



## 3.1 The development of small-scale logging in Bolivia

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### Introduction

The governance of tropical rainforests is increasingly international in scope. Concerns about the effects of deforestation and illegal logging on global warming have led to renewed attention for the management and conservation of tropical forests (van Bodegom et al. 2008, 18). Previous attempts to enhance the sustainable use of tropical forests have, however, not resulted in overall reduced levels of forest degradation and deforestation.

Alternative strategies to curb deforestation are constantly being developed, based on the use of market systems (e.g., Forest Stewardship Council, or FSC), improved forest governance (Forest Law Enforcement, Governance and Trade, or FLEGT) or both (likely, as Reducing Emissions from Deforestation and Forest Degradation, or REDD). Timber sales are often an important additional or even only source of income for poor rural people. It is important that policies aimed to curb logging (legal or illegal) prevent poor people from being negatively affected (Colchester et al. 2006).



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A new forest law was introduced in Bolivia in 1996. It was intended to develop a forest sector that would democratize the benefits from forest exploitation and support sustainable forest management (SFM). All land-owners (including farmers and indigenous people), illegal timber loggers and private enterprises were granted legal opportunities to engage in timber exploitation if they complied with the forest management regulations established by the new law. In the same year the Agrarian Reform Law was enacted; it acknowledged major land claims from indigenous people, rural communities and farmers. This law initiated a process of regularization of land rights that aimed to secure property rights for all land-owners. Andaluz and Mancilla (2006, 5) consider that the new forest policy provided the legal conditions to develop a forest sector based on SFM. Colchester et al. (2006, 21), moreover, consider that Bolivia, compared to Cameroon, Canada, Honduras, Nicaragua and Indonesia, has the most “progressive legal framework in terms of its accommodation of rural livelihoods in forests.”

Indeed, many communities and farmers increased their benefits from forest resources; the previous forest law allowed only private enterprises to log and sell timber. However, most logging activities on farmers' and communities' lands are small-scale and generally do not adhere to the new forest management regulations. This does not necessarily mean that these logging activities are unsustainable though, as logging intensities can be very low.

The failure to adhere to regulations is partly due to incongruities in the forest law and its regulations: whereas the forest law grants forest user rights to all forest owners, forest management regulations were oriented only to industrial logging. The 1996 forest law and regulations failed to recognize land and forest use systems applied by small holders and indigenous people. They also failed to acknowledge the dynamic and innovative character of the timber market, which used this lack of regulations and control to its own advantage.

The development of the forest sector in Bolivia over the last 15 years shows that a forest sector can develop based on timber production by many small-scale producers. Specific regulations for the sector are required, however, to guarantee sustainable forest use, and the forest service has to be able to serve and monitor both small and large logging operations.



### Chainsaw milling

In Bolivia, chainsaw milling is prohibited for commercial purposes but allowed for domestic use. (Chainsaw milling for domestic use is not considered in this article.) Chainsaw millers process logs to lumber in the forest, then carry the lumber to nearby rivers or roads, which is physically

demanding. The beams or planks produced are often reprocessed in a sawmill to specific dimensions and other market requirements. Chainsaw millers target high-value species as mahogany and cedar; extraction is oriented to the export market. Somewhere along the production chain the timber gets "legalized" and is further transformed and exported as if it were legally harvested.

Before the 1996 forest law was enacted, chainsaw milling was widespread. It was a common way to harvest timber for people who did not have official logging permits. A relatively small local industry existed in most forested regions for reprocessing the timber. The lumber produced was sold locally or exported. It was often sold to the forest industries that had been granted the forest concessions where the timber had been illegally logged (Kraljevic 1996).

The 1996 forest law allowed for the development of a processing industry based on small timber volumes extracted from relatively small forest areas. Logging techniques changed accordingly; chainsaw milling became less widespread. Loggers started to make use of semi-industrial extraction techniques that required relatively little capital but were more efficient and less physically strenuous than chainsaw milling.

Now logs are transported from the forest in the dry season over old or new extraction roads by small and worn-out trucks. Logs are loaded using levers and taken to sawmills in the vicinity. This change is especially predominant in the more accessible areas where old logging roads enable small trucks to move the logs, without substantial investment required in road construction. Changes in logging techniques and market demand allowed loggers to include tree species that previously had not been logged by chainsaw millers.

