Conclusions and recommendations

Forest landscape restoration under the ITTO–Cornare forest carbon project in Valle San Nicolas. *Photo: J. Blaser*

Key parameters

Overall, there appears to have been continuing progress towards SFM in tropical forests in the period 2005 to 2010. Some of the developments that were identified as indicating progress towards SFM in the 2005 survey have continued since, including the move towards the enactment of new forest laws and regulations and the reorganization of departments responsible for forests. Increasing interest in certification is also apparent within both government and the private sector. There have been developments in forest law compliance, stimulated particularly by demands from importing countries for legality-verified products.

The REDD+ concept has been embraced in many countries, stimulated in part by the growing availability of funds to support such measures. Overall there have been increases in the areas of production and protection PFE subject to management plans and the area of production PFE that is certified, and there has been a significant increase in the total area of production and protection PFE under management considered consistent with sustainability, from 36.4 million hectares in 2005 to 53.6 million hectares in 2010, an increase of nearly 50%, or about 3.4 million hectares per year. Part of this increase may be due to improvements in information, especially for the protection PFE.

The improvement in the quality of information submitted by countries for the survey is noteworthy. This is no doubt due in part to the revision of the ITTO C&I reporting format (and associated national training workshops), which reduced the number of indicators and provided clearer guidance. Moreover, there have been improvements in many countries in data collection and management. For the present survey, eight countries[3] submitted reports without financial assistance from ITTO, suggesting a growing capacity to generate and supply data as part of routine work. However, many countries are still unable to provide reliable data on a range of parameters, and there is a continuing need to improve data collection and management. For example, few countries provided estimates of sustainable timber yields or data on actual off-takes in their PFEs.

There has been a continued devolution of responsibility to lower echelons of government and to communities. In the long run this may have a beneficial effect on SFM but, in the short term, local governments and communities often lack the human and financial resources to pursue SFM. In many countries, the capacity of Indigenous organizations requires strengthening to ensure that SFM is feasible on lands under their control and that Indigenous rights are upheld. In some cases, community enterprises have struggled to sustain certification programs because of their relatively high cost and uncertain benefits. While some countries have enacted laws designed to clarify land (including forest) tenure and to recognize customary ownership, the pace of such reforms is often slow. Conflicts over resource ownership and use continue and appear to be particularly prevalent in countries that are not moving to address tenure.

Countries that appear to have made significant progress towards SFM in the past five years include Brazil, Gabon, Guyana, Malaysia and Peru. These countries were all able to supply useful information in the C&I reporting format (with

3 Brazil, Fiji, Guyana, Honduras, Malaysia, Myanmar, Trinidad and Tobago and Suriname.

the exception of Gabon, whose report was not in the C&I format), they have generally progressive forest-related policies, laws and regulations, relatively clear tenure regimes and strong institutions, and law enforcement is improving on the ground. There has been a general improvement in countries of the Congo Basin, including rapid growth (albeit from a low base) in the area of certified natural forest.

While almost all countries have seen improvements in forest management in the past decade, some countries appear to be making less progress towards SFM than others. A number of ITTO producer countries—for example, Cambodia, Côte d'Ivoire, DRC, Guatemala, Liberia and Suriname—have endured major conflicts in recent decades, greatly hindering the development of the institutions required to put SFM into effect and restricting the development of local expertise. In countries such as Nigeria and PNG, the forest administration lacks the resources to adequately supervise the forest management regime. A lack of forest law enforcement remains a major problem in many countries, and there has been less progress in identifying, demarcating and securing PFEs than ITTO and other observers hoped for. While Vanuatu has not been subject to conflict, its inability to provide information on the management of its forest resources may be indicative of a lack of capacity to implement SFM. ITTO and others will continue working with all countries to try to accelerate progress towards SFM.

