

ITTO Tropical Forest UPDATE

A newsletter from the International Tropical Timber Organization to promote the conservation and sustainable development of tropical forests



Testing time for sustainable forest management

AFTER a decade or more of debate and discussion and some exploratory field attempts, ITTO is putting sustainable forest management (SFM) to serious test. Working with a wide range of private-sector, non-governmental and governmental bodies, ITTO is inventorying forests, formulating management plans, training logging crews and assisting in timber industry development and marketing in more than twenty tropical countries. But the going is not easy. This edition contains articles that show both the efforts being made and the difficulty of raising the quality of forest management to a level compatible with sustainability.

In addition to its project program, ITTO has launched several initiatives to give SFM an extra push. For example, it is convening a series of national-level workshops to train forest concessionaires, industry workers and government officials in applying the Organization's *Criteria and indicators for the sustainable management of natural tropical forests* (C&I). In an innovative move, it is also surveying forestry companies throughout the tropics and preparing case-studies on ten that are excelling in SFM; results will be announced at an international conference to be convened next year and will no doubt help identify the ingredients for commercially-viable SFM.

But despite these and other efforts by ITTO, and those of many other organisations, SFM remains elusive.

It might be argued that this is due in part to ▶



Inside ▶ *Lesser-used species in Honduras* ▶ *Brazil's mission* ▶ *Pando* ▶ *Statistics in Latin America ...*

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Cover image Foresters contemplate forest management in the Brazilian Amazon. *Photo: A. Sarre*

the ambiguous and constantly changing nature of SFM. The generality of ITTO's SFM definition is quite evident, being "the process of managing forest to achieve one or more clearly specified objectives of management with regard to the production of a continuous flow of desired forest products and services without undue reduction of its inherent values and future productivity and without undue undesirable effects on the physical and social environment". The ITTO C&I added to this definition in 1998 by identifying the main elements of SFM in seven criteria and dozens of indicators of trends in those criteria, but while adding substance to the definition they also amplified its complexity. In addition, ITTO and the African Timber Organization recently published a new set of principles, criteria and indicators designed specifically for African natural tropical forests (page 19), demonstrating that one size doesn't always fit all when it comes to SFM. The Convention on Biological Diversity has even introduced a new term, 'ecosystem approach', and launched a study to clarify its conceptual basis "in relation to the concept of sustainable forest management"; one wonders whether this concept will help or rather confuse foresters in their efforts to implement what we are now beginning to understand to be SFM.

But the lack of a precise definition cannot be used as an excuse for slow progress (although it does expose difficulties in assessing such progress). In fact, the main reasons can usually be enumerated, as Simula and Burger do in their report on Brazil's situation (page 5): a lack of adequate procedures for establishing SFM in national forests; a lack of remuneration for forest services such as biodiversity conservation, carbon storage and ecotourism; a lack of support for the sustainable livelihoods of indigenous communities; a lack of an integrated strategy to deal with illegal forest operations; the uncompetitiveness of sustainably produced timbers versus those produced during forest conversion or by unsustainable operations; a shortage of the human, social and financial resources needed to implement forest policies and laws and low-impact logging; and so on. It's a long list; Simula and Burger wisely narrow their focus in their report.

Other articles in this edition offer further insights. Peralta and Baldiviezo (page 10) report on an ITTO project in the Bolivian Department of Pando that has initiated a substantial program of inventories, training, planning and research and offered support to local communities and logging companies for the introduction of SFM, one company even achieving certification as a result. But progress is slow over the bulk of the resource: the main obstacle by far, say Peralta and Baldiviezo, is "the lack of consolidated land-rights and the overlapping of rights"; another is the low level of community organisation and hence capacity to take a coordinated and planned approach to SFM. Meanwhile, Rivera et al. (page 3) describe an ITTO project in Honduras that has made an impressive effort to raise the local capacity for SFM in one of the country's forest regions and to increase the range of species sold. But they say continuing low prices, particularly for the lesser-known species, put SFM at risk.

As Simula and Burger, Rivera et al. and Peralta and Baldiviezo all note, one of the keys to SFM is its competitiveness as a land-use. Who will bother with SFM, a complex and highly nebulous endeavour, when more income can be earned and more employment generated by other, less tricky land-uses? Helping build forest management capacity and supporting progressive companies and communities are essential for achieving SFM but not sufficient in themselves: SFM must also generate attractive socioeconomic and financial returns. With timber prices low and the bill for the other forest goods and services largely unpaid, it's a testing time for advocates and practitioners of SFM.

Alastair Sarre

An ITTO project to improve forest management and increase the use of non-traditional timber species in Honduras aims to generate more income for forest users

by Reynel Rivera, Carlos Vindel, Jorge Flores and Oscar Tovar

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ONE of the chief constraints to the sustainable management of natural tropical forests is the low financial return that such management generates. This is due partly to the heterogeneity of tree species: the market values only a few, reducing the income that can be generated by timber production.

Since 1997, the Honduras National Forest Administration (AFE-COHDEFOR), with support from ITTO, has been implementing ITTO PROJECT PD 47/94 REV.3 (1): *Industrial utilisation of lesser-known forest species in sustainably managed forests* (PROINEL).

PROINEL is located in the Forest Region of Atlántida in the centre of the northern coastline of Honduras. Its pilot field sites, Toncontín and Urraco, are located in the upper area of the Cangrejal River Basin, some 25 km south of La Ceiba, one of the country's major cities. The forest producers benefiting from the project are dispersed over about 110 000 hectares of tropical moist forest in the northern departments of Atlántida, Colón and Olancho, although the lessons learned may have implications for a much larger area of the Honduran tropical forest estate.

The main objective of this project is to increase the acceptability of so-called lesser-known species—species that are generally ignored by timber traders and processors—in the market while, at the same time, improving forest management and forest harvesting so that increasing the volume of timber extracted from the forest does not increase (and, in fact, decreases) the damage done by the logging operation.

The project's internal structure comprises three components: silviculture and utilisation; industrial and commercial promotion; and training.

Silviculture and utilisation

The activities in this project component are based on two specific objectives: to assess the ecological and forestry impacts of the utilisation of lesser-known species on the forests; and to develop appropriate low environmental impact technologies for the sustainable management and utilisation of tropical forests.

The activities and research work related to these objectives have been carried out in the community forests of Toncontín and Urraco, where reduced impact logging techniques are being used, including 'chainsawing with frames'—the primary milling of logs in the forest using chainsaws and a mobile 'frame' (see photo)—and directional felling so as to increase productivity, ensure better timber quality and reduce soil and vegetation damage. In particular, the milling of the logs in the



Framework: project officers assess the practicability and efficiency of chainsawing with frames.

forest has the environmental benefit of limiting the need for roads and machinery inside the forest. Environmental impact assessments on the effects of using a greater number of forest species, including research on the natural regeneration of the species, have also been carried out. As part of the work, a network of permanent sample plots has been established and is being monitored; this will provide information in coming years for the continuous improvement of broadleaved forest management.

Regeneration of tree species from managed forests after Hurricane Mitch: Hurricane Mitch, which hit Honduras in 1998, left a large swathe of damaged and destroyed forest in its wake. This study is analysing the effects of the hurricane on forest dynamics. For example, it is comparing the abundance of species, recruitment and mortality in damaged and undamaged forests, and the effects of differences in light availability on species' regeneration.

Effects of logging on floral richness, diversity and composition in moist forests: six variables are being evaluated in this study. They are: number of individuals; species; families; basal area per hectare; Simpson Index; and Shannon Index. The results are promising, showing no significant difference in horizontal structure and floral

diversity between forest logged using directional felling and chainsawing with frames (at the intensity applied in Toncontín), and unlogged forest.

Financial, technical, ecological and social validation of the system of chainsawing with frames: validation tests produced an average yield of 224 board feet/m³ for chainsawing with frames, which is higher than the minimum yield set by AFE-COHDEFOR (180 bd ft/m³); as a result, the Forest Region of Atlántida is requesting AFE-COHDEFOR to increase the minimum yield to 224 bd ft/m³. The financial advantages of chainsawing with frames over hand-held chainsawing and manual sawing, the two techniques used most commonly in the region, include higher yield and productivity, and lower additional costs for industry in the processing of timber. Environmentally, chainsawing with frames removes the need to fell small-diameter trees for the construction of benches, common practice in hand-held and manual sawing. Chainsawing with frames also improves worker safety, particularly by reducing vibrations for the chainsaw operator.

Implementation and evaluation of forest logging in 60 hectares of broadleaved forest: this study is still under way and is expected to produce further data on the effects of vegetation damage caused by commercial-scale logging.

Development of volume tables for broadleaved species: volume tables are being developed for the timber volume assessment of non-traditional timber species as a supplement to existing tables. Under this system, higher levels of accuracy will be achieved in the scaling of the various species found in the broadleaved forests of Honduras.

Industrialisation and marketing

This project component is based on two specific objectives: to carry out basic and applied research to determine the best end-uses for 20 lesser-known species; and to contribute to the introduction of these species into national and international markets.

Industrialisation: laboratory research and processing tests were carried out to identify the characteristics of the 20 species, and the resulting information was published in technical newsletters. The workability of these species in processing industries at the national level is currently being investigated.

Involvement of local processors: under the project, cooperation agreements were concluded with several corporations and institutions to disseminate information on the uses of the 20 species. These include: Cooperativa Colón Atlántida Honduras Limitada (COATLAHL), Villatoro, Cornejo and Associates, the Centre for Forest Product Utilisation and Promotion (CUPROFOR), the Tela Industrial Timber Cooperative (CIMATEL), the National Association of Timber Processing Industries (ANETRAMA), the Industry Association of San Pedro Sula, the National Professional Training Institute (INFOP), the Regional University Centre of the Atlantic Coast (CURLA/UNAH), and the Toncontín Group, the Urraco Group and other independent timber companies. Partnerships with these institutions are continually being strengthened. Further, the project is having a positive impact on the profitability of some 2000 timber-processing companies concentrated mainly in the cities of Tegucigalpa, San Pedro Sula, El Progreso, Tela and La Ceiba through the dissemination of information on the efficient processing of the 'new' species.

Promotion and marketing: up to May 2002 some 22 exhibitions to display furniture products made from lesser-known species had been held in the country's major cities with the participation of industrialists, technical institutes, and timber-processing cooperatives and associations. Some foreign industrialists have also shown an interest in acquiring these timbers, although a ban on the export of non-processed timber is restricting the development of this market. A key challenge for the Honduran timber-processing sector is to raise the standard of manufacturing to a level where it can gain access to the higher-value international market.

Introduction of new species into the domestic market: according to a survey of 500 timber companies carried out by PROINEL in February 2002, 17 out of the 20 species researched and promoted by the project are being sold on domestic markets. These are: *Brosimum alicastrum*, *Cojoba arborea*, *Calophyllum brasiliense*, *Gordonia brandegeei*, *Guarea grandifolia*, *Huertia cubensis*, *Hyeronima alchorneoides*, *Ilex tectonica*, *Macrohasseltia macroterantha*, *Mortoniendron anysophyllum*, *Pouteria izabalensis*, *Symphonia globulifera*, *Tapirira guianensis*, *Terminalia amazonia*, *Virola koschnyi*, *Vochysia hondurensis* and *Vochysia jefensis*. The introduction of some of the species into the domestic market has been hampered by the fact that the prices that can be obtained for such species are not commensurate with the high costs incurred by producers in sawing, processing, transport and taxes. Indeed, this is one of the most common problems with lesser-known species: because they are lesser known by the market, the prices they command are usually very low. Increasing the recognition of these species is therefore an important part of PROINEL's task, although the extent to which this can be done is partly dependent on the underlying properties and attractiveness of the timber.

Training

The objective of this project component is the transfer of knowledge on forest, ecological and environmental management, and on industrial and marketing opportunities. A wide range of training activities is being implemented with the participation of local communities, forest producers and timber industrialists.

Through this component, training has been provided to producers in improved forest logging techniques, including directional felling, chainsawing with frames, and chainsaw management and maintenance. In addition, producers have been trained in silvicultural treatment techniques to improve the management of broadleaved forest resources. A total of 25 courses have been provided to date in 21 communities, training 451 farmers from 42 producer groups in the Forest Region of Atlántida.

Further, some 455 rural women in 19 communities in the Forest Region of Atlántida have received training in: the involvement of women in forest management plans; non-timber products; the role of the environment in maintaining quality of life; forest nursery management and reforestation; family orchard management; and agroforestry.

Finally, 21 courses were implemented throughout the Forest Region of Atlántida for about 350 forest workers and timber industrialists in issues such as basic carpentry; open-air timber-drying and storage; wood preservation; wood surface treatments; the management of timber from the forest to the timber yard; the classification of broadleaved timber species; furniture design and flexible production; and basic administration skills.

Conclusions

To date, the project has provided training for 1256 people, including farmers, industrial workers and rural women, in 34 communities of the Forest Region of Atlántida on issues related to forest management, industry and marketing, and increased the access of forest-dependent communities to income-earning opportunities. Thus, the net effect of the project has been the generation of additional income for many forest-dependent communities while, at the same time, reducing the impact of forestry operations on the forest. Hopefully, this effect will encourage the sustainable management of the forest for generations to come. However, the low prices that are still being obtained for many of the 'new' species are limiting the achievement of this goal; financial sustainability remains a crucial element of sustainable forest management and one that continues to require attention.

An ITTO mission to diagnose Brazil's efforts for achieving sustainable forest management recommends that ITTO focus its assistance on strategic interventions

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Management puzzle: Brazilian foresters contemplate the task of achieving sustainable forest management in the Tapajos National Forest in the lower Amazon. ITTO project PD 68/89 Rev. 1 (F) is supporting the implementation of a forest management plan there.

Photo: J. Leigh

IN 2001, the Government of Brazil requested ITTO to send a diagnostic mission to assist it in achieving ITTO's Objective 2000. The mission that was subsequently dispatched to Brazil in 2001-02 aimed to: i) identify the most determining obstacles to the realisation of sustainable forest management (SFM) in the country; ii) regroup these constraints in order of importance; and iii) recommend a series of measures aimed at lifting these constraints, and estimate their cost where possible. This article summarises the mission's findings.

Critical factors for SFM **Permanent forest estate**

The total forest area of Brazil covers 5.44 million km², which is 14% of the world's forests, 30% of the world's tropical forests and 61% of South America's forests. Brazil is a forest-rich country with 3.2 hectares of forest per inhabitant. However, 70% of Brazilians live in regions suffering the severe consequences of almost complete deforestation. This explains the high concern among Brazilians about deforestation and the strong influence on forest policy of environmental non-governmental organisations (NGOs).

In the Amazon, a total of 370 million hectares can potentially contribute to the permanent forest estate, mainly through legal reserves and indigenous lands (totalling 200 million hectares), although their current contribution to timber production is marginal. On the other hand, the share of conservation units designated for sustainable use—comprising national forests (FLONAS), environmental protection areas, extractive reserves, etc—is less than 10%

of the total potential permanent forest estate, covering an area of 34 million hectares.

For timber production, the sustainable-use conservation units will be strategically highly important. However, current procedures for establishing sustainable use in FLONAS are not adequate and need special provisions guaranteeing long-term access to the resource and its sustainable management. The process of defining such procedures is being supported by a recently approved ITTO project (PD 142/02 REV. 1(F)).

Deforestation

The gross deforestation rate in the Amazon averages 2 million hectares per year, having varied between 1.1 and 3 million hectares over the past 20 years. The National Institute for Space Research (INPE) estimated that deforestation decreased from 1.82 million hectares in 2000 to 1.52 million hectares in 2001, a reduction of 13%. The main reasons for the apparent drop are thought to be:

- the improved effectiveness of control;
- the Law on Environmental Crimes (Law No 9605) passed in 1998 and its respective decree (No 3179) issued in 1999, which established much higher penalties for deforestation than in the past;
- the upholding of provisional measures to maintain the forest cover of legal reserves in dense forest areas at 80%; and
- the country's macroeconomic situation and limitations in access to credit for landowners.

Biological diversity

Brazil possesses the richest biodiversity in the world thanks largely to the Amazon forests. However, the potential contribution of biodiversity to the country's socioeconomic development is not yet realised, and adequate protection and sustainability of utilization are not yet in place. The current policies and programs are comprehensive and well designed but lack sufficient implementation.

Culture and customary rights

The maintenance of cultural values and customary rights in the Amazon is part of SFM. The demarcation of indigenous lands is a first step and needs to be followed by support for the sustainable livelihoods of indigenous communities.

Tourism and recreation

Tourism, particularly ecotourism, in the Amazon region has the potential to generate income for local people and revenue for forest resource conservation and management. This potential is still largely untapped and unevenly distributed. Environmental and social precautions should be adopted in ecotourism development to ensure compatibility with SFM.

Carbon emissions and sequestration

The Amazon Basin contains one of the planet's largest stocks of terrestrial carbon. Deforestation releases this stock and contributes almost half of Brazil's total carbon emissions.

The role of the Amazon forests in the global carbon cycle is a compelling reason for their conservation and sustainable use. It also underlines their global importance: broadening the scope of eligible activities for the Clean Development Mechanism of the Kyoto Protocol could mobilise significant additional international financial resources for forest conservation, management and use.

Protection and control

The alarmingly high estimated level of illegal logging (up to 75% of the total timber supply in the Amazon in the early 1990s) created awareness among government agencies of the need to step up control and enforcement efforts. Such efforts are hampered by the vastness of the area, the lack of transport infrastructure, and the large number of actors involved. Nevertheless, current estimates of the volume of illegal operations are significantly lower than those of the early 1990s.

