which in fact creates a wide discretion on how municipalities use these funds.

1995). Second, that the design of proper institutions and their access to financial and human resources is vital to ensure law enforcement. Third, that while decentralization has many potential advantages, its dangers are also substantial and therefore adequate evaluation of options must be carried out before proceeding to legislate or implement. Fourth, an indispensable prerequisite for the success of institutional reforms is the existence of a strong political will. The difficulties faced in obtaining implementation efficiency are formidable and the government is ill prepared to confront them (Litvack et al 1998).

*Law enforcement*<sup>18</sup> A related theme is that of enforcing the law and controlling forest crime. There is little doubt that the new regime closed many opportunities for forest crime and corruption (Pacheco, 1999). The fact that the Superintendence is relatively independent from political interference makes it more difficult for vested interests to tamper with it for corrupt purposes. The stability of the Superintendent and other officers reduces incentives for corrupt behavior and allows the staff to concentrate on a more efficient administration rather than on securing their own survival as civil servants and on scheming for making the most of the short period that they may stay in their jobs. It is also clear that there has been a serious effort to enforce the law. For example, many municipalities are trying hard to control illegal activities. For example, a survey of 36 municipalities shows that the most important activity of the municipal forestry units was the control of illegal operations (Forest Superintendence, 2000). Inspections by the Superintendence rose from some 850 in 1997 to 3,700 in 1999 (Forest Superintendence, 2000a).

However, there is still a large gap between the ideals of the forestry regime to stamp out forest crime and the realities of its implementation. Forest crime still appears to be important. Thus, for example a document of the Committee on Sustainable Development and Environment of the Senate states that “In different parts of the country, but specially in the Department of Santa Cruz, deforestation is continuing without control. This situation is worrisome, deforestation is taking place in zones that have been classified as forestry use”. The same document states that “while the forest certificates of origin (CFOs) have partially contributed to the control of informal activities, it is unfortunate that these have also become instruments for illegal financial collections” (Honorable National Senate, 1998).

Recent assessments carried out by the Forestry Superintendence indicate that national illegal deforestation reached 65,000 and 80,000 hectares in 1998 and 1999. This compares with only about 20 thousand hectares authorized for conversion in each of those years by the Superintendence (Superintendencia Forestal, 2000). In other words, illegal deforestation was 3-4 times the magnitude of legal deforestation. In addition, the figures for illegal deforestation are probably an underestimate. According to these figures, the combination of legal and illegal deforestation would be 85,000-100,000 hectares per year. However, this is a lower figure than total deforestation (admittedly imperfect) estimates produced by other assessments, which are around 250,000 hectares per year. Since there is certainty about the area authorized for conversion, the discrepancy between the 250,000 and the officially authorized 20,000 can only be explained as illegal deforestation. Thus, illegal deforestation may be a great deal larger than the estimates produced by the Superintendence, perhaps as much as ten times the officially authorized forest clearing.

The cost differential created by the law between sustainably managed forests and illegal methods of exploitation created an additional incentive for illegal operations. Methods range from timber theft to ingenious procedures that “legalize illegal timber”. In this latter case, unscrupulous firms induce private small chain saw operators to surreptitiously cut illegal trees in concessions or community properties, leaving them on the ground. The firm either directly or through a third party then turns around and

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18 We distinguish between illegal acts, which are simply those outside the law, and corrupt acts which are those that require collusion between a public official and another party, usually from the private sector. Thus not all illegal acts are the result of corruption. Corruption is a subset of illegal acts.

denounces this illegal cut to the authorities. In that situation, the law compels government to collect the illegal logs and put them in the market through an open auction. Firms can now bid low prices for these logs either because they are the only potential buyers or because they enter into collusive agreements with other buyers. Thus, an illegal operation is eventually legalized in detriment of sustainable forest management and government revenue. This is not a new practice. In fact, it was widely utilized before the law 1700, in some cases with indigenous leaders acting in collusion with private firms to promote the scheme (see, for example, the interesting case of the Multiethnic Indigenous Territory, TIM, in Roper, 2000).

**Box 1 — “Motosierrismo”**

Chain saw operators “motosierristas” are an active part of the logging system in Bolivia. Traditionally, local elites provided under contract small-scale operators with chain saw, boats, and supplies and sent them in search of fine wood, almost exclusively “mara” (mahogany). Motosierristas would then start their difficult trekking into the forest toward remote and isolated areas looking for mara trees. Trees were then illegally harvested and simply sawn with the same chain saws, a relatively wasteful process. Motosierristas then would deliver the harvested mara to the contractors that would compensate them with a small proportion of the value of the wood harvested. Mara was then “laundered” by politically-connected concessionaires with the ability to obtain the necessary certificates. This type of arrangement was typically reinforced by debt relationships between contractors and motosierristas, which strengthened their bonds. Corrupt local politicians and government officers often “protected” this illegal activity and received part of the proceeds. This type of activity was mainly small scale, generally tolerated, and even supported by the local populations.

The “new” motosierrismo, that started sometime in the early nineties in part because of the collapse of the coca trade, is different. In this case, motosierristas cut mara trees and simply leave the logs in the forest. At this point, the objective is not to produce timber but to legalize the property of illegally cut trees. Once trees are cut down, somebody reports the illegal operation to the authorities. By now, the perpetrators have disappeared. At this time, the government must collect the logs and organize an open auction to sell them, as mandated by the law. Local potential buyers are bound to be the very same contractors or loggers that promoted the illegal cut. Prices obtained in the auction are obviously low. Thus, criminals benefit from exploiting and marketing “laundered” mara. but also with the low prices which result from a lack of competence at the auctions. The cut is done on a large scale and is much more organized than the “old” motosierrismo. This system of illegal forest exploitation also creates tight networks of coinciding interests and mutual dependencies between loggers, those contractors that act as intermediaries and the motosierristas.

