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# ITTO Tropical Forest UPDATE

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

## Forests rise to the top

Just before this edition of the *Tropical Forest Update* went to print, a historic agreement on climate change was struck in France, and forests are now at the very top of the global environmental agenda. In the Paris Agreement, almost all the countries of the world agree to hold the increase in global average temperature to well below 2 °C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 °C above pre-industrial levels.

Article 5 of the Paris Agreement formalizes the role of forests in these efforts, and we quote its Paragraph 2 here in full:

"Parties are encouraged to take action to implement and support, including through results-based payments, the existing framework as set out in related guidance and

***Inside: SFM guidelines; rattan; forest law enforcement in Cambodia; shoot-borer; Council outcomes; more***

# Contents



## Regular features



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**Images:** A rural dwelling, with tropical forests in the background, in the Mache-Chindul Ecological Reserve, Ecuador, where ITTO Project RED-SPD 055/11 Rev.3 (F) was implemented with the aim of improving the livelihoods of local communities there. The Paris Agreement puts tropical forests at the top of the global environmental agenda. *Photo: Amy E. Rogers (cover).* An ayous tree (*Triplochiton scleroxylon*) in the Republic of the Congo. *Photo: J. Blaser (above)*

*... Editorial continued*

decisions already agreed under the Convention[1] for: policy approaches and positive incentives for activities relating to reducing emissions from deforestation and forest degradation, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries; and alternative policy approaches, such as joint mitigation and adaptation approaches for the integral and sustainable management of forests, while reaffirming the importance of incentivizing, as appropriate, non-carbon benefits associated with such approaches."

The Paris Agreement, therefore, could be a turning point for tropical forests. It is likely to lead to massive new investments in them with the aim of reducing deforestation and forest degradation and promoting forest conservation, sustainable forest management (SFM) and forest expansion.

This edition of the TFU presents ITTO's most recent policy initiative in SFM. An article on page 3 summarizes the *Voluntary Guidelines for the Sustainable Management of Natural Tropical Forests*, which fully update guidelines first published in 1990. The *Voluntary Guidelines* specify seven principles for managing natural tropical forests, a set of guidelines under each principle, and suggested actions for putting the guidelines into practice. The *Voluntary Guidelines* are designed to encourage multipurpose forest management practices, including for climate-change mitigation and adaptation. ITTO believes their uptake (in concert with the various other ITTO guidelines) will be vital for ensuring that the increased investments in forests likely to flow from the Paris Agreement are used to best possible effect for the benefit of forest communities, tropical countries, and the world.

Other articles in this edition present some of the field-level efforts ITTO has been making to implement SFM. The article by Yan Yu (page 6) reports on an ex-post evaluation of an ITTO project designed to support a sustainable rattan industry in Southeast Asia, including by establishing demonstration plantations; training farmers, officials and researchers in aspects of rattan production, processing and use; and supporting research on rattan.

Thang Hooi Chiew and Eang Savet (page 8) present the ex-post evaluation of another ITTO project in Southeast Asia—this one to strengthen forest law enforcement in Cambodia. Thanks to the project, the authors conclude, Cambodia's Forestry Administration "is now in a better position to control illegal logging and prevent forest clearing and land encroachment". Among other things, the project helped build capacity within the Forestry Administration and encouraged greater collaboration between Forestry Administration officers and prosecutors and judges. It also increased understanding among local communities of the benefits of their participation in curbing illegal forest activities and respecting the rule of law.

An article by Eric Díaz describes a project in Mexico to develop an integrated pest management approach to reducing the incidence of the shoot-borer *Hypsipyla grandella*, which has a major impact on the quality and commercial timber yields of *Cedrela odorata* (cedar) and *Swietenia macrophylla* (big-leaf mahogany) plantations worldwide. Research conducted as part of the project indicates that an integrated approach to managing this pest can significantly reduce the damage it causes.

An article on page 17 reports the outcomes of the 51st session of the International Tropical Timber Council (ITTC-51). Among other things, the Council debated the election of a new Executive Director to replace Emmanuel Ze Meka, who has retired from ITTO after serving it for 24 years, including eight as Executive Director. Mr Ze Meka shares his fascinating thoughts on the future of forests in Central Africa in an interview published on page 14.

After ITTC-51 the post of Executive Director remains vacant, and it has been re-advertised (page 27). The appointment of a new Executive Director, most likely in November 2016, will be important in ensuring that ITTO plays its vital role in the implementation of forest-related aspects of the Paris Agreement.

1 United Nations Framework Convention on Climate Change.

# ITTO's comprehensive tool for SFM

***ITTO's* Voluntary Guidelines for the Sustainable Management of Natural Tropical Forests *will help forest owners and managers apply the principles and practices of sustainable forest management***

This article is based on the *Voluntary Guidelines for the Sustainable Management of Natural Tropical Forests* published by ITTO in March 2015 and available at www.itto.int/policypapers_guidelines. Contact the ITTO Secretariat at itto@itto.int for more information.

"Inform local communities of their rights and responsibilities in SFM"—suggested action in the *Voluntary Guidelines. Photo: WWF*

ITTO has fully revised its guidelines for the sustainable management of natural tropical forests, which were first published in 1990. *The Voluntary Guidelines for the Sustainable Management of Natural Tropical Forests* aim to:

- identify the framework conditions for the application of forest management in natural tropical forests for the sustainable provision of forest goods and environmental services;
- provide guidance for addressing the policy, legal, institutional, ecological, social and economic issues that need to be taken into account in the planning, implementation, monitoring and evaluation of sustainable forest management (SFM);
- help forest owners and managers to implement SFM at the landscape and forest management unit (FMU) scales;
- stimulate the adoption of appropriate adaptive management practices to maintain the capacity of natural tropical forest ecosystems to sustainably provide multiple goods and environmental services; and
- inform international processes on the role that the sustainable, multipurpose management of natural tropical forests can play in addressing climate change, maintaining water supply, conserving biodiversity, increasing food security, implementing sustainable agriculture and combating desertification.

"As appropriate, accommodate the existing NTFP harvesting and trade patterns of local communities in the method and scale of timber harvesting"—suggested action in the *Voluntary Guidelines. Photo: P. Chai*

## Four objectives, seven principles

The *Voluntary Guidelines* feature seven principles for managing natural tropical forests, organized under four objectives with the aim of:

1. Providing the enabling conditions for SFM
   - Principle 1: Forest governance and security of tenure
   - Principle 2: Land-use planning, permanent forest estate and forest management planning
2. Ensuring forest ecosystem health and vitality
   - Principle 3: Ecological resilience, ecosystem health and climate-change adaptation
3. Maintaining the multiple functions of forests to deliver products and environmental services
   - Principle 4: Multipurpose forest management
   - Principle 5: Silvicultural management
4. Integrating social, cultural and economic aspects to implement SFM
   - Principle 6: Social values, community involvement and forest-worker safety and health
   - Principle 7: Investment in natural forest management and economic instruments.

Under each of the seven principles is a set of guidelines, as well as suggested actions for putting the guidelines into practice. The principles are explained below.

The *Voluntary Guidelines* draw on the *ITTO Criteria and Indicators for the Sustainable Management of Natural Tropical Forests* and complement other sets of guidelines produced by ITTO on various aspects of tropical forest management, including forest restoration and biodiversity conservation. The seven principles are applicable to SFM in natural tropical forests worldwide, with an emphasis on timber production forests. They are designed to encourage multipurpose forest management practices that, if applied over the long term, will:

- maintain the yields of multiple products and the provision of environmental services in tropical forests;
- safeguard the diverse values of tropical forests; and
- generate benefits that are distributed equitably among multiple stakeholders.

## The principles, and sample guidelines

**Principle 1: Forest governance and security of tenure**

Political commitment, supportive national policies, strong institutions, laws and regulations, appropriate governance, secure forest tenure, and clearly defined access and use rights, including customary and traditional rights, are all necessary for SFM.

**Sample guideline:** Empower communities, civil-society institutions and women to collaborate in SFM as part of good governance for SFM.

**Principle 2: Land-use planning, the permanent forest estate and forest management planning**

Land allocation to different uses and spatial planning within and outside forests must ensure that the economic, social and environmental values of forests are maintained or enhanced at a landscape scale. This requires the adoption of a forest management planning framework at the national and/or landscape scales.

**Sample guideline:** Undertake periodic national or subnational forest resource assessments to provide reliable data for forest management planning.

**Principle 3: Ecological resilience, forest health and climate-change adaptation**

Ecological resilience is a key tenet of SFM in natural tropical forests, and it must be maintained or enhanced to reduce the risks posed to sustainability by destructive agents, climate change and other stresses and disturbances.

**Sample guideline:** Restore degraded forest ecosystems to improve habitats for native species, forest structure, biodiversity, productivity and ecosystem functioning.

**Principle 4: Multipurpose forest management**

The role of natural tropical forests as providers of multiple goods and services should be safeguarded by the application of sound planning and management practices that maintain ecosystem functions and the potential of forests to yield the full range of benefits to societies.

**Sample guideline:** Enable multipurpose forest management to manage forest products and environmental services.

**Principle 5: Silvicultural management**

In timber production forests, each FMU should have an approved management plan, with clearly stated management objectives and measures—including silvicultural measures—for achieving them. Silvicultural measures should be revised periodically in the light of accumulated experience, new information and changing circumstances.

**Sample guideline:** Conduct preliminary studies and develop a multiresource inventory.

**Principle 6: Social values, community involvement and forest-worker safety and health**

Forest management should recognize and aim to meet social needs. Forest management decisions should be participatory and inclusive, and the costs and benefits should be shared equitably among stakeholders. Communities should be empowered to participate in SFM through measures to achieve equity and build capacity among stakeholders. The provision of safe and adequate working conditions is also an essential element of SFM.

**Sample guideline:** Ensure the effective participation of relevant stakeholders in planning and implementing SFM.

**Principle 7: Investment in natural forest management and economic instruments**

SFM only succeeds if it is properly financed. Capturing the full value of forests, including environmental services, and ensuring the equitable distribution of costs and benefits, are essential for SFM.

**Sample guideline:** Provide preferential access to markets for products from sustainably managed tropical forests.

## Simple and evidence-based

The *Voluntary Guidelines* constitute an international reference document for the development and improvement of national and subnational guidelines for the sustainable management of natural tropical forests. They also provide a reference on technical issues at the landscape and FMU scales.

The *Voluntary Guidelines* are simple and practical, and they avoid unnecessary prescriptions. In formulating them, the intention was to ensure their usefulness for forest managers and to support suggested actions with science.

The *Voluntary Guidelines* are evidence-based, outcomes-focused advisory statements intended to assist decision-makers, forest managers and other stakeholders in making informed forest management decisions. When adapted to local circumstances and adequately applied, they will facilitate the systematic development of SFM and ensure the application of good practices in natural tropical forests.

"Restore, rehabilitate and manage degraded forests, taking guidance from the *ITTO Guidelines for the Restoration, Management and Rehabilitation of Degraded and Secondary Tropical Forests*"—suggested action in the Voluntary Guidelines. *Photo: DGFRN, Benin*

## The need for revision

There have been many significant developments in international policies related to tropical forests and forest management since the *ITTO Guidelines for the Sustainable Management of Natural Tropical Forests* were published in 1990. These include the adoption, in 1993, of the Convention on Biological Diversity, the United Nations Convention to Combat Desertification and the United Nations Framework Convention on Climate Change (UNFCCC); the adoption of the Kyoto Protocol in 1996; various UNFCCC decisions (in 2007–2013) on the development of REDD+ to mitigate climate change; and the 2007 Non-legally Binding Instrument on All Types of Forests.

Other key developments that have affected the use and management of tropical forests since 1990 include:

- increased recognition of the role of tropical forests in delivering "global" environmental services, including those related to biodiversity, water, carbon and ecosystem resilience;
- increased recognition of the rights of indigenous peoples and local communities over forests and forest use, and the need to safeguard those rights;
- increased decentralization of control over forests, including privatization and the transfer of ownership to indigenous and local communities;
- increased awareness of illegality and corruption as major impediments to SFM;
- increased demand for legal and sustainable timber in importing markets and evolving requirements for providing assurance of legality and sustainability;
- the emergence of forest certification as an important driver of SFM; and
- an increase in the vulnerability of tropical forests to biotic and abiotic threats attributed to climate change and increased climate variability.

## The revision process

A first draft of the *Voluntary Guidelines* was prepared by consultants in 2010 and reviewed in two expert meetings (in Switzerland and Brazil) in 2011. Three regional validation workshops were conducted in 2012—in Malaysia, Gabon and Peru. ITTO members reviewed the draft in the Committee on Reforestation and Forest Management at its 45th session (November 2011), 46th session (November 2012) and 47th session (November 2013), and revisions were made to the draft in light of comments received.

The International Tropical Timber Council adopted the final draft of the *Voluntary Guidelines* in Decision 4(XLIX) made at its 49th session in November 2013.

## Using the voluntary guidelines

The following groups involved in the management and protection of natural tropical forests are encouraged to use the *Voluntary Guidelines*:

- National and subnational producer-country **governments**, including policymakers and legislators; political parties; government agencies dealing with forests, conservation, the environment, and land-use planning; and development and extension agencies.
- **Forest managers**, who may be national, provincial or local forestry agencies, forest companies, producer associations, natural-forest smallholders or rural and forest communities.
- **Private-sector organizations**, such as small, medium-sized and large forest companies and their umbrella organizations, and trading groups.
- **civil-society organizations**, such as environmental and development non-governmental organizations and advocacy groups.
- **research and education institutions**—public and private forest research, education and training institutions.
- **consumer-country governments**, as well as donors such as public and private international funding and development agencies.

