TFU

Promoting the conservation and sustainable development of tropical forests

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From liability to asset

Interest in forest landscape restoration (FLR) has grown enormously in recent years, partly because it is an inclusive approach with widespread benefits and partly because of the vast area of degraded land in need of urgent restoration. An estimated 930 million hectares of forest lands in the tropics is degraded. Although this is alarming, it also represents an opportunity to "build back better", make progress towards Sustainable Development Goal 15 (life on land) and facilitate the implementation of the United Nations Decade on Ecosystem Restoration, which starts next year. This edition of the TFU presents new ITTO guidelines to assist in implementing FLR and illustrates how it can be applied.

FLR can transform livelihoods and the environment at the local and landscape scales. If implemented broadly enough, it will also generate global benefits in terms of biodiversity conservation, climate-change mitigation, water quality and other vital ecosystem services. Crucially, local people must be involved because they are the ones who will benefit directly and who must drive the process.

FLR is a complex and fast-developing science and practice, and easy-to-use guides are needed to assist decision-makers and practitioners in putting it into practice. Recognizing this, ITTO—in collaboration with the Collaborative Partnership on Forests, the Asian Forest Cooperation Organization and many other partners working in tropical forests—has now published *Guidelines for Forest Landscape Restoration in the Tropics*. ITTO Executive Director Gerhard Dieterle sets the scene in his article on page 3, and an article by Jürgen Blaser and Cesar Sabogal (page 4) describes the guidelines in detail.

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Editor Ramón Carrillo
Editorial assistant Kenneth Sato
Secretarial assistant Kanako Ishii
Design DesignOne (Australia)
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International Tropical Timber Organization
International Organizations Center – 5th Floor
Pacifico-Yokohama, 1–1–1 Minato Mirai, Nishi-ku
Yokohama 220–0012 Japan
t 81–45–223 1110
f 81–45–223 1111
tfu@itto.int
www.itto.int

Cover image: A healthy forest landscape in the Alto Vale do Itajaí region, Brazil. *Photo: © Wigold Schaffer*

In their article on page 8, Simon Rollinson and co-authors outline an ITTO-funded project in Papua New Guinea that has created a framework for the restoration of degraded landscapes. The project worked with five sets of landowners known as incorporated land groups (ILGs) to help overcome constraints to community-based commercially productive plantings by increasing access to information, providing training on the management of reforestation enterprises, and producing suitable planting stock and other materials. The project convened open days to disseminate information on treegrowing, with a focus on teak combined with agricultural crops to provide ILG members with early returns as their tree assets mature. The ILGs are now developing business plans, including land-use plans and estimates of costs and returns for their reforestation enterprises.

On page 12, Marioldy Sánchez Santivañez and Mario Palomares De Los Santos report on an ITTO project implemented by the Association for Integrated Research and Development (AIDER) to increase awareness of the threats facing Peru's dry forests and to bring stakeholders together to improve the management of this vulnerable ecosystem. Among other things, the project compiled a manual of best practices in dry-forest management. In one province, for example, communities have established agreements with a private organization to protect native species, receiving support for social projects in return. Other initiatives are helping increase family incomes through the commercialization of non-wood forest products such as essential oils, creating an incentive for forest conservation and tree-based FLR.

The article by Sapol Boonsermsuk and co-authors on page 16 presents Thailand's draft new criteria and indicators for sustainable forest management (C&I) designed to assist smallholders in pursuing good forest governance and engaging with the legal timber trade. A recent amendment to Thailand's Forest Act has made it easier for smallholders to establish forest plantations and sell their timber on the market. The new C&I, an accompanying chain-of-custody system, and fieldtesting and training offered by the project should provide smallholders with greater capacity to engage in markets and pursue profitable FLR.

In this edition, the regular Market Trends report features two articles, one by Cindy Squires of the International Wood Products Association (page 25) and the other by Benoit Jobbe-Duval of the International Tropical Timber Technical Association (page 27). Both these organizations are working with tropical timber traders to promote compliance with laws affecting the wood-products industry, among other wide-ranging services.

In the Fellowship Report (page 20), ITTO Fellow Ana Luiza Violato Espada and Karen Kainer report on a community exchange among users of six sustainable-use forests in the Brazilian Amazon to promote social learning on community-based forest management. The authors write that:

> *"Forest-based communities play important roles in protecting and sustaining forests around the world. This is particularly true in remote protected areas, where governments are struggling to protect forests against land grabbing and deforestation for agribusiness. Decision-making processes that involve and engage local people are crucial for creating commitment towards forest conservation."*

This clear, convincing statement could also be applied to FLR: it is as much about putting in place processes that empower local people—who, more often than not, will determine the outcomes of FLR initiatives—as it is about practical techniques. Just as degraded landscapes can become valuable resources when subject to FLR, so too will local communities become assets in the landscape restoration quest when they obtain sustainable benefits from the process.