Chainsaw milling used to be the main logging technique in Bolivia available to smallholders that did not require a large capital investment. Since the introduction of the 1996 forest law, the use of chainsaw milling has been reduced to areas that are difficult to reach (occasionally with the consent of the forest service) and to protected areas where logging is prohibited and high-value tree species are still abundant. In these places, chainsaw millers still target high-value species for the export market. There is no official information available on the commercial timber volumes being processed by chainsaw millers.

#### The 1996 forest law

The objective of the 1996 Forest Law was to democratize access to the forest exploitation and establish SFM. One of the major changes was that farmers, communities, private land-owners and people previously involved in illegal logging — as well as private enterprises — were allowed to harvest timber commercially. Private and collective land-owners were granted exclusive forest user rights to their land; illegal loggers could organize themselves in a Local Social Association/*Asociación Local de Lugar* (ASL) and request a municipal forest concession; and private enterprises could convert their old logging contracts to new long-term concessions.

Options for forest management were given to a range of forest users on both private and public land at the national and municipal level. An important requirement for all these forest users was that they comply with formal forest management regulations.

Depending on the size of the forest, the requirements for a forest management plan differ considerably. Forest areas over 200 ha require a forest inventory and an extensive forest management plan. Yearly logging plans and reports are required in order to be granted transportation permits. Forest areas under 200 ha require only a relatively simple logging plan.

The management system prescribed by the forest law, however, is similar for all forest areas (i.e., the same minimal cutting diameter, maximum logging intensity and 20-year cutting cycle). All commercial logging activities (irrespective the size of the forest or logging intensity) have to transport logs to sawmills to avoid the efficiency losses of using a chainsaw to process timber.

In practice this means that operations require skidders to extract the logs, loaders to stack the logs on the truck and trucks to move logs from the forest to the sawmill. Roads, landing places and bridges have to be built. These operations all require major invest-

ments. Few rural dwellers have access to financing and no credit facilities have been set up to enable forest owners to invest in forest management. Consequently, although a wide range of forest users have been granted commercial forest user rights, most of them do not have the financial means to engage in commercial logging without capital investment from NGOs or private funders.

### **New participants in the timber business**

A considerable number of forest users — including farmers and indigenous communities, ASLs and private forest owners — have benefitted from the new forest law (Benneker 2008). By 2006, 100 forest management plans of indigenous and farmers communities had been approved covering 1.1 million hectares (ha) of forest.

#### *Farmers and indigenous communities*

Farmers and indigenous communities who had a connection with an NGO and who owned a reasonably large and accessible forest started receiving financial and technical assistance to develop and/or implement a forest management plan. By now, many of these communities have consolidated their forest management activities and operate independently. Most communities outsource the construction of roads and the extraction of logs to private enterprises that are often also the buyers of the timber. Timber sales contracts are generally signed for one year and are thus flexible. Timber prices and secondary contract conditions have improved considerably over time, and the communities have more negotiation capacity. The communities are responsible for yearly inventories, the elaboration of logging plans and reports and for felling and limbing trees. Due to a lack of capital for extraction equipment, the communities are limited in the forest management activities they can implement themselves.

#### *Other communities*

A second group of communities received financial assistance from private enterprises. These communities are generally located in less accessible forest areas and own forests with high-value timber species. Unlike the financial and technical assistance offered by NGOs, the funds provided by private enterprises pay communities for the management plan and take care of all management and logging activities, without much participation by community members. These logging companies have de facto control over community forest areas, as if they were concessions. Communities are rarely informed about the timber volumes harvested and are commonly cheated in prices and payments. They are often locked in long-term timber sales contracts that are difficult to renegotiate.

By 2006, the management plans of 23 ASLs, covering 600,000 ha of forest, had been approved. These former illegal loggers have been partly successful in organizing themselves and requesting forest concessions from the municipalities. Their development has been easier in accessible forest areas, as extraction costs are lower and the market is familiar. For most ASLs, the legal procedures to get legally established and awarded a concession have been tedious, costly and virtually impossible without external assistance. ASLs have

also encountered problems in financing the development of their forest management and logging plans and depend on private enterprises for funding.

#### *Owners of private rural properties*

The owners of private rural properties have developed forest management plans for their land. By 2005, 173 forest management plans for private owners, covering 1.2 million ha, had been approved by the forest service.

One of the goals of the 1996 forest law was to offer chainsaw millers a legal alternative under the new forest regime to ensure that forests would be logged in a sustainable way. This strategy has been successful; a significant number of unskilled labourers in the chainsaw milling production chain, such as tree-spotters, millers and their assistants, have shifted their activities to community forest enterprises or ASLs. Moreover, the businesspeople who used to finance chainsaw milling have shifted their investments to the newly developed semi-industrial timber processing industry.