The legal system also has less strict requirements for forest use permits in ‘small’ private properties (less than 200 hectares). The owner is responsible for presenting a certificate of ownership to be allowed to log. However, given that these certificates are subject to a previous land demarcation-legalization process, a long one by the way, the Superintendence, under one of its many ‘exceptions’, allows the owner to extract timber as long as the supposed owner shows an INRA certificate where it proves that a land demarcation-legalization process is underway. This gave way to a large number of applications without a basis for solid ownership rights in lands with less than 200 hectares. INRA did not have a choice but to produce the certificates of legalization process. With certificate in hand, the false owner could proceed to extract timber with impunity, before the legalization process was over. By the time it is proven that the applicant is not the legitimate owner, the timber has been extracted. An illegal operation appears in the records as legal. This scheme to distort the law has boomed. For example, a company from Pando applied and obtained use rights in 27 properties with less than 200 hectares, and each volume extracted is greater than those of its own forest concession. It is unlikely that all these applications refer to a real property claim situation. Given this legal gap, many of the concessionaires from Riberalta, and probably from other parts of Bolivia do not use their concessions, thus opting for getting raw material from alleged (false) small land owners.

Moreover, the penalties for illegal actions are apparently light, compared to the benefits that can be obtained. Analysts signal that the costs of obtaining a legal extraction license<sup>19</sup> are greater than the penalties for illegal logging, and in any case, these penalties can be avoided too. Under these circumstances it is clear that there are no great incentives to abide by the laws.

These problems worsen due to the lack of support by the police to the Superintendence. There are cases where the Superintendence staff has been attacked or even taken hostage, and the police has been incapable of identifying or arresting the responsible parties. This in turn, helps foment further proliferation of illegal acts. Given the inability to implement the law effectively, lands reserved for concessions, other public and private lands, as well as native communal lands (TCOs) are subject to invasions by illegal operators, even in cases where the clarification of property rights has been established (PRISMA, 2000).

Moreover, these actions point to the need to ensure that the government has the capacity to enforce the law before introducing reforms. There are no easy solutions for this problem. However, it is clear that forest crimes cannot be controlled without increasing in a substantial way the capacity to organize prevention, detection, and suppression activities along with a considerable increase in penalties for those involved in illegal acts. The success of effective law enforcement programs will depend on the effective reduction of such profitability through important penalties to unsustainable operations which in this case, by definition, are illegal operations.

*Native Communal Lands: TCO's.* In the Bolivian lowlands there are 36 indigenous groups totaling a quarter of a million people (VAIPO, 2000). These groups demand more than 23 million hectares of land. Around 5 to 7 million hectares with a considerable forestry potential are found in TCOs (de Vries, 1998; Stocks, 1999) Only a small proportion of these claims, approximately 2.9 million hectares, have been recognized by the government to date (See Box 2).

While the intention is to return a large proportion of the lands to community control, the process has faced problems related to:

- i) government procedures and strategies to achieve this end,
- ii) shortcomings affecting the communities themselves.

Concerning the first aspect, the legalization of devolution to communities requires a lengthy, politically difficult and costly procedure because of the need to resolve conflicting land claims (Tamburini and Betancourt, 2000). The consolidation of the National Agrarian Reform, INRA, was a lengthy process which faced a variety of financial and methodological problems in the effort to “sanitize” and title lands in order to return the responsibility, resources and political control to the TCOs. The process of designing the required technical and legal norms was prolonged and complex.<sup>20</sup> The perennial problem of lack of

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<sup>19</sup> In order to obtain a permit for logging, it is required to submit a property title for the land, a land use plan (POP), and a logging plan. However, and in most of the cases, users do not have the documents needed to prove property rights, which is the main barrier to proceed with the rest of the paperwork. On the other hand, a land use plan (POP) is expensive and many small-scale producers are not suited to cover such costs. Given these difficulties, the government agreed to prepare the land use plans (POP) for free to the poorest local actors (DS No.25847 of 2000), a promise which was the result of political pressure, and one which the government has not been able to live up to the present day.

<sup>20</sup> The Supreme Decree 24784 of the INRA law, approved in 1998, was modified in 1999 and then again in 2000. For three years after the approval of the INRA law the institute focused its attention on the design of the technical and legal instruments needed to apply the law. It was not until 1999 that the process of legitimizing rights was initiated. Manuals and guidelines for fieldwork and other materials were prepared during this period. Many were not completed until the end of 1999.

financial and human resources in government agencies was an important obstacle that impeded the progress of management by indigenous communities.

**Box 2 — Status of Indigenous Ownership - Original Community Lands, TCOs**

- 8 indigenous territories provisionally legalized, covering 2.9 million hectares (early nineties)
- 16 new claims covering 11.8 million hectares and immobilized (1996)
- 1 new claim under preliminary immobilization extending for a total of 1.4 million hectares (1997)
- 1 national park under exclusive indigenous management, for 3.4 million hectares.
- Additional claim in La Paz and eastern Santa Cruz, for more than 4 million hectares (1998 and 1999).