From the Executive Director

Healthy, resilient and productive tropical forest landscape restoration will help countries and communities achieve the Sustainable Development Goals

Renewal: Pilot reforestation in a degraded forest landscape, the Philippines. *Photo: © M. Feurer*

by Gerhard Dieterle
ITTO Executive Director
oed@itto.int

Since its establishment in the 1980s, ITTO has been at the forefront of international policies on the restoration of degraded tropical forests and the promotion of a sustainable tropical timber trade. In 1992, the Organization published *ITTO Guidelines for the Restoration, Management and Rehabilitation of Degraded and Secondary Tropical Forests*, representing the first international effort to provide overall guidance on the restoration, management and rehabilitation of degraded and secondary tropical forests.

Interest in forest landscape restoration (FLR) has grown enormously in the international forestry community in recent years because it is an inclusive, whole-of-landscape approach to reverse land degradation, increase carbon storage, help conserve biodiversity and—importantly—create sustainable livelihoods for local communities. Inevitably, the restored, ecologically functional tropical landscapes of the future will differ from what we have known in the past. It is crucial, however, that they are able to deliver the ecosystem services and forest products we need—as local people and as national and global citizens.

Times have changed since those first ITTO guidelines on tropical forest restoration were issued, with global warming gathering pace and the world population increasing sharply. Demand is growing for land for food, infrastructure and industries, most of which is coming at the expense of forests and trees. Demand for forest products is also increasing—sometimes leading to unsustainable harvesting. As with food security, a lack of "wood security" is emerging in several developing countries (Dieterle & Karsenty 2020); this needs urgent attention from foresters and agroforesters. Nearly 1 billion hectares of tropical forest lands are degraded to varying degrees, requiring urgent, site-specific restoration efforts that are ecologically sound and responsive to local expectations. There is a strong need, therefore, for new guidelines on the restoration of degraded lands.

Responding to this need, ITTO, under an initiative of the Collaborative Partnership on Forests, has translated the wealth of accumulated knowledge and best practices on FLR worldwide into *Guidelines for Forest Landscape Restoration in the Tropics*. The work has been done in close collaboration with many partners, including the Asian Forest Cooperation Organization, the Center for International Forestry Research, the Food and Agriculture Organization of the United Nations, the Global Environment Facility, the International Union for Conservation of Nature, the International Union of Forest Research Organizations, WeForest and the World Resources Institute. The guidelines have been compiled by two world-renowned experts, Jürgen Blaser and Cesar Sabogal, with invaluable inputs from other dedicated forest landscape specialists and institutions around the globe, and they are presented in a comprehensive and easy-to-use form for policymakers, practitioners and other stakeholders. An article in this edition by Dr Blaser and Dr Sabogal provides a clear outline of the guidelines.

The COVID-19 pandemic has exacerbated international concern about the zoonotic origins of many viruses, and there is growing recognition of the important role of healthy ecosystems and their services in regulating zoonotic emergence (Everard et al. 2020). It is essential that we continue to improve national and global policy responses to ecosystem degradation, particularly in the tropics. FLR has a key role to play in shaping the agenda for the post-2020 biodiversity framework and the United Nations Decade of Ecosystem Restoration, which begins in 2021.

I hope that this edition of the TFU, and the guidelines, will help accelerate ground-level action for building healthy, resilient and productive landscapes with enhanced climate, biodiversity and livelihood benefits. We believe that the guidelines are especially important at this time, with the COVID-19 pandemic and associated economic crisis in many tropical countries requiring rapid, effective responses in the face of increased pressure on forest resources as people turn to forests as livelihood safety nets. By working together on FLR, countries and communities can take an important step towards achieving the Sustainable Development Goals.

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Reversing degradation—landscape by landscape

New guidelines on forest landscape restoration in the tropics will elevate this emerging practice to a higher level of understanding and application

by Jürgen Blaser[1] and César Sabogal[2]

[1] Professor for International Forestry, Bern University of Applied Sciences, Bern, Switzerland (juergen.blaser@bfh.ch)

[2] Independent consultant, Lima, Peru

Getting involved: An event in Nongbua, Sangthong, Lao People's Democratic Republic, demonstrates village-driven forest management to restore highly fragmented and degraded forest landscapes. *Photo: Asian Forest Cooperation Organization*

Enormous changes have occurred in tropical forest landscapes in recent decades, and large areas—estimated at 930 million hectares—have become degraded and require urgent restoration. Considerable knowledge and experience exists on how to restore degraded forest landscapes, and there are many inspiring examples of success in the tropics.