The apparent progress being made in reducing illegality does not mean that sustainability has improved. The ready supply of timber from conversion areas does not have to carry the costs of SFM and therefore distorts timber markets, making it difficult for producers who comply with legal requirements to compete and undermining their efforts to move towards SFM.

Mahogany

The criminal structures and procedures related to the illegal logging of mahogany are a cause of particular concern.

Negative publicity about mahogany logging is undermining the reputation of the whole sector and influencing the image of all Brazilian native timbers in export markets. The current arrangements for regulating the logging and trade of mahogany are not achieving the government's developmental and environmental objectives and are in urgent need for revision. An integrated strategy to address illegal operations should be adopted. Its elements could include:

- a continuation of the high political priority being given to effective control and the establishment of adequate cross-sectoral cooperation and alliances between actors;
- strengthened control of forest management planning, harvesting and transportation to increase the risk for illegal operations;
- improved information systems with georeferenced, up-to-date data on the licensing of land-clearing ('licenciamento rural'), authorized forest management plans and annual operational plans (POAs), and transportation licences (ATPFs);
- constantly updated, increasing penalties to increase the direct costs of illegal operations;
- reduced costs of transaction for legal operations;
- improved efficiency in harvesting and forest management operations;
- the promotion of markets for legally/sustainably produced timber which has been duly verified/certified;
- coordinated and concerted efforts of the federal, state and municipal authorities; and
- increased public transparency on the extent, impacts and implications of the problem for the market and operators, including public information on culprits and their methods.

Flow of forest produce

The current plantation forest estate will be insufficient to meet Brazil's growing demand for industrial roundwood; natural and planted forests in the Amazon could therefore play a major role in supplying the country's future timber needs.

Annual timber production (industrial roundwood) in the Amazon is estimated to be around 28 million m³, but only a small part of it (7.1%) is reported to come from areas under approved forest management plans. Most of the rest is harvested from forest areas authorised for land conversion.

The main constraints to increasing the volume of timber from sustainably managed forests are: i) low-cost competition from timber harvested in forest conversion areas; ii) costly and time-consuming bureaucratic requirements for management plans; iii) a lack of qualified labour and training facilities; and iv) a lack of technical assistance on how to switch from unsustainable logging to SFM.

Industry and markets

A recent survey of the problems and constraints affecting the Amazonian timber industry suggests that the key limitation in sawmilling is the availability of raw material. The supply chain is fragile, subject as it is to disturbance factors such as variable weather (sometimes limiting timber transport), frequent changes in regulations and institutional responsibilities, a lack of security in some operating areas, the risk of land occupation, pressure from NGOs, etc.

Mill recovery rates have been improving slowly but they still fall short of the potential offered by the quality of the raw material. This suggests that either the shortage of raw material is not yet strong enough or the cost high enough to force the industry to optimise its recovery rates, or that the industry does not have the skills to do this.

Only a few (large and medium-sized) companies have direct channels of marketing, while small mills sell through intermediaries or work as subcontractors for larger companies. The planning horizon of many small companies tends to be short; oftentimes their entire strategy is based on itinerant production exploiting the short-term opportunities offered by the agricultural frontier. Such companies contribute little to sustainable development because of their predatory behaviour and their lack of respect for the law. A restructuring process is inevitable and will require investment; it will also mean the closure of many unviable mills.

In general, the Amazonian timber industry has a serious shortage of modern management skills and knowledge of efficient technologies. Many existing production units are characterised by low productivity levels and high costs, inadequate funds even for financing the necessary working capital, poor working conditions, and environmental problems associated with waste disposal, the control of oils and lubricants, etc.

Despite their inherent problems, small-scale sawmills can still play an important role in the future development of the Amazonian timber industry. This would also be socioeconomically desirable, as small mills can add value to resources in places where larger investments are unviable, and they are less capital intensive than larger units. With improved management and limited investment, small sawmills could achieve profitability.

Breaking the boom-bust cycle

There are differing views on whether SFM can be economically and socially viable in Amazonian conditions. Most of the logging in the Amazon has been an economic complement to agriculture. Logging operations have been concentrated on 'pólos madeiros' (timber production centres) in frontier zones such as the Paragominas region of southern Pará, central Mato Grosso and Rondônia, and newly consolidated frontiers in northern Mato Grosso, western Pará and the lower Amazon River. After the initial boom in an area, the frontiers gradually face severe wood shortages followed by the inevitable outmigration of the industry to new areas.

This boom-bust vicious circle can only be broken if the industry adopts a long-term view based on a form of SFM that offers a satisfactory financial return. This is a critical challenge for public policies.

Benefit-sharing and other social issues

The equitable sharing of forest-based benefits is constrained by a number of political and structural factors, including land tenure and access to capital, information and knowledge.

The employment generated by the Amazonian timber industry is providing a lifeline for many local communities, particularly in pólos madeiros. The quality of employment is, however, far from satisfactory. The closer the industry is positioned to export markets and major urban markets in Brazil, the better jobs it can offer its workers. Productivity improvement will be crucial for the quality of employment.

Health and occupational safety in the commercial utilisation of the Amazon forests are major concerns for workers and rural dwellers. The industry lacks the awareness, skills and resources to make rapid progress in this area.

Interlinkages and priorities

The lack of progress towards SFM in the Amazon can be broken down into four main sub-problems:

- the abundant (but temporary) supply of low-cost timber from deforestation areas along the agricultural frontier, as well as from illegal logging;
- extensive degraded forests and lack of secondary forest management;
- the weak competitiveness of SFM; and
- the weak competitiveness of the tropical timber industry in general and of SFM-based industrial activities in particular.

Future strategic interventions can be grouped under three main fields:

- strengthening the policy and legal framework and improving existing instruments so that they are better geared towards promoting SFM and making it an economically viable proposition for landowners and forest managers;
- strengthening the competitiveness of SFM and the respective timber industry sector, particularly in the Amazon region and considering both export and domestic markets, by addressing the causes of high costs and inefficiency; and
- capacity-building among key actors and stakeholders involved or interested in SFM.

National forest program

The Brazilian government prepared and formally established a National Forest Program (NFP) in 2000, an overall objective of which is to promote sustainable forest development in a way that ensures the compatibility of resource use and the protection of ecosystems. More specifically, the NFP intends to:

- encourage the sustainable use of natural and planted forests;
- foster reforestation activities, notably on small rural properties;
- recover permanent preservation areas, legal reserves and altered areas;
- support traditional and indigenous populations that live in the forests;
- repress illegal deforestation and the illegal extraction of forest products; and
- prevent and contain forest fires and burnings.

Assessment

It is too early for a comprehensive evaluation of the Program's performance. Most of the actions taken so far have been studies, seminars, consultations and awareness-raising. It is now broadly understood that the NFP is not only a plan of, or for, the government, but is to be implemented jointly by all key actors.



More control: the diagnostic mission recommends tighter control of forest management planning, harvesting and transportation to increase the risk for illegal operations and to improve the image of legally harvested timber, such as this truckload of Brazilian mahogany. *Photo: J. Leigh*

Almost all the structural elements recommended by the Intergovernmental Forum on Forests (and its predecessor, the Intergovernmental Panel on Forests) can be identified in the Brazilian NFP. Brazil has succeeded in structuring and initialising an NFP process that:

- is fully under Brazilian leadership;
- outlines the broad spectrum of forest-related policies, facilitating the orientation of actors and the negotiation of their roles and responsibilities;
- provides a framework for international forest-related cooperation; and
- focuses on the broad participation of stakeholders.

The Brazilian NFP could be strengthened by:

- the drafting of a **National Forest Statement**, through a participatory process, to express the federal government's commitment to SFM;
- improving **coordination and participatory mechanisms**, including in conflict resolution, to broaden and strengthen stakeholder ownership and engagement in the NFP process; and
- establishing a comprehensive and effective **monitoring system** for the NFP to serve as a key management tool and to generate information for stakeholders on achievements and lessons learned.

Future ITTO support

Potential areas of future support to Brazil by ITTO were identified based on: the problem analysis; priority areas of intervention of the NFP; stakeholder views; and ITTO's comparative advantages and consideration of the support available from other sources. The following strategic areas of intervention have been suggested for future support, with a geographic focus given to Amazonian forests:

- support to NFP implementation and policy development, in particular to generate new information on and a broad understanding of viable options for adjusting and complementing the existing policy and legal framework for SFM;
- developing human resources in SFM with the aim of creating a critical mass of trainers, trained staff and workers with the skills needed to implement SFM;
- the rehabilitation of degraded lands;
- strengthening the control system of forest management and wood flows; and
- strengthening the competitiveness of the tropical timber industry, such as through an improved capacity for certification, improved management systems, improved market transparency, and export market development.

The thematic focus of the support program should be on strengthening the enabling conditions for SFM and capacity-building in the broad sense of these two terms. The support program has been prepared in a way that would allow its implementation through several individual projects and its scope should be periodically reviewed and revised.

In the long term, the total support from ITTO would need to be in the range of US\$15–20 million. A less ambitious funding level could lead to a fragmentation of efforts and limited impacts.

This is a brief summary of the mission's report. The complete document, which includes details of potential ITTO support, can be found at www.itto.or.jp/inside/inside_ITTO.html, or obtained from: ITTO Information Officer (see contact details on page 2).

Reports of similar missions, to Central African Republic, Congo and Indonesia, are available from the same sources.

An ITTO project is helping Hondurans protect and manage mangrove forests in the Gulf of Fonseca

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COASTAL ecosystems in Honduras's Gulf of Fonseca have become increasingly degraded over the last few decades, due partly to the rapid growth of the population and its subsistence activities, which rely heavily on mangroves. Other activities causing damage include the expansion of shrimp farms, mangrove fuelwood consumption for the processing of salt and bricks in furnaces, the harvesting of mangrove timber for house construction, the extraction of mangrove bark for the tanning industry, and the unplanned development of agricultural and agro-industrial activities in watershed areas. Moreover, Hurricane Mitch damaged a large area of mangrove forest when it ripped across the country in October 1998.

When mangroves are damaged, economic activities such as fishing and the collection of larva, crustaceans and molluscs are often severely affected, with serious implications for communities dependent on mangrove forests for their livelihoods and for the local, regional and even national economies.

The PROMANGLE project

With ITTO support, the National Forest Administration-Honduran Corporation for Forest Development (AFE-COHDEFOR) has been implementing a project to restore, sustainably manage and conserve the mangrove ecosystems of the Gulf of Fonseca. Dubbed PROMANGLE, ITTO PROJECT PD 44/95 REV.3 (F) comprises three major components: forest management; training and social promotion; and nurseries and plantations.

Forest management

A key to bringing about a more sustainable use of the mangrove resource is planning, which needs good-quality information. To this end, the project conducted an inventory of the mangrove forests and made a preliminary diagnosis and zoning of the mangrove resource. It also developed and published a land-use plan and a mangrove forest management plan for the region. Moreover, it established a marine and land monitoring and control system in coordination with other related projects and institutions that together make up the Commission for the Verification and Control of Environmental Problems in the Gulf of Fonseca, with the aim of combating illegal mangrove logging.

The project is also carrying out mangrove restoration work, particularly in areas damaged or destroyed by Hurricane Mitch and in other areas degraded by human activity. To date, local mangrove tree species have been replanted in a relatively small area (about 100 hectares), but as nurseries swing into production this is expected to increase dramatically in the next few years.

To assist in assessing the effects of restoration efforts and improving management, the project has established permanent growth plots for the collection of data on natural

regeneration, growth, phenology and physical and chemical parameters of water resources. A geographic information system is being used to store collected data and to produce thematic maps and other visual aids. Several studies have been published based on the data collected under the project.

Training and social promotion

The project recognises the need to increase awareness of the importance of sustainable mangrove forest use and to assist communities in achieving it.

Training activities are divided into stages and include theoretical and practical elements delivered through lectures, courses, workshops, seminars and field days according to the education level of the participants. Training is conducted by trainers and extension officers from the project and from other institutions and organisations concerned with the management of mangrove forests in the area.

The project also seeks to strengthen the local capacity for environmental management by entering into cooperation agreements with local municipalities and communities to assist in training, environmental monitoring and assessment, mangrove restoration work, land-use planning and plantation development. The project has also conducted participatory socioeconomic diagnoses with a gender focus; these are designed to assist community planning and to identify requirements for the formulation of community development proposals.

Nurseries and plantations

In collaboration with local communities, the project has established more than 200 hectares of plantations of fast-growing species on non-mangrove private and communal lands. The aims of these plantations include satisfying local demand for fuelwood and timber (thereby reducing the pressure on the mangrove forests), providing a new source of income from commercially saleable forest products, and developing expertise and employment opportunities in plantation establishment and management.

Native species such as *Leucaena* species, *Gliricidia sepium* and *Cassia* species are mostly used, but exotics such as *Eucalyptus* and *Azadirachta indica* have also been tested and have shown good growth and yield. Species were selected on the basis of research carried out since 1982 by various projects in the southern region (MADELEÑA, CONHSEFOR).

To ensure the availability of seedlings the project has funded the construction of permanent and community demonstration nurseries, using designs and locations that will meet material requirements at the lowest possible cost. The project encourages the participation of local producers and communities by providing them with the seedlings needed to fully stock their lands allocated to plantations.

The road to sustainability

An ITTO project has assisted the development of a sustainable forest management regime in Bolivia's Pando region. A recent measure of success was the certification of one of the area's forestry operations

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Passed: this forest road is part of a certified forest operation in Pando. *Photo: J. Leigh*

THE Department of Pando, located in the moist Amazon region of northern Bolivia, has a population of about 60 000, half of whom live in the town of Cobija, the department's capital. The department contains nearly six million hectares of forest with a potential annual sustainable timber production of about four million m³ of roundwood. However, the clearing of forest for cattle-ranching is accelerating in the department; the development of a sustainable timber industry is therefore urgently needed if widespread forest destruction is to be avoided.

The Pando Forestry Project (PANFOR) was established under ITTO PROJECT PD 24/97 REV.1 (F) in 1999. Implemented by the Prefecture of the Department of Pando and supported by the USAID-funded Bolivian Forestry Project (BOLFOR), PANFOR aims to reduce the degradation of forest, water and soil resources and to preserve biodiversity throughout the department by strengthening the institutional capacity of the public and private forest sectors in the region. In its first few years PANFOR has taken some initial steps towards establishing the technical and institutional foundations of forest development in the department, but much more needs to be done.

Review of progress

Training

PANFOR's training objective is to improve the level of knowledge about the principles and standards of the Bolivian Forest Regime, as well as about the technical aspects of sustainable forest management. Training activities have been geared to all major groups concerned with forestry issues at

the regional level, including forest company technicians and staff, independent forest professionals, rural and indigenous communities, local social groups (agrupaciones sociales del lugar—ASLS¹), technicians from municipal forest units, mayors, technicians in the Forestry Commission and the Prefecture's Forestry Unit, university teachers and students, and NGO personnel. Short courses have been held in: forestry law and technical standards; the establishment of ASLS and the creation of municipal forest reserve areas; the technical basis of sustainable forest management; the installation and assessment of permanent sample plots; the ecological basis of forest management; dendrology; systematic botany; community forest management plans; directional felling; timber sawing and grading; timber drying and preservation; and forest certification and markets.

A total of 35 training events have been conducted with the participation of 476 beneficiaries. The degree of interest and motivation shown by participants has been very high. Further, the courses have been highly practical, to the point that municipal forest reserve areas (áreas de reserva forestal municipal—ARFMs) have been demarcated during courses so that the ASLS could then apply to the government for concessions. Six ARFM areas, covering 233 000 hectares, have been demarcated using a geographic information system (GIS) and satellite images. Financing and technical assistance has also been provided to ten students from two local universities for the preparation of their theses on various aspects of forest management.

¹These are legally established groups of people who live in and use forests within the jurisdiction of a Municipality. According to the Bolivian Forestry Law, these groups may be beneficiaries of concessions in municipal forest reserve areas.

Departmental forest development plan

The project has supported the formulation of a forest development plan for the department. This plan is intended to guide the authorities, the industry and civil society in the appropriate utilisation and conservation of forest resources as well as in the formulation of departmental policies on forest development.

With the support of experts, the project conducted a diagnosis of forest resources and forest-sector institutions. On this basis, a technical commission made up of PANFOR staff, BOLFOR consultants and departmental authorities formulated a proposal for the development plan. This proposal outlined strategic objectives, departmental policies and programs, projects and indicators in:

- land-use planning and management;
- promoting sustainable forest management;
- encouraging forest product marketing;
- supporting the titling of forest lands;
- education for sustainable development;
- biodiversity conservation; and
- forest research.

The implementation of projects in these areas and the execution of the general development plan are aimed at strengthening the forest sector and promoting the development of a forestry-based local economy to increase the value of forests and thus encourage their sustainable management and conservation. This process is expected to arrest the replacement of forests for the establishment of pasturelands in a region where 68% of the lands have been classified as suitable for forest production and 17% designated as natural reserves (ZONISIG/DHV 1996).

Various forest-sector institutions, municipal governments, private companies and civil-society organisations reviewed the development plan proposal, a process that helped refine the plan and ensured the participation and support of all relevant stakeholders in its implementation. When this stage was completed, the plan was incorporated into the Prefecture's general development plan for the Department of Pando.

Forest research

One objective of the project is to conduct studies that increase understanding of socioeconomic and ecological aspects of forest management. Project studies have been carried out with the participation of expert consultants, local and external university students, BOLFOR professionals and PANFOR technicians. Issues addressed include:

- the structure and floral composition of major forest types in Pando;
- the ecology of abundant, non-traditional timber and non-timber species;
- the dynamics of managed forests;
- the impact of logging on forest structure and on the regeneration of some species;
- the effects of silvicultural treatments on timber species' growth and regeneration; and
- the impact of hunting on wildlife resources during the collection of Brazil nuts (*Bertholletia excelsa*).