TOTAL: 23.5 million hectares

In view of these difficulties, the government attempted to simplify the land legalization and titling process. An agenda that would ensure the legalization of some 13 million hectares by the end of 2002 was prepared. Since INRA had no resources to cover the cost of these commitments, the Government decided to utilize funds from the FONABOSQUE despite legal rules that stipulate that the use of the Fund is only for forest management activities and for promoting growth in the forestry sector.

In addition, other government prescriptions of the Forest Regime unintentionally affected indigenous communities in negative ways. In particular, the government issued rules against the use of power saws (“motosierras”, designed for tree cutting) for producing commercial sawn wood (article 75 of the Forestry Law’s operational regulations, or *reglamento de ley*). These rules were aimed at reducing the waste and the loss of quality of valuable wood raw material that results from using power saws for producing sawn wood, instead of specialized, more efficient but much more expensive sawmills. This rule inadvertently and severely limited the forest operations of financially poor indigenous communities that depend on simple systems, such as those associated with the use of power saws. Naturally, this has caused resistance to the forestry regime in indigenous communities.

With respect to the forest management requirements demanded by the law, experience is still limited but significant. Thus, by mid 2000 the Superintendence had approved management plans in TCOs for about a quarter of a million hectares.<sup>21</sup> In addition, in 1999 there were 90 proposed management plans prepared through contracts indigenous leaders and loggers (UCEPIO, 2000).

Limitations on the side of the communities themselves unfortunately compounded law implementation problems on the official side described above. The better-known experiences with the application of the Forestry Regime to date are those involving the Chiquitano people in Lomerio, Monte Verde, TCO Yuracares, TCO Yuquis and Territorio Indigena Siriono, Guarayos and some Guaraní communities. All these communities face a shortage of financial resources, organizational weaknesses, and a lack of technical and managerial knowledge. The management of forests resources for commercial purposes is not part of the indigenous community culture and therefore, until they gain knowledge and experience, indigenous groups will be ill equipped to deal with market demands. Moreover, systems of checks and balances are yet to become a reality. In some cases, indigenous leaders have entered into clandestine agreements with loggers to exploit species of high commercial value (Teklin, 1997; Roper, 2000; PRISMA, 2000).

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21 There are also some limited initiatives involving indigenous communities outside TCOs such as the cases of the Chontal and Santa Mónica communities totaling some 6,600 hectares.

As result of these various government and community limitations, the financial results of TCO operations so far have been negative (see Box 3). There is a rapid degradation of forest resources in TCOs in Cochabamba, South Beni and part of the Chiquitania in Santa Cruz due to land invasions, expansion of cattle ranching and illegal logging (Lobo and Stocks, 2000).

Both the quality and quantity of forest resources in TCOs offer great opportunities but also significant challenges for indigenous communities, the government and other actors. On one hand, there is no doubt that forests are a major source of income and a base for the development of indigenous communities. However, the sustainable commercial use of forest resources by indigenous communities requires a level of organization, technical and managerial expertise and financial strength that appears to be beyond the present reach of these communities.

### **Box 3 —Initial Difficulties in the Development of TCOs (Indigenous Communal Lands)**

As stated before, the most interesting cases of devolution to indigenous peoples are the following: Lomerio, Monte Verde, Yuracares, Yuquis and the Siriono and Guayaro Indigenous Territories. The establishment of these TCOs was intensely supported financially, managerially and technically by international assistance projects. Lomerio is the oldest one. Starting in 1986, the community established its own sawmill and obtained the first certification in Bolivia.

Unfortunately, results so far have been disappointing. Patterns of social organization, production and marketing vary from case to case but all face great financial obstacles and organizational problems. The sawmills established in Lomerio and Yuracares, have faced grave problems and their continuing financial losses finally forced their closure. Other communities chose to sell either logs or standing trees but this avenue did not produce better results. In the case of the Siriono people, the log market price in the Beni was so low that the TCO was only able to cover costs of production, and this is leaving aside the fact that some of the costs, such as those involved in the preparation of the sustainable management plans demanded by Law 1700, were covered by NGOs.

The reasons for this depressing performance are multiple, but a main one has to do with the land conflicts between TCOs, loggers in timber concessions and lands assigned to ASLs or to private property. The lack of proper delimitation of legalization of land tenure is one of the most serious problems militating against sustainable forest management in Bolivia.

Indigenous peoples and loggers have a long history of conflict due to the overlapping rights created by the parallel systems of land and forest ownership. This situation permits the continuous access of loggers operating concessions in indigenous lands and creates great friction between these two groups. With the approval of Law 1700, the number of conflicts declined from some 2.7 million to 628,000 hectares, but confrontations persist. The Superintendence granted 27 overlapping timber concessions in 8 TCOs and now the total area of conflict between indigenous peoples and loggers is about 11 percent of indigenous demands, but in certain cases, the overlap is greater. The Yaminahua-Machineri and Pilon Lajas peoples are affected by an overlap that results from logging concessions covering 34 percent of their lands. Another of the critical cases is the overlap of almost one million hectares between TCOs and the Guarayos and Chapare forestry production reserves.

In some cases, such as San Buenaventura and Ixiamas, there are also conflicts between areas claimed as TCOs and those that are requested by local populations as part of the municipal forest reserves (AFRM) for ASLs. In both municipalities, there are no other lands that could be assigned to ASLs and therefore clashes are intense.