ITTO intends to support its tropical member countries in applying the *Voluntary Guidelines* in the field as a priority under its Strategic Action Plan and biennial work programmes. ITTO will work with its member countries and the full range of tropical forest stakeholders to put the guidelines into practice.

*The* Voluntary Guidelines for the Sustainable Management of Natural Tropical Forests *are voluntary in nature and not legally binding on ITTO member countries. They may be adapted as appropriate to national and local circumstances. They are available in English, French and Spanish at www.itto.int/policypapers_guidelines. Order printed copies by contacting itto@itto.int.*

# Sustaining rattan resources in Southeast Asia

***An ex-post evaluation confirms that an ITTO project has made a significant contribution to ensuring the sustainable supply of rattan in Southeast Asia***

**by Yan Yu**

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**Showing off:** A showroom of rattan products owned by Calfurn Rattan Manufacturing, Inc, in the Philippines. *Photo: Yan Yu*

For many centuries, people have been using rattan harvested in forests to support their livelihoods, and rattan is one of the most important non-wood forest products at a global scale. A climbing palm, rattan comprises about 600 species in 13 genera, of which ten are found in tropical and subtropical Asia and the other three are endemic to equatorial Africa (IFAD 1991). More than 700 million people are estimated to trade or use rattan for various purposes worldwide (Sastry 2001). Southeast Asia is by far the most important region for the production and export of rattan and its derived products. Indonesia accounts for 80–90% of the global supply of rattan raw materials; other important suppliers are (in descending order) Malaysia, the Philippines and Thailand.

Rattan exports from Southeast Asia grew by 20–50% per year in the 1970s and 1980s, but this growth reversed in the mid-1990s due to the overexploitation and inefficient use of the resource in many Asian rattan-producing countries (INBAR 1998). The reduced supply of rattan raw materials resulted in significantly declining exports and the closure, in some countries, of many rattan processing plants. To protect the rattan industry and meet increasing global demand, there is an urgent need to promote the sustainable cultivation and use of rattan in Southeast Asia.

## Project overview

ITTO Project PD 334/05 Rev. 2 (I): "Demonstration and application of production and utilization technologies for rattan sustainable development in the ASEAN [Association of South East Asian Nations] member countries" was implemented from April 2006 to November 2010 by the Ecosystems Research and Development Bureau, based in Laguna, the Philippines. Agencies from seven other ASEAN member countries—Cambodia, Indonesia, the Lao People's Democratic Republic (Lao PDR), Malaysia, Myanmar, Thailand and Viet Nam—also participated in the project. The project aimed to strengthen ASEAN collaboration in the sustainable management and use of the region's rattan resources, which was achieved through the field-applied demonstration of rattan production and utilization technologies. The project specifically aimed to:

- apply production and utilization technologies to set up and manage rattan demonstration plots at the village level, as well as promote rattan processing for the sustainable development of rattan in ASEAN member countries; and
- establish relevant technologies and knowledge on rattan production and use as well as socioeconomic aspects and disseminate these through a newly created ASEAN Rattan Centre.

## Main project outputs

The project originated from an Experts' Consultation on Rattan Development held in Rome in December 2000, which emphasized the economic, sociocultural and ecological importance of rattan. In light of this consultation, ITTO funded a pre-project on rattan that, among other things, enabled the convening of the Regional Conference on Sustainable Development of Rattan in Asia in Manila, the Philippines, in 2004. At this conference, representatives or contact persons from the ASEAN member countries identified their countries' technology gaps and needs with regard to rattan production, processing and use and provided inputs for the formulation of a full ITTO project proposal. The convening of the conference ensured the legitimacy of the project across the region—with clearly defined, achievable and mutually agreed objectives and management structures enabling efficient project implementation.

The project aimed to strengthen ASEAN collaboration and reduce poverty at the community level by establishing a network that supports and prioritizes the urgent development needs and concerns of the rattan industry. To achieve the project's development objectives, five work components—training, pilot site demonstration, research, networking, and database development—were identified and included in the implementation framework.

For the training component, rattan experts from university and research institutes in the Philippines with extensive experience in rattan research and development conducted 20 trainings on rattan production and use in six ASEAN countries, reaching 500 farmers, researchers and manufacturers. The experts prepared five training modules and technology guides, which were presented in English or local languages. The topics covered were: rattan nursery and planting stock production; rattan plantation establishment and management; control methods for insects and fungi; kiln-drying; and bleaching and finishing of rattan. The project also hosted the seven-day Regional Training Program on Rattan Taxonomy and Resource Inventory, which was held in Bangkok, Thailand, in September 2008 in collaboration with the ASEAN Centre for Biodiversity, the Asia Pacific Association of Forestry Research Institutions, and Thailand's Department of National Parks, Wildlife and Plant Conservation. Seventeen participants from the eight ASEAN member countries attended this training event.

The project established and maintained 222 hectares of rattan pilot plantations in seven ASEAN countries—Cambodia, Indonesia, Lao PDR, Myanmar, the Philippines, Thailand and Viet Nam. In each participating country, the government owns the land used for the pilot plantations, but local communities are responsible for the maintenance and management of the plantations and have clearly defined tenure and access user rights to them. Therefore, it is anticipated that the communities will derive direct and continuous incomes from the plantations when they reach maturity.

In addition to the training and demonstration, the project encompassed a small-grants research program, under which 28 research proposals from four ASEAN countries were reviewed and eight received funding.

An innovative measure was the establishment of a data/information network on rattan in the ASEAN region, which enabled participants to access and exchange information at the national, regional and global levels. Among other things, the website (which was accessible to the general public but is no longer operational) featured the main accomplishments of the project[1], together with other important information on rattan. The project also launched an illustrated online database of rattans found in Southeast Asia, which was operational during the life of the project; it featured information on 601 species of rattan, including scientific names, local names in ASEAN countries, distinguishing characteristics, habitat, distribution, and characteristics of stems, leaves, inflorescences, fruits and seeds. The project made efforts to establish the ASEAN Rattan Centre but did not succeed in creating a permanent entity.

## Impacts and effects

The project had significant impacts on the rattan industries in participating countries. An ex-post evaluation visit to Calfurn Manufacturing Philippines, Inc, a major rattan-based product producer located in Angeles City, confirmed that rattan harvested in the pilot plantations is contributing to the rattan supply in the Philippines. The 222 hectares of rattan plantations established under the project in seven countries will continue to serve as demonstrations of rattan plantation development and to promote the sustainability of rattan resources in the ASEAN region.

1 Project outputs are available at: http://goo.gl/fYMt0S.

**Cane field:** A project rattan plantation demonstration plot adjacent to secondary forest in Bicol, the Philippines. *Photo: Yan Yu*

More than 500 farmers, officials and researchers were trained in technologies for rattan production, processing and use. Many trained farmers participated in activities related to the establishment of rattan demonstration plantations, ultimately becoming plantation managers and, in some cases, earning profits from the sale of rattan seedlings and shoots. These incomes are expected to grow as rattan canes reach harvestable age. In the view of the author, the success of these farmers is likely to encourage other farmers and ultimately to lead to the gradual enlargement of rattan plantation areas. Trained government officials now recognize that rattan can alleviate poverty at the community level while also facilitating sustainable forest use. This has the potential to influence future policy decisions, including the incorporation of rattan into national development programs.

The research component of the project produced several new technologies for rattan production and use that could significantly improve the quality and value of rattan-based products, and it also helped in the development of professionals in rattan research and development. The project created a project website and rattan database, which served as a rattan information centre for individuals, governments and enterprises interested in the sustainable development of rattan. However, both the website and database ceased to function after the project ended; in the future, projects that aim to create such websites and databases should include a plan for ensuring their continuation after project completion.

## Acknowledgement

The author thanks the Ecosystems Research and Development Bureau, the Philippines, for its full cooperation during the project ex-post evaluation.

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# Strengthening forest governance in Cambodia

***An ex-post evaluation finds that, thanks in part to an ITTO project, the Forestry Administration is now better placed to control illegal forest activities***

**by Thang Hooi Chiew[1] and Eang Savet[2]**

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[2] ITTO project coordinator (savet2003@yahoo.com)

**Community consultation:** An extension workshop conducted under the project explores ways and means to assist the Forestry Administration in combating illegal forest activities. *Photo: H.C. Thang*

Forest law enforcement and governance (FLEG) has emerged as a major policy response by national governments and international organizations seeking to promote sustainable forest management (SFM). It is also being promoted as a means to arrest forest loss and illegal forest activities, such as illegal forest harvesting; provide a more viable platform for SFM; capture lost forest revenues for government and thus (at least theoretically) benefit the poor through higher government expenditure; and improved benefit-sharing with communities. FLEG has also gained prominence as the role of forests in mitigating and adapting to climate change becomes increasing recognized.

In this context, Cambodia's Forestry Administration (FA) began, in 2009, the implementation of ITTO Project PD 493/07 Rev.1 (F): "Strengthening capacity of forest law enforcement and governance in Cambodia". The aim of the project was to address the loss of forest cover, which had decreased from 13.2 million hectares (73% of the land area) in 1969 to 10.8 million hectares (59%) in 2006. The main causes of this deforestation were agricultural expansion; illegal logging; the improper management of concession areas, protected areas and non-concession areas; a lack of reforestation; population pressure; and poverty.

## Project objectives

The project proposal envisaged that building capacity in the FA for forest law enforcement would help reduce illegal forest activities as a contribution to SFM. This could be done by improving facilities; providing training and additional staff for FLEG; increasing the monitoring of forest operations; processing forest crimes through judicial courts more effectively; and enhancing forest extension programmes. Specifically, the objectives of the project were to strengthen capacities for FLEG and to develop tools to enable the effective suppression of illegal forest activities. This would be done in four provinces—Kratie, Kampong Thom, Pursat and Preah Sihanouk.

## Achievements and impacts

The equipment and facilities procured to enforce forest laws, such as four-wheel drive vehicles, motorcycles, desktop computers, notebooks, global positioning system (GPS) devices, cameras, and solar panels were installed in FA offices in the four provinces. They were well kept and maintained, and they enabled FA cantonments[1] to monitor illegal forest activities and document forest crimes more effectively compared with the pre-project situation.

The project developed four training modules on the following aspects of FLEG: 1) harvesting, wildlife identification and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); 2) procedures dealing with forest offences, involving searches, intelligence, evidence gathering and the filing of documents for courts and the central administration; 3) law enforcement, encompassing the Forestry Law, the Land Law, the Code of Criminal Procedure, the Protected Area Law and other laws and regulations; and 4) specialized skills covering communication, negotiation, conflict management and resolution, the use of GPS devices, map reading, and document management. These modules were used to train 515 FA staff at the inspectorate, cantonment, divisional and triage levels. In addition, 20 senior staff at the central level,

1 The Forestry Administration is divided into central, inspectorate, cantonment, divisional and triage forestry administrative levels, with a vertical line of authority.

as well as in inspectorates and cantonments, were trained as trainers, and 15 chiefs of FA cantonments and the project coordinator gained experience in FLEG problem-solving through their attendance at relevant international workshops.

A technical guide was developed for forest patrolling, comprising standard operating procedures on: patrol planning and operation; equipment and facilities' requirements; investigation, interrogation and suppression; and case follow-up. Fifteen hundred copies of the guide were published and distributed, and it was used successfully to train FA staff in the four provinces.

A pocket guide on the monitoring and documentation of illegal forest practices was also developed containing a compilation of existing forestry laws, land-use laws, criminal codes and criminal code procedures, as well as government orders related to the forest sector. The pocket guide was used to train FA staff to ensure the full compliance of field operations with existing laws and regulations, and 775 copies were published and distributed.

The project updated the case tracking system (CTS), which enables the FA to identify and implement forest law enforcement activities by appropriately recording and analyzing incidents involving violations on forest lands and in protected areas; in particular, the project enhanced the interface for data entry and improved the data extraction system. As part of the updating, a technical manual for the operation of the CTS was published and disseminated. The CTS was installed in 15 computers at the project sites.

Table 1 shows that 1729 forest crime cases were recorded from January 2009 to December 2011 in the four provinces during project implementation, which was about 42% of the 4148 cases recorded in the same period for the whole country.

Table 1 (see also Figure 1) shows that 1137 and 748 forest crimes were detected and recorded in the CTS for Kratie and Kampong Thom provinces, respectively, in the period 2012–2014 (after project completion), compared with 747 and 400 cases, respectively, during project implementation in 2009–2011. The volume of timber and timber products seized in both provinces decreased after project completion, however (Figure 2).

A total of 4319.3 $m^3$ of timber and timber products was seized in Kratie Province in the three years of project implementation (2009–2011). In the three years immediately after project implementation, 2293.5 $m^3$ was seized, representing a decrease of 2025.8 $m^3$ (46.9%).

In Kampong Thom Province, 1261.6 $m^3$ was seized during project implementation (2009–2011) compared with 726.0 $m^3$ in 2012–2014, a decrease of 42.5%. Declines were also recorded in both the number of crime cases and the total volume of timber and timber seized in Pursat and Preah Sihanouk provinces after project completion.

