

Attention to markets and public policies is crucial to the promotion of sustainable forest management in the country's tropical forests

by
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Members of an ITTO diagnostic mission to Mexico in May 2005

IN OCTOBER 2004, the government of Mexico requested ITTO to organize a technical mission to Mexico to identify those factors that prevent or limit progress towards the ITTO Objective 2000 and sustainable forest management (SFM) in the country's tropical forests and to recommend appropriate measures for overcoming these constraints. The mission took place in May 2005; this article summarizes its findings.

Overview

Mexico is a middle-income country with a per capita income of just over US\$5,000, one of the highest in Latin America. However, there are still major and increasing differences between the rich and the poor, the north and the south, and the urban and rural areas of the country. It is estimated that about 45 million Mexicans live on less than US\$2 per day.

Tropical forests

Mexico has an estimated 26.4 million hectares of tropical forests, which are found in the coastal regions of the Gulf of Mexico and the Pacific coast, the Tehuantepec Isthmus, the Yucatan Peninsula and along the border with Guatemala. They comprise mainly low to medium natural forests, with a relatively small area of high forests (>30 m high). The states with the majority of tropical forest resources are Campeche, Chiapas, Oaxaca, Quintana Roo, Veracruz and Yucatan, which together with Tabasco were the main focus of the diagnostic mission.

Forest land tenure

About 80% of forests and rainforests in the country are under social ownership regimes (*ejidos* and other communities), comprising about 8,500 agricultural centres with a population of about 12 million people. Few countries have a higher rate of communal land ownership, and Mexico is recognized as a global leader in community forestry.

Tropical forest management

Formal management for the production of timber in the tropical forests of southeastern Mexico began in the 1950s, when a large-scale forest management plan was developed for a parastatal company in Quintana Roo. In the 1960s and 1970s, concessions were granted to private companies. All concessions were cancelled in the 1980s, however, and a process began of transferring responsibilities for forest



Productive use: *ejido* farmers stand in their young orchard, which is growing adjacent to natural forest. Photo courtesy Mexican Forestry Commission

management activities to *ejidos* and other communities. The current law stipulates that all harvesting permits should be granted to forest owners, which in the case of tropical forests are almost exclusively *ejidos* and other communities.

Timber production

In 2002, the production of tropical roundwood was 278,000 m³. Of this, 8.6% comprised high-value timber species such as mahogany (*Swietenia macrophylla*) and red cedar (*Cedrela odorata*) and the rest were secondary species. Most of the valuable species are milled for sawnwood, with less than 10% used for other purposes. Secondary species are used for sawnwood (44%), firewood and charcoal (30%), posts and poles (7%), sleepers (8%), and veneer and plywood (2%).

Commercial plantations

There is little reliable information on the extent of commercial forest plantations; it could be as low as 100,000 hectares. There is huge potential for their expansion in the tropics—perhaps up to 5 million hectares. However, several factors hinder such expansion, including: (i) the current land tenure system, which makes it difficult to develop large-scale industrial projects; (ii) the lack of complementary financing to support start-up incentives; (iii) the lack of a clear identification of the species to be planted and the products to be obtained; and (iv) low interest within the private sector due to high perceived risks and a lack of reliable information on expected returns.

Main socioeconomic indicators

The total value of tropical timber production in the seven states of southeastern Mexico was US\$24 million in 2002; the value of non-timber production was US\$7 million. The

direct contribution of the timber sector to the generation of employment in the tropical region could be as high as 60,000 jobs, but no reliable data are available to confirm this. Most employment opportunities continue to be informal and temporary in nature. A substantial number of *ejidos* depend mainly on forest activities for their livelihoods.

Diagnosis

Mexico has significantly strengthened its system of SFM over the past decade and many of the necessary elements are already in operation, if imperfectly. However, the process to improve production on the ground has generally been slow due to a lack of investment by the private sector and the limited capacity of community groups to improve their forest management systems and industrial processing.

Forest communities find themselves in a vicious circle: the income derived from forest activities is not sufficient to justify the investments required to add value to products or improve the efficiency of operations. Of the nearly 8,500 *ejidos* and other communities with forest resources in Mexico, 2,417 implemented commercial harvesting activities with officially approved management plans during 2002. This means that only 28% were able to take the managerial, technical and financial steps to develop and implement their management plans. The production potential of high and medium forests in the tropical region has been estimated at 1.4 million m³ per year, five times or more the current production. For it to be sustainable, however, such an increase in production could only be achieved through the implementation of adequate management plans, well-trained technical services, appropriate zoning, investments in infrastructure, improvements in production efficiency and the elimination of conflicts on the use of forests.

Given the social and environmental importance of tropical forests and the economic role they play in the conservation of environmental services, promoting their sustainable management should be a high national priority. However, both national and state governments offer incentives for rural development that tend to promote other land-uses on forest land.