On some occasions, the government also zigzagged with granting non-timber products concessions overlapping with TCOs and this has not helped the general situation of uncertainty, conflict and confrontation, especially in the country's Amazon region, where the collection and sale of chestnut is an important source of revenue for the local stakeholders. In October 1999, the government issued Supreme Decree 25532 that allowed the voluntary conversion of extractive non-timber extraction to the concession regime (unclear), only to provoke a violent reaction from indigenous peoples and peasants. In view of this reaction, the government made a sharp U-turn and issued Supreme Decree 25838 that annulled the earlier decree by declaring that the government would not recognize non-timber forest areas before achieving the validation and titling of TCOs and peasant lands. Some analysts have indicated that part of these conflicts came about due to the judicial vacuum left by Law 1700 with respect to the treatment of non-timber products. In another occasion, the government passed a resolution aimed at speeding up the delimitation of freely available public lands (INRA RES-ADM No. 098/99) and initiate the bid process for forestry concessions, but this initiative also refuted by indigenous groups and peasants who forced the government to go back on said resolution. Basically, indigenous communities and peasants are against the continued granting of concessions to forestry companies, before resolving the problems concerning clear titles, and land grants to the poorest groups.

The Forestry Regime has not been effective in eliminating the operation of logging companies in indigenous lands and therefore frictions persist. Many of these operations are still carried out outside the law. In 1997 and 1998 between 2000 and 3000 mara trees were illegally logged in the Isiboro-Secure Indigenous Territory and National Park. In the Multiethnic Indigenous Territory (TIM) and in the Chiman Indigenous Territory (TICH) dubious confiscations and auctioning of wood were established practices to legalize large volumes of illegally harvested trees. There are eleven logging companies operating in these indigenous territories. In 1999 the government issued a Supreme Decree that legalized all illegal timber and established that funds generated by the sale of this timber should be used in the preparation of sustainable forest management plans in the indigenous territories. The Superintendence oversaw the sale of timber and established a timetable for the preparation of the plans and for the payments to indigenous communities from loggers that benefited from the illegal-turned-legal exploitation of fine woods. However, to date, the companies have not delivered their share of payments and the preparation of sustainable forest management plans is not taking place as expected.

Again, in all these cases, conflict arose mainly because of the confusion surrounding the rights of stakeholders and the inability of the government to have a clear strategy for tackling problems and then to control and impose agreements, but in many cases, the problems confronted by the forestry regime were due to incongruence and political pressures from highly influential stakeholders in different spheres of government, such as a the minutes of a meeting of the Chamber of Deputies in which the Forestry Superintendence is ordered to legalize all the wood cut illegally in indigenous territories, TICH and TIM. Indigenous groups or loggers obtain changes in public policy either through political pressure on the streets or simply by not respecting agreements that the government is unable to enforce. A weak government cannot control the development of the sector.

*ASLs* -Local Social Associations *or Asociaciones Sociales de Lugar*. As in the case of the TCOs, the implementation of ASLs has faced a number of difficulties, mostly derived from the lack of capacity for execution on the part of the institutions involved. In addition to this limited institutional power are the complicated bureaucratic requirements demanded by the government which include:

- i) Qualification,
- ii) Delimitation of the Municipal Forest Reserve Area (AFRM),
- iii) Authorization of the concession by the government.

In addition, in several cases the forest put at the disposal of the local communities are simply insufficient to satisfy their needs. These problems are discussed further, herein below.

*Qualification.* While various municipal councils quickly approved ASLs, the legal acceptance on the part of the Ministry is slow and affected by many bureaucratic requirements. The qualification process lasts between one and two years and, by one account it must surmount 26 different bureaucratic requisites. The first ASL initiatives started in early 1998 but the first qualifications did not take place until July 1999. The majority of the delays were caused in the obtainment of legal authority<sup>22</sup>, the lack of clarity in reference to and knowledge of the necessary steps to be taken before the Ministry of Sustainable Development and Planning, the later demands of sworn statements and the ministry's inflexibility with respect to procedures (Pacheco, 2000).

Other problems encountered included the lack of awareness and weak dissemination of information on the part of government institutions, weak capacity of potential interested parties (traditional users of forests, peasant communities, indigenous communities and other local stakeholders) to produce the necessary documentation and follow the intricate bureaucratic procedures, administrative delays on the part of national, departmental and local governments and the lack of support from the Municipal Forestry Units that are supposed to help in the formation of ASLs (PRISMA, 2000).

Concurrently, many municipalities do not have the necessary financial resources to support the establishment of ASLs.<sup>23</sup> A recent study shows that in a group of 36 municipalities in 7 Departments not one of the municipalities had been able to staff their municipal forestry units in the terms mandated by the law (Forest Superintendence, 2000).<sup>24</sup>

*Delimitation of the Municipal Forest Reserve area.* One of the main problems faced in the formation of ASLs is that municipalities must identify and establish the limits of public lands concessions to the ASLs (the 20 percent of public forests that will become the Municipal Forest Reserve Area). As in the case of the TCOs, the lack of clear property and access rights often means that there are several conflicting land claims by communities, private parties and the government. Certification of "areas whose availability is

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<sup>22</sup> The majority of the ASLs had to go through a process of legalization of the body to acquire legal recognition. These procedures are long and onerous, with initial costs which initially oscillated between \$3,000 and \$4,000 USD. These amounts had to be covered by the owners themselves (Pacheco, 2000).

<sup>23</sup> According to recent evaluations, the cost of creating a municipal forestry unit varies between Bs. 97,000 (approximately \$16,000 USD) as a bare minimum to Bs. 382,000 (\$62,000 USD) in the case of a unit that would fully follow the terms of the law (Superintendencia 2000). The annual functioning of a forest management unit which can meet the requirements of Technical Norm (ITE – 002/97), requires approximately Bs.200,000 or \$32,000 USD (Gandarillas 1999).