**Figure 1: Forest crime cases in four provinces recorded in the case tracking system, 2009–2014**

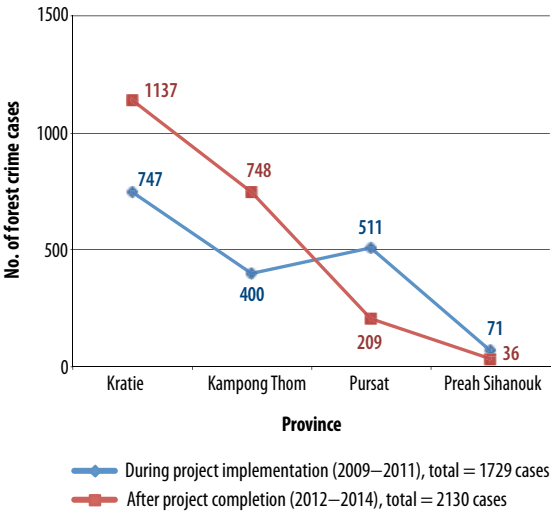
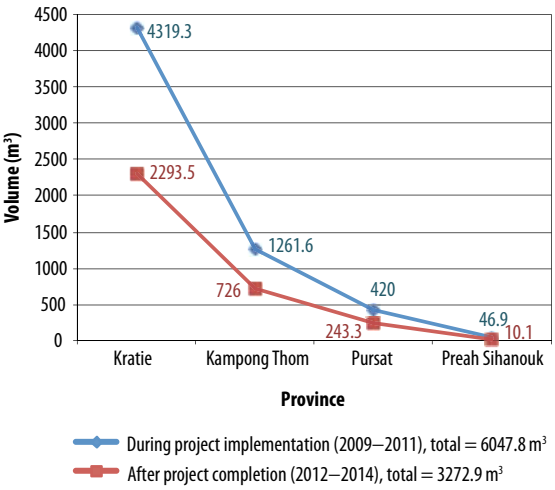



**Figure 2: Volume of timber seized in four provinces, 2009–2014**




The decline in the quantity of illegal timber seized after project completion in the four provinces reflects the enhanced capacity of the FA to monitor and enforce forest laws and regulations. Another cause of the decline is the more active involvement of local people, who now act as key informants during forest patrolling operations.

**Table 1: Number of forest crime cases and volume of timber products recorded in the case tracking system, 2009–2014**

| Period | Year | Kratie Province | | Kampong Thom Province | | Pursat Province | | Preah Sihanouk Province | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | No. of forest crimes cases | Volume of timber products confiscated ($m^3$) | No. of forest crime cases | Volume of timber products confiscated ($m^3$) | No. of forest crime cases | Volume of timber products confiscated ($m^3$) | No. of forest crime cases | Volume of timber products confiscated ($m^3$) | No. of forest crime cases | Volume of timber products confiscated ($m^3$) |
| During project implementation | 2009 | 88 | 673.6 | 77 | 56.4 | 91 | 86.4 | 26 | 1.0 | 282 | 817.4 |
| | 2010 | 340 | 2 093.1 | 75 | 946.6 | 210 | 154.9 | 24 | 40.9 | 649 | 3 235.5 |
| | 2011 | 319 | 1 552.6 | 248 | 258.6 | 210 | 178.7 | 21 | 5.0 | 798 | 1 994.9 |
| *Subtotal* | - | *747* | *4 319.3* | *400* | *1 261.6* | *511* | *420.0* | *71* | *46.9* | *1 729* | *6 047.8* |
| After project completion | 2012 | 254 | 653.4 | 222 | 214.1 | 9 | 48.5 | 9 | 8.0 | 494 | 924.0 |
| | 2013 | 454 | 772.8 | 168 | 295.6 | 54 | 112.9 | 10 | 1.0 | 686 | 1 182.3 |
| | 2014 | 429 | 867.3 | 358 | 216.3 | 146 | 81.9 | 17 | 1.1 | 950 | 1 166.6 |
| *Subtotal* | - | *1 137* | *2 293.5* | *748* | *726.0* | *209* | *243.3* | *36* | *10.1* | *2 130* | *3 272.9* |
| **Total** | **-** | **1 884** | **6 612.8** | **1 148** | **1 987.6** | **720** | **663.3** | **107** | **57.0** | **3 859** | **9 320.7** |

**Seized timber:** Confiscated timber sits in a warehouse pending a court hearing and orders for its disposal. *Photo: H.C. Thang*

Provincial governors have proclaimed an estimated 24 615 hectares of illegally occupied forest land as permanent forest.[2] For example, the governor of Kampong Thom Province proclaimed 5698 hectares as forest land in 2009–2011. These lands are now ready for rehabilitation and reforestation.

Some 3000 copies of the 2010 forest-cover map of Cambodia were produced based on interpretation of satellite images from Landsat TM 5 and field verification. This contributed significantly to the development of practical forest monitoring plans.

Four coordination meetings between FA cantonments and prosecutors and judges in the four provinces involving 115 personnel resolved and closed 539 forest crime cases in the project's areas of influence. These meetings helped increase collaboration between officers of the FA cantonments and the provincial courts and improve understanding among cantonment officers of the judicial process for the forest crime cases they submit.

Twelve extension workshops on forest laws and regulations were conducted in eight districts in the four provinces involving 1227 participants. These greatly raised awareness among the public in those districts, especially in local communities, of the benefits of participating in curbing illegal forest activities and respecting the rule of law. A secured forest resource base, participants learned, would contribute positively to the environment in which they live and, in the longer term, to their livelihoods and welfare. Hence, workshop participants are now more likely to support FLEG activities in Cambodia.

A simple website[3] was developed to provide public access to the training modules, manuals, brochures and posters developed by the project.

## Lessons learned

The early involvement of the primary stakeholders in problem identification and the project development process enabled the project to be implemented without major adjustments or revisions. Moreover, regular, frequent monitoring and evaluation of progress in the implementation of individual activities enabled the early identification of issues and timely interventions to address them.

The guidelines for forest patrolling and suppressing forest crime need to be fully field-tested in different environments before they can be used effectively in other provinces in Cambodia. The pocket guide on the monitoring and documentation of illegal forest practices and the four training modules should be revised periodically to reflect new laws and regulations (in the case of the pocket guide) and new tools and techniques for forest crime suppression (in the case of the training modules). Moreover, the four training modules should be further elaborated so they fully address good forest governance, which is fundamental for achieving positive and sustainable development outcomes in the forest sector.

Given that the coordination meetings between the FA cantonments and prosecutors and judges have been effective in resolving forest crimes cases, these meetings should be continued and the establishment of permanent joint coordination mechanisms considered. Incentive schemes should be developed for local communities to encourage their further support for the FA's efforts to curb illegal forest activities and their participation in SFM.

## Sustainability

The FA developed an exit strategy for the project in which critical activities initiated or implemented by the project were identified for continuation under Programme 3: Forest Law Enforcement and Forest Governance of Cambodia's 2010–2029 National Forest Programme. A number of the items purchased by the project, such as four-wheel drive vehicles, desktop computers, printers and digital voice recorders, are being used in the 36-month ITTO Project PD 673/12 Rev.1 (F): "Strengthening the capacity in forest law enforcement and governance of the permanent forest estates in Kratie and Mondulkiri provinces of Cambodia", which started in May 2013.

Twenty-one officers in the central FA have been assigned to maintain and update the CTS, monitor forest cover, produce updated forest maps, and coordinate forestry extension work with the FA cantonments. Ownership of this process is high because it is embedded in the FA's existing institutional structures.

The technical guide on forest patrolling and the pocket guide on monitoring and documentation of illegal forest practices are being further field-tested and updated under ITTO project PD 673/12 Rev.1 (F). The project will also further refine the CTS software and train additional FA staff when the system is installed for use in other provinces.

## Conclusion

In the wake of project PD 493/07 Rev.1 (F), the FA is now in a better position to control illegal logging and prevent forest clearing and land encroachment. The trained personnel of the FA are now able to carry out effective forest law enforcement, as well as monitor and document illegal practices, including illegal forest harvesting. Much-needed legal procedures and appropriate deterrent mechanisms have been put in place to ensure that the courts are able to deal effectively with illegal forest activities. The implementation of FLEG activities in Cambodia is now addressed in a holistic and integrated manner through its 2010–2029 National Forest Programme.

*Completion and technical reports of the project are available via ITTO's online project search at www.itto.int/project_search (use the project ID number to access the files) or at the project website at www.twgfr.org/itto.*

2 The lands were occupied illegally by local people from other provinces. They were evicted from the occupied area in accordance with the Forestry Law and a government order.

3 www.twgfr.org/itto.

# Beating the borer

***An ITTO project proposes phytosanitary and silvicultural practices for the integrated management of* Hypsipyla grandella *in cedar plantations in Mexico***

**by Eric R.A. Díaz Maldonado**

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**Early attack:** Damage caused by *Hypsipyla grandella* to a shoot in a *Cedrela odorata* sapling. *Photo: E. Díaz, INIFAP*

The high rate of deforestation in the Mexican tropics prompted the National Forestry Commission (*Comisión Nacional Forestal*—CONAFOR) to promote reforestation and commercial plantation programmes. Of the 22 million hectares suitable for the establishment of commercial timber plantations in Mexico, CONAFOR classified 13.9 million hectares as priority areas, featuring suitable soils and climate for rapid growth, available human resources, and escalating demand for primary forest products in domestic markets.

CONAFOR registered 1749 commercial plantation projects between 1997 and 2005, covering almost 330 000 hectares (CONAFOR 2008), of which an estimated 50 000 hectares were established with *Cedrela odorata* (cedar) and *Swietenia macrophylla* (big-leaf mahogany), both in the Meliaceae family.

However, the success of cedar and big-leaf mahogany plantations is under threat from the shoot-borer *Hypsipyla grandella* Zeller (Lepidoptera: Pyralidae). Díaz et al. (2004) reported that 4.8–100% of trees in 153 plantations surveyed in southern Mexico were infected with *H. grandella*, and only 16% of the surveyed plantations were under any kind of pest management system. Problems with shoot-borers have also been reported in Meliaceae plantations in Australia, Bangladesh, Brazil, Costa Rica Ghana, Indonesia and Malaysia.

*H. grandella* damages Meliaceae trees in its larvae stage (see photo this page) as it bores into the soft tissues of tender shoots (Diaz 1999). The consequent death of the terminal bud reduces the growth of the plant, which produces several new buds to replace the terminal bud. This, in turn, causes a branching effect, leading to deformed trees (Rodríguez 1981; Arreola and Patiño 1988) and a consequent loss of quality and commercial timber yields. In extreme cases, production cycles become longer, reducing plantation profitability. As a rule, the Meliaceae shoot-borer does not cause the death of trees, although cases are known where repeated attacks have caused the weakening of trees and their subsequent death (Whitmore 1983). Attacks can occur on plants even before they leave the nursery (Grijpma 1973).

## Developing integrated pest management

There is an urgent need, therefore, to develop integrated pest management systems for *H. grandella* in young cedar plantations in Mexico as a way of minimizing the damage caused by this pest. The aim of ITTO Project PD 350/05 Rev.3 (F): "Production systems and integrated management of shoot-borers for the successful establishment of Meliaceae plantations in the Yucatan Peninsula and Veracruz, Mexico" was to investigate methods for controlling *H. grandella* in cedar plantations in Mexico. The intention was not to eradicate the pest but to reduce its impact to the extent that high-value Meliaceae timber plantations can be grown and harvested successfully without undue loss of productivity or quality.

Among other things, the project evaluated the use of chemical, biological and organic products and silvicultural practices (e.g. pruning affected trees) for controlling *H. grandella*, and the use of genotypes with apparent tolerance to attacks by the pest. The project also monitored climatic factors (maximum, minimum and ambient temperatures; relative humidity; and rainfall) in six cedar plantations with the aim of determining the conditions leading to the onset of pest outbreaks.

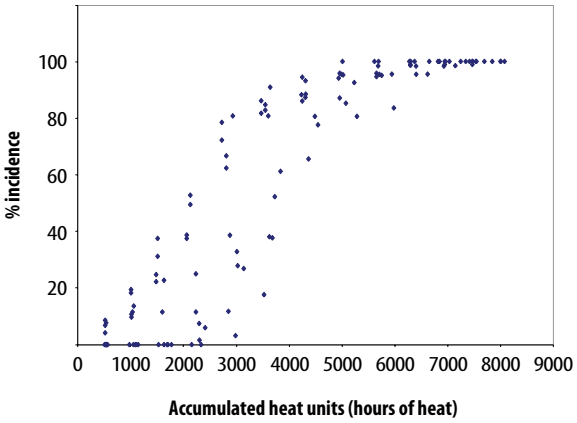
**Neem scheme:** Neem is applied to a cedar seedling as part of research into the control of *Hypsipyla grandella* in *Cedrela odorata* plantations. *Photo: E. Díaz*

Project activities included demonstrations, field practices and training courses for producers. The findings were presented at various scientific forums as well as at dissemination events organized by CONAFOR. Results were also presented to the forestry councils of the three states of the Yucatan Peninsula (Campeche, Quintana Roo and Yucatan), with a view to assisting state and federal governments to develop pest management strategies.

Table 1 presents the findings of research carried out by the project to identify the products and silvicultural practices that best controlled *H. grandella*.