In the tropical region, there are perhaps 200 *ejidos* and other communities with sufficient high-value forest resources to base their development strategies mainly on industrial timber production. Of these, about 50% meet the necessary prerequisites with regard to their internal organization and economic accessibility in the short and medium terms. The remaining *ejidos* and other communities have small or less productive forests, or their forests are inside protected areas. Such communities could base their management on non-timber products, environmental services and smaller quantities of commercial timber. In these cases, support should be geared towards training in basic administrative and technical skills as well as the development of non-timber products and other forms of natural resource utilization.



Drying up: Mexican mahogany boards are stacked for drying. *Photo: J. Blaser*

Support strategies should be targeted at market niches and specialized producers who can serve these outlets with a high level of professionalism.

The situation of the industry will change in a few years as plantation timber starts to penetrate the market. This will create new dynamics because it will require different types of technology—suited to fast-grown, small-diameter timber—to that currently used for native tropical timber species. The industrial needs of the sector have not yet been adequately considered in plantation programs and there is a risk that this will lead to the geographical fragmentation of the supply of raw materials, resulting in high transport costs for the industry. A long-term integrated plan to develop plantations and industrial capacity at the regional level is required to address this concern.

Industrial development will follow two strategic pathways: (i) small- and medium-scale production based on timber sourced from natural tropical forests for specific market niches (domestic and export), with an emphasis on value-added products; and (ii) medium- and large-scale production with competitive costs based mainly on plantation timber directed at markets in which they will compete with oak and other broadleaved species, both tropical and non-tropical, either domestically sourced or imported. Industries will also be developed to satisfy local needs for pallets and packaging, construction poles, etc.

Marketing

Existing distribution channels in the domestic market do not encourage increased value-added processing of sawnwood by producers, the use of secondary species in the market, or the adoption of improved grading and measurement



Valuable asset: a mahogany tree in forest in Yucatan, Mexico. Photo: J. Blaser

systems. The introduction of plantation tropical timber into the market reinforces the need to address these problems, because the quality of this raw material will be different from that of the timber produced in natural tropical forests.

On the other hand, many secondary species that do not have a national market do have a potential international market and therefore provide important niches for Mexican producers. It is possible to find these niches in the domestic markets as well, but this would require the development of new distribution channels. The volume of demand in these niches (both national and international markets) is limited, but prices can be high. The market potential coincides with the capacity of small and medium-sized enterprises if the required quality can be produced and producers can comply with the other requirements of these demanding markets (such as delivery times, certification, etc). The development of drying techniques in the *ejido* sawmills would be an essential prerequisite for almost any value-added product line.

A significant bottleneck is the lack of direct contact between markets and *ejido* sawmills in the tropical region. Despite the existence of forest certification, the sector has not been able to establish partnerships between buyers and producers that foster the improvement of production systems. The lack of management capacity and realistic business plans is a basic limitation on the development of the sawmilling sector.

The information system for tropical timber markets in Mexico needs to be improved. The current lack of transparency results in an economic loss for producers and acts as a disincentive for the implementation of SFM. In addition, there is a lack of capacity to convert available data into a more usable and accessible format for potential users (producers, industry, timber merchants, exporters, importers, etc). Filling this gap is a priority for the promotion of SFM in the tropical forests of Mexico.

Public policies for SFM

Tropical forests in Mexico have been in crisis for many years as a result of public policies that have promoted their clearing for other uses. However, pressure for land has decreased as a result of recent macroeconomic changes and because there are fewer government incentives for forest conversion (although some still exist). Important factors in this process have been the establishment of new protected areas, an increase in wildlife management units, and specific government support programs. Nevertheless, inappropriate deforestation (even at a lower rate than previously recorded) continues to deplete forest resources. It is therefore important to maintain the clarity and stability of existing policies, and to adjust those that still induce inappropriate land clearance—or risk a return to high rates of deforestation.

Combating illegal logging

Illegal logging is a serious problem in certain areas of the country. The Federal Office for Environmental Protection (*Procuraduría Federal de Protección al Ambiente*) estimates that the consumption of illegally harvested timber (including non-tropical timber) in the country is 5–7 million m³ of roundwood per year, which is about 80% of the volume of timber harvested legally; no reliable data are available on the proportion that is tropical. Generally, forest operations have inadequate control due to a lack of human and financial resources and training. Current monitoring systems are not efficient. Provisions to support existing regulations exist, but these are incomplete and fragmented and require revision.

The Mexican government has taken many actions in the fight against illegal logging. Nevertheless, one element that is still missing is the involvement of public and private buyers through clear purchasing policies that will prevent—or at least significantly limit—the access of illegal products to the national market. It is also necessary to improve information on the volume of illegal logging and its causes so as to design additional and specific responses.