Natural-forest production PFE

Significant progress has been made since the 2005 survey towards the sustainable management of the production PFE. There has been an increase in the overall area of the PFE (403 million hectares, compared with 353 million hectares in 2005), in the area covered by management plans (131 million hectares, compared with 96.3 million hectares in 2005), in the area certified (17.0 million hectares, compared with 10.5 million hectares in 2005), and in the area considered to be under SFM (30.6 million hectares, compared with 25.2 million hectares in 2005). Table 10 summarizes these trends for the natural-forest production PFE in each of the three regions.

As noted in the 2005 survey, the area of production PFE under management plans is much greater than the area considered to be under SFM. Part of the discrepancy may be because more information is available on the area covered by management plans than on the extent to which such management plans are being implemented. The process of developing management plans is important in itself because it requires the collection and collation of data on the forests in question and a clear statement of management objectives and requirements. If SFM is to be achieved, however, at any scale, management plans must be implemented, their implementation must be supervised, and their impacts must be monitored and reported. Ultimately, new knowledge must be gained through monitoring and experience to feed into the future planning of adaptive forest management.

In many ITTO producer member countries, such a process is lacking or only nascent; it is hampered by a general lack of capacity in the agencies and community organizations that have responsibility for overseeing forest management. Increased international support, including that envisaged through REDD+, would help to address this problem, as would increased domestic support for forest administration.

Planted-forest production PFE

Planted forests are playing an increasingly significant role in the supply of tropical timber. Although the quality of data on the area of productive planted forests is highly variable, it is clear that the area of planted tropical forest has expanded considerably in the last 15–20 years. Some areas where trees were planted but subsequently died or were otherwise removed are still recorded as plantations in forest area statistics of a number of countries. The estimated 22.4 million hectares of productive planted forests in ITTO producer countries is about 5% of the total production PFE. This percentage varies by country and region. In the Asia-Pacific region, for example, planted forests comprise about 10% of the total production resource.

Often, countries with scarce natural-forest resources have particularly focused on their planted-forest estates, but an exception is Brazil, which not only has the single-largest natural-forest resource among ITTO producer member countries but also a large area of planted forests. In some countries, the absence of well-defined property rights has been an obstacle to attracting investment in planted forests.

Table 10 Regional trends, production PFE, ITTO producers

Region	Area of forest in:			
	Production PFE	Production PFE under management plans	Certified forest	Production PFE under SFM
Africa	→	↑	↑	↑
A/P	↑	↑	↑	→
LAC	↑	↑	↑	↑
All	↑	↑	↑	↑

Note: Trend assumed to be steady if less than 5% change. Trends in individual countries may differ from regional trends. A/P = Asia and the Pacific; LAC = Latin America and the Caribbean.

Table 11 Regional trends, protection PFE, ITTO producers

Region	Area of forest in:		
	Protection PFE	Protection PFE under management plans	Protection PFE under SFM
Africa	↑	↑	↑
A/P	↓	↑	↑
LAC	↓	↑	↑
All	↓	↑	↑

Note: Trend assumed to be steady if less than 5% change. Trends in individual countries may differ from regional trends. A/P = Asia and the Pacific; LAC = Latin America and the Caribbean.

Additional constraints are competition for land; low technical or organizational ability in the management of planted forests; little dialogue between the public and private sectors; insufficient research and development; and a lack of financing mechanisms.

In some countries, the expansion of planted forests will ease pressure on natural forests as they meet an increasing proportion of those countries' timber needs. On the other hand, this easing of pressure may be at least partly offset by the superior financial performance of well-managed plantations, which increases their attractiveness as a land-use, possibly at the expense of natural forests. Many industrial forms of agriculture have a similar superior financial performance, and this is a major cause of deforestation.

Non-timber forest products

Although NTFPs are important for local livelihoods in all ITTO producer member countries, and many are traded in significant quantities at the local, regional and global levels, data on their use and economic value remain scarce. Moreover, in many countries the management of NTFPs is ad hoc, and little is known about its sustainability. There is little doubt that some NTFPs, such as some forms of bush meat, are being harvested unsustainably, and more effort is needed to regulate their management, harvesting and trade.