Preliminary results have confirmed the enormous biological wealth of the region and underscore the fact that Pando's forests remain almost

unexplored. For example, several tree species have been recorded that have either not previously been reported in Bolivia or are new to science. It is also likely that new fauna will be discovered. Evidence has been found confirming the high regeneration capacity of these forests and their enormous potential for the sustainable production of timber and other non-timber products such as seeds, oils, fibre and medicinal plants. Preliminary data indicate that the impact of timber and Brazil-nut harvesting, when conducted in accordance with the standards of the new Bolivian Forest Regime, is not severe (with the exception of the hunting of wildlife species; Paredes 2000) and that it is feasible to improve these practices and to keep their impacts within a range that will ensure the conservation of most of the original biodiversity. However, it will be necessary to promote the regeneration and development of commercial species through silvicultural treatments (Fredericksen & Mostacedo 2000). These results are similar to those found in other tropical regions (eg Salick 1995; Webb & Peralta 1998) and underscore the significant potential of properly managed forests in achieving conservation objectives (Chazdon 1998).

Technical support for forest management

The project also aims to provide support and technical assistance for sustainable forest management to companies and rural and indigenous communities and social associations covering an area of approximately 400 000 hectares.

The PANFOR technical team, in collaboration with BOLFOR technicians, has provided support to four companies, one rural community and an indigenous territory, which altogether have rights over an area of nearly 800 000 hectares—almost twice the area originally anticipated. Assistance has been provided mainly in:

- property geo-referencing for land titling;
- support for the resolution of land-tenure conflicts;
- the development of forest management plans for the production of timber and Brazil nuts;
- forest censuses and annual operational plans for eight compartments of various companies, covering an area of 27 000 hectares;
- the establishment and measurement of permanent sample plots;
- the identification of markets for alternative species; and
- forest harvesting planning.

PANFOR's GIS has been particularly useful. On the basis of recent satellite images it has facilitated planning and ensured the reliability of management mapping tools.

The assistance provided to companies has been closely linked to their interest in obtaining forest certification and has focused on two companies that together hold

concessions covering 124 000 hectares. One of these concessionaires went through the process of certification in 2001 thanks, to a great extent, to support provided by the project; the other company is getting ready to initiate the process of evaluation. As for the other two companies, one had previously obtained certification and the other recently expressed its interest in starting a certification process.

With regard to community support, cooperation has required a different approach. Rural and indigenous groups in Pando have a low management and organisational capacity. Therefore, even though the project has been willing and has had the resources to start the development of management plans, it has been necessary to initiate the process with very basic activities that will allow the communities to establish the basis for the subsequent implementation of appropriate forest management activities. The project has supported the geo-referencing of properties, training on forest management basics and environmental considerations, and community organisation.

The experience acquired to date in the development of the community forest management plan for the beneficiary peoples of the indigenous territory, which covers more than 300 000 hectares, has shown that this must be a gradual process. A considerable amount of time is needed to achieve an adequate level of organisation and training, and internal agreements must be forged between the different communities within the territory to avoid future conflicts in the execution of forest management plans. In this context it has been necessary to strengthen the technical capacity of the project in the social field; professional expertise is required to address these complex problems at the regional level. Although the project strategy was to start with a pilot area of up to 30 000 hectares and a limited number of communities, to date it has only been possible to complete the sociological diagnosis and internal agreements, on the basis of which it will be possible to start the implementation of field activities in the short term as established in the management plan.

The difficulties

The main obstacle hindering forest development in Pando is by far the lack of consolidated land-rights and the overlapping of rights. On the one hand this generates land-tenure conflicts and, on the other, it weakens the legal security required for the implementation of long-term activities such as forest management. Both these factors also act as a disincentive for investment, which are required by the forest sector to ensure the economic viability of forest management. As described earlier, the project has needed to devote considerable resources to supporting beneficiaries in the settlement of land-tenure conflicts and in property geo-referencing. These activities have also included providing logistical support to the National Land Reform Institute in a national land-titling process initiated recently in Pando.

The problem posed by the low level of community organisation in the department has already been described. It would be highly beneficial for rural development in general if the social welfare organisations operating in the region were to provide greater support and training to rural and indigenous communities in this field.

The project's administrative personnel, recruited as local counterpart staff, should continue to improve the quality of resource administration and support to the technical team. Other limitations have stemmed from the fact that the project is based in a remote location—the small town of Cobija (more than a thousand kilometres from any major Bolivian cities); these have included the unavailability of supplies and specialised equipment and some limitations in facilities.

The future

Much of the initial success of the project has been possible because of the availability of expertise and infrastructure previously developed by BOLFOR. However, PANFOR has increasingly been gaining independence and has now been institutionalised as the José Manuel Pando Foundation, which comprises representatives of civil society, industry and local (including indigenous) communities.

Even though the results achieved to date are important, they constitute only the first few steps on a long road—a monumental task lies ahead to ensure effective sustainable forest management and conservation. The ITTO project officially ended in late 2002; some funding for PANFOR continues through BOLFOR. Equally important to sustainable forest management is the further development of the timber sector in areas such as industrial timber processing, market development, production diversification and investment incentives; a profitable and sustainable timber industry will go a long way to ensuring that the Pando forests are spared devastation by fire and clearing.

References

- Chazdon, R. 1998. Tropical forests – log 'em or leave 'em? *Science* 281, 1295–96.
- Fredericksen, T. & Mostacedo, B. 2000. Regeneration of timber species following selection logging in a Bolivian tropical dry forest. *Forest Ecology and Management* 131, 47–55.
- Paredes, L. 2000. Evaluación del uso de la fauna silvestre durante las actividades de recolección de Castaña en la propiedad de “San Juan”, provincia Iturrealde del departamento de La Paz, Bolivia. *BOLFOR/PANFOR Technical Document*, 35 pp.
- Peralta, R. 2000. Diversidad de especies arbóreas en Pando. *BOLFOR Newsletter* 20, 12.
- Peralta, R., Nittler, J. & Eduardo, D. 2000. The Potential of Pando. *Tropical Forest Update* 10(2), 13–15.
- Salick, J., Mejía, A., & Anderson, T. 1995. Non-timber forest products integrated with natural forest management, Río San Juan, Nicaragua. *Ecological Applications* 5(4), 878–895.
- Webb, E., & Peralta, R. 1998. Tree community diversity of lowland swamp forest in Northeast Costa Rica, and changes associated with controlled selective logging. *Biodiversity and Conservation*, 7, 565–583.
- ZONISIG/DHV 1996. Plan de Uso del Suelo del Departamento de Pando (PLUS—Pando). La Paz. Ministry for Sustainable Development and the Environment/Prefecture of the Department of Pando.
- Initial stages of ITTO PROJECT PD 24/97 REV.1 (F) were reported in TFU 10/2, 2000.*

Forest statistics improve in Latin America

An independent evaluation of ITTO statistical development projects in Latin America finds that the projects have added significantly to the ability of countries to collect and analyse reliable forestry-related data

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ITTO recognises that reliable and timely forest statistical information is a strategic element in the development of policies for sustainable forest use. In 1996 the International Tropical Timber Council approved specific guidelines for the formulation of statistical development proposals in its member countries and has funded several such projects across the three tropical regions. Assessing the value of statistics' projects is important not only for ensuring that future projects build on the lessons learned, but also for taking stock of the state of forestry statistics and identifying remaining deficiencies.

At its 28th Session, the Council recommended the ex-post evaluation of four ITTO statistics-related projects and one pre-project (denoted PPD below) implemented in Bolivia, Colombia, Panama and Peru. These were:

- PD 34/94 REV.1 (M): 'Establishment and implementation of a forest statistical information system (Colombia)';
- PPD 5/94 (M): 'Implementation of a forest statistical information system (Peru)';
- PD 27/95 REV.3 (M): 'Establishment and operation of a forest strategic information centre (Peru), Phase I and Phase II – Stage 1';
- PD 44/96 REV.2 (M): 'Establishment of a forest statistics information system (Panama)'; and
- PD 1/97 REV.1 (M): 'Implementation of a national forest statistical information system (Bolivia)'.

The ex-post evaluation involved a review of technical documents and reports produced by the Council's Committee on Economic Information and Market Intelligence (CEM), interviews with project directors, and visits to the projects' areas of influence. The objectives of the ex-post evaluation were to determine the general efficiency and effectiveness of the projects, assess the degree to which they achieved their objectives, identify the lessons learned, and make recommendations for future projects. This article

highlights the main aspects of the final report submitted to the CEM in November 2002.

Project context

Prior to the implementation of this suite of projects, the forest statistics' situation in the four countries was characterised by a limited availability of reliable and timely data, a wide dispersion of responsibilities, and a lack of integration and coordination between the institutions responsible for data processing. Moreover, the available hardware and software were inadequate and the human resource base lacked the necessary skills to manage and disseminate the data effectively.

Background

The evaluated projects were implemented between 1995 and 2001 by governments with the participation of governmental, non-governmental and private organisations. The main objective in all the projects was the establishment and development of a forestry statistical information system (Sistemas de Información Estadística Forestal—SIEF), comprising data collection, storage, processing, analysis, dissemination and access subsystems through the various stages of the forest production chain. The projects usually focused on staff training and the establishment of regional nodes that would collect data and transfer them via the internet or on disks, according to the region, to the system's headquarters.

The SIEFs developed under the ITTO projects can be visualised as 3-dimensional systems (*see figure*). The first dimension (*x* axis) shows the methods, processes and outputs of the various statistical subsystems. The second dimension (*z* axis) shows the stages of the forest production chain at which data are collected. The third dimension (*y* axis) reflects the system's regional and national coverage. The three dimensions are intertwined and vary in nature depending on specific features in each country. *Table 1* shows a comparative analysis of some of the important characteristics of the developed systems.

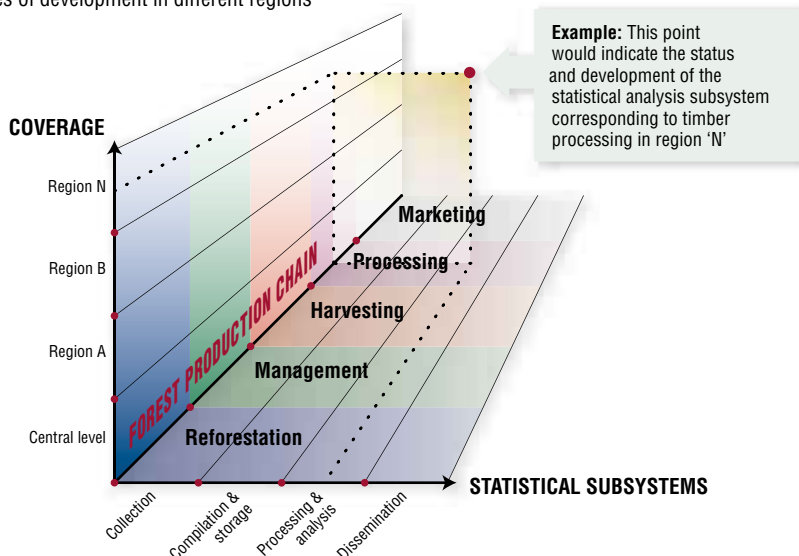
Project results

The SIEFs were implemented successfully under the ITTO projects and are currently operating with national coverage in each country, thus satisfying information needs at various stages of the forest production chain with the required data quality, timeliness and adequacy. Even though the projects were not designed to establish full national and regional networks, each of the four countries is continuing to expand coverage. Standard methodologies are in place for the statistical subsystems (data collection, compilation and storage, processing and analysis, and dissemination), with corresponding functional designs and databases established and operational.

The impact of the SIEFs can be seen, for example, in Bolivia. Forest authorities there reported that the availability of more reliable, timely and easy-access information has

Dimensions of a SIEF

A SIEF system typically comprises several subsystems at various stages of development in different regions



Sieving the SIEFs

Table 1 SIEF characteristics in Latin America

	Bolivia	Colombia	Panama	Peru
Responsible institutions	Ministry of Agriculture and Rural Development (MAGD)	Ministry for the Environment. Currently, Institute for Hydrology, Meteorology and Environmental Studies (IDEAM)	National Environmental Authority (ANAM)	National Institute for Natural Resources (INRENA)
Project duration	March 1998–March 2001; 36 months	March 1996–February 1999; 36 months	October 1997–February 2000; 28 months	October 1996–September 2001; 52 months
Coverage	Headquarters in La Paz. Covers forest regions throughout the country. Nodes: Santa Cruz, Beni, Pando, Cochabamba, Oruro, Sucre, Potosí and Tarija	Headquarters at IDEAM, Bogota. Covers main forest regions in the country through regional autonomous corporations (CARs)	Headquarters in Panama City. Covers all forest regions	Headquarters at INRENA, Lima. Covers main forest regions. Nodes: Ucayali, Loreto, Madre de Dios and San Martín
Data collection subsystem	Partial use of MAGD intranet. Weaknesses in following up the capture of some basic variables. In the process of interconnected integration through internet networks with local offices	Problems of integration between system institutions and difficulties in implementation due to political unrest in the country	Partial use of ANAM intranet. Weaknesses in following up the capture of some basic variables. In the process of interconnected integration through internet networks with the Customs Directorate and Comptroller's Office (Dirección de Aduanas y la Contraloría)	Weaknesses in following up the capture of some basic variables. In the process of interconnected integration through networks
Compilation and storage subsystem	Central server in La Paz. Updated hardware/software. Intranet available	Good information technology (IT) at the central level and poor IT at the regional level. System being redesigned	Updated hardware and software. Intranet available. Interactive with geographic information system	Updated hardware and software. Intranet available. Interactive with geographic information system
Analysis subsystem	No major development after project completion. Stored data with great use potential	Partial development due to delays in data collection	No major development after project completion. Stored data with great use potential	No major development after project completion. Stored data with great use potential
Dissemination subsystem	Access to databases through the intranet at the central level and at the local offices of the Forestry Commission (Superintendencia Forestal)	Dependent on the development of above subsystems	Access to databases through the intranet at the central level and at the regional administration level	Access to databases through the intranet at the central level and at the regional administration level
Current status	Continues under ITTO Project PD 34/00 Rev.1 (M), which is extending the SIEF to forest production units (unidades productivas de bosque—UPB): www.siforbol.gov.bo	In transition to new Colombian Forest Statistical System (Sistema Estadístico Forestal de Colombia—SEFC) and Environmental Information System (Sistema de Información Ambiental—SIA): www.ideam.gov.co	The SIEF is being integrated into the new Forest Information System (Sistema de Información Forestal—SIF): www.anam.gob.pa/Sif2002/index.htm	Continues under Phase II Stage 2 of the ITTO project, which will incorporate new nodes in Junín and Pasco: www.inrena.gob.pe

assisted them in promoting, regulating and controlling the sustainable use and conservation of forest resources. In addition, the Bolivian Forestry Chamber, a private association of forest industrialists, reported that the SIEF had assisted it in its strategic planning activities, market surveys and forest product promotion.

The quality of statistical data in the targeted Latin American countries has improved significantly, although there are still some weaknesses, particularly in relation to the data collection and analysis subsystems (*see table*). Newsletters and statistical yearbooks are being published, which are proving to be excellent tools for dissemination and user-support. In addition, the websites of the various institutions responsible for these systems complement the dissemination process (web addresses are given in the table).

In terms of efficiency, the projects were implemented according to their workplans. A significant factor

in the high level of achievement and the quality of outputs was the personnel trained by the projects, who showed a high level of expertise and responsibility. The establishment of steering committees with the participation of major information-generating institutions in each country was another important factor. These steering committees monitored project progress and, in coordination with ITTO's CEM, were able to provide sound guidance to project implementation. This proved to be very useful because all the projects were affected by external structural, institutional, legal and technological changes.

An effective interrelation between human skills, the required technological level (mainly related to aspects of specialised hardware and software), and good project organisation and coordination as a whole were also key factors in project success. The implementation of these projects led to the development of workplans and approaches for institutional integration, but several difficulties remain that need to be addressed through the strengthening of inter-institutional cooperation.

The new SIEFs have satisfied to a great extent the information needs of users, meeting the expectations envisaged at the beginning of the projects. In all

countries the SIEFs now have legal and institutional bases and are likely to be sustainable. The projects have contributed effectively, both directly and indirectly, to the objectives and priorities of the ITTO Action Plan.

Main lessons learned

The design and implementation of projects to establish a complex information system such as a SIEF should be sufficiently flexible to adjust to the changing conditions of each country. The project steering committees can play a significant role in this respect. Institutional changes that can potentially affect the SIEF should be considered and reviewed carefully so that project workplans and strategies can be redesigned if necessary.

Project designs should take into account the nature of the institutional system, particularly whether it is decentralised or centralised. Where the structure is decentralised, regional bodies should be given greater responsibility than just the collection of primary data to encourage their participation; they can also play a significant role in other statistical subsystems related to data processing, analysis and dissemination. The scope of the regional bodies' functions and responsibilities should be agreed jointly with the central bodies according to the nature and operation of each of the statistical subsystems.

The host countries of the evaluated projects have differing degrees of regional development. These differences should be particularly considered in the development of a SIEF. For the initial phases of system development in particular, a strategy should be adopted that seeks the support of the stronger regions first and then allows for the gradual incorporation of other, lesser-developed regions.

The SIEFs have played and are still playing a catalytic role in discussions on forest issues at the national level in each of the four countries and have become active in joint initiatives. One of their major achievements has been to serve as points of convergence for various sector stakeholders.