<sup>24</sup> Technical norm ITE of February 1997 establishes that each Municipal Forest Unit should be managed by a group of a forester or agricultural engineer, two forest technicians, a driver and a secretary. Equipment must include a 4x4 vehicle, one motorcycle, a set of maps, a GPS and other related material.



certain” which would constitute the AFRM’s depends on the progress of clarification of property rights administered by the agriculture regime which has proved to be complex, lengthy and expensive.

Notwithstanding these difficulties, as of October 2000, 37 AFRM’s in 60 municipalities have been identified, and applications for AFRM’s totaling 2.443 million hectares have been filed before the Ministry of Sustainable Development and Planning, and said ministry is in the process of granting 1.309 million hectares (BOLFOR, 2000; LEDEZMA, 2000). In June 2001, the government delivered to six municipalities the respective resolutions ratifying the Municipal Forest Reserve Areas (*Areas Forestales de Reserva Municipal AFRM’s*).

*Government authorization of Concessions.* Due to major difficulties in identifying AFRM’s, no ASL has yet been able to have a Municipal Forest Reserve Area approved by the Ministry of Sustainable Development and Planning. Because of these problems, no ASL could legally access public forests during 1997 and 1998. As a way out of these problems the government tried to simplify the process through a new measure of exception so that the ASLs could define their annual harvesting areas (POAF) within the theoretical potential Municipal Forest Reserve and initiate operations under the condition that they would eventually elaborate their forest management plans after the definitive allocation of the area is granted by the government.

In this manner, by October 2000 there were sixty-two ASLs being formed in Santa Cruz, Beni, La Paz, Cochabamba and Tarija Departments. Fifty-one had presented a qualification request to the Ministry of Sustainable Development and Planning. 13 of the 22 ASLs that had been certified by the Ministry of Sustainable Development obtained access to forest concessions on an area that is almost 600,000 hectares. However, only eight ASLs had sustainable management plans approved by the Superintendence, all of them during the second half of year 2000. Just up to July 2001 the Forestry Superintendence approved 5 duly authorized concessions for the ASLs, all of them in the Department of Santa Cruz.

*Obstacles related to the quantity and quality of available forest resources and internal organization.* Most ASLs operate in forests that have already been “creamed” of the best species. In some cases there are not enough forest resources to sustain meaningful ASL operations. The lack of public forest resources is now the main obstacle to the development of ASLs (P. Pacheco, personal communication, 2001).

Most ASLs also lack technical and managerial knowledge as well as financial resources needed to achieve levels of efficiency needed to compete in the market. Partly due to these limitations, ASLs only produced less than 16,000 cubic meters of timber in 1999. That year the Superintendence authorized some 330,000 and therefore ASLs were able to achieve only 5% of the authorized production. So far, the integration of ASLs as competitive producers in the national scene has yet to happen.

Internal disputes, poor financial management, unclear procedures for accepting members and the illegal utilization of resources by its own members plague some ASLs. In some cases, the ASL scheme has contributed to strengthen local elites more than to benefiting all participants. Also, an observer points out that many conflicts arise because of the differences created by the associative nature of the ASL which clashes with the aspirations of traditionally fiercely independent individuals such as the “motosierristas” whose access to forests may be threatened by the new forestry regime. Legislation assumes instead that traditionally independent individuals will organize themselves in collective schemes to manage forest resources. While not impossible, transition to collective action is likely to take long time (C. Vallejos, personal communication, 2001).

Despite all these problems, it is clear that there is some progress. For example, municipalities increasingly listen to demands of previously marginalized local populations and those with rich forest resources are doing as much as they can to support ASLs.

In short, decentralization to local governments and ASLs is generally suffering from a number of problems but the process is slowly improving (Contreras, 2000). Initial difficulties were hardly surprising, as municipal governments had no jurisdiction over rural areas before 1994, and therefore no experience with managing forest resources and interacting with local communities. But despite all problems, previously marginalized groups now have a much greater opportunity to gain control over resources and to influence local government institutions. Moreover, local governments are now more interested in the management of forests and the integration of local priorities in their operational plans.

#### *The economic dimensions of the model*

There is a notable absence of economic studies concerning the impact of Forestry Reforms in Bolivia despite the fact that it seems to be economic factors that determine the progress of reform and its future successes or failures.

During the period of reform a series of extra sectoral events took place, such as the contraction of the Argentine economy, previously an important market for Bolivia; a devaluation in Brazil, which negatively affected Bolivian exports; and economic crisis in Bolivia itself. These events create difficulties in identifying the impacts that are due exclusively to the new forestry regime. Certain problems would have probably resulted independently of the installment of the forestry regime and therefore cannot be legitimately attributed to it.

The confusion between impacts due to the forestry regime and those which coincided with the implementation of the regime, but probably are not a result of it, affects many of the discussions concerning the good and bad aspects of the new system of forestry policy and legislation. For example, it is proposed that under the new forestry regime the supply of valuable forestry species has substantially declined. But, as has been explained before, the valuable species were already in decline and said decline was not notably influenced by the implementation of the regime.

It is also argued that forestry fees impose a significant cost on the concessionaires. On one hand, as has been explained in the respective section, the profitability of the concession operations is quite high, even taking into account the cost of fees. On the other hand, even when the cost of the fees represent 15% of a concessionaires total costs (considering the that the operating range of a concessionaire runs from forestry management to harvesting and transport to an industrial facility) said cost is only around 2% of the total integrated forestry production costs (that is to say, from the forests to the markets, including industrial processing stages and marketing) (SCTP Engenharia de Projetos Ltda, 2000). In other words, these numbers indicate that the fees do not constitute a major cost of the forestry production process. Actually, it seems that the fees have created a strong incentive for integrating forestry operations from the forest sites to industrialization and marketing. Other factors, such as transportation, constitute a much greater cost element within the whole system of industrialized wood products.