An experiment was carried out in a two-hectare cedar plantation established at the Mococha Experimental Station (part of the National Research Institute for Forestry, Agriculture and Livestock—*Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias*) in Yucatan state. The incidence of *H. grandella* and the damage it caused were evaluated before and after the implementation of various vegetation management and integrated control methods. Data were collected on pest incidence by management treatment in three periods: the dry season (January–May), the rainy season (June–October) and annual (January–December). The variables measured were total tree height, height of clean stem, diameter at breast height, survival rates, pest incidence, and location of damage.

**Figure 1: Modelled data on the relationship between accumulated heat units and *Hypsipyla grandella* incidence rate reported at six target sites on the Yucatan Peninsula**




Note: Accumulated heat units = [(maximum daily temperature + minimum daily temperature)/2]-6.

The integrated management of *H. grandella* in the experimental cedar plantation involved the following: organic control (neem), with monthly applications throughout the year, reinforced during the rainy season with a chemical insecticide (Deltamethrin or Novaluron), using both overall clearing and gap-clearing methods. Pest incidence rates were 30% lower than in untreated (control) plots.

## Climatic factors

An exploratory analysis of climatic data found that the incidence of *H. grandella* was correlated most highly (more than 0.70) with rainfall and maximum and minimum temperature and to a lesser extent (more than 0.50) with relative humidity.

The greatest presence of the pest occurred between May and October, when the maximum temperature rose to 30–35 °C and the average minimum temperature rose above 18 °C. High temperatures, monthly rainfall above 45 mm and stable relative humidity may lead to the presence of *H. grandella* on more than 10% of trees in a plantation.

Using data collected by the project and the equation given in Figure 1, the number of "accumulated heat units" (hours of heat) was calculated, and linear model adjustment and transformation tests were carried out to determine the

**Table 1: Products and practices effective in controlling *Hypsipyla grandella***

| Category | Product/management practice |
|---|---|
| Chemical control | Novaluron (a chemical with pesticide properties belonging to a class of insecticides known as insect growth regulators. Novaluron is a benzoylphenyl urea and has been used on food crops, including apples, potatoes, brassicas, ornamentals and cotton) |
| Biological control | *Beauveria bassiana* (an entomopathogenic fungus that grows naturally in soils throughout the world and acts as a parasite on various arthropod species. It is used as a biological insecticide to control pests such as termites, thrips, whiteflies, aphids and beetles) |
| Organic control | Neem (an extract from *Azadirachta indica*, an evergreen tree endemic to the Indian subcontinent) |
| Silvicultural control | Overall clearing |
| | Clearing of gaps |
| | Control pruning (i.e. to control existing infections) |
| | Shape pruning (to reduce the risk of infection) |
| | Selection of resistant genotypes |
| | Application of Bordeaux mixture (a combination of copper sulphate and lime) on stem |

**Table 2: Phytosanitary and silvicultural practices for the integrated management of *Hypsipyla grandella* in Meliaceae plantations on Mexico's Yucatan Peninsula**

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sept | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Organic control (Neem) | | | | | | | | | | | |
| | | | | | Chemical control (Deltamethrin or Novaluron) | | Chemical control (Deltamethrinor Novaluron) | | Chemical control (Deltamethrin or Novaluron) | | Chemical control (Deltamethrin or Novaluron) |
| Control pruning | | | | | | | | | | | |
| | | Shape pruning | | | | | | | | Shape pruning | |

relationship between the incidence of infection and minimum and maximum daily temperature (Figure 1).

With the data obtained from the first main component and the inclusion of other variables such as rainfall and evaporation, a prediction model of incidence rates was generated with an adjusted coefficient of correlation ($R^2$) of 0.95.

## Conclusion

The various pest control methods tested in the project are either insufficient on their own to maintain pest populations below acceptable damage levels, or they are very costly for producers. A combination of methods is therefore recommended for the integrated management of *H. grandella.*

An effective integrated management approach involves the application of neem extract throughout the year, at a maximum application of twice per month, and the use of additional chemical controls (either Deltamethrin or Novaluron) in the rainy season. On the Yucatan Peninsula, this means the application of these pesticides in June, August, October and December.

Silvicultural practices should also be integrated into the process. Pruning to achieve good shape should be conducted in March and November (when the presence of the insect decreases). Pruning to control the pest should be conducted as required throughout the year, based on the visual identification of attacked plants in inspection tours. This combined method, together with the appropriate application of neem and other pesticides, should keep insect attacks below 30% of trees in established Meliaceae forest plantations (considered to be an acceptable level of control). This integrated management approach reduces the need for chemical pesticides, thus reducing the environmental impact and safeguarding the benefits obtained by communities from environmental services.

Table 2 shows a proposed schedule for the integrated management of *H. grandella* in cedar plantations on the Yucatan Peninsula.

Although the integrated pest management process should begin in the nursery with the selection of the best germplasm available (i.e. trees with a high tolerance of, or resistance to, the pest), ongoing monitoring is the key to success. The application of the various pesticides should be intensified or reduced according to the presence of the pest.

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# Interview with Emmanuel Ze Meka

***ITTO's recently retired executive director shares his thoughts on the future of forests in Central Africa***

Emmanuel Ze Meka. *Photo: Earth Negotiations Bulletin*

**Question: You were born in Cameroon and grew up near forests. What are your childhood memories of your local forests?**

**Emmanuel Ze Meka:** My parents were farmers and I was involved in many activities in the forest, such as cash-crop farming, mainly cocoa, and food-crop farming, such as cassava and ground-nut. I also accompanied my father to trap wildlife for our family's consumption. At that time, wildlife was very abundant in the forest, and bushmeat represented a sizable part of our diet. I also accompanied my father to go fishing. Our trips in the forest were very enjoyable and exciting, as on the way we could collect nuts, barks, mushrooms and, when the season was appropriate, caterpillars. The forest was the centre of our life and it provided generously what we needed, even medicine.

**How have things changed near your childhood home?**

Now wildlife is scarce because of the use of guns. During my childhood, we used to set traps with forest rope. Certain types of mushrooms are disappearing, for example those we used to collect around the rivers, as those areas are now being used for commercial maize farming. Trees that were attracting caterpillars are being cut indiscriminately. Rivers are drying up.

**What are the threats to forests in Central Africa, and what should be done?**

One of the threats to forests in Central Africa is the steady conversion of forests for the development of industrial plantations, in particular rubber and oil-palm plantations. However, we have to recognize that these plantations create jobs and provide substantial revenues to the countries concerned. What is lacking is land-use planning. The apparent sentiment is that the investors can do what they want wherever they want, for instance without consideration of high-conservation-value areas, or the interests of local communities. What is important is appropriate and enforceable land-use planning, so that forests that should be preserved as forests are determined and appropriate measures put in place to ensure their integrity. The level of conversion should be discussed with the involvement of all stakeholders, including local communities.

Another threat is illegal logging by forest companies in the formal sector and—mainly—the informal sector. It is reported that in some countries in Central Africa, the informal sector supplies a sizeable amount of timber that is locally commercialized or exported. Forest law enforcement is needed to tackle the issue of illegal logging from both the formal and informal sectors. In this sense it is good news to know that many countries in Central Africa are engaged with the European Union in voluntary partnership agreements, which should reinforce their capability to enforce forestry laws.

Population growth has a big impact too, particularly in the Democratic Republic of the Congo [DRC] and Cameroon. Farming technologies are not yet advanced, and more and more forests are needed for conversion to agriculture to feed the increasing population. The issue of unsustainable fuelwood collection is also linked to this population increase, as it is the main source of energy for most households. Slowing the rate of population increase is not easy and it is a long-term process, and the situation seems out of hand in some countries, such as DRC. Therefore, the solution will depend on the development and dissemination of improved farming techniques supported by appropriate technologies. If alternative ways to efficiently produce more food per hectare are not found, forests will continue to shrink. Agricultural research is necessary to progress towards that end, as well as the use of fertilizers to improve agricultural production.

Although progress is slow, we can see that some countries in Central Africa are determined to conserve their forests. Some

have ambitious programs for biodiversity conservation. Others are very active in climate-change negotiations or have made steady progress in increasing independently certified forests. Let's hope that this awareness will lead to more progress in the future towards the noble objective of sustainable forest management [SFM].

### Many people in Central Africa are poor. Can SFM improve their welfare and well-being?

Yes, it certainly can. Achieving the welfare and well-being of people in Central Africa will require that three pillars are properly addressed: economic sustainability, ecological sustainability and social sustainability. SFM puts these three pillars in place. It provides local people with jobs and decent salaries in timber harvesting and timber processing, so they can buy food they cannot produce themselves and purchase other things they need.

People in Central Africa can benefit from well-managed forests in other ways, too. They can sustainably collect many non-timber forest products, such as nuts, mushrooms, various barks and fruits, caterpillars and snails, and sell them in the market. Other sources of income are ecotourism in areas rich in biodiversity, and maybe REDD+ payments for forest conservation and SFM. SFM will prevent negative environmental impacts on the populations and will provide them with many ecosystem services for their well-being, such as clean water, clean air, flood prevention and healthy biodiversity, including medicinal plants for their use.

### Militia are involved in killing elephants for the international trade in ivory. What is needed to stop the killing and to stop the trade?

The first measure should be the enforcement of the trade ban on ivory. Where there is no market, the supply will die out. CITES should be given enough resources to perform its mission, and collaboration with countries where markets of illegal ivory are located should be strengthened. Collaboration with local communities is also essential, as they can alert regular authorities on the activities of the poachers. Forestry guards in protected areas should be well equipped and in sufficient number, and, where necessary, they could be assisted by regular armed forces.

### People hunt for bushmeat everywhere, and it's a big threat to biodiversity. Do you see opportunities to reverse this trend?

I think we have to consider two different situations: hunting for personal consumption, and hunting for commercial purposes. Local communities derive the essential part of their protein from wildlife. This personal consumption does not represent a great threat to conservation, and such communities would certainly not like the situation to change. Hunting for commercial purposes is more devastating and should be controlled by the appropriate authorities. This type of control, with the support of NGOs [non-governmental organizations], is becoming very effective in some countries, such as Cameroon, where the NGO "Forest Ecosystems of Central Africa" is very active. The solutions here are to raise awareness and to enforce the forestry law.

**Wildlife monitor:** Local communities in Central Africa derive the essential part of their protein from wildlife, and this personal consumption does not represent a great threat to conservation, says Emmanuel Ze Meka. *Photo: J. Blaser*

### Global pressure on natural resources in Central Africa is huge. How can illegal logging be reduced?

In Central Africa, most forests belong to the state. Most governments are operating in a very centralized political system, which leaves little room for provincial governments to take decisions on forest resource allocation. So the commitment of the states—the national governments—to manage their forests sustainably is very important. In view of this, the intergovernmental organization COMIFAC [*Commission des Forêts d'Afrique Centrale*] has developed a strategic plan detailing several actions to be taken with regard to SFM. Illegal logging and illegal trade, for instance, often involve forest companies licensed in one way or another by government. Governments have to enforce the laws so that these companies manage their concessions sustainably.

Another element that fuels illegal logging and illegal trade in Central Africa is the operation of the informal sector, which plays a very important role in timber harvesting and timber trade in Central Africa. Although the state has a responsibility in this situation, it is also important to have the support of local communities. We are witnessing the emergence of community forestry in some Central African countries, but the move is still very timid and most of the time hijacked by the elites.

### Can banks or other financial institutions play a role in keeping forests in Central Africa standing?

Banks certainly have a role to play. They have to understand the forestry laws and be choosey on projects and the forest companies they support. Supporting responsible forest companies will help promote SFM and bring related benefits. Supporting irresponsible companies will promote illegal activities, fuel illegal logging and conflicts with local communities, deprive local communities and the state of forest revenues, and increase negative environmental impacts. Supporting irresponsible companies will also give them an unfair advantage in the marketplace. Banks, particularly development banks, can assist countries in Central Africa

to undertake structural reforms. Banks could also consider schemes to finance smaller-scale initiatives towards SFM than the mega-projects that usually get their attention.

**In the end, isn't it all about cultural and personal values as to whether we are willing to save forests? If you think a change in mindset is necessary, how can this be realized?**

We certainly can see that most problems affecting the conservation of forests are linked to the lack of awareness of their importance, in terms of the benefits they provide, at the local level, the national and the world. Raising this awareness by all means is important. However, we have to recognize that the current generation, mainly guided by the search for quick profits, feels it difficult to make the necessary changes. In these circumstances, in addition to raising the awareness of the current generation on the importance of conserving forests, forestry education should be promoted among the younger generation. Having future leaders who can fully appreciate the importance of forests will create a very strong commitment to conserve forests. This is true for Central Africa, as it is for the rest of the world.

**Can the traditional knowledge of people living in the forest contribute to the conservation of forest fauna and flora?**

Traditional knowledge is very important for the conservation of forests in Central Africa. Local communities have been living in harmony with forests for a long time. They know the direct benefits they can derive from forests, such as fruits, barks, leaves and roots, and they would like to protect the species that produce those. They know the trees that are suitable for caterpillars and they would like to preserve them. They know the trees that are used for traditional medicine and they would like to keep them standing. They know the micro-ecosystems that are favourable to produce mushrooms. In addition, they know the trees that you should not cut for spiritual purposes. Unfortunately, people who know how to use forest products for traditional medicine are disappearing, most of the time without transferring their traditional knowledge to the young generation.

**Can you imagine a Central Africa without forests?**

No, that's impossible for me. Forests are what make Central Africa. All the marks the people know would have disappeared, there would be no trees, no animals, no resources that usually come with them. The food style would change, and food availability would be substantially reduced, rivers would have dried out, etcetera. People would feel like they were living in another world. At the global level, we would have lost the second lung of the planet, and the world climate would certainly face dramatic consequences.