Recommendations

In designing similar projects, we recommend that the scope of the development objective be limited to a minimal number of strategic and absolutely essential requirements, with a view to a gradual and progressive development of the system to achieve national coverage. The specific characteristics of the participating institutions should be taken into account in the construction and implementation of the system. In particular, project documents should:

- state specific objectives clearly and precisely, demarcating the four basic subsystems of the statistical process;
- clearly define the appropriate level of operational decentralisation for the system in accordance with the characteristics of existing institutional frameworks; and
- ensure flexibility for the adjustment of project workplans, both at project start-up and throughout the implementation period.

To ensure the wide use of statistical outputs, we recommend the publication of regular statistical newsletters, including by electronic means such as the internet, CDs and diskettes. Statistical methods to improve and optimise the data collection subsystem should be used, and there should be a focus on data analysis, especially in the use of data that have already been processed and stored to facilitate projections and forecasts.

We also recommend strengthening the connectivity between the regional and central networks of the various institutions participating in the system.

The latest communication technology, particularly the internet, should be used, not only for the dissemination of information but also for consultations and to facilitate the sharing of the various network and institutional databases.

Information reliability should also be addressed. Actions should be identified to address data collection anomalies, such as those arising from undocumented timber harvesting and transportation, timber seizure and subsequent auctioning, and timber stored and later sold. It is also necessary to identify and support the institutions and technical groups responsible for the processing of the ITTO/FAO/EUROSTAT Joint Forest Sector Questionnaire in each country to ensure that international data reporting obligations are met. Special consideration should be given to import and export data and to addressing the problem of unit conversion for different products.

In terms of system efficiency, we recommend that arrangements, plans and measures be established to develop and stabilise the integration and operational relations between the various central and regional institutions that make up the SIEF. For example, the Bolivian SIEF's mutual cooperation agreements concluded with major forest sector stakeholders throughout the country clearly specify the rights and obligations of each party in the system.

SIEF efficiency can be improved by establishing multidisciplinary teams for the duration of the project cycle and for the post-project period, especially in the fields of communication and information technology, forestry and environment, and statistics. Regional networks should continue to be strengthened through logistical support and technology transfer mechanisms, particularly via the central bodies and through the implementation of specific programs and actions at the national and international levels.

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Much of the global concern about tropical rainforests centres on the loss of biodiversity and the poverty and marginalisation of indigenous communities. Attracting less attention is the degree to which these concerns are linked

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WHILE biodiversity assessment has become a widespread pre-occupation, the information generated often has little impact. Decision-makers—local politicians, concession managers and international policymakers—faced with the demands of various commercial stakeholders and development programs still find it difficult to react to species' lists and other biological survey data.

The interests of many stakeholders, especially commercial enterprises, are relatively clear and easily communicated, but the needs and perceptions of indigenous rural communities remain hidden to outsiders unless a specific effort is made to uncover them (Scott 1998). Where external decisions have local impacts, the concerns of local communities are often overlooked and undesirable impacts, though common, are inadequately anticipated. What is needed is an understanding of local needs and a means to make these more influential in the decision-making process.

In 1996, the Indonesian government provided a forest area in East Kalimantan in which the Center for International Forestry Research (CIFOR) could conduct long-term research. In May 1997 the International Tropical Timber Council decided to fund ITTO PROJECT PD 12/97 REV. 1 (F): *Forest, science and sustainability: the Bulungan Model Forest* to assist this research.

Until recently, the rugged forested landscape of Bulungan (next to the Kayan Mentarang National Park, itself the focus of an ITTO-funded project) was little known, although it was suspected that it would contain numerous rare plants and animals of global conservation significance. CIFOR's ITTO-supported biodiversity research in the area has had three main components: 1) finding out what occurs where; 2) assessing to whom it matters and in what ways; and 3) identifying how to maintain this biota in the future. Here we focus on the second of these.

The main indigenous populations in the Bulungan Model Forest comprise the Merap, Punan and Kenyah ethnic groups. The entire area is divided up by traditional claims. Population densities are low (less than 1 person per km²), and previous governments have allocated most of the area to timber concessions with little regard for local rights. Some steeper land is designated as protection forest, but



Folk lore: Pak Aran Ngou from Langap village and CIFOR researcher Imam Basuki discuss soil properties in relation to natural vegetation and local land-use choices. Photo: Douglas Sheil

much of the more accessible area has been logged or will be logged in the near future.

Large-scale coal mining began in the area in the early 1990s, with considerable local impact. The economic crisis that started in 1997, the depreciation of the Indonesian currency and an increase in the export value of coal have led to a rapid expansion in geological prospecting by private investors. The recent devolution of power from the central government to the district level is also having major effects. Local authorities have been allocating logging and land-clearing permits, while local people are increasingly empowered in the decisions that affect them and show an increasing willingness to call on local authorities to intervene in disputes.

Our approach

Our study of marginalised communities in Kalimantan asked the following question: how can we find out what we need to know to make better decisions about tropical forest landscapes? Our multidisciplinary approach, developed during a study in seven communities in the forest-rich upper portion of the Malinau watershed within the Bulungan Model Forest, is detailed in a new book (Sheil et al. 2002). A village-based survey collected a wide range of information about the needs, culture, institutions and aspirations of the communities and examined general perceptions of the local landscape; the *table* (next page) gives some idea of the breadth of information gathered and the methods used. A parallel field survey assessed sample sites and recorded soil, vegetation and other site characteristics. These field methods emphasised landscape-scale characterisation through a large number of small, data-rich samples and assessments of community territories based on these samples. We reassured communities that disclosure of information was voluntary and for intellectual-property reasons we did not request

detailed accounts of some kinds of information, such as how medicines are prepared and administered.

Two hundred sample plots were established, and we recorded 2126 distinct plant species in 15 430 records. Local informants attached 3642 specific species-by-use combinations to 1449 of these species, including notes on their relative importance.

The importance of unlogged forest

All sections of the communities considered unlogged forest as the “most important” land cover, both in general and for all classes of use that we assessed. Logged-over forest was given a much lower preference for a number of reasons: diminished key resources, reduced physical accessibility, and reduced access rights. Logging is considered in the communities to be a major cause of the perceived depletion of numerous wild resources. For example, concession-holders are required to repeatedly slash all undergrowth and climbers after felling with the intention of reducing aggressive ‘weeds’ and encouraging regeneration; in practice, though, this has a deleterious effect on many useful species, including rattan and timber seedlings. Even if applied properly, the silvicultural benefits of the technique are limited while the impacts on biodiversity and communities are considerable; it may be more damaging to the forest than the harvesting itself and we suggest that the policy that stipulates it be reviewed.

Another valued resource is the wild forest boar *Sus barbatus*. This is a highly preferred food and provides the bulk of vital animal fats and proteins to many communities. According to these communities, though, boar numbers are lower in logged areas. When there are fewer pigs the communities are forced to find other ways to supplement their diets. The consumption of less-preferred and often protected species, such as monkeys, appears more common in active concession areas.

A shortage of preferred construction materials (eg ‘ulin’—*Eusideroxylon zwagerii*) is already being felt in many communities. The people of one community have reacted by agreeing among themselves to keep an area of local forest cover as a community resource, thereby establishing a *de facto*

protected area. However, such sites have no official recognition and in some instances are threatened by concessions.

Sago

Crop failures due to droughts and floods loom large in community histories. Many remoter Punan cultivate little and are regularly dependent on wild food resources such as palm starch (sago). In the primary forest the palms are common enough and protected by community management practices. They are less secure in logged forest. The main local sago (*Eugeissonia utilis*) tends to grow on ridgetops, where heavy machinery is used to extract logs on the steeply undulating local terrain. This currently approved practice is endorsed in reduced impact logging guidelines, such as those prescribed in Sist et al. (1998). Such concerns might be addressed by modifying skid-trail design or by programs of food security.

It may appear that important information such as this is so clearly common-sense that it should be trivial to obtain, but this is not always so. Reliance on sago has been strongly stigmatised as a symbol of ‘backwardness’ to the point where communities are ashamed to discuss it. When talking to outsiders, community representatives, who are often wealthier members, will agree that sago was “only eaten in the old days”, even though this may be untrue. It is only by employing a range of approaches with a range of people that these discrepancies can be identified and understood.

Gravesites

Other instances of hidden values pose even greater difficulties. For example, many Punan groups have traditionally buried their dead in large ceramic jars. These jars are now very valuable and are often stolen. It appears taboo to discuss such sites with outsiders; secrecy offers some protection. Many outsiders believe the Punan merely leave their dead in the forest, a myth the Punan themselves have been happy to perpetuate, but the destruction of such gravesites during timber concession development is rapidly becoming a major local concern. Traditionally, an area of about a hectare or more around gravesites was kept free of forest product collection; these often survive as remnant forest groves even in more intensively cultivated areas.

Face to face

Type of data collected and method used in the village-based activities (additional information was gathered in the surrounding landscape through a field-based survey)

Emphasis of data collection	Method
Village description/perspective of land-use	Interview with village head only
Cultural background of land-use	Interview with traditional leader only
Demography	Household survey (census) and documentation from village head
Price of traded goods	Interview of shopkeepers
Household survey (includes questionnaire of problems and aspirations, with comments on needs and solutions)	Head of household of at least 30 households
Traditional knowledge on land-use	3–5 key informants
Forest product collection and sale	3–5 key informants
Settlement history and land-use	Interview with village head and traditional leader
Disasters and important events	Interview with village head and traditional leader
Identification of land and forest types	Community meeting (with mapping exercise)
Identification of forest products	Community meeting
Scoring the importance of landscape units	Focus-group discussion. Women/men, old/young separate
Scoring changes in importance of landscape units and natural resources over time	Focus-group discussion. Women/men, old/young separate
Scoring how distance of landscape units influences importance	Focus-group discussion. Women/men, old/young separate
Scoring the importance of different sources of products	Focus-group discussion. Women/men, old/young separate
Scoring the most important species per use category	Focus-group discussion. Women/men, old/young separate

However, logging can destroy such sites, often unintentionally, causing local resentment.

The protection of culturally important sites seems uncontroversial: it would be easy to implement and would offer additional conservation benefits while also helping to avoid local conflict and discontent. However, although relatively uncontentious once elicited, local priorities are rarely clear in advance to outsiders. The examples described above represent only a fraction of the information we have documented about how local communities relate to their environment. All was obtained through a process of identifying what was important locally through various interactive exercises. Solutions that better reflect local needs can now be sought.

Advantages for ecological research

Local knowledge can contribute greatly to our understanding of the natural environment. Much has been written about community empowerment, but, in many ways, our methods have empowered *us* to understand and utilise the extensive knowledge that local communities often possess about their environment.

During our studies we were faced with the task of surveying a rugged area of about 2000 km². Available maps were poor and of limited value. We developed simple maps showing major rivers, roads, village locations and mountain ridges. With our guidance, communities provided names for geographical features and locations for resources such as sago and rattans and special sites such as abandoned villages, good hunting locations and caves. Some of these maps provide detail for even distant and inaccessible areas. Ecologically they reveal the localised nature of many natural resources and their site associations, many of which we were able to check during our field sampling using local guidance. Given the size and limited accessibility of the region, our team would have found this type of information nearly impossible to discover by first-hand field exploration.

In our sampling we sought to understand the range of sites and habitats, and local advice proved invaluable. But we wanted to go further. We suspected some sites often had special significance for local people and might contain restricted habitats and species. For example, the limited areas of limestone outcropping not only provide habitat for cave swiftlets, the nests of which are highly valued for Chinese soups, but also for many other restricted species. We thus specifically sought out such sites using local guidance. These samples (especially those in natural habitats) did, on average, add more (unique) species per sample to the overall survey than did more typical sites. If our aim was to accumulate as many new species as possible in the fewest additional samples, the most effective course of action would be to locate more such sites using local knowledge.

Follow-up and impacts

Our work underlines that local communities have complex relationships with their environment that need to be respected, understood and taken into account in all relevant decision- and policy-making and implementation. For Indonesia, this message requires a paradigm shift for all the institutions and processes related to forest management.

Decentralisation has opened many issues for more localised scrutiny than was previously possible. Numerous local institutions, both governmental and non-governmental, are seeking ways to integrate the needs and aspirations of local communities into national development strategies and conservation plans. CIFOR is a research institution that seeks impact through credible and useful information. However, we cannot rush: our

methods are largely new, especially to our intended decision-maker audience, and our credibility needs to be earned. One crucial step before we present our results more widely will be to work with community members to review conclusions and to supply any necessary caveats.

Ultimately though, it will be difficult to integrate local perspectives in the process of change unless we see that process as an iterative one. The key point is to develop a dialogue by learning to understand each other. Our methods provide a step in that direction.

What is the value of such surveys to the communities? Despite our own fears about community impatience, the people have stayed positive about our survey and appear genuinely pleased that outsiders seek them out to hear their views. They recognise the benefits of openly discussing topics to which they have not previously given much explicit attention and of learning how to make their views apparent to outsiders.

Conclusions

Decision-makers require knowledge on how to address the needs and interests of local communities and biodiversity. Some relevant information is easy to elicit by merely talking to the communities, but some aspects are harder. Under the project we have brought together a suite of effective methods that can be used to survey tropical forest landscapes and to find out 'what matters.' The techniques provide conventional biophysical descriptions of the landscape and explicitly relate this information to local needs, knowledge and value systems. These methods can be used to inform decisions about land-use and to guide future research. The improved understanding provides a foundation for deeper dialogue between scientists, policy-makers and the forest communities. It is our hope that operational surveys in the future will similarly integrate biodiversity information with local needs, and use this to improve forest conservation, protect the needs of local people and advance the management of tropical forest landscapes.

Acknowledgements

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References

- Scott, J. 1998. *Seeing like a state*. The Yale ISPS series. Yale University Press, New Haven, USA.
- Sheil, D., Puri, R., Basuki, I., van Heist, M., Syaefuddin, Rukmiyati, Sardjono, M., Samsodien, I., Sidiyasa, K., Chrisandini, Permana, E., Angi, E., Gatzweiler, F., Johnson, B. and Wijaya, A., with help from the people of Paya Seturan, Long Lake, Rian, Langap, Laban Nyarit, Long Jalan, Lio Mutai & Gong Solok 2002. *Exploring biological diversity, environment and local people's perspectives in forest landscapes*. Center for International for Forestry Research, Ministry of Forestry, and International Tropical Timber Organization, Bogor, Indonesia.
- Sist, P., Dykstra, D. & Fimbel, R. 1998. *Reduced-impact logging guidelines for lowland and hill dipterocarp forests in Indonesia*. CIFOR Occasional Paper No 1.
- The main reports on this work can be downloaded at www.cifor.cgiar.org/publications/index.htm*

African principles, criteria and indicators agreed

A new set of principles, criteria and indicators coupled with a substantial and innovative training program will boost efforts to sustainably manage Africa's tropical forests

THE African Timber Organization (ATO), in collaboration with ITTO, recently published the *ATO/ITTO principles, criteria and indicators for the sustainable management of African natural tropical forests*. This 26-page document provides wide-ranging guidance at the national and forest-management-unit (FMU) levels for good practice in Africa's moist tropical forests.

Towards the end of the 1990s, the ATO set out to develop a set of principles, criteria and indicators (PCI) to promote the sustainable management of African forests, aided by financial assistance from the European Union and technical collaboration with the Center for International Forestry Research. In the meantime, ITTO was revising and updating its original (1992) set of criteria and indicators for the sustainable management of natural tropical forests (C&I), publishing a new set in 1998. Thus, African member countries of ATO and ITTO found themselves with two sets of C&I; it made sense to build on these sets to develop a unique and harmonised set applicable to African tropical forests.

Decision 4(xxix), adopted during the 29th Session of the International Tropical Timber Council (ITTC) held in Yokohama, Japan in November 2000, called for collaboration between ATO and ITTO in order to refine the ATO PCI and make them consistent with the ITTO C&I. This work was helped by two international consultants, who examined both sets and combined the strengths of each in a draft of harmonised PCI for African tropical forests. During a regional ATO/ITTO workshop in Yaoundé, Cameroon, held just prior to the 30th Session of the ITTC at the same venue, the draft was finalised as the *ATO/ITTO principles, criteria and indicators for the sustainable management of African natural tropical forests*.

This document, which has been published in French and English, comprises 1 principle, 5 criteria, 33 indicators and 44 sub-indicators at the national level, and 3 principles, 15 criteria, 56 indicators and 140 sub-indicators at the FMU level. An innovative feature of the ATO/ITTO PCI is the inclusion of sub-indicators, which provide a basis for the development of specific verifiers and standards of performance relevant to the assessment of sustainable forest



Training: a group of foresters (bottom left) receive training in the *ATO/ITTO principles, criteria and indicators for the sustainable management of African natural tropical forests* in a Congolese logging concession. Photo: J. Blaser

management at the FMU level in African tropical forests. The box (below) shows two examples of the principle/criterion/indicator/sub-indicator hierarchy.

ATO and ITTO, in collaboration with other partners, are assisting their members to put the ATO/ITTO PCI into practice. Their efforts will be supported by a project recently funded by ITTO for execution by ATO; it aims to train at least 60 forestry staff in each African ITTO member country in the implementation of the ATO/ITTO PCI. It is also developing an auditing framework for African forests and training at least 60 trainers in the procedures for conducting audits based on the PCI at the FMU level (see *TFU* 12/3, p 21 for a summary).

Copies of the ATO/ITTO principles, criteria and indicators for the sustainable management of African natural tropical forests can be obtained from the ITTO information officer (see contact details on page 2) or at www.itto.or.jp

Examples from the *ATO/ITTO principles, criteria and indicators for the sustainable management of African natural tropical forests*



PRINCIPLE 3: The main ecological functions of the forest are maintained.