Most new timber producers, especially those with relatively large forest areas, would not consider returning to the use of chainsaws even if the technique were legalized. The costs of industrial logging are high and capital is hard to find, and logging intensity has to be high enough to recover the investments made in forest management plans and logging plans. Industrial logging methods are economically more efficient and generate higher income than chainsaw milling. Moreover, chainsaw milling is extremely strenuous and people perceive the use of more advanced technologies as a positive development and an improvement of their livelihoods. Although chainsaw milling still exists it is no longer the main logging technology used by local people.



#### **The need for alternative regulations**

Although one objective of the forest law (to democratize access to the benefits of forest resources) can be considered as partly achieved, a second objective (to source all timber from sustainably managed forest) has become increasingly problematic. None of the timber producers (small or large loggers and enterprises) comply with logging regulations completely and an increasing amount of unsustainably logged timber on the market originates from the use of small-scale logging permits (for less than 200 ha). This situation has partly been caused by the fact that although the forest law provides options to obtain logging permits for small-scale logging, it does not provide a realistic regime for the use, monitoring and control of small production forests.

These small-scale logging permits are issued by the forest service to enable farmers and owners of small forests to benefit from resources from agricultural lands and conversion forests. Forest owners can legally obtain a range of small-logging permits relatively easily and cheaply. The forest management system prescribed for small forest areas, however, is similar to that for large-scale management plans (more than 200 ha) and is unsuitable for

low-intensity logging or logging in small forest areas. The investment required is too high for small areas and the cutting cycle of 20 years is unrealistic. Forest users do not adhere to the management system, but compliance is rarely controlled by the forest service (Pacheco et al. 2008). Many entrepreneurs in the forest sector have developed strategies to make use of this weakness in the system.

Because access to small-scale logging permits is limited to forest owners, entrepreneurs (including large and small enterprises, intermediaries and consultants) have developed innovative strategies to facilitate forest owners' access to logging permits. The entrepreneurs arrange all the paperwork for the forest owners, harvest the trees and pay for the timber. Entrepreneurs prefer to use small-scale logging permits — which are cheap and easily obtainable — instead of permits for larger forest areas, which require investments in SFM plans. This is especially prevalent where there is easy access to the forest.

This practice allows timber enterprises to obtain cheap timber from forest owners without investing in SFM. As small-scale logging is widespread in the extensive forest areas owned by indigenous and farmers communities, the forest service has lost control over much of the forest. Moreover, the large volume of cheap timber on the market threatens the economic viability of the communities, ASLs and private forest owners who comply with regulations.

### Conclusion

The success of the forest regime in Bolivia is based on the participation of communities, farmers, private forest owners and ASLs in industrial timber logging from large management areas. The weakness of the regime is the lack of alternative, non-industrial systems of forest use for those who are not interested in industrial logging and long-term commitments to forest management but are eager to earn income from selling trees on their land.

Under the 1996 forest law, the illegal practice of chainsaw milling was reduced and alternative semi-industrial logging techniques appeared that better suited people's needs. The rapid development of this timber production chain can largely be attributed to the denial of the importance of timber extraction from smaller forest areas by the forest service, who failed to develop applicable regulations or control small-scale logging. Forest management regulations — as well as the entire institutional framework set up by the government under the 1996 forest law — have been directed at servicing a limited number of vertically integrated enterprises and some large-scale community forestry initiatives and ASLs. Servicing, monitoring and controlling thousands of small-scale forest enterprises that source timber from thousands of private companies, farmers and community forests were never a priority. This omission caused a serious void in the forest regime and an increase in unsustainable logging practices. The Bolivian case proves that providing realistic management and monitoring options for small-scale logging practices are necessary to keep the entire forest sector healthy.

The development of the timber industry in Bolivia clearly shows that if forest governance regulations do not consider small-scale timber exploitation, chainsaw milling or other semi-industrial technologies, the sustainability of the entire forest sector could be undermined. If international initiatives such as FLEGT and FSC fail to consider small-scale exploitation too, they would encounter the same kind of problems. In developing countries, rural people do generally not have access to capital to comply with complicated regulations on forest use. Complex regulations almost by definition exclude large parts of the population.

Economic arguments are often used to exclude rural people from participation in timber exploitation. Providing adequate services to a large, poorly educated and poor population is costly and difficult. In contrast, dealing with a few large private timber companies is easier and cheaper but may in the end be unsustainable, as shown here.

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