Furthermore, some people claim that the fall in exports of finished wood products is due to effects of the reform. However, in the absence of serious studies on the subject and a lack of trustworthy statistics, such comparisons are moot. First, it is true that the value of finished wood exports fell between 1998 and 1999 (from US\$76 million to US\$73 million) but the rose again in 2000 (US\$83 million, CIFOR, 2001). Second, the fall in exports can be attributed to the devaluation in Brazil and the economic crises in Argentina and Bolivia that were mentioned above, more than to the implementation of the new national forestry regime.

In making management plans obligatory and finalizing the maximization of resources based on a few valuable and disperse species, the Law created a tendency towards vertical integration, from exploitation of the resource in question, to industrial processing and marketing. If the industry, as a sector, is capable

and has the necessary incentives to adapt to these new conditions is still open to question, but there are already indicators that exports for more highly finished products, such as doors, chairs, plywood, decorative plaques, furniture parts, are slowly increasing (CIFOR, 2001).

There are several reasons why sectoral integration is economically advantageous in the Bolivian context. As mentioned, sustainable forest management that follows the prescriptions of the law generally is not financially as attractive as other commercial options. One way law-abiding enterprises can afford to practice sustainable forest management is by integrating their operations with other firms that carry out industrial processing. If industrial processing and marketing activities are commercially successful and profitable these may be able to carry forest operations, i.e. make the whole production chain financially attractive to private entrepreneurs. For example, the high transportation costs that characterize forest operations in Bolivia are diluted when the final product has substantial value added. This increases the possibilities for Bolivian firms to compete in the international market. Integration also increases the possibility of profitably utilizing lesser-known species.

Some entrepreneurs are successfully adjusting to the new conditions by investing in new facilities, adopting certification, attempting to increase exports of manufactured products and utilizing a larger number of timber species. Many concessionaires that kept their concession contracts are progressing towards vertical integration and have invested in sawmills and downstream processing facilities such as carpentry shops and furniture-making facilities. For those enterprises that were already integrated and exported products with greater value added, adjustment has been less painful. At the same time, these enterprises are more likely to count with the financial muscle, managerial capacity, market contacts and the technical knowledge and industrial installations to adjust to the new conditions. On the other hand, inefficient loggers relying on a few, high valued species and un-integrated operations are leaving the sector.

The weakness of Bolivia's financial markets has been instrumental in multiplying obstacles and preventing some firms from adapting to the demands of the policy reforms. Loggers that may have the managerial and technological knowledge to invest in integrated operations are unable to do so because of their lack of access to credit, a fact that is compounded by their inability to use their timber concessions as collateral. Annual interest rates are dollar-based and reach 15% or more and then only for short-term loans (no more than 5 years for industrial loans). This is out of the reach of the less economically potent entrepreneurs.

There is considerable debate whether the process of change could have not been more gradual, giving entrepreneurs time to adapt to the new demands of the policy reform package. Of course, entrepreneurs were keen on a more gradual process. However, experience shows that this can be a dangerous avenue and Bolivian decision-makers were justifiably reluctant to adopt it. There were still memories of the failure of similar models adopted in Latin American economies under the theory of "infant industry protection" that became popular during the 1950s. These now discredited strategies relied on a program of gradual industrial adjustment to the harsh environment of global competition with the government making heavy use of trade barriers to protect "infant" industries that eventually would "mature" into internationally competitive concerns. However, abundant experience in Latin America shows that protected industries invariably became addicted to and pampered by government protection, with industrialists wielding their economic and political power to keep comfortable government preferential programs in place, independently of what prevailing economic conditions may have dictated. In this way, the state became a protector of inefficient industries that had little inclination to "mature" rather than a promoter of internationally competitive businesses. So, the lack of government enthusiasm for a protracted process that eventually could have generated powerful political pressure to dilute the policy reform effort was justified.

However, the above does not mean that the government could not have done more to facilitate industrial adaptation. Ideally, the new forest regime could have contemplated incentives to facilitate the transition, to promote investment oriented towards more sustainable forest operations, industrial processing and improved marketing. Instead, the forestry regime was mainly regulatory and punitive.

#### CONCLUSIONS: THE PRINCIPAL LESSONS LEARNED FROM THE BOLIVIAN EXPERIENCE

The Bolivian forest sector policy reform experience is one of the few detailed major exercises in developing countries to rationalize the management of the country's forest resources in consonance with wider changes in the total system of government. Achievements to date are important. Seven million hectares of forests are under sustainable forest management plans and now the country is a world leader in tropical forest certification with some 800,000 hectares of forest resources certified. Advances in the institutional field are remarkable, with the replacement of a corrupt and inefficient public forest administration by a professional and transparent one and with significant advances in decentralization and devolution to rural communities of some of the responsibilities and decisions for forest resources management. The difficult process of confirmation of land ownership rights benefiting indigenous communities is well under way. In addition, at least 14 enterprises now have access to some 1.4 million hectares with clear property boundaries and ownership rights. Industrial organization is evolving towards an integration of its operations with forest operations thereby creating greater efficiencies in industrial processing, in diversification of species exploitation and the composition of exports with a higher added value. Undoubtedly, the achievements of the reform efforts are impressive.