- ▶ **Criterion 3.3:** The impact of harvesting activities on biodiversity is minimized.
- ▶ **Indicator 3.3.3:** The diversity and relative abundance of fauna species do not change significantly.
 - ▶ **Sub-indicator 3.3.3.2:** There is an internal rule forbidding and also penalizing the transportation and trade of bush meat, and also the transport of guns and weapons for hunting in the vehicles of the forest concessionaire.

PRINCIPLE 4: According to the importance and intensity of forest operations, the FMU manager contributes to the improvement of the economic and social well-being of workers in the FMU and of local populations.

- ▶ **Criterion 4.3:** All stakeholders consider the share of benefits derived from forests to be satisfactory.
- ▶ **Indicator 4.3.3:** In accordance with the importance and impact of the forest operations at the local level, the concessionaire contributes to the development of the local economy.
 - ▶ **Sub-indicator 4.3.3.1:** The concessionaire encourages the creation of small and medium-sized enterprises related to its forestry activities.

Increasing ITTO's project portfolio

Initiatives in reduced impact logging, certification, industry development and secondary forest management all received grants at the 33rd session of the International Tropical Timber Council held in Yokohama, Japan in November 2002

Promotion and transfer of knowledge on sustainable forest management models to timber producers (Peru; PD 23/00 Rev.4 (F)*)

Budget	ITTO:	\$420 212**
	CNF:	\$242 565
	Forest concessionaires:	\$150 000
	Total	\$812 777

Implementing agency National Forestry Chamber (Camara Nacional Forestal—CNF) with the active participation of forest concessionaires, industrialists' associations, professionals, NGOs, the Ministry of Agriculture, MITINCI, PROMPEX, technological institutes and universities

Funding source Japan

This project will focus on the training and education of Peruvian Amazon forest stakeholders in sustainable forest management techniques, including the ITTO criteria and indicators, to promote private investments in the forest sector and the use of appropriate technologies.

Integrated evaluation and strategy for the sustainable management of secondary forests in the Central Forest Region of Peru (PD 138/02 Rev.2 (F))

Budget	ITTO:	\$466 400
	INRENA:	\$180 000
	Total	\$646 400

Implementing agency National Institute for Natural Resources (INRENA)

Funding sources Japan, the Netherlands

This project will develop a sustainable management plan and strategy for the secondary forests of the Central Forest Region of Peru on the basis of the secondary forest management guidelines developed by ITTO, for the benefit of the local communities and the conservation of natural resources in the area. Among other things it will produce a map detailing the current status and evolution of secondary forests in the Central Forest Region over the last ten years; a methodological manual for the evaluation of secondary forests; a database and website on secondary forests; a proposal for an action plan and regional strategy; and an ecological-economic zoning proposal for the management of secondary forests.

Use of remote sensing technology and information systems to support forestry legislation monitoring in the Republic of Congo (PD 176/02 Rev.1 (F))

Budget	ITTO:	\$577 676
	Government of Congo:	\$121 408
	WRI:	\$193 330
	Total	\$892 414

Implementing agency World Resources Institute (WRI), in collaboration with Congo's National Centre for Forest and Fauna Inventories and Management (Centre National des Inventaires et Aménagements Forestiers et Fauniques)

Funding sources Japan, Switzerland, USA

This project will collect accurate geographic data on forest companies and logging areas, using forest-related information and information management technologies on a regular basis to enhance forest law enforcement and establish reasonable and fair logging terms for logging companies. It will also provide training to local staff in the use of GIS-based law enforcement monitoring tools.

Information and training program for sustainable forest management in the Peruvian Amazon (PD 178/02 Rev.1 (F))

Budget	ITTO:	\$185 097
	IAP:	\$56 769
	Total	\$241 866

Implementing agency Peruvian Amazon Research Institute (Instituto de Investigaciones de la Amazonía Peruana—IAP)

Funding sources Japan, Switzerland, USA

This project will establish a Sustainable Forest Management Information System (SIMFOS) to provide information and specialised tools and to facilitate the exchange of experiences among key forest-sector stakeholders in the region. Furthermore, with the support of Amazon universities and regional cooperation groups, the project will provide training on sustainable forest management to 60 leaders, which will be supplemented with a technical mission to Bolivia to visit successful forest initiatives.

Formulating a proposal on demonstration of integrated models for sustainable tropical forestry development (China; PPD 28/01 Rev.2 (F))

Budget	ITTO:	\$54 166
	Government of China:	\$3800
	Total	\$57 966

Implementing agency Chinese Academy of Forestry

Funding sources Japan, Australia

This pre-project will compile existing integrated forest management models in China based on an intensive survey and carry out a diagnosis of local potentials and environmental constraints. Among the main outputs will be a report on the current status of the tropical forest zones in China and a project proposal.

Strengthening central and sub-national institutions to enhance plantation forest development in Jambi and South Kalimantan (Indonesia; PPD 56/02 Rev.1 (F))

Budget	ITTO:	\$44 414
	Government of Indonesia:	\$10 655
	Total	\$55 069

Implementing agency Directorate of the Management of Plantation Forest Development, Ministry of Forestry, and provincial forest services in Jambi and South Kalimantan

Funding sources Japan, Australia

This pre-project will support the development of innovative mechanisms for the expansion and security of the forest resource base, especially forest plantations, by: (a) providing updated baseline data, and (b) creating a forum for the critical appraisal of the role of forest plantations. Among the main outputs will be a project proposal for the development of forest plantations in a decentralised environment.

Development of a strategy and planning of measures for the sustainable management by local communities of the Assoukoko Natural Reserved Forest and Adele Community Forest (Togo; PPD 60/02 Rev.1 (F))

Budget	ITTO:	\$50 286
	Government of Togo:	\$18 156
	Total	\$68 442

Implementing agency Defi Environnement Developpement in collaboration with Direction de la Protection et du Contrôle de l'Exploitation de la Flore

Funding source Japan

This pre-project will develop a draft strategy and management plan for the sustainable management of natural forests in the Adele region with the participation of local communities and based on the ITTO criteria and indicators. One output will be a project proposal to support the finalisation and implementation of the strategy and management plan.

Consolidating sustainable forest management certification in Indonesia (PD 80/01 Rev.6 (M))

Budget	ITTO:	\$368 799
	Government of Indonesia:	\$123 688
	Ford Foundation:	\$100 000
	Total	\$592 487

Implementing agency Lembaga Ekolabel Indonesia (Indonesian Ecolabelling Institute)

Funding sources Japan, Switzerland

This project will ensure the increased availability of certified timber from sustainably managed forests in Indonesia by improving public awareness of national and international sustainable forest management certification systems, and establishing the national capacities needed to ensure implementation and monitoring of credible national and international sustainable forest management certification systems.

Establishment of a national system of collection, entry, processing and dissemination of forestry and timber statistics in Togo (PD 168/02 Rev.1 (M))

Budget	ITTO:	\$243 594
	Government of Togo:	\$97 096
	Total	\$340 690

Implementing agency Office National de Developpement et d'Exploitation des Forêts

Funding source Japan

This project will develop and establish a fully operational forestry and timber statistical data collection, processing and dissemination system, managed by local personnel and enabling the development of a permanent data bank, which will serve as an operational control panel for rational decision-making in sustainable forest management.

Capacity building for the development of a sustainable rattan sector in China based on plantation sources (PD 100/01 Rev.3 (I))

Budget	ITTO:	\$504 369
	Government of China:	\$479 213
	Total	\$983 582

Implementing agency China International Network Centre for Bamboo and Rattan (CINCEBAR)

Funding source Japan

This project will help build capacity for sustainable rattan development in China by demonstrating rattan plantation management schemes in three different ecological zones and providing guidance and training on rattan plantation management to farmers and foresters in local communities in southern China.

Program to facilitate and promote adoption of reduced impact logging (RIL) in Indonesia and the Asia Pacific region (PD 110/01 Rev.4 (I))

Budget	ITTO:	\$611 863
	Government of Indonesia:	\$74 500
	Forest industry:	\$261 000
	TFF:	\$81 400
	Total	\$1 028 763

Implementing agency Centre for Forestry Education and Training (CFET), Ministry of Forestry, in cooperation with the Tropical Forest Foundation

Funding sources Japan, USA, the Netherlands

This project will increase awareness of key forestry sector stakeholders—managers of forest industry groups, officers of government forestry agencies, NGOs, media and community leaders—about the requirements and benefits of improved logging planning and implementation, strengthen the capacity of forestry institutions to promote and facilitate the implementation of reduced impact logging, and establish a corps of forest technicians, supervisors and forest workers trained in the practical techniques of reduced impact logging.

International workshop on Clean Development Mechanism – opportunities for the forest industry sector in the Asia-Pacific Region (PD 174/02 Rev.1 (I))

Budget	ITTO:	\$122 960
	SNU:	\$7000
	KFRI:	\$15 000
	NEAFF:	\$15 000
	Total	\$159 960

Implementing agencies Seoul National University (SNU) in cooperation with the Korea Forest Research Institute (KFRI) and the Northeast Asia Forest Forum (NEAFF)

Funding sources Japan, Switzerland, USA

This project will provide an international forum to identify the current trends and potential impacts of carbon forestry on the global forest sector, with an emphasis on the forest industry sector and rural livelihoods in tropical countries in the Asia-Pacific region.

Application of production and utilization technologies for rattan sustainable development in the ASEAN member countries (PPD 51/02 Rev.1 (I))

Budget	ITTO:	\$102 464
	Government of the Philippines:	\$73 350
	Total	\$175,814

Implementing agency Ecosystems Research and Development Bureau

Funding sources Japan, USA

This pre-project will assess the socioeconomic acceptability and financial and market feasibility of rattan production and utilisation technologies in Southeast Asia.

Development of energy alternatives for the efficient utilization of wood-processing residue: co-generation and briquette production (PPD 53/02 Rev.1 (I))

Budget	ITTO:	\$78 208
	Government of Ghana:	\$9594
	Total	\$87 802

Implementing agency Forestry Research Institute of Ghana

Funding sources Japan, Republic of Korea

This pre-project will conduct co-generation studies at three sawmills and create awareness among stakeholders about the economic and financial benefits of co-generation.

Assessing the contribution of selected non-timber forest products based on a community participation approach to support sustainable forest management (PPD 55/02 Rev.2 (I))

Budget	ITTO:	\$49 036
	Bogor Agricultural University:	\$2000
	PT Adindo Hutani Lestari:	\$2000
	Total	\$53 036

Implementing agency Bogor Agricultural University

Funding source Japan

This pre-project will conduct a study on the socioeconomic conditions of the local communities engaged in collecting non-timber forest products (NTFPs) in East Kalimantan, Indonesia and formulate strategies to empower such communities to produce high-value NTFPs.

Improvement of processing efficiency of tropical timber from sustainable sources in Indonesia (PPD 57/02 Rev.1 (I))

Budget	ITTO:	\$53 636
	ISA:	\$12 000
	Total	\$65 636

Implementing agency Indonesia Sawmill and Woodworking Association (ISA)

Funding sources Japan, Australia, Republic of Korea

This pre-project, which follows up on the recommendations of the ITTO Technical Mission to Indonesia in 2001, will identify existing gaps between individual mills' processing competency and the international demand for processed wood products in terms of product diversity and quality, leading to the identification of the technical measures needed to improve the level of wood-processing efficiency in Indonesia.

Improving the utilization efficiency in wood industries in the South Pacific region (PPD 58/02 Rev.2 (I))

Budget	ITTO:	\$150 443
	Government of Vanuatu:	\$5000
	Government of PNG:	\$10 000
	Government of Fiji:	\$10 000
	USDA:	\$56 000
	South Pacific Commission:	\$10 000
	Total	\$241 443

Implementing agencies Vanuatu Department of Forests, PNG National Forest Service, Fiji Forestry Department

Funding sources Japan, USA, Australia

This pre-project will investigate the level of appropriate technology needed to improve wood efficiencies in the Pacific, starting with Vanuatu, Papua New Guinea and Fiji, identify gaps in national policies, and provide direction and recommendations related to waste reduction and residue usage.

Investment promotion and enterprise development of the timber industry in Ghana (PPD 63/02 (I))

Budget	ITTO:	\$53 000
	Govt. of Ghana:	\$6300
	Total	\$59 300

Implementing agencies Forestry Research Institute of Ghana, Ghana Timber Association and Ghana Timber Millers' Organisation

Funding source Japan

This pre-project will critically evaluate investments in the timber industry with a view to helping managers, decision-makers and policymakers formulate appropriate strategies to ensure the sustainable development of wood-based enterprises.

Develop, publish and disseminate information on increasing timber processing and utilization efficiency and reducing waste (Global; PPD 66/02 (I))

Budget	ITTO:	\$148 740
	Total	\$148 740

Implementing agency ITTO Secretariat

Funding source Japan

This pre-project will compile and disseminate information on the utilisation of logging residues and wood waste, the types of products they can be used for, available technologies, current and potential markets, and sources of information on end-products, technologies, expertise and equipment manufacturers. The study will include a discussion on the economic and environmental aspects of waste and residue utilisation and on the sustainability of the different options.

In addition to the projects described above, several existing projects received additional funds, and some non-project activities were also funded.

**The prefix PD in the bracketed code denotes project and PPD denotes pre-project. The suffix F denotes Division of Reforestation and Forest Management, M the Division of Economic Information and Market Intelligence, and I the Division of Forest Industry. More detailed summaries of the projects are available at http://www.itto.or.jp/inside/homepage_briefs.html*

***Budget amounts are in us dollars*

Producers

Africa

Cameroun
Central African Republic
Congo
Côte d'Ivoire
Democratic Republic of the Congo
Gabon
Ghana
Liberia
Togo

Asia & Pacific

Cambodia
Fiji
India
Indonesia
Malaysia
Myanmar
Papua New Guinea
Philippines
Thailand
Vanuatu

Latin America

Bolivia
Brazil
Colombia
Ecuador
Guatemala
Guyana
Honduras
Panama
Peru
Suriname
Trinidad and Tobago
Venezuela

Consumers

Australia
Canada
China
Egypt
European Union
Austria
Belgium/Luxembourg
Denmark
Finland
France
Germany
Greece
Ireland
Italy
Netherlands
Portugal
Spain
Sweden
United Kingdom
Japan
Nepal
New Zealand
Norway
Republic of Korea
Switzerland
United States of America

An ITTO fellowship has assisted in developing remote sensing and canopy tree interpretation for mapping forest types in Acre, Brazil

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AS a young Brazilian forest engineer I believe the future of the Amazon region lies in the sustainable use of its forest resources. By reconciling conservation and sustainable use, the region's inhabitants can maintain access to natural resources without threatening the forest's supportive ecological functions. In my view, a basic task for the achievement of sustainable use is to quantify the value of the goods and services the forests provide, including those associated with environmental services.

The mapping and classification of forests could be used as a mechanism for achieving this goal. With the support of the Japanese government through the Monbusho scholarship program, and an ITTO Fellowship, I undertook a masters program to develop a new method for mapping different forest types in the Brazilian (and Amazonian) state of Acre. I focused on Acre because its economy and population depend largely on the forest resource; exploring ways of bringing about sustainable forest management is therefore of the utmost importance for the future of the state.

This article presents the methodologies I used for mapping tropical forests and discusses their usefulness and limitations. Two different approaches were taken in this case study: the remote sensing interpretation of LANDSAT TM images; and a floristic classification of forest types based on forest inventory data.



On the spot: the author (second from the right) poses with Amazonian villagers during ground-truthing work.

Remote sensing interpretation and mapping

Remote sensing is recognised worldwide as the most important tool for the mapping of land cover and land-use at the global and regional levels. I used digital (supervised and unsupervised) and visual classification methods of remote sensing interpretation to compare the ability these different classification methods for mapping forest types in Acre. LANDSAT TM (1999) images were processed with the use of ERDAS IMAGINE (bands 3,4 and 5).

Unsupervised digital classification, in which the computer performs the whole classification using data only from the satellite image, was first carried out using the ISODATA algorithm. I set the minimum number of classes to be identified by the computer at ten, with some classes merged later, for comparison with classified data. The supervised digital classification, which used a selection of samples of known identity called training sites to help classify pixels of unknown identity, was conducted using the Maximum Likelihood Algorithm.

During the visual classification, images were printed in a colour composition frame and the classes were visually distinguished and separated into groups of polygons, which were digitised and labelled. Simple accuracy assessment was performed with the use of error matrices.

The results of the interpretation processes showed visual classification to be the most efficient method for distinguishing forest types, with an overall accuracy of 89%. The supervised digital classification failed to recognise the differences between spectral classes, either overestimating or misclassifying forest types, producing a low level of accuracy (60%). The unsupervised classification successfully separated the main phyto-domains of dense forest and open forest (90% overall accuracy), but could not recognise forest types within these two domains.



Mud map: an aerial view of alluvial forests in the Amazonian state of Acre. Photo: A. Euler

Canopy tree interpretation and mapping

Inventories for forest management law enforcement have been carried out recently in Brazil, extending the quantity and quality of available forest inventory data. Forest inventories are traditionally focused on the quantification of timber resources for production purposes. My study attempted to make use of this kind of data set to propose a floristic classification of forest types based on the diagnostic of dominant canopy species. My supervisor (Professor Fujiwara of Yokohama National University) and I believe that a floristic classification using differential canopy species might provide a first step towards the identification of compositional gradients, therefore improving the level of detail of forest maps. The potential for such a method lies in its applicability to large areas where field-level tree-canopy inventory data are already available. For this purpose, forest inventory data for tree stems with diameter at breast height greater than 45 cm were submitted to phytosociological processing, involving the use of the programs TABWIN, PHYTO and TWINSPLAN plus some manual table work. Tables were produced that included data on species' distribution at each site, the most frequent species, and their frequencies of distribution. Forest types and sub-types were classified according to the presence of indicator species and clusters of groups of species.