Up to the end of the last millennium, deforestation was linked primarily to the intensification of shifting cultivation, medium-scale agricultural expansion and pasture development. Today, economically powerful actors are further changing tropical forest landscapes for agroindustrial uses, mining and infrastructure. Ecosystem services long provided by tropical forest landscapes are under threat, with major implications for sustainability—locally, nationally, regionally and even globally.

ITTO published guidelines on the restoration, management and rehabilitation of degraded and secondary tropical forests in 2002—the first international effort to provide overall guidance on tropical forest restoration. But forest landscape restoration (FLR) is a fast-developing sphere of science and practice, with field experiences and research yielding new information and approaches and many other guidelines and tools released. New international commitments and initiatives relevant to FLR have also emerged, such as Aichi Biodiversity Target 15 set by the Convention on Biological Diversity (2011); the Bonn Challenge (2011); the New York Declaration on Forests (2014); the Global Partnership on Forest and Landscape Restoration; and the Global Landscapes Forum. FLR is embedded in the Sustainable Development Goals (SDGs), particularly SDG 15.1, and the Global Forest Goals of the United Nations Strategic Plan for Forests.

FLR processes and interventions are expected to be integral components of the national climate-change programmes of most tropical countries as a means to reduce greenhouse-gas emissions and increase carbon storage and in national plans to adapt forests and agricultural landscapes to changing climatic and environmental conditions. The declaration by the United Nations General Assembly of the Decade on Ecosystem Restoration in 2021–2030 positions the restoration of ecosystems as a major nature-based approach for meeting a wide range of global development goals and national priorities.

In light of these and other developments, ITTO—in close collaboration with the Collaborative Partnership on Forests and many other partners working in tropical forests[1]—has now published a new set of guidelines, *Guidelines for Forest Landscape Restoration in the Tropics*.

FLR is defined in the *Guidelines for Forest Landscape Restoration in the Tropics* as an ongoing process of regaining ecological functionality and enhancing human wellbeing across degraded and deforested forest landscapes. The process has three key elements: 1) participation; 2) adaptive management; and 3) a consistent monitoring and learning framework.

1 The guidelines are a joint effort of ITTO, members of the Collaborative Partnership on Forests, particularly the Center for International Forestry Research, the Food and Agriculture Organization of the United Nations, the Global Environment Facility, the International Union for Conservation of Nature, the International Union of Forest Research Organizations and the United Nations Environment Programme, and other major collaborating institutions, especially the Asian Forest Cooperation Organization, RECOFTC, WeForest and the World Resources Institute.

Adaptive management: Restoring pastures in watersheds—clearing grass from around recently planted trees, Ecuador. *Photo: © Sarah Wilson*

Structure and rationale of the guidelines

The overall rationale for FLR is to restore degraded forests and forest lands and thereby enable the sustainable management of landscapes over time. FLR focuses on the restoration of degraded forests and supports a pathway for the sustainable management of restored landscapes. In a schematic view, restoration can be directed towards two main scales of intervention (Figure 1):

1) enabling the sustainable management of natural forests as part of the permanent forest estate containing both production and protection forests; and

2) enabling the functionality of mosaic landscapes comprising a mix of land used for agriculture, rangelands, infrastructure, natural forests, planted forests and trees outside forests.

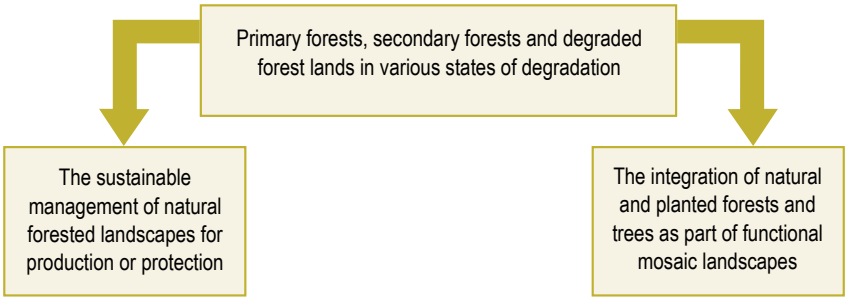
The new guidelines address both scales of FLR intervention outlined in Figure 1. They are structured around six principles of FLR developed by the Global Partnership on Forest and Landscape Restoration, enriched by 32 guiding elements (Figure 2; Table 1). The guidelines provide a basis for policy decisions and a technical reference that can be used or adapted to the needs and capacities of users. They deliver guidance at the policy, technical and operational levels for restoring degraded (production and protection) forests and formerly forested landscapes in tropical forest biomes and should be adapted as appropriate according to national and local circumstances. The focus is on restoring functional forest ecosystems, particularly natural forests, and multipurpose tree-based agricultural production systems in landscapes.