Protection PFE

Significant progress has been made since the 2005 survey towards the sustainable management of the protection PFE. The apparent decrease in the overall area (358 million hectares, compared with 461 million hectares in 2005) is due mainly to greater clarity in the data rather than to any change in legal status of such areas. There have been large increases in the area covered by management plans (51.9 million hectares, compared with 17.8 million hectares in 2005) and the area considered to be under SFM (22.7 million hectares, compared with 11.2 million hectares in 2005). Table 11 summarizes these trends for the protection PFE in each of the three regions.

Data are still sparse on the extent to which the protection PFE represents the full diversity of forest ecosystems found in tropical countries. Until recently, the designation of protected areas has often been relegated—not just in the tropics—to those areas of land left over when all other economic land-uses have been satisfied or that are too difficult to harvest. But it is now recognized that protected areas should be selected according to their intrinsic value for biodiversity conservation, which usually means the inclusion of representative samples of all forest ecosystems; any areas of exceptional biological richness or where there are concentrations of endemic species; and the breeding, feeding and staging grounds of migratory species. It is desirable that protected areas are large and contain internal variation and, ideally, they should constitute a network of connected habitats if they are to accommodate large animals and be buffered against environmental change. They also depend crucially on the cooperation and support of local communities. Data were generally insufficient to assess the extent to which the present allocation of protected areas takes account of such factors.

Forest carbon

Most ITTO producer member countries have considerable potential for forest-based carbon capture and storage, and most have taken steps to prepare for REDD+. Given the high expectations in many countries that REDD+ could generate significant funds for tropical forest management, clear signals from international climate-change negotiators, including the eventual establishment of a market in forest carbon credits, are to be welcomed.

Summary of change

The following points summarize the present status of SFM in ITTO producer countries.

- In many countries, more progress is needed to clarify the concept of PFE according to national circumstances and to identify, inventory, demarcate and protect the PFE.
- Forest-related laws and regulations continue to evolve, for the most part in a direction compatible with SFM.
- A general trend towards decentralization and greater recognition of Indigenous and local people is not yet matched by a flow of resources to support efforts to achieve SFM at the decentralized level.

Ghanaian scientists assess plant biodiversity in a forest plot in Ghana. *Photo: L. Amissah*

- Forest law enforcement is often weak, exacerbated by a lack of enforcement capacity, confusing and sometimes conflicting laws, especially those related to tenure, and uncertainty generated by decentralization processes, including disputes over jurisdiction between government agencies. In some countries, the demand for legality-verified timber is having an effect on timber exports.
- The resources allocated by governments and development assistance agencies to forest management remain seriously inadequate, reflected in a lack of capacity in government agencies.
- Information about SFM continues to improve but is still far from adequate for the comprehensive monitoring, assessment and reporting of SFM and any large-scale fund-transfer mechanism arising out of REDD+ or other schemes designed to improve the management of tropical forests.

Constraints to SFM

Putting aside the difficulties caused by wars and armed conflicts, which are profound, several constraints frequently recur in the country profiles. Probably the most important, and the most generally applicable, is that the sustainable management of natural tropical forests is less profitable as a land use than other ways of using the land, especially some forms of agriculture but also urban development and mining. As a result, SFM tends to be a low priority for governments and the private sector often lacks incentives to pursue it. In general, tropical timber prices remain relatively low. It is possible that they will increase in the future to better reflect the true cost of production, including the opportunity cost of retaining natural forest, but to date there is no sign of this.

Nevertheless, natural tropical forests are recognized increasingly as a valuable resource at the local, national and global levels, especially for the ecosystem services they supply. In some countries, payments are being made for such ecosystem services, and REDD+ offers a potentially important revenue-earning opportunity for forest owners. In the long run, the extent of payments for the ecosystem services supplied by tropical forests—made at either the national level or the global level—is likely to play a large part in determining the fate of the remaining tropical forests. In order for such payments to achieve their potential to impact forest management, constraints related to governance also need to be overcome. Those governments, companies and communities that have been striving to improve forest management, even when they have not yet been wholly successful, merit the long-term support of markets, development assistance agencies, NGOs and the general public.