*This is an edited version of an interview with Mr Ze Meka conducted by Meindert Brouwer, the full version of which is contained in Mr Brouwer's forthcoming book,* Central African Forests Forever/Forêts d' Afrique Centrale Pour Toujours *to be published in early 2016. For more information on the publication contact Mr Brouwer at meindertbrouwer@planet.nl.*

# Council report

***Members pledge a further US$3.7 million for tropical forests at the most recent session of the International Tropical Timber Council and take measures to increase transparency***


**Gavel action:** Outgoing chair Dr Bin Che Yeom Freezailah closes the 51st session of the International Tropical Timber Council, alongside incoming chair Jennifer Conje (left) and Dr Steven Johnson, ITTO Officer-in-charge. *Photo: IISD/ENB (www.iisd.ca/forestry/itto/ittc51/16nov.html)*

The International Tropical Timber Council announced new funding of US$3.7 million at its 51st session in Kuala Lumpur on 16–21 November 2015 for ITTO's Biennial Work Programme 2015–2016, project work, and the Freezailah Fellowship Fund. It also made several decisions addressing organizational transparency.

Activities funded under the Biennial Work Programme during the session include work on criteria and indicators for sustainable forest management, ITTO's involvement in the Collaborative Partnership on Forests, the participation of the Civil Society Advisory Group and the Trade Advisory Group in ITTO, and the ITTO-CITES programme for implementing CITES listings of tropical timber species.

Funding for a project to promote intra-African trade in tropical timber and timber products was announced at the session, while two projects in Guatemala and Myanmar were partly funded and will likely commence next year when interest from other donors can be confirmed.

The Council also reviewed applications for ITTO Fellowships and awarded 18 such fellowships at a value of US$100 000.

The Council took a decision to commission an immediate investigation into ITTO's investments and financial management following the write-off of US$6 million by the Organization due to an investment possibly made in contravention of ITTO's Financial Rules and of provisions laid down by the Committee on Finance and Administration. Additional investments of about US$12 million may also have contravened these rules and provisions. An oversight committee, formed to oversee the investigation, will submit its report to the Council Chairperson by mid-April 2016.

Another transparency-related Council decision addressed the admission of observers to sessions of the International Tropical Timber Council, recognizing the important role that observers play in bringing new issues, perspectives and concerns regarding tropical forests to the attention of ITTO members. The decision also confirmed the Council's intention to ensure that its sessions are transparent and that its work continues to be disseminated to all stakeholders. It amends the process by which observers will be admitted to sessions in the future.

A third transparency-related decision renewed the mandate of the Council's Informal Advisory Group, which provides guidance to the Chairperson intersessionally and during sessions.

A key topic on the agenda of the Council at its 51st session was the appointment of a new Executive Director for the Organization. After a week of intense negotiations, however, no selection was made, and the Council decided to restart the selection process and to re-announce the vacancy (see vacancy announcement page 27).

During the session the Council approved several new projects and reviewed the implementation of ongoing projects in the fields of forest management, statistics, economics and markets, and forest industries. The Council received ex-post evaluations of several projects, including on the participatory management of non-timber forest products in Indonesia and community-based forest fire management in Ghana. It reviewed the implementation of the Biennial Work Programme 2015–2016, including strategic priorities on promoting good governance and building human capacity to implement sustainable forest management. The Council also discussed ways to enhance cooperation between ITTO and CITES and between ITTO and the Convention on Biological Diversity.

The 2015 Annual Market Discussion, organized by the Trade Advisory Group, was held on the theme of "raising the profile of tropical timber in the market place" (see box page 19). The Civil Society Advisory Group organized a side-event

on land conversion and tree plantations in the permanent forest estate, and the European Union and ITTO held a side-event on the Independent Market Monitoring mechanism for legal timber.

Donors at the 51st session of the Council were the governments of the USA and the Republic of Korea, and the Convention on Biodiversity also provided funding through its Forest Ecosystem Restoration Initiative. The governments of Japan, China and the European Union were intersessional donors. At the session, the governments of Germany and Japan expressed hope that they could continue to provide support to ITTO in 2016 pending a satisfactory outcome of the investigation into ITTO investments and financial management.

The Council is ITTO's governing body. It meets at least once a year to discuss wide-ranging issues aimed at promoting sustainable tropical forest management and the trade of sustainably produced tropical timber. The 52nd session of the Council is scheduled to take place in Yokohama, Japan, on 7–12 November 2016.

*For more information on ITTO and the 51st session of the Council, go to www.itto.int. Daily coverage of the 51st session of the Council by the Earth Negotiations Bulletin, and a final report, are available at www.iisd.ca/forestry/itto/ittc51.*

### Website on lesser-used species launched at www.tropicaltimber.info

ITTO launched a website dedicated to expanding the use of lesser-used species at the 51st session of the International Tropical Timber Council in November. The aim of the new website, which is targeted at timber businesses and consumers, is to facilitate access to existing technical information about species availability, wood properties, uses and processing into value-added wood products.

The website enables smart searches of:

- tropical timber species by use, properties and substitution;
- timber availability and sourcing;
- tree and wood identification;
- species distribution and abundance; and
- certified forests, with contact data.

The website also contains information and contacts for producers and consumers, including:

- a virtual technical library and classic publications;
- a multilingual search facility of ITTO projects and links to ITTO statistics and publications; and
- consumer tips and education.

*For more information go to www.itto.int or www.tropicaltimber.info.*

## Recently funded projects and activities

**Development of intra-African trade and further processing in tropical timber and timber products—Phase I, Stage 1**

**Project no.:** PD 700/13 Rev.2 (I)

| **Budget:** | | |
|---|---|---|
| | ITTO | US$1 399 989 |
| | **Total** | **US$1 399 989** |

**Donors:** Japan

**Aim:** To address the main identified constraints to the expansion of further processing of tropical timber into value-added products and trade development, particularly through intra-African trade, with nine areas of action: 1) facilitation of trade; 2) elaboration and implementation of national strategies for industrial and trade development; 3) business development in pilot enterprises; 4) improvement of market transparency; 5) trade promotion measures; 6) training; 7) strengthening of national industry and trade associations; 8) innovative financing; and 9) technology transfer. Implementation will involve the engagement of stakeholders and close cooperation with identified international, regional and national partners in the private and public sectors. The activities will be implemented in a logical sequence divided between two three-year phases to ensure mainstreaming and the sustainability of impacts. Phase I is divided into two stages, of which the first focuses on three pilot countries and the strengthening of capacities in industry and trade development.

**Development of a forest landscape restoration program for Guatemala based on ITTO guidelines**

**Project no.:** PD 765/14 Rev.2 (F)

| **Budget:** | | |
|---|---|---|
| | ITTO (partial funding) | US$100 000 |
| | Outstanding | US$501 994 |
| | **Total** | **US$601 994** |

**Donor:** The Convention on Biodiversity through its Forest Ecosystem Restoration Initiative

**Aim:** To improve forest landscape restoration actions through the implementation of a forest restoration mechanism based on ITTO guidelines with the broad participation of key stakeholders. The activity will be implemented in prioritized strategic ecosystems—cloud forests, dry forests, pine-oak forests and mangrove forests—identified in the Forest Restoration Map developed by the Forest Landscape Restoration Board, encompassing 3 989 465 hectares.

**Capacity building for strengthening transboundary biodiversity conservation of the Taninthayi Range in Myanmar**

**Project no.:** PD 723/13 Rev.2 (F)

| **Budget:** | | |
|---|---|---|
| | ITTO (partial funding) | US$40 000 |
| | Outstanding | US$559 962 |
| | **Total** | **US$599 962** |

**Donor:** Republic of Korea

**Aim:** To address the problem associated with limited national capacity and resources in biodiversity conservation and the ineffective conservation of forest ecosystems and biodiversity in Myanmar's Taninthayi Range. Expected outputs include: increased capacity in national institutions to design and implement sustainable biodiversity conservation, monitoring and research in the Taninthayi Range; establishment of initial institutional mechanisms for transboundary biodiversity conservation in protected areas in the Taninthayi Range; and the strengthening of local stakeholder participation and the livelihoods of forest-dependent local communities in the transboundary biodiversity conservation areas.

**Continue to monitor progress in the application of criteria and indicators (C&I) for sustainable forest management**

**Budget:** US$40 000
**Donor:** USA

**Aim:** To participate in international C&I-related meetings, discussions and initiatives, including the Collaborative Partnership on Forests Task Force on Streamlining Forest Reporting; initiatives to take advantage of synergies between ITTO and FAO in forest reporting (i.e. Status of Tropical Forest Management and the Global Forest Resources Assessment, including the Collaborative Forest Resources Questionnaire); and relevant meetings of other C&I processes.

**ITTO–CITES Programme for Implementing CITES Listings of Tropical Timber Species**

**Budget:** US$1 570 468
**Outstanding:** US$418 659
**Donors:** European Union, USA and China

**Aim:** To assist tropical countries in formulating forest management plans, conducting forest inventories, providing guidelines and generating case studies for making "non-detriment findings" for CITES-listed tree species, and to develop and disseminate tools for timber identification.

**Coverage of ITTC session by the Earth Negotiations Bulletin**

**Budget:** US$5 000
**Outstanding:** US$45 000
**Donor:** USA

**Aim:** To provide coverage of important developments for the tropical forest sector to be discussed at the 52nd session of the International Tropical Timber Council in Japan in November 2016.

**Consider advice from and facilitate involvement of the Trade Advisory Group (TAG) and the Civil Society Advisory Group (CSAG)**

**Budget:** US$30 000
**Donors:** USA

**Aim:** To encourage the active and meaningful participation of TAG and CSAG members in the sessions of the International Tropical Timber Council.

**Continue to provide for ITTO's cooperation and consultation with the Collaborative Partnership on Forests (CPF) in support of the United Nations Forum on Forests (UNFF) and other relevant international and regional organizations, institutions and initiatives**

**Budget:** US$25 000
**Outstanding:** US$25 000
**Donors:** USA

**Aim:** To enable ITTO's effective participation in the work of the UNFF and the CPF.

**Decide on eligible Fellowship applications in 2016 based on the recommendations of the Fellowship Selection Panel**

**Budget:** US$235 000
**Outstanding:** US$165 000
**Donors:** USA, Bali Partnership Fund, Subaccount B

**Aim:** To award ITTO Fellowships to suitable applicants.

**ITTO investments and financial management**

**Budget:** US$250 000
**Donors:** Working capital account

**Aim:** To improve transparency in ITTO's financial management.

## Tropical timber gets better rap in market place, and time now right to raise its profile, says 2015 Annual Market Discussion

Perceptions of tropical timber have improved immensely in recent years, according to speakers at the International Tropical Timber Council's Annual Market Discussion, held as part of the Council's 51st session.

The Annual Market Discussion, which was organized by the Trade Advisory Group, received presentations from leading industrialists and specialists as well as from James Gasana, a consultant, on strengthening the participation of the private sector in advancing ITTO's objectives.

In a statement, the Trade Advisory Group said the time was now right for tropical timber traders to raise the profile of their products in the marketplace and to challenge the market share taken in recent years by competitors and alternatives. The tropical timber sector had demonstrated that it can verify the legal credentials of its products; now it needed to get that message out to the professionals—the architects, engineers and designers who specify and use wood.

The Trade Advisory Group has been urging the International Tropical Timber Council to forge stronger partnerships with the private sector as a way of furthering its objectives. In 2014, it suggested exploring innovative ideas for a strategy that would better harness the timber private sector by "blending" private-sector expertise and ITTO resources.

The report prepared by Dr Gasana summarized initiatives that other international organizations have embarked on with the timber-related private sector and indicated how ITTO could develop such a strategy.

"The lack of a strategy for a private-sector partnership is clearly in contrast with the expectations of both ITTO and the private sector for cooperation in achieving the priorities of successive ITTO Action Plans," said Dr Gasana in his presentation. "There is therefore a strong case for improving the situation by building a better defined and more innovative partnership."

## Fellowship awardees

The following 18 people received ITTO Fellowships at the 51st session of the International Tropical Timber Council: Ms Tanzeem Fatima (India), Dr Merlin Simo Tagne (Cameroon), Ms Nchang Che (Cameroon), Ms Marie Flavie Kalombo (Republic of the Congo), Ms Marguerite Deguenon (Benin), Mr Marshall Alhassan Adams (Ghana), Mr Abalo Essoyodina Tchamdja (Togo), Mr Andes Hamuraby Rozak (Indonesia), Ms Phyu Phyu Lwin (Myanmar), Ms Khaing Thandar Soe (Myanmar), Ms Elizabeth Carig (Philippines), Ms Hoa Hong Thi Dao (Viet Nam), Mr Eduardo José Chacón (Costa Rica), Ms Maria de Jesus Olea Resendiz (Mexico), Mr Efraín Payán Cázares (Mexico), Ms Daniela Katherine Requena Suarez (Peru), Mr Miguel Ángel Laurente Cajacuri (Peru), and Ms Aoife Bennett-Curry (Ireland).

Seven of the awardees will be taking short courses, nine will be undertaking postgraduate studies, and two will be using their Fellowships to publish technical documents.

# Fellowship report

***A study undertaken with assistance from an ITTO Fellowship provides insights into tropical forest management in Mexico***

**by Claudia Heindorf**

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Of all the forest types, tropical forests contain the largest carbon reserves, and their management therefore plays an important role in climate-change mitigation and adaptation. However, sustainable forest management approaches are poorly investigated and documented in Mexico.