Constraints and opportunities

Major constraints

The mission identified five major constraints to the achievement of the ITTO Objective 2000 in Mexico's tropical forests. These are: (i) the limited capacity of forest owners to implement forest management practices and value-added processing of their products; (ii) insufficient knowledge of the technical basis of natural forest management, the properties of the wood resources, forest productivity (both natural forests and plantations), and markets and industrial development; (iii) limited knowledge about the diversification of production aimed at improving the economic viability of natural forest management and the income levels of producers, in particular in regard to lesser-known/used species; (iv) a lack of transparency and efficiency in the timber market for the promotion of SFM, including a lack of information systems on SFM and appropriate measurement and grading systems; and (v) a lack of appropriate SFM financing mechanisms and the existence of perverse incentives that promote non-forest uses of forest land.

Opportunities

The Mexican moist tropical region offers a series of opportunities for sustainable development that are still under-utilized. For example: (i) up to 1.4 million m³ of timber could be produced each year from Mexico's natural tropical forests on a sustainable basis; (ii) 4–5 million hectares of plantations could be established for commercial timber production and carbon sequestration; (iii) the tropical region produces 60% of the nation's hydroelectric energy—the conservation of water resources is an important function of tropical forests; (iv) ecotourism is still under-developed; (v) the sustainable production of non-timber products derived from natural tropical forests, and a sustainable trade in wild flora and fauna, could be made more efficient and lucrative; (vi) the contribution of the 5.6 million hectares of protected areas to biodiversity conservation could be improved with better management; and (vii) natural tropical forests could sequester an estimated 8 million tonnes of carbon per year under SFM.

Comparative advantages

The main comparative advantages for the production of tropical timber in Mexico are: close proximity to the US market; good physical conditions for tree-growing; the availability of marginal lands for the establishment of commercial forest plantations; well-developed basic infrastructure; a rapidly growing domestic market; successful experiences in community forestry, tropical forest management, agroforestry, plantations, non-timber production and other sustainable development activities; a positive long-term policy framework; the availability of manpower at competitive costs; and high potential for the generation of environmental services.

Elements for ITTO support

The mission recommends the following activities (in no particular order of priority) as elements of an ITTO support program for Mexico:

- i) development of criteria and indicators (C&I), guidelines and manuals on SFM in the high, medium and low tropical forests and mangrove forests of Mexico, including regional monitoring of timber growth and yield, based on the ITTO C&I and relevant guidelines;
- ii) development and implementation of a training and research program on priority issues such as reduced impact logging systems, forest road planning, business management of community-based forest enterprises, drying techniques, secondary processing, quality control, operational planning, marketing, business planning, etc, geared to instructors, technical service providers and a pilot group of producers;
- iii) implementation of an integrated project for the development of commercial forest plantations in the tropical region, including: (a) a survey of current plantation area, stocks and productivity based on remote sensing and field measurement data; (b) a market survey for plantation timber, and (c) a master plan to guide new investments, specifying species, products, markets, etc. These guidelines should particularly consider market and industrial development aspects at the regional level;
- iv) the strengthening of germplasm management, production and regulation in the southeastern region;
- v) development of an integrated pest management system for cedar and mahogany plantations;
- vi) research and training on the management of degraded or rehabilitation lands, including commercial forest plantations, based on the ITTO

guidelines for the restoration, management and rehabilitation of degraded and secondary tropical forests (see page 18 for a description of a new ITTO project to address pest management in Meliaceae plantations);

- vii) development of improved systems for timber-measuring, the grading of roundwood and timber products, the formulation of respective standards, and the dissemination and promotion of results among target beneficiaries, who should be involved in the process from the outset;
- viii) the implementation of a demonstration project for the development of community-based forest enterprises in the Mayan region, which should include a diagnosis of the limitations of such enterprises as well as an initial auditing of certification, technical studies, training, and the development of appropriate systems and technical management practices. The results of this project should help strengthen the competitiveness of participating community-based forest enterprises and facilitate their certification;
- ix) implementation of studies on: the characteristics of lesser known/used species, their markets, and their production potential based on site-specific forest inventories, as well as the processing and dissemination of information in a suitable format for the promotion of these species;
- x) development of a market information system to improve transparency, data collection and organization and the establishment of sufficient communication channels to guarantee the accessibility of updated information to individual producers, their associations and technical service providers;
- xi) strengthening of control systems through: a study on the volume and causes of illegal logging and an assessment of relevant experiences in other countries, development of advanced monitoring systems for timber and timber product flows, and development of initiatives aimed at improving the role of markets in the control of illegal logging; and
- xii) development of systems and capabilities for the certification of the quality and properties of Mexican timber products.

The mission made a total of 32 recommendations aimed at overcoming constraints and encouraging SFM in Mexico's tropical forests. The full list is contained in the full report of the diagnostic mission, which can be obtained from: ITTO Information Officer, itto@itto.or.jp, or downloaded at <http://www.itto.or.jp/live/PageDisplayHandler?pageId=205>