Another constraint to SFM is confusion over ownership. Without the security provided by credible, negotiated arrangements on tenure, SFM is unlikely to succeed. In many countries, resolving disputes over land tenure is no easy task but it must be tackled—preferably through a transparent and equitable process—if resource management is ever to become sustainable. If the trend towards greater community and Indigenous ownership, and less state ownership, continues, the concept of PFE may need to be re-thought, but it should not be discarded.

Future directions

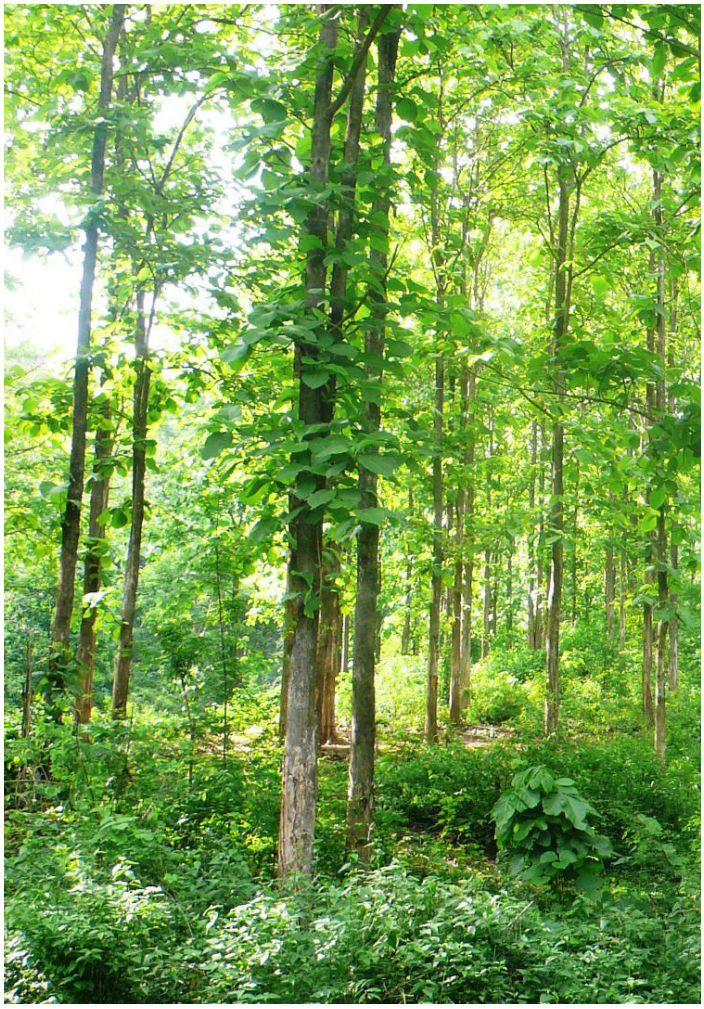
The global setting for the management of tropical forests is changing. Populations and aspirations are growing and the ability of people living in remote areas to communicate with others is escalating at phenomenal speed. The agricultural frontier is continuing to advance at the expense of forests. For timber, the demand for certified and/or legality-verified wood is starting to influence the management of export-oriented suppliers, but this effect may be very small for the majority of the tropical forest estate. Conversely, the ready availability of relatively cheap commodity timbers from non-tropical forests, tropical planted forests and illegal operations, as well as other substitute materials, will restrict the price increases that are possible for timber from sustainably managed natural tropical forests for as long as it remains a commodity product.

The global market for tropical timber is also changing. Demand in the traditional export markets of Europe, Japan and North America has declined, and ITTO producer countries are exporting increasing quantities of timber to China and India and intra-regionally. Domestic markets are growing. Some of these markets place little emphasis on certification or legality-verification. The continued growth of these markets may reduce the incentive to pursue SFM, but certification and legality-verification will likely emerge as drivers in some of them.