International initiatives such as REDD+ and forest carbon markets are providing new impetus for information and knowledge on forest management approaches that increase carbon capture and storage in Mexico's forests. This article reports on a study undertaken through an ITTO Fellowship to review the status of tropical forest management in Mexico. The aim of the study was to contribute to discussions on appropriate measures for ensuring the social, economic and ecological functions of tropical forests while optimizing their role in climate-change mitigation and adaptation.

## Methods

Data and information were obtained from three main sources: 1) a literature review of silvicultural practices in Mexico's tropical forests; 2) field visits to five forest communities and *ejidos*[1] (Figure 1 shows the locations of these forest communities and *ejidos*); and 3) interviews with forest technicians and local experts in meetings outside the forest communities and *ejidos*.

## Selective harvesting and minimum cutting diameter

In Mexico, as in most tropical forests, harvestable trees are selected according to defined minimum diameters at breast height (Fredericksen 2001). For example, minimum cutting diameters of 50 cm and 55 cm have been defined for the high-value hardwood species of mahogany (*Swietenia macrophylla*) and Mexican cedar (*Cedrela odorata*). Other common tropical timber species have minimum cutting diameters of 30–35 cm. The cutting cycle is the planned time interval between harvesting operations in a given stand, defined according to the current annual diameter increment of the most representative tree species in the stand. More than half a century ago, Maderas Industrializadas de Quintana Roo, a forest company in southern Mexico, specified a cutting cycle of 25 years in its management plan, and this periodicity is still commonly applied in the region.

Selective harvesting based on minimum diameter cutting limits can benefit forest biodiversity and soil conservation because it implies a relatively low harvesting intensity (Putz and Pinard 1993). Moreover, it is a relatively simple method for controlling harvest intensity, and it is well known and commonly accepted in forest communities and *ejidos* (Synott 2007). Many forests, however, lack sufficient numbers of trees above the minimum diameter to ensure sustainable production, perhaps due to overexploitation or natural disasters in the past.

1 Forest communities are collective owners of forests and forest resources who manage those lands and resources according to their own traditions and customs. *Ejidos* are farmer communities with certain use rights to forests and other lands, although *ejido* land remains state property.

**Figure 1: Location of field visits, Mexico**

Communities and *ejidos* have the right to modify minimum cutting diameters, but the government agency that authorizes forest management plans, SEMARNAT, rarely recognizes this right. Minimum cutting diameters were originally devised according to market demand for trees with larger diameters; today, however, the timber industry is capable of making use of trees with significantly smaller diameters. On the other hand, some experts favour larger minimum diameters as a way of ensuring sustainable forest management and avoiding overexploitation (Synott 2007). A further criticism of the existing approach is that the cutting cycle of 25 years is not based on inventory data (which is still lacking today): Snook (2003) demonstrated that a cutting cycle of 25 years is insufficient to guarantee a harvestable volume of valuable timber species like mahogany in a proportionally constant quantity over the long term. Indeed, a decreasing volume of harvestable mahogany trees could be observed at several visited sites in this study.

## Promotion and conservation of natural regeneration

The extent of natural regeneration is a key factor in ensuring future forest productivity. The optimal use of natural regeneration requires consideration of a range of factors, such as clearing size, harvest period, seed distribution and the retention of seed trees.

### Clearing size

Clearings caused by logging operations (e.g. tree-felling, skid trails and log landings) can provide favourable environments for the next generation of trees. The most valuable species in tropical forests in Mexico, such as mahogany, cedar and ciricote (*Cordia dodecandra*), are late-pioneer species. Argüelles (1991) observed in *ejido* Noh Bec that selective harvesting does not create sufficient disturbance for the regeneration of mahogany, favouring instead shade-tolerant species, thus changing species composition over time. Snook and Negreros-Castillo (2004) found that the natural regeneration of mahogany requires severe disturbances; they showed that mahogany regeneration benefits from natural disasters such as hurricanes and fire and survives and grows best in clearings larger than 5000 $m^2$. Log landings (*bacadillas*) provided the most suitable areas for the regeneration of shade-intolerant species, although compacted soil due to

heavy machinery, and rapid colonization by weed species, might be problems. Canopy openings larger than 500 $m^2$ can promote weed invasion, thus hindering the regeneration of desired tree species (Sist et al. 2003). Larger clearings also favour carbon loss, which would be contrary to a forest management strategy seeking to mitigate climate change.

A method for promoting the establishment of high-value shade-intolerant species is slashing and burning remaining vegetation on harvested sites (Snook and Negreros-Castillo 2004). Such a method is similar to ancient Mayan land-use techniques and can promote ecological and biological conservation (Gomez-Pampa 1987).

### Natural regeneration and harvest time

Anemochorous tree species (i.e. species whose seeds are dispersed by wind) such as mahogany obtain maximum dispersal in the dry season (Howe and Smallwood 1982). Snook (2003) observed that, in the Yucatan Peninsula, many mahogany trees are harvested in the first months of the year, but seed dispersal begins later (March/April); timing, therefore, can limit the contribution of harvested trees to natural regeneration. Snook (2003) advised the scheduling of harvesting operations in April and at the beginning of the rainy season. Zoochory tree species (the seeds of which are dispersed by animals), such as *Ficus* species, breadnut (*Brosimum alicastrum*) and hog plum (*Spondias mombin*), produce seeds at the end of the rainy season. Convincing communities to wait until the end of the rainy season before they harvest might be difficult because access to harvesting sites can be challenging at that time. An alternative is to collect seeds a year before harvesting and to disperse seeds artificially after harvesting.

### Seed dispersal by animals

It is estimated that 51–98% of trees in the upper layers of neotropical forests depend on zoochory seed dispersal (Howe and Smallwood 1982). To conserve important seed dispersers such as bats and birds, forests should be managed so as to provide sufficient food sources and habitats for the breeding and nesting of those species. The conservation of fruit trees like *Ficus* species, *Brosimum alicastrum* and *Spondias mombin* should be considered, as well as the exclusion of older and larger trees from harvesting and the retention of dead trees as refuges and nesting places for parrots and toucans (Snook 2003). Some communities reported that they do not harvest trees with bird nests, and they also avoid harvesting trees likely to be hollow.

### Retention of seed trees

Some countries, such as Bolivia and Belize (Fredericksen et al. 2001; Toledo and Snook 2005), require the retention of a certain number of seed trees in the harvested area. This is not the case in Mexico, however. Seed-tree retention is a recognized practice in some forest communities and *ejidos* and often included in their management plans, but, most commonly, all trees above the minimum cutting diameter are harvested. In some places, such as ejido Noh Bec, seed trees are retained close to log landings. In that *ejido*, the local forester also recommends the retention of at least one high-value timber seed tree per 0.25–0.5 hectare.

## Enrichment planting and other forest management activities

### Enrichment planting

The objective of enrichment planting is to increase the economic value of a forest by introducing seedlings of useful timber species. In Mexico, the law requires the reforestation of harvested areas if natural regeneration is insufficient. Species commonly used in enrichment planting are mahogany, cedar and ciricote, all of which are long-lived native hardwood species. Some of the visited forest communities and *ejidos* produce seedlings in their own tree nurseries. Enrichment planting can contribute to the maintenance of forest environmental services and help restrict agricultural expansion (by ensuring that forests remain productive). It can also help increase carbon sequestration and accelerate regeneration (Ngo et al. 2013).

**Cleaning:** A forest worker slashes weeds around tree seedlings in an enrichment planting area in Mexico. *Photo: C. Heindorf*

### Intermediate treatments

Intermediate treatments to promote the growth of young tree stands (Burschel and Huss 2003), such as pruning and thinning, are rarely applied in Mexico's natural tropical forests. This is because they are costly and labour-intensive and, in any case, SEMARNAT is reluctant to approve thinning operations because they might involve the harvesting of trees below the minimum cutting diameter. There are few markets for thinning and pruning, although some visited communities have the infrastructure to produce charcoal and small handicrafts and therefore the potential to generate additional income and thereby help pay for operations.

## Reduced impact logging

In Mexico, the General Law of Sustainable Development requires that, in tropical forest areas larger than 20 hectares, measures must be taken to reduce the impacts of logging on soil, water, vegetation and wildlife. One such measure is the removal of lianas from trees selected for logging a few months before harvesting to prevent damage to retained trees and reduce the risk of accidents. *Ejido* Noh Bec has developed an exemplary method for planning roads and skid trails in the forest to minimize damage during harvesting. To protect fauna, trees with bird nests or occupied by other animals are marked and excluded from harvesting. Some protected plant

**Planning harvest operations:** A forest worker uses a global positioning system to determine the geographic coordinates of trees selected for harvesting. *Photo: C. Heindorf*

species are marked to avoid damage during harvesting operations. In other places, the seeds of protected plants are collected, reproduced in nurseries and planted out. The practice in *ejido* Noh Bec is to establish a buffer zone of 20 metres to protect rivers and other water bodies. Nevertheless, more data are needed to determine optimal harvesting times and practices for minimizing negative impacts on wildlife.

## Conclusions and recommendations

Experience in, and data on, sustainable management are scarce in Mexico's tropical forests. The forests attract wide interest—for timber production, biodiversity conservation, and their potential for carbon capture and storage. In recent years, however, public policy and budgets have focused on passive conservation (such as through payments for environmental services), even though Mexico has a trade deficit in timber production of about US$5 billion annually, serious problems with illegal logging and forest degradation, and high unemployment in forest regions (Zúñiga and Ávila 2012).

An important way of addressing such problems is to promote the capacity of forest communities and *ejidos* to harvest forests sustainably, market forest products, and use a range of tree species and diameter sizes commercially. SEMARNAT—the governmental institution responsible for the authorization of management plans—and CONAFOR—which provides financial incentives through various programmes—should encourage innovative silvicultural practices that are cost-effective and labour-intensive and which increase sustainable forest production. More financial incentives, technical support and capacity building are also needed, along with greater understanding of the multiple factors that influence the sustainability of tropical forests. In sum, more effort is needed to promote forest science in Mexico.

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### ITTO Fellowship applications for the 2016 spring cycle

ITTO offers Fellowships to promote human resource development and strengthen professional tropical forestry and related expertise in member countries. The next deadline for applications is 22 February 2016 for proposed activities starting after 15 July 2016. To apply online, visit www.itto.int/feature20/#FellowApp (online applications open from 1 January 2016), or contact Fellowship Coordinator, Ms Kumiko Tanaka, at tanaka@itto.int or fellow-application@itto.int.

# Market trends

***Structural changes in China mean short-term pain for tropical log exporters, but also opportunities***

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This article was compiled from reports prepared for ITTO's Market Information Service.

China—and the impacts that its slower economic growth will have on trade—is on the minds of many tropical timber exporters. From its earlier emphasis on investment and exports as drivers of growth, the Government of China now seeks to sustain economic growth—albeit at a lower level than recently—through domestic consumption. The question the trade is trying to answer is: Will the change of direction increase or reduce demand for tropical timber?

China's double-digit growth rates in the last decade encouraged imports of tropical timber; in the early days, much of this timber ended up as export products such as plywood, flooring and joinery. The exception was imported "redwood" logs, which were used mainly in the manufacture of traditional furniture for domestic consumers.

Today, however, most tropical timber imported by China is consumed domestically. This means that prospects for tropical timber exporters will be influenced most by the spending of Chinese consumers (primarily on new housing and renovations) and by government investment in infrastructure.

Consumer confidence in China has been wobbling. The bursting of the stock-market bubble in the middle of 2015, continued declines in house prices, and the near collapse of the real estate market unnerved everyone and led, among other things, to a drop in timber imports. This weakness should only be short term, however. As this article explores, changes taking place in the Chinese market and in domestic supply will support continued imports of hardwood logs in the longer term.

## Log imports down 14% in first half

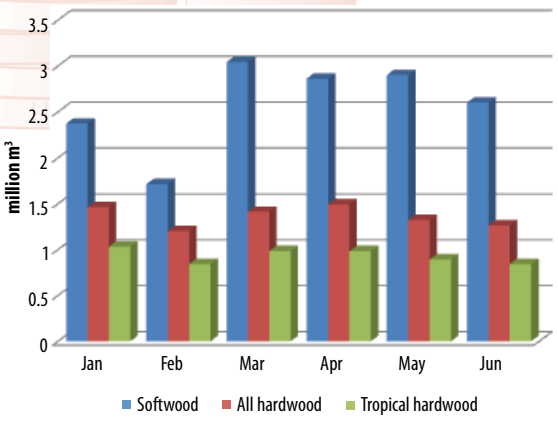
China imported 23.1 million $m^3$ of logs valued at US$4.38 billion in the first half of 2015, down by 14% in volume and by 32% in value compared with the same period in 2014. The average price of imported logs of all types fell by 21% over the half-year. January-to-June imports of softwood logs fell sharply, while imports of hardwood logs were generally flat (Figure 1).

Almost 90% of China's log imports in the first half of 2015 came from 15 countries (Table 1). The volume of log imports fell in the first half of 2015 in eight of those countries compared with the first half of 2014. Of the top five suppliers, the declines in imports of 39% from the United States and 37% from Ukraine were particularly notable.

Ukraine has reported that it will prohibit exports of roundwood and sawnwood for ten years from 1 November 2015 (for pine logs the ban will start on 1 January 2017). The ban is specified in a recently enacted law, which also adds oak to the list of valuable and rare tree species, the export of which is banned.