Notwithstanding, the reform initiative has faced numerous obstacles. For example, the institutional consolidation of the Superintendence has failed in certain regions, such as the North of Bolivia, and in several of its functions such as the control of illegal activities in TCOs, peasant communities or even in concessions. Financing it is a serious problem. Slowness in issuing of land titles has created enormous problems for the entire reformed system. Obviously not all of these problems are a result of forestry reform. Many are external to it, such as changes in international markets due to the devaluation in Brazil and the economic crisis in the country. Others are a consequence of the depletion of fine species such as mahogany and have little to do with forestry reform.

Nevertheless, the reform endeavor has faced many obstacles and offers the following main lessons for policy makers:

- *Radical Reforms require a strong political will in order to be carried out.* Especially in a country like Bolivia where the forestry sector covers a wide range, where its management affects a significant proportion of the poor, rural population, and where transformations have repercussions on and are affected by events in other related sectors, it is important that there be a clear political commitment in order to be able to eliminate or neutralize the inevitable resistance to change originating within those power groups who prefer the status quo. In Bolivia's case, the sectoral reforms were carried out in an environment of general innovation in the country's government and under political conditions that facilitated public participation, all of which created an environment friendly to the introduction of legislative forestry reforms. Obviously, these conditions will not always be present in other circumstances, in which case it will be necessary to create the necessary conviction and pressure for reform. How this might be achieved is not a subject for this study, but it is clear that without motivation and political commitment, the chances for successful reform are slim.
- *Consider establishing consultative, participatory strategies in designing policy reforms.* In view of the above, in many cases, the possibility of establishing participatory procedures in the development of new policies and laws should be considered. Law making through broad consultative processes

may not be a practical option in many cases. However, in countries such as Bolivia, where the forestry sector is potentially important from the economic point of view, from the perspective of environmental quality and where it provides support and livelihoods for a large number of poor families, the likely benefits of consultation may justify its costs. Since activities for sustainable forest management are typically long term, a good understanding of the priorities, conflicts and obstacles faced by main stakeholders becomes extremely important in the design of a realistic and broadly supported policy. This understanding can be best obtained through participatory methods of policy design. At the same time, participation in the execution of forestry policy and legislation is a way of insuring that the benefits of reform are captured by the poorest and most marginalized population groups.

- *The Convenience of having a sectoral policy vision* Several of the problems encountered in the preparation and execution of national Bolivian forestry system had their origin in the lack of an articulated policy of sectoral development with clear and quantitative goals (such as the number of hectares to be reforested, areas to be submitted to sustainable forestry management within a stipulated time period, the number of ASLs to be established, etc.) The discussion of quantitative goals forces a more detailed analysis of the feasibility of measures proposed in the policy reforms, and exposes those which are simply unrealizable. A clear sectoral policy would probably have been able to help focus the attention of the reformers on the nature of the inter-sectoral relationships; for example between what happens in the resources sub-sector and its implications for the industry that depends on said resources, materials required from other institutions (such as INRA), etc.
- *In designing policy reforms for a new forestry law it is essential to pay attention to financial impacts on the principal stakeholder and provide enough economic incentives to guide private action in the desired direction.* It has been frequently observed that in developing nations, new policies and legislative systems give little importance to the economic conditions created for the private sector. However, in the vast majority of cases, parties in the private sector are key in the implementation of such policies and laws. Perhaps the most important lesson of the Bolivian forestry sector policy reform experience is the need for factoring economic incentives affecting main actors, whether they be from the public sector or the private, in such a way as to be able to verify that the economic incentives affecting the principal actors will be sufficient to motivate their actions to coincide with national priorities. Achievement of policy objectives is not likely to take place unless economic signals adequately guide key actors in that direction. Economic sustainability is essential for achieving environmental and social goals and therefore it should receive preferential and careful attention from the early stages of policy design. In the case of the Bolivian policy reforms, some key actors that would provide the economic drive for the sustainability of reforms – forest concessionaires and industrialists -- do not appear to have had enough economic incentive to gear their actions to coincide with policy priorities. The almost exclusive dependency of the Superintendence on forest fees that now are not being paid in their totality, putting at risk the sustainability of government action in the sector, is a dramatic illustration of the importance of getting economic interactions and incentives right for the adequate functioning of the whole forestry regime system.
- *But also plan for adequate penalties for not complying with the law.* Sufficient economic incentives are not a sufficient condition if activities outside the law can generate better commercial results. Thus, action by key actors is not only molded by incentives but also by stiff penalties for non-compliance. It follows that policy reformers must carefully provide for means and a government capacity to enforce the law. Attractive financial results from sustainable forest management are a necessary, but not a sufficient condition for achieving sustainable forest management. The option of adopting more profitable unsustainable practices must be closed as well, by increasing its costs through strict enforcement of regulations. Laws that are not enforced weaken the authority of the state and promote further deviations from the policy. A comprehensive law enforcement strategy must include crime

prevention, detection and suppression components and technologies, all of which are becoming increasingly accessible to poor countries. As the Bolivian experience shows, the promotion of coalitions between government, the private sector, NGOs, the media and the civil society can be very productive in this respect. Technological innovations such as electronic tags and cheaper and more precise GPS are making it relatively easier for governments to provide better conditions for law enforcement. Improved surveillance increases the probability of being caught in illegal acts and thus provides an effective deterrent. Stiffer penalties increase the costs of forest crime. In the case of Bolivia, certain legal prescriptions intended to eliminate some of the most obvious illegalities or to provide an incentive for sustainable forest management have induced some unscrupulous companies to apply new processes to illegal activities. Policy reformers should also keep in mind that certain government rules may create incentives for committing illegal acts. These incentives are powerful when the financial differential between legal and illegal options is large. A serious evaluation of institutional possibilities for enforcing the law, takes us to the next stage of policy reform.