The forest types and sub-types were mapped as six types and 13 sub-types by a geographic information system (GIS; ArcView 3.2), with subsequent overlay and comparison with the satellite imagery.

Discussion and recommendations

This study found visual classification to be the most effective method of forest mapping. Nevertheless, it is important to highlight its limitations. Visual interpretation of remote sensing imagery is to some extent subjective: it can vary according to the interpreter's experience and knowledge of the mapped site and may not be repeatable. Therefore, field assessment is necessary to confirm the accuracy of mapping derived from remote sensing data. Moreover,

temporal factors such as climatic conditions, seasonal variations in the vegetation, and the presence of clouds can affect the reliability of classification (both visual and digital); it is therefore important to conduct the classification using a multi-temporal set of satellite images whenever possible.

This initial trial of canopy tree interpretation has not proven the method, and doubts remain as to its reasonability and to its applicability in other forests. The next step is to verify the results of the proposed floristic classification by collecting field data from the study sites and also by applying the method to a larger area.

I intend to further develop these methodologies in a doctoral thesis. My main objective will be to work on canopy tree interpretation, combining phytosociological vegetation description and remote sensing interpretation to generate forest maps with a higher level of detail than is currently available. The combination of methods will be field-tested at several study sites (classified by canopy tree interpretation) as training sites for a digital classification.

After the completion of my masters thesis I received many emails from people working on forest mapping in South America requesting more detail on the contents of my research. I am grateful for the opportunity to increase the exposure of my results and methodological approach through this newsletter. I look forward to receiving feedback from readers, researchers and foresters who are doing related work.

Acknowledgments

The development of this research project would not have been possible without the participation and support of several actors and institutions, especially Professor Kazue Fujiwara (National University of Yokohama) and Professor Elgene O. Box (University of Georgia). I also thank Dr Shiro Ochi (Yasuoka Lab, Tokyo University) and the field team in Acre, which comprised Macarrão, Junior, Cabeça and Denis. I also acknowledge the contributions of the Government of Acre through the Technology Foundation of Acre (FUNTAC) and the support provided by Ms Valeria Pereira.

ITTO Fellowships offered

ITTO offers fellowships through the Freezailah Fellowship Fund to promote human resource development and to strengthen professional expertise in member countries in tropical forestry and related disciplines. The goal is to promote the sustainable management of tropical forests, the efficient use and processing of tropical timber, and better economic information about the international trade in tropical timber.

Eligible activities include:

- participation in short-term training courses, training internships, study tours, lecture/demonstration tours and international/regional conferences;
- technical document preparation, publication and dissemination, such as manuals and monographs; and
- post-graduate studies.

Priority areas: eligible activities aim to develop human resources and professional expertise in one or more of the following areas:

- improving the transparency of the tropical timber market;
- improving the marketing and distribution of tropical timber species from sustainably managed sources;

- improving market access for tropical timber exports from sustainably managed sources;
- securing the tropical timber resource base;
- improving the tropical timber resource base, including through the application of criteria and indicators for sustainable forest management;
- enhancing technical, financial and human capacities to manage the tropical timber resource base;
- promoting increased and further processing of tropical timber from sustainably managed sources;
- improving the marketing and standardisation of tropical timber exports; and
- improving the efficiency of tropical timber processing.

In any of the above, the following are relevant:

- enhancing public relations, awareness and education;
- improving statistics;
- research and development; and
- sharing information, knowledge and technology.

Selection criteria: Fellowship applications will be assessed against the following selection criteria (in no priority order):

- consistency of the proposed activity with the Program's objective and priority areas;
- qualifications of the applicant to undertake the proposed fellowship activity;
- the potential of the skills and knowledge acquired or advanced under the fellowship activity to lead to wider applications and benefits nationally and internationally; and
- reasonableness of costs in relation to the proposed fellowship activity.

The maximum amount for a fellowship grant is US\$10 000. Only nationals of ITTO member countries are eligible to apply. The next deadline for applications is **3 September 2003** for activities that will begin no sooner than December 2003. Applications are appraised in May and November each year.

Further details and application forms (in English, French or Spanish) are available from Dr Chisato Aoki, Fellowship Program, ITTO; Fax 81-45-223 1111; fellowship@itto.or.jp (see page 2 for ITTO's postal address).

FSC, PEFC face the music

6th General Assembly of the Pan-European Forest Certification Council

22 November 2002
Luxembourg

3rd General Assembly of the Forest Stewardship Council

24–26 November 2002
Oaxaca, Mexico

The Forest Stewardship Council (FSC) and the Pan-European Forest Certification Council (PEFC) both held general assemblies late last year. At the PEFC event, seven new members—including INMETRO on behalf of CERFLOR in Brazil, and the Malaysian Timber Certification Council—were elected. According to *PEFC News Special* (December 2002), the major topic discussed at the assembly was a set of proposed changes to the PEFC technical document that guides standard-setting, endorsement, labelling, etc. The changes, which were adopted, are designed to clarify a range of issues, including: the requirements for implementing regional and group certification; the standard-setting process; and certification and accreditation procedures to ensure compatibility with national accreditation organisations represented by the International Accreditation Forum. The revised document now also describes the basic process by which non-European schemes may be endorsed by the PEFC. This last topic formed the basis of an “open discussion” at the assembly on the issues and challenges arising from the “continuing globalisation” of the PEFC; the Board of Directors will consider the results of the discussion and subsequent written submissions and present proposals to members for discussion and decision.

According to *Forest Certification Watch* (FCW; No 29), several key decisions were taken at the FSC’s General Assembly. For example, changes to the organisation’s bylaws allow it to now accept donations from private and public companies. The make-up of the nine-member international board has been changed to increase the

number of economic chamber members from two to three, and state-owned forestry companies are now permitted to become members. In all, the assembly had before it sixty motions, of which 30 passed, 18 were withdrawn and the remainder were either defeated or appended to similar motions. A motion to develop a policy on stepwise approaches to certification was withdrawn, a move FCW says “can be seen as not tying the hands of the Secretariat on the stepwise approach”.

More on certification

Forestry Certification as a Tool for Promoting the Sustainable Management of Forest Resources

11–22 November 2002
San Ramon, Peru

This workshop was convened by the FANPEGTZ Project and attended by people from Germany, Bolivia, Brazil, Chile, Ecuador, Colombia, USA, Uruguay and Peru. Its main goals were to show the progress of forest certification in South America, share experiences, and canvass the possibilities, benefits and commercial advantages that certification might offer.

The seminar was divided into two parts. The first covered the basic concept of forest certification, the principles and criteria of the FSC, the status of forest certification in Latin America, and the market conditions and possibilities for certified products in the USA, Europe and Asia. Guest panelists also spoke on topics such as: the political and social dimensions of forest certification; community certification and offset capture; individual certification: Precious Woods, Mil e Lisboa; and others. National initiatives were discussed.

The second part of the seminar comprised visits to field sites where certification was being applied: the Ashaninka community ‘Kimiriki’; the private sawmill company Industrial Satipo; and *Podocarpus* and *Eucalyptus saligna* plantations at Villa Rica.

A CD containing papers from the seminar can be obtained from Siegfried Kastl, Proyecto Fanpe GTZ, at fanpe@terra.com.pe

Reported by Fernando Rios

Fresh water: just add forests

International Expert Meeting on Forests and Water

20–22 November 2002
Shiga, Japan

According to a declaration issued by this meeting, which was attended by about 100 forest and watershed management experts from 18 countries and 16 international organisations (including ITTO) and non-governmental organisations, sustainable forest management is a key factor in water resources management in general and upland resources development in particular. Amid growing concerns about an impending water crisis, “the management of forests in relation to water is a critical issue that must be afforded high priority”. The meeting recommended that decision-makers:

- move from a sectoral to an integrated and cross-sectoral approach to economic, social and environmental planning at local, national and international levels;
- establish the total economic value of forest and water resources and the economic implications of different policies and management practices;
- put in place appropriate incentives to support the sustainable management of forest and water services to ensure that those who use resources pay the full cost of their exploitation and those who bear the costs of conservation are equitably compensated;
- promote effective and equitable collaborative arrangements and partnerships among governments, local communities, research institutions, civil society, the private sector, forest and water managers, and other stakeholders; and
- address forest and water interactions in forest resources assessments, and request that the international community provides sufficient resources to accomplish this important task.

Transboundary parks lauded for peace, conservation benefits

ITTO/IUCN Workshop on Increasing the Effectiveness of Transboundary Conservation Areas in Tropical Forests

17–21 February 2003
Ubon Ratchathani, Thailand

Transboundary conservation areas (TBCAs) are designed to protect ecosystems and wildlife regardless of political borders. Moreover, it is becoming increasingly clear that TBCAs do much more than improve biodiversity conservation: they help promote reconciliation in border

conflicts, re-unite families and ethnic groups divided by political boundaries, and provide social and economic benefits—such as secure land tenure—to people living in the area.

Recognising the potential benefits of TBCAs, ITTO, IUCN – The World Conservation Union, and the Government of Thailand hosted a workshop to examine ways of improving the effectiveness and expanding the coverage of TBCAs. The workshop brought together about 90 transboundary conservation professionals and decision-makers from 26 countries.

The number of TBCAs has grown rapidly in the last 15 years, from 59 in 1988, concentrated mainly in Europe and North America, to 169 in 2001, distributed throughout all regions of the world. ITTO's TBCA program, for example, now covers about ten million hectares in nine tropical countries. Nevertheless, many fragile ecosystems straddling international borders remain unprotected, posing both a challenge and an opportunity to the international community.

According to IUCN's Dr Bill Jackson, the fact that TBCAs offer more than biodiversity conservation is crucial in their uptake and ultimate success.

“Geopolitics and national security concerns have diverted attention away from challenges like the maintenance of biological and cultural values,” he said. “In this political climate, transboundary conservation deserves close attention because it has the potential to help bring peace to troubled border regions while also playing an essential role in the protection of endangered species, ecosystems and cultural groups”.

During the workshop, the Honourable Dr James Mamit, a Member of the Malaysian Parliament, announced that the Government of Malaysia and Sarawak's Chief Minister would shortly submit a proposal to ITTO to establish a new TBCA on Borneo. The reserve would cover about 165 000 hectares on the Sarawakian side of the border and connect with the Kayan Mentarang National Park in the Indonesian province of East Kalimantan. The local Kelabit communities, which have expressed support for the concept, will be key stakeholders who will determine the landscape-scale management of the TBCA in collaboration with national park managers. The establishment of this TBCA will improve the protection of several endangered species, including Bulwer's pheasant, the clouded leopard and the Sumatran rhinoceros, while also addressing local concerns about living standards and increasing trans-border cooperation on issues such as illegal trade and immigration.

The workshop heard of transboundary conservation success stories in southern Africa, and the idea is also catching on in central Africa. H.E. Henri Djombo, Minister of Forest Economy and Water in the Republic of Congo, who attended

the workshop, announced the intention of his country to begin a new transboundary conservation initiative in partnership with Gabon to complement other initiatives already under way in cooperation with Cameroon and Central African Republic.

However, Minister Djombo noted that Africa still lacked the human, financial and technical resources to implement TBCAs effectively. He said that ITTO, IUCN and the World Wide Fund for Nature, among others, were providing valuable technical and financial assistance to Congo that would help build local capacity for the management of TBCA projects, but more and sustained assistance was required if the long-term sustainability of the initiatives was to be ensured.

Workshop participants agreed on a statement on TBCAs. It also proposed that the key messages be transmitted to the World Parks Congress, which will be held in Durban, South Africa, next September.

C&I go forward

International Conference on the Contribution of Criteria and Indicators for Sustainable Forest Management: the Way Forward

February 2003
Guatemala City, Guatemala

This conference was hosted by the National Forest Service of Guatemala (Instituto Nacional de Bosques) to consider ways to: (1) strengthen elaboration and implementation of criteria and indicators for sustainable forest management (C&I); (2) promote political commitment to the use of C&I; (3) strengthen institutional capacity and stakeholder partnerships for implementing C&I and facilitate the exchange of information among all stakeholders; and (4) contribute to the work of the UN Forum on Forests and international initiatives on indicators related to sustainable development.

The conference brought together 109 experts from 51 countries, ten international organisations, the secretariats of nine regional/ecoregional criteria and indicators' processes, and three private-sector and non-government groups. The conference was

co-sponsored by the Food and Agriculture Organization of the United Nations (FAO), ITTO and the governments of Finland and the USA.

Today, approximately 150 countries are participating in nine regional and international processes to facilitate progress on developing and implementing C&I. The conference recognised the increasing role of C&I in building a common understanding of sustainable forest management and influencing national policies and practices and international cooperation on forests.

In charting 'the way forward', the conference agreed on 30 conclusions and 24 recommendations for national and international action. In particular it agreed on the need to enhance capacity, especially in developing countries, to implement C&I. Countries with limited capacity should consider starting with an easily measured and understood core set of indicators and expand gradually to cover others. Developing countries should create an enabling environment to attract domestic and foreign forest investment, including capacity-building for C&I, mobilise other resources through bilateral and international partnerships, seek support through FAO, ITTO and the Global Environment Facility, and help ensure more efficient use of existing mechanisms. The donor community should support these efforts by providing financial support, technology and know-how.

The Conference requested the Government of Guatemala to present the results of the conference to all relevant regional and international forest fora throughout 2003.

For more information contact Eva Müller at the ITTO Secretariat; rfm@itto.or.jp (full address is given on page 2). A summary prepared by the Earth Negotiations Bulletin can be found at www.iisd.ca/sd/forest/cici/

Edited
by
Alastair
Sarre

► **Peralta, R., Vaca, D., Rojas, J. & Jorrigo, G. 2002.** *Arboles de Pando. Vol. 1: principales especies maderables con énfasis en el occidente. Santa Cruz, Bolivia.*

Available from: Information Officer, ITTO, International Organizations Center—5th Floor, Pacifico-Yokohama, 1-1-1, Minato-Mirai, Nishi-ku, Yokohama 220-0012, Japan; Tel 81-45-223 1110; Fax 81-45-223 1111; itto@itto.or.jp



This small book, an output of ITTO PROJECT PD 24/97 REV.1 (F) (see page 10), contains photos and information on the distribution, habitat, timber and uses for about 40 of the main timber species found in the western part of the Bolivian department of Pando.

► **Colfer, C. & Resosudarmo, I.A.P. (eds) 2002.** *Which way forward? People, forests and policymaking in Indonesia. Resources for the Future, Washington, USA; CIFOR, Bogor, Indonesia. ISBN 1 891853 45 7. US\$23.95 (paperback edition) + shipping*

Available from: Resources for the Future, Hopkins Fulfillment Services, PO Box 50370, Baltimore, MD 21211-4370, USA. Fax: 410-516-6998; or regional agents—see www.rffpress.org/rff/rff_press



Indonesia contains some of Asia's most biodiverse and threatened forests. The challenges result from both long-term management problems and the political, social and economic turmoil of the past few years. The contributors to *Which Way Forward?* explore recent events in Indonesia while focusing

on what can be done differently to counter the destruction of forests due to asset-stripping, corruption and the absence of government authority. *From the publisher's notes.*

► **Drude de Lacerda, L. (ed) 2002.** *Mangrove ecosystems: function and management. Springer-Verlag, Heidelberg, Germany. ISBN 3 540 42208 0; US\$129 (hardcover)*

Available from: Springer GmbH & Co., Auslieferungsgesellschaft, Haberstraße 7, D-69126 Heidelberg, Germany; Fax 49-6221-345 4229; orders@springer.de

The idea behind this book was born during the course of an ITTO/International Society for Mangrove Ecosystems project on the conservation and sustainable use of mangrove forests in Africa, Asia and Latin America. It



contains five chapters written by specialists, presenting information gathered mostly during international cooperative research during the last decade. The first three chapters describe the origins, structure, function and management of mangrove forests in tropical America, Africa and Asia. The last two present an overview of mangrove phenology and state-of-the-art mangrove management and conservation policies. *From the publisher's notes.*

► **Gray, J. 2002.** *Forest concession policies and revenue systems: country experience and policy changes for sustainable tropical forestry. World Bank Technical Paper No 522. Forests Series. World Bank, Washington, DC, USA. ISBN 0 8213 5170 2. US\$22*

Available from: World Bank, 1818 H St, NW, Washington, DC 20433, USA; <http://publications.worldbank.org>



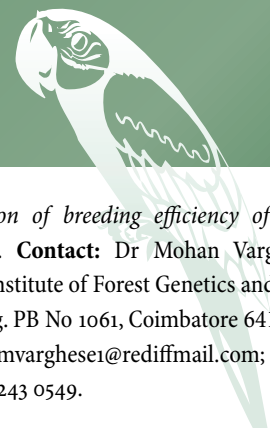
This study evaluates tropical forest concession systems and proposes reforms to facilitate sustainable management. It advocates, for example, the setting of higher concession fees with the aim of driving up the price of tropical timber and slowing the harvest. According to the author, this would benefit tropical producer countries through higher prices for their exports and better terms of trade for forest products, offsetting the reduced sales of tropical timber to industrialised countries. Higher prices would, in turn, make improved forest management economically attractive. Would it work? Only if the markets would pay the higher price and there were no substitutes ...