Target audiences

The guidelines are voluntary, and they are designed for a wide set of stakeholders, including national and subnational forest and natural-resource policymakers and legislators in tropical countries; restoration practitioners; community-based organizations; private-sector organizations; civil-society organizations; research and education institutions; and international organizations, governments outside the tropics, and donor agencies.

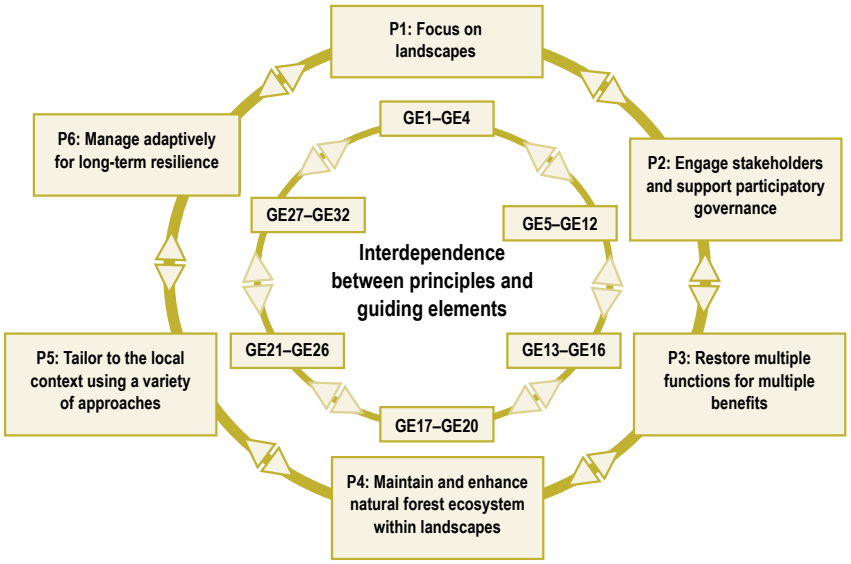
Participation: Collecting biodata from farmers for a benefit-sharing agreement on a community plantation, Offinso district, Ghana. *Photo: © Emmanuel Antwi Bawuah*

Figure 1: Two main scales of intervention for the restoration of tropical forest landscapes



Note: both intervention scales may co-exist within the same landscape.

Figure 2: The principles and guiding elements of FLR—a continuum



Note: P = principle; GE = guiding element.

Table 1: Overview of the six principles and 32 guiding elements of FLR

P1	**Focus on landscapes**
GE1	Undertake inclusive, gender-responsive landscape-level assessment and land-use planning
GE2	Gain recognition that FLR must transcend sector policies
GE3	Conduct FLR at an appropriate scale
GE4	Address tenure and access rights
P2	**Engage stakeholders and support participatory governance**
GE5	Build adequate governance capacity for decentralized FLR
GE6	Obtain strong stakeholder engagement
GE7	Conduct joint stakeholder analysis of the drivers of degradation
GE8	Strive for social equity and benefit sharing
GE9	Conduct participatory FLR planning, decision-making and monitoring
GE10	Build stakeholder capacity for sharing responsibility for FLR
GE11	Address long-term financing for FLR initiatives
GE12	Establish a favourable investment environment for FLR
P3	**Restore multiple functions for multiple benefits**
GE13	Generate multiple functions and benefits
GE14	Conserve biodiversity and restore ecological functions
GE15	Improve livelihoods
GE16	Make full use of locally based knowledge
P4	**Maintain and enhance natural forest ecosystems within landscapes**
GE17	Avoid the conversion of natural forests
GE18	Restore degraded forests and rehabilitate degraded forest land
GE19	Avoid forest fragmentation
GE20	Conserve natural grasslands, savannas and wetlands
P5	**Tailor to the local context using a variety of approaches**
GE21	Assess local context and restrictions
GE22	Allow for future changes in conditions
GE23	Tailor FLR interventions to the local context and generate local benefits
GE24	Achieve the financial and economic viability of FLR investments
GE25	Identify opportunities to increase local incomes
GE26	Develop sustainable supply chains
P6	**Manage adaptively for long-term resilience**
GE27	Take an adaptive management approach
GE28	Continually measure the biophysical dimensions of the landscape
GE29	Periodically assess vulnerability to climate change
GE30	Develop participatory monitoring of FLR
GE31	Encourage open access to, and the sharing of, information and knowledge
GE32	Report on FLR outcomes

Note: P = principle; GE = guiding element.