- *Obtain an adequate understanding of the capacity of and obstacles faced by main actors to follow the policy and law.* It is evident that even when economic incentives may be adequate and penalties for not conforming to legal precepts stiff, some actors may be simply unable to follow the law just because their limited capacity to deal with some of the most demanding restrictions. In this sense, policy reforms must strive to be realistic. For example, some argue that Bolivian entrepreneurs have not been able to adapt to the changing economic conditions created by the Forestry Regime because of an acute scarcity of managerial and technical expertise, as well as a dearth of adequate capital markets that would have facilitated the adoption of more advanced, but also more expensive, technologies. In this respect, policy reformers may consider technical assistance programs and the promotion of opportunities, particularly for smaller entrepreneurs who may not understand the intricacies of practicing sustainable forest management and running commercial operations as well as the costs and benefits associated with them. Also, policy makers may consider the facilitation of financing of private or community operations through concessional or preferential credit lines, sensible loan terms, tax breaks, etc. At the same time, since the essential institution for the implementation of reforms is the public forestry administration, it is obvious that its capacity will be a determining factor in the creation of an appropriate and feasible environment for application of the law.
- *Promote vertical as well as horizontal integration of forest-based operations (not necessarily enterprises or ownership).* Generally, it is desirable to have a policy and law which promote harmonious integration of the various subsectoral activities, such as forest exploitation, transport and utilization of the wood, etc, because it helps to avoid economic friction (for example, imbalances between supply and demand of raw forest products) and because it facilitates the assimilation of certain activities, such as sustainable forest management, which could be unprofitable in isolation, integration may make possible the wider use of species, including species that are technically adequate but not known and accepted in markets, thus making sustainable forest management financially more attractive. Horizontal integration in terms of, for example, export consortia can help in taking advantage of economies of scale and in supplying standardized high volumes of products as demanded by many international markets, that individual operators may find difficult to provide. There is also a need to invest more in research on the lesser-used species, including analysis of wood properties and processing methods.
- *To the extent possible, establish clear, simple and stable “rules of the game”.* It is important to increase the efficiency of the government’s regulatory action by making rules simple and easily understandable by all. Furthermore, recognizing that flexibility is necessary to adapt to unpredictable conditions in policy implementation, the government should strive to provide either stability of rules or clear provisions for change when this may become unavoidable. Stable policy frameworks and

objective and predictable provisions for change contribute to reducing uncertainty and therefore to promoting private investment in sustainable forest management.

- *Strive to provide clear ownership and use rights.* The absence of clear land ownership rights has proven to be a main obstacle to promoting sustainable forest management in the Bolivian context; this is a common problem in many other developing countries. The resolution of land ownership conflicts, legalization, delimitation and demarcation of property boundaries are critical in reducing uncertainty and promoting long term actions favorable to sustainable forest management, and must therefore be explicitly addressed in the conception of policy reforms. However, reformers must keep in mind that normally this involves much more than the simple division of space in neat parcels of land. Use rights by different groups tend to overlap over the same piece of land. Therefore, in some cases the distribution of land may not or should not be the primary policy consideration. Rather, the much more complex legal establishment of use rights and responsibilities may be a key element in organizing the management of forest resources.
- *Design the forestry policy and law taking into account the vulnerability of the new rules to corruption.* One of the most valuable lessons of the Bolivian experience is that establishing transparent procedures, open to the public, as well as administrative strategies aimed at reducing incentives and opportunities for corruption and manipulation of the public forestry administration's office for the benefit of narrow vested interests is a relatively simple endeavor for genuinely committed governments. Modern technologies for prevention, detection, and suppression of illegal activities are making more feasible to organize policy reforms that will be respected by all stakeholders and thus effectively translated into practice.
- *Include analyses of sector linkages.* Success in the implementation of forestry strategies depends largely on actions in sectors and institutions other than forestry. For example, in the Bolivian experience, the effectiveness in putting the Forestry Regime into practice has proven to be highly dependent on, *inter alia*, the work of the INRA and that of the various municipalities. If implementation depends on action by several agencies of government, it is not sufficient to plan for the forestry administration alone. Policy reform exercises would be more effective if the critical intersectoral linkages were analyzed from the start. It is particularly essential to harmonize legislation of related sectors which could affect the progress of the forestry sector, such as agriculture, industry, transportation infrastructure and international commerce.
- *Strive to make sustainable forest management more profitable rather than more complex and costly.* The rule of thumb should be to keep regulations as simple as possible to avoid regulatory overburden. When markets are competitive, many of the decisions may be left to the discretion of private commercial operators, rather than to government regulation. Also, because many of the products and services of forests are not marketable and of little interest to private operators motivated by the desire to capture financial profits, the government may consider incentives when increased private costs associated with sustainable forest management policy rules are unavoidable.

This is the story of forestry reform in Bolivia. The successes as well as the difficulties that have been encountered offer an interesting array of concepts for policy planners and designers in the forestry sector in other parts of the world. It should be emphasized that these policy lessons may not be valid or applicable with the same emphasis everywhere. Obviously, each country situation is likely to be different and requires separate strategic analyses and debates to develop and agree on the most effective and efficient mix of policy reforms. However, the experiences offered by the Bolivian experiment with forestry policy reform provide useful insights for policy designers elsewhere.

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