► **Hutacharern, C., Napompeth, B., Allard, G. & Wylie, R. 2002.** *Pest management in tropical forest plantations. Proceedings of the IUFRO/FAO workshop held 25-29 May 1998, Chanthaburi, Thailand.*

Available from: Forestry Research Support Programme for Asia and the Pacific, FAO Regional Office, 39 Phra Atit Rd, Bangkok 10200, Thailand; Fax 66-2-697 4411; Simmathiri.Appanah@fao.org



This publication contains mostly technical papers on tropical pest management. They range from overviews of diseases of eucalypt species in Thailand (and options for reducing their impact), to detailed lab studies, such as one by Nakamuta et al. on the biochemistry of a sex pheromone emitted by the female teak beehole borer. Most of the papers focus on issues pertaining to the Asia-Pacific region.



Edited
by
Alastair
Sarre

Colombia's mangrove discoveries

Colombian biologist Giovanni Ulloa Delgado reports that a wide-ranging survey conducted under ITTO PROJECT PD 171/91 REV.2 (F) and ITTO PROJECT PD 60/01 REV.1 (F): 'Sustainable management and rehabilitation of mangrove forests by local communities on the Caribbean coast of Colombia' has yielded some interesting results. For example, a survey of mangrove forests in the Gulf of Urabá turned up a new listing for the country of *Neoteredo reynei*, a species of bivalve. Another first for Colombia was the discovery of *Sphaerodactylus notatus*, a gecko, in the Canal del Dique Delta in the Department of Sucre. Another gecko (*Gonatodes albogularis*) found at this location is intriguing scientists: three of the male specimens were melanistic. A species of spider from the family *Zoridae* (a family not previously recorded in Colombia) detected in the Canal del Dique Delta may be new not only to Colombia but also to science. The survey collected over one hundred scorpion species; according to Eduardo Flórez, an expert from the Colombian National University, this collection is very likely to contain new listings for the country and possibly species that are new to science.

New chief for INRENA

César Álvarez Falcón has been appointed as the new head of the Peruvian National Institute of Natural Resources (INRENA). He replaces Matías Prieto. A former professor at Sorbonne University, Dr Álvarez has a doctorate in economics and worked recently as technical secretary for the National Committee on Andean and Amazonian Populations.

Reported by Fernando Rios

INRENA confiscates illegal timber

Officers from INRENA and the Peruvian national police seized more than 85 000 board feet (200 m³) of sawnwood processed from trees harvested illegally from the Pacaya Samiria National Forest in the Department (now Region) of Loreto in northeastern Peru. The seizure was

the largest of its kind carried out in Peru and resulted in the arrest of forty-three people. According to an INRENA press release, illegal logging is a major problem in the two-million hectare Pacaya Samiria National Forest, where enforcement efforts are hampered by a lack of forest guards. The confiscated timber is being held by INRENA, which is now permitted to destroy confiscated products if necessary. Meanwhile, Peru's wood export industry continues to grow; in 2002 a record US\$113 million of wood products (mostly sawnwood—64%) were exported mainly to the USA, Mexico, China and Taiwan Province of China. Of this, mahogany products comprised 60%.

Reported by Fernando Rios

Brazil's new environment minister

Brazil's new President, Luis Inácio Lula da Silva, has appointed a new minister responsible for the environment and Legal Amazonia. Ms Marina Silva, a senator from the state of Acre who formerly worked as a rubber-tapper in Acre's Amazon forests, has pledged to work with all segments of society to guarantee the sustainable development of Brazil's natural resources.

Reported by Mauro Reis

Satellite monitoring in the Amazon

According to a report in the bulletin of the Brazilian Silvicultural Society (SBS), the Brazilian Institute for Environment and Natural Resources (IBAMA) is testing the use of satellites for monitoring the movement of timber. The test involves four operations in the states of Amazonas and Pará; if it is successful, all logging trucks operating in Amazonia will be required to have equipment installed that allows them to be tracked at distance by satellite. The proposed system would form part of the armoury available to IBAMA inspectors to limit the transportation of illegally obtained timber in the Amazon.

Reported by Mauro Reis

Fellowship reports available

The following ITTO Fellowship reports are available on request from the authors:

Evaluation of breeding efficiency of seed orchards. **Contact:** Dr Mohan Varghese, Indian Institute of Forest Genetics and Tree Breeding, PB No 1061, Coimbatore 641 002, India; mvarghese1@rediffmail.com; Fax 91-422-243 0549.

Harvesting techniques and market analysis of selected non-timber forest products in Makawanpur District, Nepal. **Contact:** Mr Tek Narayan Maraseni, Forest Officer, Ministry of Forests and Soil Conservation, Singha Durbar, Kathmandu, Nepal; tnmaraseni@hotmail.com

Encroachment into protected areas: a case study of the Ottotomo Production Forest Reserve, Central Province, Cameroon.

Contact: Mr Tekem Mbi Bienvenu Magloire, University of Yaounde I, c/o PO Box 8360, Aummonerie Protestante Universitaire, Yaounde, Cameroon; magtakem@justice.com

Phased approach

ITTO convened its first regional workshop on phased approaches to certification in Jakarta, Indonesia last January. Organised in collaboration with the Indonesian Ecolabelling Institute, the workshop was attended by more than 60 people from ITTO member countries in the Asia-Pacific region and moderated by certification expert Dr Markku Simula. The concept of a phased approach to certification has been proposed as a way of accelerating certification in the tropics—which is lagging behind certification in temperate forests—while ensuring that forest management continues to improve towards accepted standards. By dividing full compliance with a standard into a series of phases, limited resources can be better focused. In addition, external support can be focused more efficiently to coincide with the activities currently are under way. The workshop made a number of recommendations, including that ITTO should seek endorsement from the International Tropical Timber Council for the phased approach and promote it among buyers and government agencies. Similar workshops are being scheduled in Africa and Latin America and the Caribbean.

Pests and plantations

For some decades, the international community has been investing considerably in the establishment of industrial forest plantations, but the results have been less than desired because of the poor health of many planted forest stands.

Recent epidemiological studies carried out in some reserved forests in Cameroon have shown that planted forests are increasingly prone to phytopathological problems. Several biotic diseases (cryptogamic infections and viral and bacterial diseases) can be observed that cause developmental anomalies (winding, scragginess, wilting, stunted growth, etc) and sometimes death. Some 60% of the young plantations studied are infected, of which 30% have failed totally. Only enrichment plantations show a high percentage of success (75%). The most resistant marketable species are debitou, fraké and ayous; among the least resistant are iroko, sipo, okoumé and bubinga. Given these results we might expect that several current regeneration and reforestation projects will show a decrease in their potential to produce timber.

Harmful insects are found in higher densities in planted forests than in natural forests, for several possible reasons. The use of artificial fertilisers, widespread in plantations, increases the palatability of planted seedlings, making them prime targets for defoliating insects. The availability of many highly palatable seedlings in close proximity means that an insect outbreak, more likely in such benign conditions, can very quickly damage a large proportion of a plantation. Natural forest is less vulnerable to serious insect attack because it is more heterogeneous and foliage generally has lower nutritional value.

Plantation managers often apply pesticides in an effort to counter pest outbreaks, but this can interfere with the food chain and reduce the number of insect predators. Thus, paradoxically, a treatment meant to combat insect pests can actually work in their favour by eliminating their predators.

A better way to control pests in tropical plantations is through integrated pest management (see *TFU 11/3*), which often involves the controlled introduction of natural pest enemies.

A personal research trial is showing encouraging results in this respect. Work carried out in the Mbalmayo Reserved Forest to breed *Typhlops* (an indigenous, termite-eating reptile) has produced a substantial reduction in both the density of termites and the extent of termite attacks on the stems of forest species. No doubt other methods of biological control can be envisaged, provided there is a thorough understanding of ecology and of the insects' biology, and substantial resources are available. If the health of forest plantations in West Africa is to be improved it is therefore essential that the international community continues to assist the research and field implementation of integrated pest management.

Benjamin Pascal EBOGO ANAGA

Yaoundé, Cameroon
ebogo@meloo.com

Regulating the regulators

Sir

It often frustrates me to hear discussion about halting illegal logging (*TFU 12/4*) without at least equal focus on corruption in government regulatory bodies, which is often a related and significant factor. In many places it is almost impossible to be completely legal because of this corruption—or, at least, because of the incompetence of the agencies involved.

If the laws are to be respected, the example set by those responsible for enforcing them must be spotless and without conflict. Rules must be enforced aggressively, fairly and equally to all of the regulated.

I would welcome more open discussion of this element of the problem.

Bill McKinnie

International Forestry Investments

ifi1@attbi.com

18 November 2002

Leaving PEFC's umbrella

Sir

Mr Gunneberg, Secretary General of the Pan European Forest Certification (PEFC) Council, recently described the approach to certification taken by his organisation (*TFU 12/3*, page 8). There remains some concern that the process of accreditation, which is important for the credibility of certification schemes, is being described in a way that may confuse your readers.

Generally, accreditation means that the work of organisations that issue certificates, so-called certifiers or certification bodies, is guided and controlled by a third party which has the right to grant, suspend or withdraw accreditation status, with such decisions taken on the basis of regular reviews. In this context, it is important to note that accreditation is granted for each certification scheme. Most certifiers, including most of those issuing PEFC certificates, are accredited for ISO (International Standards Organisation) 9001, ISO 14000 and a wide range of other certification schemes. However, no accreditation organisation has so far been entrusted with the task of carrying out accreditation work for the PEFC scheme. Although certifiers may be accredited for some other kind of certification scheme, their work carried out in the framework of the PEFC is not accredited. There are so far no independent controls carried out by accreditation bodies on the technical quality of the issued PEFC certificates, either in the field or in the office.

Could credible certification therefore be maintained when a national scheme leaves the PEFC umbrella, as supposed in the article by Mr Gunneberg? Probably not, because the applied system will not correspond to the guidelines of an international body and the issued certificates will not be verified for compliance with general certification requirements through an appropriate accreditation mechanism.

Professor Dr Martin Walter

University of Applied Sciences Weihenstephan

85350 Freising, Weihenstephan, Germany

15th November 2002

The author responds:

Sir

Professor Dr Martin Walter's definition of accreditation—independent of standard-setting and certification activities—is correct and I applaud him for drawing attention to this important issue, so often overlooked in the forestry sector when we talk about certification. Where he is wrong, however, is in his assertion that no accreditation body has so far been entrusted to carry out accreditation for PEFC-endorsed schemes. Indeed, national accreditation bodies in several countries—the Czech Republic, the UK, Norway, Sweden, Switzerland, Belgium and France—have already accredited certifiers to

Sustainable forestry in tropical ecosystems

18–22 May 2003 (Flagstaff, Arizona)
24 May–8 June 2003 (Honduras)
30 July–20 August 2003 (Ghana)
Cost: variable

The School of Forestry at the Northern Arizona University is offering a four-week short course in sustainable tropical forest management. It includes one week of intensive classroom instruction in Flagstaff and three weeks of field instruction and exploration in Ghana and/or Honduras.

Contact: Dr Mike Wagner, NAU School of Forestry, PO Box 15018, Flagstaff, AZ 86011-5018, USA; Mike.Wagner@nau.edu; www.for.nau.edu/shortcourses/tropicalforestry/

Current methods in tropical forestry

23 June–31 August 2003 United Kingdom
Cost: £7950

The main aim of this course is to update participants on a wide range of techniques currently being used in tropical forestry and concentrates on those areas where new methods are having the greatest impact. The course is run as a group of interrelated modules, each of which is coordinated by a member of the Tropical Forest Resource Group.

Contact: Alan Pottinger, TFRG Coordinator, 2 Webbs Barn Cottage, Witney Road, Kingston Bagpuize, Abingdon, Oxfordshire OX13 5AN, UK; Tel 44-1865-820935; Fax 44-1865-820935; alan.pottinger@tfrg.co.uk

Forest law enforcement, governance and trade

July–August 2003 Oxford, UK
Cost: Seminar 1 = £3125; Seminar 2 = £1620

This course consists of two seminars. In the first, participants will learn from expert speakers and practitioners about institution-building and capacity-strengthening, new approaches to forestry legislation, concession management and taxation, the use of independent monitoring, verification processes and systems for ensuring transparency, conflict timber, and others. In the second, participants will hear about new public procurement policies, systematic approaches for detecting timber from illegal sources, technical aids used in sourcing timber, and market-led instruments and illegal logging. A day-long debate on forest law enforcement and its relevance to poverty alleviation will be staged on 26 July 2003 (fee: £250).

Contact: Frank Miller, Green College, At the Radcliffe Camera, Woodstock Road, Oxford OX2 6HG, UK; Tel 44-1865-274770; Fax 44-1865-274796; frmiller@onetel.uk.net

Post-graduate studies in forest products technology

The Faculty of Technology at Buckinghamshire Chilterns University College is offering post-graduate studies in forest products technology. The 12-month, full-time program delivers eight taught modules: wood science, sawmilling and secondary processing, timber drying and preservation, business environmental management, timber business marketing and trade, wood deterioration, wood products technology, and wood in construction. Students who pass all eight taught modules are eligible to undertake independent research towards a masters degree.

Contact: Faculty Admissions Office, Buckinghamshire Chilterns, University College, High Wycombe Campus, Queen Alexandra Rd, High Wycombe, Buckinghamshire HP11 2JZ, UK; Tel 44-1494-605073; Fax 44-1494-605051; techno@bcuc.ac.uk

The power of the pen: an international training course in case study writing

18 November–2 December 2003 Bangkok, Thailand
Cost: US\$2695

This course will provide participants with practical tools and methods to sharpen their critical thinking and strengthen their ability to write up lessons learned. By the end of the workshop participants will have improved skills in analysis and writing, practised all steps in effective case writing, and analysed their lessons learned and written them up in an appropriate and attractive format.

Contact: Ronnakorn Triraganon, Regional Community Forestry Training Center for Asia & the Pacific, PO Box 1111, Kasetsart University, Bangkok 10903, Thailand; Tel 66-2-940 5700; Fax 66-2-561 4880; contact@recoftc.org

Training program on leadership and adaptive management in forest environments

8 September–21 November 2003 (full program)
Wageningen, the Netherlands
Cost (full program): €4500

This training program offers five short courses and one seminar addressing different aspects of collaborative adaptive forest management. Although each of the courses is designed to stand alone, the program permits various combinations. The full training program comprising all six courses provides a comprehensive package on collaborative forest management and biodiversity conservation.

The objective of the program is to equip the staff of organisations involved in collaborative management of forest environments with the insights, instruments, skills and motivation needed for their work. The program components are: professional qualities for facilitation and collaboration in natural resource management; leadership, organisational change and interactive planning for adaptive forest management; design, management and monitoring of collaborative forestry programs; seminar on current issues in tropical forestry; sustainable forest management and bio-diversity conservation; and integrated land use planning & environmental impact assessment.

Contact: International Agricultural Centre (IAC); PO Box 88; 6700 AB Wageningen; the Netherlands; Tel 31-317-495 495; Fax 31-317-495 395; training@iac.agro.nl; www.iac.wageningen-ur.nl

Masters in sustainable forestry and land-use management

This two-year masters degree commences each April and October. It aims to familiarise students with the concepts behind sustainable development, especially with regard to forests and the countryside, and to provide insight into the ecological, economic and social aspects of this widely discussed topic. Most courses are taught in German, although an increasing number are given in English; preparatory German-language courses are available. No tuition charges apply, but applicants are encouraged to apply for grants and scholarships to help meet living expenses.

Contact: Albert-Ludwigs-Universität Freiburg, Dekanat der Forstwissenschaftlichen Fakultät, Tennebacher Str.4, D-79085 Freiburg, Germany; Fax 49-761-203 3600; mp-forst@ruf.uni-freiburg.de; www.forst.uni-freiburg.de

By featuring these courses, ITTO doesn't necessarily endorse them. Potential applicants are advised to obtain further information about the courses of interest and the institutions offering them.

certify specifically against PEFC-endorsed national forest certification schemes, and in other countries this process is under way.

As it is, the PEFC Council has a requirement for accredited certification (Annex 6 of PEFC Technical Documentation, www.pefc.org) that is fully in compliance with internationally recognised procedures for accreditation (eg ISO Guide 61). In the accreditation world, it is a well-known and accepted fact that in order to obtain accreditation for a scheme, certifier and accreditation body both need to have practical experiences in the field and this takes time. The PEFC Council has therefore placed a time limit by which all PEFC

certifications must become accredited within the framework provided by national accreditation bodies.

So back to Professor Walter's question as to whether credible accredited certification under governance at the national level could be maintained if a national scheme leaves the PEFC umbrella—the answer is an emphatic yes.