China's log imports from Japan increased dramatically (by 52%) in the first half of 2015, exceeding log imports from Malaysia (180 000 $m^3$ compared with 110 000 $m^3$)—

**Figure 1: China's imports of softwood and hardwood logs, January–June 2015**




possibly the first time this has occurred in the modern era. China's log imports from Japan are mainly cedar (*Cryptomeria japonica*), which is used in the production of wood-based panels, packaging and pallets.

China's interest in log imports from Japan has grown as the yen has fallen in value against the yuan. There were so many orders from China in mid-year that shipping space became an issue, and logs had to be stockpiled at Japanese ports. Export sales of cedar have been boosted by a government subsidy reportedly as high as ¥700 per $m^3$. Cedar export log prices are around ¥8000 per $m^3$ at Japanese ports.

## Hardwood log imports

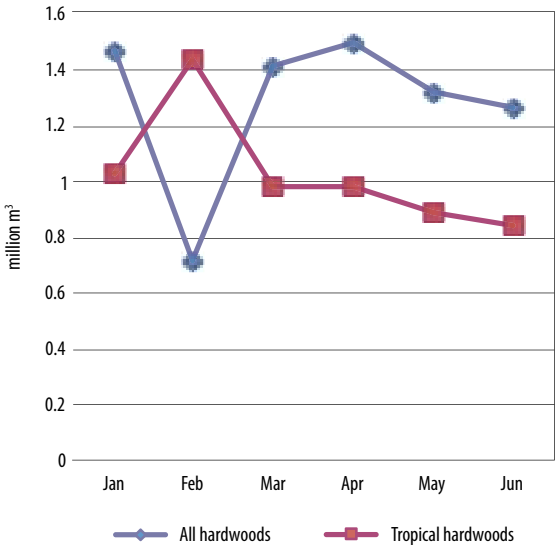
Figure 2 shows China's hardwood log imports in the first half of 2015. China imported 7.66 million $m^3$ of hardwood logs in the period, a year-on-year drop of 3%, and the average price fell by 28%. This large decline in the price of hardwood logs was largely the result of a sharp fall in the volume of redwood imports: China imported 370 700 $m^3$

**Table 1: China's main sources of log imports, January–June, 2014 and 2015**

| | 2014 | 2015 | |
|---|---|---|---|
| | (million $m^3$) | | % change |
| New Zealand | 6.12 | 5.8 | -5 |
| Russian Federation | 5.97 | 5.43 | -9 |
| USA | 3.19 | 1.93 | -39 |
| Papua New Guinea | 1.7 | 1.47 | -13 |
| Australia | 1.26 | 1.27 | 0.3 |
| Canada | 1.47 | 1.26 | -14 |
| Solomon Islands | 0.94 | 1.18 | 25 |
| Ukraine | 0.96 | 0.61 | -37 |
| France | 0.38 | 0.36 | -8 |
| Cameroon | 0.17 | 0.31 | 84 |
| Equatorial Guinea | 0.26 | 0.29 | 11 |
| Mozambique | 0.21 | 0.29 | 35 |
| Nigeria | 0.18 | 0.26 | 46 |
| Japan | 0.12 | 0.18 | 52 |
| Malaysia | 0.4 | 0.11 | -71 |
| **Total** | **23.33** | **20.75** | **-11.1** |

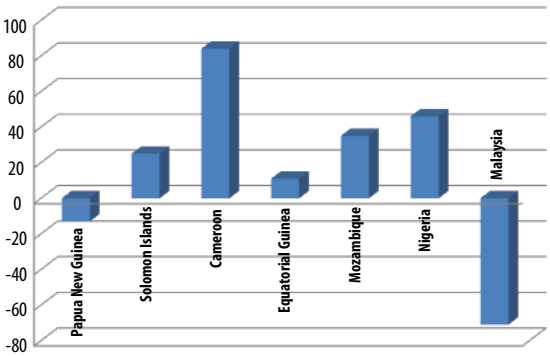
Source: Chinese Academy of Forestry analysis of China customs data.

**Figure 2: Hardwood log imports, China, January–June 2015**




Source: Chinese Academy of Forestry analysis of China customs data.

**Figure 3: Percentage change in the volume of China's tropical log imports, by source, January–June 2014 and 2015**




Source: Chinese Academy of Forestry analysis of China customs data.

of redwood logs valued at US$458 million in the first half of 2015, a year-on-year decline of 64% by volume and 68% by value. The average price of redwood logs fell by 11% over the period.

China's imports of hardwood logs from North America rose by 67% in the first half of 2015, despite a decline in total log imports from the United States. Average prices for North American hardwood logs fell by 21% over the period. The volume of oak imports increased by 30%, but the average price fell by 13%.

## Tropical log imports

Seven tropical countries were among the top 15 suppliers of logs to China in the first half of 2015. The sharp year-on-year fall in imports from Malaysia (-71%, Figure 3) was the result of reduced harvests in Sarawak and the redirection of log exports from Sarawak to the Indian market—which, unlike China, remains buoyant.

The volume of China's log imports from Papua New Guinea declined by 13% in the first half of 2015, year on year. On the other hand, log shipments from Cameroon to China almost doubled, from around 170 000 $m^3$ in January–June 2014 to more than 300 000 $m^3$ in the corresponding period in 2015. The volume of okoume log imports increased by 6% in the first half of 2015, but the average price fell by 15%.

## Softwood imports

China imported 15.4 million $m^3$ of softwood logs in the first half of 2015, a year-on-year decline of 18%, and the average price fell by 19%. For example, import volume fell by 31% for Scots pine logs and by 26% for spruce and fir logs, and prices also declined for these species as well as for Douglas fir and radiate pine logs. On the other hand, the volume of larch log imports rose by 22% in the period, although average FOB price for this species fell by 15%.

## Ending commercial logging in natural forests

The decision by the Government of China to end commercial logging in its natural forests by 2016 will have a big impact on the availability of hardwoods and will boost imports, especially of higher-value species.

The scaling back of commercial logging will be implemented in three stages. The first stage will be piloted by state enterprises in state-owned forests in the Northeast and Inner Mongolia regions. This will remove an estimated 2.56 million $m^3$ of logs from the supply chain per year.

In the second phase, commercial logging will be halted in natural forests and non-natural forests in protected areas. In the third phase, to be implemented by the end of 2016, all commercial logging in natural forests will be halted.

China began its Natural Forest Protection Programme 16 years ago, but forests in 14 provinces were not included in the programme at that time. Effectively, this meant that only 64% of the total area of natural forests was included in the programme, and some 50 million $m^3$ of logs was harvested annually in natural forests. The new law encompasses all natural forests, amounting to an estimated 198 million hectares.

The loss of such a huge volume of mostly hardwood logs from China's supply chain will widen the gap between domestic supply and demand. To address the gap, there are plans to establish 14 million hectares of new forests by 2020 capable of supplying an estimated 95 million $m^3$ annually. These new forests, however, will not produce the quality and range of hardwood timbers previously harvested in natural forests or substitute for high-value imported tropical and temperate hardwoods. Demand in China for large-diameter timbers is set to continue, and the ban on commercial harvesting constitutes an opportunity for exporters of quality hardwoods.

**Figure 4: The China Timber and Wood Products Distribution Association's inspection label**


## Changing attitudes in the market place

Recent research shows that Chinese consumers are becoming more interested in environmentally friendly practices and products. Top-scoring environmentally aware consumers in the 2014 Greendex Survey are in the developing economies of India and China, followed by consumers in the Republic of Korea, Brazil and Argentina. Indian and Chinese consumers also scored highest in 2012. The Greendex Survey, sponsored by the National Geographic Society and Globescan Inc., measures green consumer behaviour.[2]

According to the latest Greendex Survey, Chinese consumers are strongly concerned about the environment, with around 70% of respondents saying they try to reduce their environmental impact. This attitude toward environmental sustainability is the result of government action, awareness-raising by non-governmental organizations, and a greater understanding of global issues among the country's growing middle class. In China (as almost everywhere else, too), the rise in green consumer behaviour is tied to the expansion of an informed middle class.

As the Government of China engineers structural changes in the economy towards domestic consumption, wood product manufacturers are responding to middle-class consumer demands. This is driving action to enforce the Convention on International Trade in Endangered Species of Wild Fauna and Flora, developments in domestic certification, industry efforts on supply-chain tracking, and improvements in the quality of goods in the domestic market.

## New standards for wood products

In September 2015, China's Ministry of Commerce released new consumer standards for domestically traded wood products designed to strengthen market management with the aim of driving an upgrade of the wood product manufacturing sector. Enterprises will now be graded on their operating capability, assets and liabilities, facilities, quality and service, market management capacity and the qualifications and skills of personnel. This information will be available to consumers. Complementing this is the China Timber and Wood Products Distribution Association (CTWPDA)[3], which is creating a national traceability and labelling system (Figure 4) for wood products with the aim of improving the credibility of participating enterprises.

## China's "long march to quality" campaign

China's consumption of wood products exceeds 520 million $m^3$ per year, and the value of international trade in timber was almost US$80 billion in 2014. Success in the domestic and international trade has not been problem-free, however. Issues of poor quality, false standards and the use of illegal raw materials have damaged the sector's reputation. A campaign called 'The Long March to Quality" has been launched in China with the aim of protecting the rights of consumers and avoiding further damage to the sector by helping wood product enterprises improve the quality of their products.

The campaign's first phase will focus on the plywood and flooring sectors. Enterprises will be surveyed, and reputable firms will be identified and those considered disreputable will be exposed. Survey teams will be made up of timber experts, academics and senior media representatives. The results will be publicized and provided to appropriate government authorities.

China is a major consumer and exporter of wood products; its 50 000-plus wood product manufacturers employ some 10 million workers. Changes in the Chinese economy are generating short-term pain but, as the focus of growth shifts to domestic consumption and domestic logging bans begin to bite, demand for imported timber will surely expand.

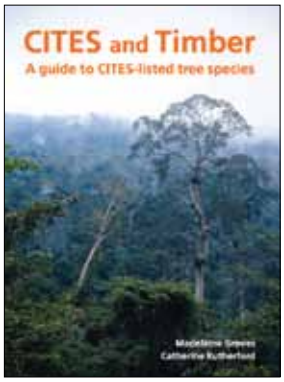
*More information on tropical timber trends and trade is available from ITTO's Market Information Service at www.itto.int/mis_detail.*

1 See: http://images.nationalgeographic.com/wpf/media-live/file/Greendex-Chinese_FINAL-cb1409255255.pdf.

2 www.cnwood.org.

# Recent editions

**Compiled by Ken Sato**




**Groves, M. & Rutherford, C. 2015. *CITES and timber: a guide to CITES-listed tree species*. Kew Publishing/ Royal Botanic Gardens, Surrey, UK.**

ISBN: 978-1-84246-592-9
ISBNe: 978-1-84246-593-6

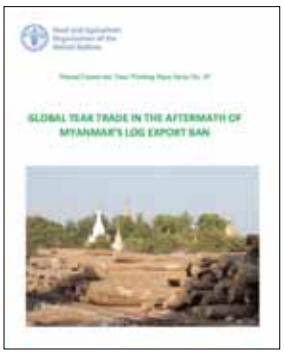
Available at: www.daba.gov.lv/upload/File/Publikacijas/NOT_CITES_koki_EN.pdf

This book introduces the tree species that are regulated under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and provides guidance on key issues in the implementation of CITES with respect to those species. The guide focuses on those woody and tree species for which there is significant trade in their timber and parts and derivatives or are newly listed in CITES. Subjects covered in the guide include where to find information on CITES listings; which parts and derivatives are in trade and whether they are regulated; identification techniques; and where to find more assistance and information.


**Jankowsky, I.P., Galina, I.C.M. & Andrade, A. 2015. *Technical report on the life-cycle assessment for environmental product declarations of ipe and cumaru decking strips produced in Brazil*. ITTO, Yokohama, Japan.**

Available at: www.itto.int/technical_report

This report on environmental product declarations (EPDs) for ipe and cumaru decking in Brazil is the third output of an activity conducted under the ITTO Biennial Work Programme 2013–2014, which stipulated the preparation of EPDs for wood products in each of the three tropical regions.




**Kollert, W. & Walotek, P.J. 2015. *Global teak trade in the aftermath of Myanmar's log export ban*. Planted Forests and Trees Working Paper FP/49/E. FAO, Rome.**

Available at: www.fao.org/forestry/plantedforests/67508@170537

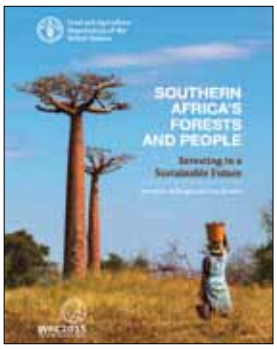
The information in this report on the global trade of teak roundwood and sawnwood is based on national customs data published in the Global Trade Atlas by the Global Trade Information Services according to the product identification codes of the Harmonized Commodity Description and Coding System. The report aims to provide policymakers, decision-makers, investors and managers with a better understanding of the important role that teak plays in the provision of wood products.