Standards of forest management tend to improve as countries become richer and better able to allocate resources to enforce forest laws and implement SFM. It is likely, therefore, that SFM will become more widespread in the tropics as economies grow, although such growth might also increase deforestation, at least temporarily. In some instances there may be migration from the forest to cities, which may reduce pressure on the forest. Eventually, countries that continue to develop economically will attain the capacity necessary to safeguard their PFEs and to manage them sustainably. Conversely, continued poverty poses a significant threat to tropical forests.

A review of the information used to assemble the survey reported here indicates that a number of developments in tropical forests are possible in coming years, including the following.

- A continued expansion of planted forests and the use of agricultural tree crops for timber may reduce timber-demand pressure on the natural forest by supplying an increasing proportion of wood production, although it may also cause more deforestation, as might an increased demand for biofuels.
- Declining timber prices, increased prices for agricultural products and/or a larger shift to emerging markets could undermine efforts towards SFM.
- A flow of funds for REDD+ and other forest services could stimulate increases in the capacity to manage, monitor and police forests; it could also induce efforts in reforestation and forest restoration.
- A greater focus on the management of high-value timber species, an expanded range of species, and/or increased value-added production could help increase the profitability of natural forest management.
- Changes in climate or weather patterns could affect the growth, yield and vitality of forests. Extreme weather conditions, such as prolonged droughts, torrential rain and tropical storms could reduce the stability of forest structure and lead to increased erosion, forest fire and wind damage, and changes in the incidence of pests and diseases. Adaptive management, and a diverse forest resource, will increase resilience.
- Tenure issues could be resolved more often on the basis of transparent and equitable negotiation between claimants. As their rights become more recognized, Indigenous peoples could play an increasing role in the management of natural forests.
- The wider responsibilities of communities and Indigenous people living in constant contact with the forest may lead to a diversification of forest use, with more emphasis on ecosystem services.



Planted managed teak forest, Thailand. *Photo: J. Blaser*

A rubber-tapper community in the Antimari State Forest, Acre, Brazil. *Photo: J. Blaser*

Overall, it seems likely that the global area of natural tropical forests will continue to decline in the medium term as land is diverted to more profitable uses. On the other hand, the management of the PFE is likely to continue to improve, although the pace of such improvement is less easy to predict. Those countries with clear and undisputed forest tenure, a well-defined PFE and adequate resources for administering the resource are best placed to make rapid progress. ITTO and others seeking to promote SFM in the tropics must be vigilant for change, remain flexible in approach, but continue to press for the sustainable management and conservation of tropical forests.

Recommendations

The usefulness of this survey will be enhanced if it continues to be repeated at reasonably regular (and frequent) intervals, because the identification of trends is essential in assessing progress towards SFM. It is therefore recommended that regular reporting on the status of tropical forest management be continued at the international level. Given that FAO has also started to provide data on SFM in its five-yearly forest resources assessment, there will be benefits in continuing to align the two processes more closely.

Many countries still lack the capacity to collect, analyze and make available comprehensive data on the status of forest management. Assisting countries to improve the quality of data on forest management should be a priority for the international community.

A crucial element of improving forest management is an accurate picture of the PFE. Many countries still lack such an accurate picture, and assistance should be provided as a matter of urgency to enable them to establish their PFEs if they have not already done so and to undertake detailed inventories of these areas. This will be even more crucial should significant funds become available through REDD+.

A general progression towards SFM in the tropics will be faster and more robust if SFM is seen as a financially competitive land-use. Another priority for the international community should be to increase payments for the global ecosystem services provided by natural tropical forests, including those related to carbon capture and storage.

Member countries should be encouraged to build on the advances identified in the survey reported here. ITTO will continue working with its many partners to help them to do so.

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Chicle and timber production in a certified *ejido* in Quintana Roo (left: tree of *Manilkara zapota*; right: tree of *Swietenia macrophylla*). *Photo: J. Blaser*