Ben Gunneberg

PEFC Council Secretary General

6 December 2002

▶ 28–30 April 2003. **4th Ministerial Conference on the Protection of Forests in Europe.** Vienna, Austria. **Contact:** MCPFE Liaison Unit Vienna; Tel 43–1–710 77 02; Fax 43–1–710 77 02 13; liaison.unit@lu-vienna.at; www.mcpfe.org

▶ 28 April–2 May 2003. **IUFRO Conference and Tour on Forest Resources in East Timor.** Dili, East Timor. **Contact:** Jaime F.S. Luis, Universidade de Trás-os-Montes e Alto Douro, Departamento Florestal, AP 206, P-5001-911 Vila Real, Portugal; Fax 351–259–350 240; jfsl@utad.pt

▶ 12–17 May 2003. **34th Session of the International Tropical Timber Council.** Panama City, Panama. **Contact:** Collins Ahadome; Tel 81–45–223 1110; Fax 81–45–223 1111; itto@itto.or.jp; www.itto.or.jp

▶ 20–21 May 2003. **First Session of the Preparatory Committee for the Negotiation of a Successor Agreement to the International Tropical Timber Agreement, 1994.** Panama City, Panama. **Contact:** Collins Ahadome; Tel 81–45–223 1110; Fax 81–45–223 1111; itto@itto.or.jp; www.itto.or.jp

▶ 14–16 May 2003. **2nd Latin American Symposium on Forest Pests.** Belo Horizonte, Brazil. **Contact:** Prof José Cola Zanuncio; sif@mail.ufv.br

▶ 18–22 May 2003. **Interzum: Fair for Sub-suppliers of the Furniture Industry.** Cologne, Germany. **Contact:** KölnMesse GmbH; info@koeln-messe.de

▶ 20–24 May 2003. **Mangrove 2003: Connecting Research and Participative Management of Estuaries and Mangroves.** Salvador, Brazil. **Contact:** Conference Secretary, Universidade Federal de Bahia, Instituto de Geociências – Instituto de Biologia, Núcleo de Estudos Ambientais, Campus Universitário de

Ondina, Salvador, Bahia, Brazil CEP: 40170–290; Fax 55 71 332 4085; mangrove2003@ufba.br; www.mangrove2003.ufba.br

▶ 19–23 May 2003. **International Conference on Rural Livelihoods, Forests and Biodiversity.** Bonn, Germany. **Contact:** William Sunderlin, Center for International Forestry Research, PO Box 6596, JKPBW, Jakarta 10065, Indonesia; Tel 251–622 622; Fax 251–622 100; w.sunderlin@cgiar.org; www.cifor.cgiar.org/livelihoodconference.asp

▶ 22–24 May 2003. **International Conference on Economics of Sustainable Forest Management.** Toronto, Canada. IUFRO 4.04.02. **Contact:** Conference Secretariat; Tel 1–416–9786196; Fax 1–416–9783834; lcsfm@larva.forestry.utoronto.ca

▶ 23–26 May 2003. **China International Wood-Forestry Fair.** Beijing, PR China. **Contact:** Beijing Chengyiqiang Exhibition Design Co., Ltd; Tel 86–10–6847 3570; cyiqiang@263.net; www.ciwf.com.cn

▶ 26 May–6 June 2003. **3rd Session of the United Nations Forum on Forests.** Geneva, Switzerland. **Contact:** Mia Soderlund, UNFF Secretariat; Tel 1–212–963 3262; Fax 1–212–963 4260; unff@un.org; www.un.org/esa/sustdev/forests.htm

▶ 6–9 June 2003. **China Furniture & Woodwork 2003.** Dalian, China. **Contact:** Dalian Northern International Exhibition Center Co, Ltd; Tel 86–411–230 6845; Fax 86–411–230 9769; bfzl@runsky.com

▶ 15–18 June 2003. **2nd International Precision Forestry Symposium.** Seattle, USA. **Contact:** Forestce, University of Washington, Box 352111, Seattle WA 98195–2111, USA; Fax 1–206–685 6705; ForestCE@u.washington.edu; www.cfr.washington.edu/Outreach/PreFor/index.html

▶ 16–18 July 2003. **China Wood Export & Import Conference 2003.** Shanghai, PR China. **Contact:** Jane Guo; Tel 86–10–8235 7166; Fax 86–10–8235 8779; exporter@chinawood.org; www.chinawood.org/english/chukou/3.asp

▶ 13–15 August 2003. **6th Brazilian Symposium on Forest Transportation.** Belo Horizonte, Brazil. **Contact:** Prof Carlos Cardoso Machado; sif@mail.ufv.br

▶ 7–10 September 2003. **Council on Forest Engineering 26th Annual Meeting: Forest Operations Among Competing Forest Uses.** Bar Harbor, Maine, USA. **Contact:** Council on Forest Engineering, 620 SW 4th Street, Corvallis, OR 97333, USA; Tel 1–541–754 7558; Fax 1–541–754 7559; office@cofe.org; www.forest-resources.umaine.edu/nercofe/cofe2003.htm

▶ 8–17 September 2003. **v World Parks Congress.** Durban, South Africa. **Contact:** Peter Shadie, Executive Officer, 2003 World Parks Congress, IUCN Programme on Protected Areas, Rue Mauverney 28, 1196 Gland, Switzerland; Tel 41–22–999 0159; Fax 41–22–999 0025; pds@iucn.org; http://wcpa.iucn.org/wpc/wpc.html

▶ 8–12 September 2003. **Applications of Statistics, Information Systems and Computers in Natural Resources Monitoring and Management.** Taipei, Taiwan Province of China. **Contact:** Biing T. Guan, Department of Forestry, National Taiwan University, Taipei, Taiwan Province of China 10617; Fax 886–2–2363 9247; btguan@ccms.ntu.edu.tw; http://ccms.ntu.edu.tw/~btguan

▶ 9–12 September 2003. **Woodmac Asia/FurniTek Asia.** Singapore. **Contact:** Singapore Exhibition Services Pte Ltd; Tel 65–6738 6776; Fax 65–6732 6776; events@sesmontnet.com

▶ 21–28 September 2003. **XII World Forestry Congress.**

Quebec City, Canada. **Contact:** XII World Forestry Congress, PO Box 7275, Charlesbourg, Quebec G1G 5E5, Canada; www.wfc2003.org

▶ 29 September–4 October 2003. **VII Congreso Latinoamericano de Estudiantes de Cs. Forestales.** Pucón, Chile. **Contact:** Fco. Salazar No 01145 Casilla 54-D, Temuco, Chile; Tel 56–45–325641; Fax 56–45–341467; Vanefor2002@yahoo.es

▶ 2–4 October 2003. **World Congress on Export Potential of Medicinal Plants and Primary Health Care for Tribal Development.** Delhi, India. **Contact:** Secretary General, World Congress on Export Potential of Medicinal Plants and Primary Health Care for Tribal Development, Vasundhara Bhavan, E-4 Patel Nagar, Raisen Rd, Bhopal 462 021, India; Tel 91–755–754 941; sugundh_09@satyam.net.in www.thegreenearth.org

▶ 3–6 October 2003. **3rd International Wildland Fire Conference & Exhibition.** Sydney, Australia. Sponsored by ITTO. **Contact:** 3rd International Wildland Fire Conference and Exhibition Managers, GPO Box 128, Sydney NSW 2001, Australia; Tel 61–2–9248 0800; Fax 61–2–9248 0894; wildland03@tourhosts.com.au; www.wildlandfire03.com

▶ 19–31 October 2003. **6th Conference of the Parties to the Convention to Combat Desertification.** Bonn, Germany. **Contact:** CCD Secretariat; Tel 49–228–815 2800; Fax 49–228–815 2898/99; secretariat@unccd.int; www.unccd.int

▶ 3–8 November 2003. **35th Session of the International Tropical Timber Council.** Yokohama, Japan. **Contact:** Collins Ahadome; Tel 81–45–223 1110; Fax 81–45–223 1111; itto@itto.or.jp; www.itto.or.jp

▶ 2–5 December 2003. **International Conference on Quality Timber Products of Teak from Sustainable Forest Management. ITTO PROJECT PD 151/02 (I); IUFRO 5.06.02.** **Contact:** K.M. Bhat, Kerala Forest Research Institute, Peechi 680 653, India; kmbhat@kfri.org; www.kfri.org/html/ko50ofrm.htm

▶ 12–15 December 2003. **Woodworking Korea.** Seoul, Republic of Korea. **Contact:** Reed Exhibitions (Germany) GmbH; Tel 49–211–556281; Fax 49–211–556231; REC.Germany@reedexpo.co.uk; www.reedexpo.com

▶ 12–14 April 2004. **Management of Tropical Dry Forest Woodlands and Savannas: Assessment, Silviculture, Scenarios.** Brasilia, Brazil. IUFRO 4.00.00. **Contact:** Professor Dr José Imaña Encinas, University of Brasilia, Forestry Department Caixa Postal 04357, 70919-970, Brasilia, DF, Brazil; Tel 55–61–2736026; Fax 55–61–3470631; iufro@unb.br

▶ 15–20 August 2004. **Forest Diversity and Resistance to Native and Exotic Pest Insects.** IUFRO 7.03.07. Hammer Springs, New Zealand. **Contact:** Andrew Liebhold, Northeastern Research Station, USDA Forest Service, 180 Canfield St, Morgantown, WV 26505, USA; Fax 1–304–285 1505; aliebhold@fs.fed.us; http://iufro.boku.ac.at/iufro/

▶ 15–21 August 2004. **XII International Congress of Entomology.** Brisbane, Australia. **Contact:** Ashley Gordon, Congress Director; Ashley@ccm.com.au; www.ccm.com.au/icoe/index.html

▶ 8–13 August 2005. **Forests in the Balance: Linking Tradition and Technology.** XXII IUFRO World Congress. Brisbane, Australia. **Contact:** Dr Russell Haines, Queensland Forestry Research Institute, PO Box 631, Indooroopilly 4068, Australia; Tel 61–7–3896 9714; Fax 61–7–3896 9628; hainesr@qfri.se2.dpi.qld.gov.au; http://iufro.boku.ac.at



in the tropics for technical and also strategic reasons but they should be strongly promoted as programmatic tools.

The management plan as a tool

A management plan, based on sustainable forest management criteria and indicators, can of course work as a prescriptive instrument for evaluation and control, and it is often presented as such. But this is not its most important role. The management plan should be first considered as a tool in the hands of the managers and users that can provide some answers to the tangible problems they face in their daily activities. Certainly, some important progress has been made over recent years, especially through the initiatives of industrial companies and their associations, such as the International Technical Association for Tropical Timber (ATIBT) and the Inter-African Forest Industry Association in Central and West Africa. Due mainly to the pressure of some environmental non-governmental organisations, with whom a timid dialogue is now starting, some of the larger timber companies in the region are expressing a greater willingness to implement rules of sustainable management translated into formal management documents.

What kind of management plan is needed?

The management plans to be developed with this objective will be very different from those we are used to, including in developed countries. The new management plans will not be restricted to issues related to timber production or to the role of a sole decision-maker.

In developing countries, the forest cannot be isolated from the other uses of the land; it is one of the elements to be used in the promotion of rural development. Of course, the forest provides various ecological, economic and social utilities that have to be taken into consideration when defining management modalities. But for it to play an active role in development, the forest should not be separated from its surroundings, and the management plans must be defined at a broader landscape scale, one that considers the context within which the forest resource must be managed. Based on the best available knowledge of the social and economic challenges, the plans have to select the practices to be carried out and to consider their impacts on the environment and on rural activities.

Plans to be negotiated among local actors

Forest management must aim to produce various benefits, and the beneficiaries will also be various. The conservation of biodiversity requires the engagement of many actors, and all must gain economic and social benefits. Here we have moved far from mono-actor management. The managers, especially the harvesting companies, are central figures in such a dynamic but they are not the only ones concerned about what happens in the forest. Management

plans should be multi-actor decision-making tools whose content is negotiated among the various stakeholders. Only plans that state the rights and responsibilities of all stakeholders and form the basis of effective partnerships in carrying out the prescribed actions and sharing the benefits can promote local development on a sustainable basis. Methodologies that combine negotiation and decision-making techniques with best-available information and ecosystem management frameworks are available. They just need to be adapted to tropical forests.

At a time when the tropical forests continue to be lost at the global scale there is no need to discuss over and over the elements of sustainable management. The most urgent need now is to start concrete actions, even without complete knowledge, and to carry out these actions in an adaptive way.

The momentum for this may be gathering. In Central and West Africa, for example, things are already changing. The *Principles, criteria and indicators for sustainable forest management in African natural tropical forests* (PCI), a document just published by ITTO and the African Timber Organisation (ATO) (see page 19), afford high priority to developing a complete set of forest management documents at the forest management unit level designed to provide forest managers with the guidance they need to implement sustainable forest management in the field. These documents must clearly state the objectives of management and define the management practices, including the formal modalities and the responsibilities of actors—not only those of the contracting harvesting companies. These management documents are to be formally approved by the public authority and the way they are implemented strictly controlled by the forest department.

In their official declaration of Kinshasa in October 2002, the ministers in charge of forests in the ATO member countries stated their full commitment to implementing the ATO/ITTO PCI, and they consequently decided to accelerate the elaboration of forest management plans. It is important to now translate these commitments to action. The recently funded ITTO project to support the ATO in training forestry staff in African member countries on implementing the PCI is a first step; other institutions would do well to support this initiative with complementary action. The humble management plan can provide the focus that is needed to draw all these disparate initiatives, intentions, principles, criteria and indicators together so that field action can start.

Out on a limb



Priority should be given to reforming and refocusing the humble forest management plan

by **G rard Buttoud**

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FOR much of the last decade the international dialogue on forests has been preoccupied with certification. Although many of the problems raised with certification and its potential contribution to sustainable forest management remain to be resolved, it is time to review this preoccupation and perhaps to establish priorities that better promote sustainable forest management in the tropics. In my view, the forest management plan should be a top priority.

What is sustainable forest management?

What do we really mean when we talk about 'sustainable forest management'? Let's dissect the term. Definitions continue to be debated, but we all have a fair idea of what a 'forest' is. The word 'management' is perhaps more interesting. It means that the actors—the 'managers'—are to implement certain strategies that will allow the forests to provide current and future generations (this is where 'sustainable' comes in) with the goods and services expected from the resource. These strategies must be based on the best available knowledge and underpinned by practical approaches and techniques to be applied directly in the field. For a manager, sustainable management does not consist merely of following a set of prescriptions; it is also about knowing how to organise in time and space the various actions (community relations, capital investments such as road-building, harvesting, etc) to be carried out in the forest in a process that should produce results consistent with sustainability.

Norms of results, norms of systems

A first conclusion which can be drawn from this assertion is that what we call sustainable forest management is to be assessed against norms, usually called principles, criteria and indicators, related not only to what is intended to be reached in terms of structure, but also (and mainly) to the modalities of the management practices that are to be employed. In the end it will be the quality of the management practices

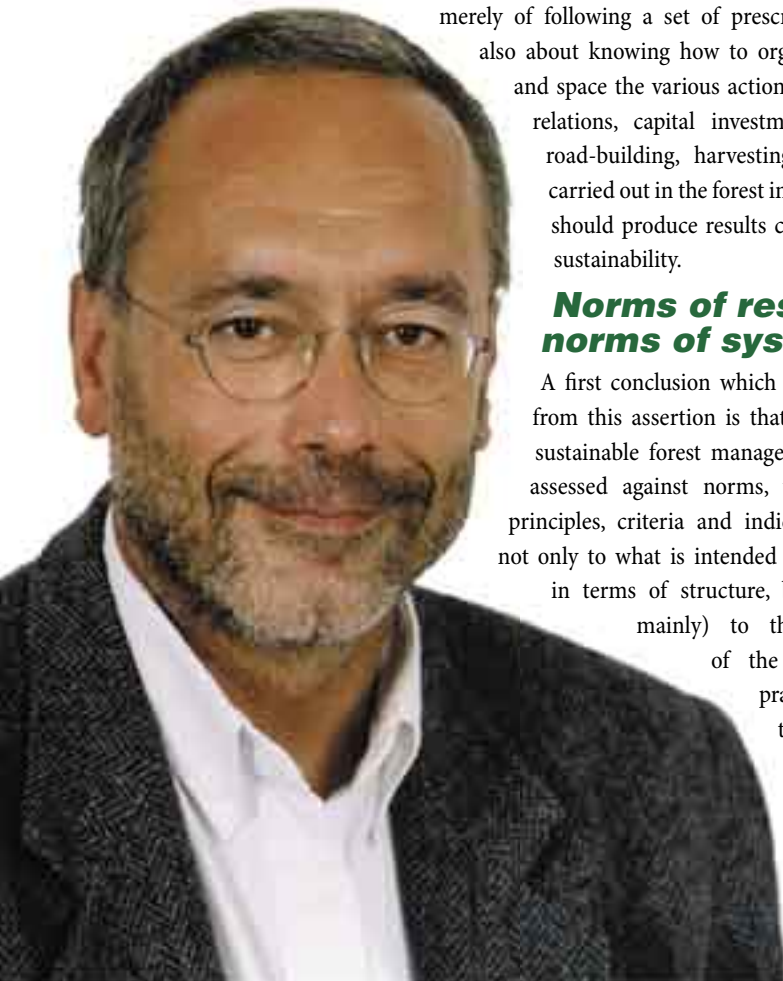
that will determine the success or otherwise of forest management, and they must be evaluated against the agreed norms.

But is this really what the international norms are used for at present? Probably not. In fact, criteria and indicators (C&I) agreed at the international level serve more as a common language for identifying the content of sustainable management. Progress has been slow, but ultimately important: sustainable forest management was a vague and abstract notion at the beginning of the 1990s; the identification of C&I has helped raised global awareness and understanding of the concept. And that is certainly something.

But the evolution of C&I should not stop there. If these norms are to become more than simply a common language, they need to be redefined in a way that enables their use as instruments for guiding the choices made by forest managers in the direction of the sustainability. Despite the involvement of some 120 countries in the various C&I processes that have developed over the past decade, less than half are actively using C&I for monitoring forest management, let alone for reporting on such management (originally a major rationale for developing a 'common language'). A move to the wider field implementation of C&I is the task that should now be our priority.

A management plan is unavoidable

The necessary technical framework for such a redefinition is provided by the management plan. Ultimately it is the practices of the various actors, managers, users and more generally the beneficiaries of the forest's goods and services that cause forest loss and degradation. Reforming such practices is an essential element of sustainable forest management, as is encouraging the actors to take ownership of the process. Thus, the various actors must be assisted to pursue models of thinking and acting which will improve management through the use of appropriate methods and techniques. Properly developed, management plans can facilitate this process. Forest management plans are not in widespread use (or are not widely adhered to)



Continued on page 31