**Cadman, T., Eastwood, L., Lopez-Casero Michaelis, F., Narayan Maraseni, T., Pittock, J. & Tapan Sarker, T. 2015. *The political economy of sustainable development*. Edward Elgar Publishing Ltd, Gloucestershire, UK.**

ISBN: 978-1-78347-483-7

Available at: www.e-elgar.com/shop/the-political-economy-of-sustainable-development

This publication features a comprehensive analysis of, and the latest research on, sustainable development. The authors compare divergent approaches to emissions trading, provide a detailed investigation into illegal logging and the effectiveness of policy responses, evaluate forest certification schemes and explore biodiversity offsets and environmental payments. Integral to the book are the opinions of key stakeholders in the political economy of sustainable development.




**FAO 2015. *Southern Africa's forests and people*. FAO, Rome.**

ISBN: 978-0-620-66709-8

Available at: www.fao.org/3/a-i4894e.pdf

This publication analyzes the challenges facing the forest sector in southern Africa and best practices for addressing them. Analyses carried out for each country in the subregion comprise an introduction to the forest sector; key challenges in the sector; best practices, including success stories; and future interventions planned to strengthen the sector and increase its impact.


**Buckingham, K. & Weber, S. 2015. *Assessing the ITTO Guidelines for the Restoration, Management and Rehabilitation of Degraded Secondary Tropical Forests*. ITTO, Yokohama, Japan.**

Available at: http://www.itto.int/news_releases/id=4632

This report reviews restoration activities in project sites in Africa, Asia and Latin America against the ITTO Guidelines for the Restoration, Management and Rehabilitation of Degraded and Secondary Forests. It summarizes the main lessons learned and makes recommendations for the development of a revised framework.

# ITTO vacancy announcement

## ITTO VACANCY ANNOUNCEMENT No. 75

### (DEADLINE FOR APPLICATION: 30 APRIL 2016)

| Position/title | Level (grade) | Duty station | Date for entry on duty | Duration of assignment |
|---|---|---|---|---|
| EXECUTIVE DIRECTOR | ASG | YOKOHAMA, JAPAN | LATE 2016/EARLY 2017 | FIXED TERM: FOUR YEARS (RENEWABLE) |

The International Tropical Timber Organization (ITTO), a commodity organization headquartered in Yokohama, Japan, is in the process of appointing a new Executive Director. The ITTO mission is to promote the expansion and diversification of international trade in tropical timber from sustainably managed and legally harvested forests and the sustainable management of tropical timber-producing forests. The Executive Director is the chief administrative officer of the Organization and responsible to the International Tropical Timber Council for the administration and operation of the International Tropical Timber Agreement, 2006, in accordance with decisions of the Council.

ITTO explicitly encourages applications from qualified female candidates.

Candidates who are citizens of ITTO member countries[1] with the following qualifications may apply:

#### 1. COMPETENCIES

Demonstrates:

(i) Professionalism: professional competence and mastery of subject matter, and conscientiousness and efficiency in meeting commitments, observing deadlines and achieving results.

(ii) Accountability: ability to operate in compliance with organizational rules and regulations and to deliver outputs within a prescribed time, cost and quality standards.

(iii) Communication: ability to communicate effectively orally and in writing. Listens to others, correctly interprets messages from others, and responds appropriately. Openness in sharing information and keeping people informed.

(iv) Networking: ability to create and maintain a network of external contacts and coalitions with other relevant organizations in a manner that enables ITTO to play a leadership role internationally on matters relevant to its mandate.

(v) Leadership: experienced in proactively developing goals and strategies to accomplish the Organization's objectives.

(vi) Vision and innovation: creates an environment that fosters innovation and innovative thinking. Empowers others to translate vision into results.

(vii) Managing performance: delegates the appropriate responsibility, accountability and decision-making authority. Makes sure that roles, responsibilities and reporting lines are clear to each staff member. Monitors progress against milestones.

(viii) Ethical standards: committed to the highest ethical standards in furtherance of his/her mission and the objectives of the ITTO.

(ix) Gender balance: committed to promoting equal opportunities.

(x) Diplomatic and negotiation skills, including experience in working with high-ranking government and industry representatives.

#### 2. PROFESSIONAL EXPERIENCE

(i) Managerial experience: a proven track record and at least 15 years of experience in managing programmes, staff and finances in matters relevant to forestry, trade, environment or other equivalent field with proven experience in strategic planning.

(ii) Specific experience: demonstrated experience in the field of sustainable forest management and timber trade would be a distinct advantage.

(iii) International experience: previous work at the international level and experience in dealing with international organizations.

(iv) Partnership building and fundraising experience: demonstrated experience in creating strategic partnerships/networks and promoting initiatives with partner organizations. Demonstrated experience in mobilization of financial resources would be a distinct advantage.

#### 3. EDUCATION

Master's or PhD degree in forestry, natural resource management and conservation, economics, business administration, or other relevant field.

#### 4. LANGUAGES

Proven ability in both oral and written communication in one of the official languages of ITTO (English, French and Spanish), and preferably a working knowledge of the other two official languages. Good command of English would be a distinct advantage.

#### 5. SALARY AND EMOLUMENTS

Salary is equivalent to that of an Assistant Secretary General in the scale of the United Nations, including benefits such as removal expenses, home leave travel every 24 months, children's education grant, rental subsidies, etc.

#### 6. CONFLICT OF INTEREST

Candidates should have no vested financial interest in the timber industry or timber trade and related activities.

#### 7. APPLICATIONS

Written applications including a cover letter explaining how the candidate meets the required qualifications, a completed United Nations Personal History form (form P.11), a curriculum vitae and additional supporting materials related to the job qualifications and a recent photo should be received at ITTO headquarters by 30 April 2016 at 17:00 hours (Japan time). Applications may be submitted electronically or by mail or fax and should be sent to:

Officer-in-Charge
International Tropical Timber Organization
International Organizations Center, 5th Floor
Pacifico-Yokohama, 1-1-1, Minato-Mirai
Nishi-ku, Yokohama, Japan 220-0012

Tel: +81-45 223-1110
Fax: +81-45 223-1111
Email: vacancy_ed@itto.int

All applications will be acknowledged within two working days of receipt. If applicants do not receive acknowledgement of receipt of their application, it is their responsibility to contact the ITTO Secretariat.

1 www.itto.int/itto_members

# Meetings

**11–15 January 2016**
**66th Meeting of the CITES Standing Committee**
Geneva, Switzerland
Contact: info@cites.org; www.cites.org

**25–26 January 2016**
**Boosting International Trade in Certified Wood Products from Indonesia**
Surabaya, Indonesia
Contact: www.theborneoinitiative.org; sekretariat@theborneoinitiative.org

**26–28 January 2016**
**Biomass & BioEnergy Asia**
Bangkok, Thailand
Contact: www.cmtevents.com/eventschedule.aspx?ev=160102&; friyana@cmtp.com.sg

**28 January 2016**
**3rd Annual Western Forest Industry Conference**
Vancouver, USA
Contact: richard@westernforestry.org or tim@woodprices.com

**28–30 January 2016**
**22nd Annual International Society of Tropical Foresters Conference**
New Haven, USA
Contact: istf.yale.edu/2016-conference

**1–5 February 2016**
**20th Session of the African Forestry and Wildlife Commission**
Venue to be confirmed
Contact: www.fao.org/forestry/afwc; foday.bojang@fao.org

**22–26 February 2016**
**26th Session of the Asia-Pacific Forestry Commission**
Clark Freeport Zone, Philippines
Contact: Patrick.Durst@fao.org; www.fao.org/about/meetings/asia-pacific-forestry-week

**22–26 February 2016**
**Third Asia-Pacific Forestry Week**
Clark Freeport Zone, Philippines
Contact: Patrick.Durst@fao.org; www.fao.org/about/meetings/asia-pacific-forestry-week

ITTO and the World Resources Institute (WRI) will lead Thematic Stream 1: "Pathways to Prosperity: Future Trade and Markets"
Contact: ITTO – Li Qiang at li@itto.int; WRI – Tina Schneider at tschneider@wri.org

**22–28 February 2016**
**4th Plenary Session of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services**
Kuala Lumpur, Malaysia
Contact: secretariat@ipbes.net; www.ipbes.net

**23–26 February 2016**
**European Conference of Tropical Ecology**
Göttingen, Germany
Contact: www.gtoe-2016.de

**1–2 March 2016**
**Changing Dynamics of the Asia-Pacific Wood Trade**
Portland, USA
Contact: logtradetrends.worldforestry.org; swu@worldforestry.org

**10–12 March 2016**
**5th International Conference on Biodiversity**
Madrid, Spain
Contact: biodiversity.conferenceseries.com

**15–16 March 2016**
**Forest Investment Conference**
New York, USA
Contact: events.risiinfo.com/investment-conference; conferences@risi.com

**14–18 March 2016**
**IUFRO Forest Genetics for Productivity**
Rotorua, New Zealand
Contact: www.fgpc2016.nz/fgp16

**16 March 2016**
**ForestWood 2016**
Auckland, New Zealand
Contact: www.pefc.org/news-a-media/event/1919-forestwood-2016

**4–6 April 2016**
**Dubai WoodShow 2016**
Dubai World Trade Center, United Arab Emirates
Contact: info@dubaiwoodshow.com; www.dubaiwoodshow.com

**11–15 April 2016**
**AUSTimber 2016**
Traralgon, Australia
Contact: austimber.org.au

**21–23 April 2016**
**PERCEPTION–PREDICTION–ACTION: Managing risk in uncertain times**
Istanbul, Turkey
Contact: riskanalysis-iufro.org//2016Meeting_Announcement.pdf

**25–27 April 2016**
**First meeting of the Open-ended Intergovernmental Ad Hoc Expert Group of the UN Forum on Forests**
New York, USA
Contact: unff@un.org; www.un.org/esa/forests

**25 April–7 May 2016**
**20th Meeting of the Convention on Biological Diversity Subsidiary Body on Scientific, Technical and Technological Advice**
Montreal, Canada
Contact: www.cbd.int/sbstta

**10–13 May 2016**
**Second Council Session and Second Board Meeting of APFNet**
Siem Reap, Cambodia
Contact: apfnet@apfnet.cn; www.apfnet.cn

**16–17 May 2016**
**Central America Timberland Investment and Wood Trade**
Panama City, Panama
Contact: mferrari@danapanama2016.com

**16–19 May 2016**
**Gene Conservation of Tree Species—Banking on the Future**
Chicago, USA
Contact: www.fs.fed.us/about-agency/gene-conservation-workshop

**20–21 May 2016**
**IUFRO The 4th Forest Science Forum: International Conference of Forest Multi-functional Management**
Nanjing, China
Contact: www.gfsf2010.org/dct/page/70002

**30 May–3 June 2016**
**Genomics and Forest Tree Genetics Conference**
Arcachon, France
Contact: colloque.inra.fr/iufro2016

**1–3 June 2016**
**The Carrefour International du Bois**
Nantes, France
Contact: www.timbershow.com

**2–4 June 2016**
**1st International Symposium of Forest Engineering and Technologies (FETEC 2016): Forest Harvesting and Roading in Environmentally Sensitive Areas**
Bursa, Turkey
Contact: www.timbershow.com

**6–9 June 2016**
**50th GEF Council Meeting**
Washington, DC, USA
Contact: www.thegef.org/gef/node/10940

**19–23 June 2016**
**IUFRO 53rd ATBC 2016: Annual Meeting of the Association for Tropical Biology and Conservation**
Montpellier, France
Contact: plinio.sist@cirad.fr

**21–23 June 2016**
**RISI Asian Conference**
Shanghai, China
Contact: events.risiinfo.com/asian-conference/en

**11–15 July 2016**
**4th International Conference on Soil Bio- and Eco-engineering: the Use of Vegetation to Improve Slope Stability**
Sydney, Australia
Contact: sydney.edu.au/ science/geosciences/soil/index.shtm

**18–22 July 2016**
**23rd Session of the FAO Committee on Forestry**
Rome, Italy
Contact: www.fao.org/unfao/govbodies/gsbhome/committee-fo; Peter.Csoka@fao.org

**15–19 August 2016**
**Conference Secretariat of 15th IPS International Peat Congress**
Kuching, Malaysia
Contact: peat2016@gmail.com; www.ipc2016.com

**29 August–1 September 2016**
**EcoSummit 2016—Ecological Sustainability: Engineering Change**
Montpellier, France
Contact: icp-forests.net/events/ecosummit-2016-ecological-sustainability-engineering-change

**1–10 September 2016**
**IUCN World Conservation Congress**
Honolulu, Hawaii
Contact: iucncongressregistration@spargoinc.com; www.iucnworldconservationcongress.org

**24 September–5 October 2016**
**17th Meeting of the Conference of the Parties to CITES**
Johannesburg, South Africa
Contact: www.cites.org

**12–14 October 2016**
**Mexico's Forestry Expo**
Guadalajara, Mexico
Contact: expoforestal@conafor.gob.mx; www.expoforestal.gob.mx

**24–27 October 2016**
**IUFRO Regional Congress for Asia and Oceania 2016**
Beijing, China
Contact: www.iufro-ao2016.org

**7–12 November 2016**
**52nd Session of the International Tropical Timber Council and Associated Sessions of the Committee**
Yokohama, Japan
Contact: www.itto.int, itto@itto.int

**7–18 November 2016**
**22nd Session of the Conference of the Parties (COP 22) to the United Nations Framework Convention on Climate Change**
Marrakesh, Morocco
Contact: secretariat@unfccc.int

**4–17 December 2016**
**13th Meeting of the Conference of the Parties to the Convention on Biological Diversity**
Cancun, Mexico
Contact: secretariat@cbd.int; www.cbd.int/meetings