Principles, guiding elements and suggested actions

The principles and guiding elements have been formulated to assist stakeholders in the development and monitoring of national policies aimed at creating enabling conditions for successful FLR implementation and outcomes. The principles are the fundamental rules for defining FLR, and the guiding elements are the components that should be in place to ensure adherence to those principles.

Implementation processes and operational guidance

FLR can benefit from a practical working strategy to define, plan, initiate, sustain, scale up and adapt interventions to address changing local needs and environmental conditions. Such strategies can be developed using a project-cycle management approach in an iterative, adaptive and hierarchical process (Stanturf et al. 2017, 2019).

Operational framework for FLR implementation

The operational framework adopted for the guidelines considers the following four phases in applying FLR:

1) *visioning* (preparation)—relatively short-term (e.g. 1 year)
2) *conceptualization* (planning)—relatively short-term (e.g. 1 year)
3) *implementation* (acting)—mid-term (e.g. 3–10 years)
4) *sustainability* (sustaining the achievement)—long-term (at least decades).

All six FLR principles and related 32 guiding elements are equally important in any phase of the FLR intervention. The guidelines sets out recommended actions for FLR interventions for each of the guiding elements following the logic of the project-management cycle.

Case studies in tropical forest landscape restoration

The need for FLR emerges as forests and wider landscapes become degraded as a result of one or more direct drivers. From this baseline, the design and implementation of FLR is context-specific and influenced by biophysical factors, socioeconomic conditions and governance at the landscape scale. The role of stakeholders is decisive in setting objectives for the FLR process and the sustainable use of landscapes into the future.

Part II of the guidelines presents 18 case studies[2] of FLR interventions in the tropics. The experiences gained in these efforts inform the guidelines and illustrate the range of FLR interventions given local biophysical, socioeconomic and governance contexts, stakeholder objectives and available resources. Most of the case studies refer to projects designed and implemented to respond to context-specific situations affecting the functionality of a particular area at a given scale. These projects build on or incorporate participatory approaches and mechanisms that seek to engage stakeholders in the FLR process through awareness-raising, information, capacity development and the establishment of favourable conditions for implementation.

A broad range of lessons from the case studies illustrate the challenges in and opportunities for implementing the FLR principles and guiding elements. Most of the case studies illustrate the application of three or more FLR principles, especially principles 2 ("engage stakeholders and support participatory governance") and 3 ("restore multiple functions for multiple benefits"). Efforts to address principle 1 ("focus on landscape") are least represented.

The way forward

The first priority in the conservation and use of tropical forest landscapes should be sustainable management because this will prevent degradation and thus render restoration unnecessary. If policies are sound and sustainability the goal of all stakeholders, the prospects for maintaining and enhancing forest landscapes are good.

The ambition of this set of guidelines is to support the goals and aspirations of stakeholders in the implementation of FLR and to inform decision-makers and practitioners in the development of successful FLR interventions. A number of immediate actions can be taken to encourage the use of the guidelines at the national and local levels, including the following:

- Apply the guidelines as a reference and guiding document in the development of FLR interventions at the national and subnational levels.
- Use the guidelines as a vehicle for increasing capacity in tropical countries to undertake FLR, in combination with other specific guidelines, tools and approaches.
- Identify landscapes where FLR is necessary, feasible and a local priority and make a long-term commitment to its implementation, including by putting in place mechanisms for learning and exchanging information among stakeholders in such landscapes and at sites within them.
- Promote the guidelines among international organizations and interested stakeholders as an important contribution to the existing community of practice, and support strategies for influencing the development of FLR-conducive strategies at the national and subnational levels.
- Promote the dissemination and application of the guidelines by local actors and other stakeholders. This may involve the production of simplified versions adapted to local contexts and in local languages.
- Use the guidelines to advocate FLR in broader international conventions and processes.
- Monitor the impacts of these guidelines on changing practices in forest and landscape use throughout the tropics.

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Guidelines for Forest Landscape Restoration in the Tropics, and a policy brief, are available at www.itto.int/policy_papers

2 Three are from tropical Africa (Ethiopia, Ghana and Madagascar), seven are from tropical Asia (Cambodia, Indonesia, Malaysia, Myanmar, the Philippines and Thailand) and eight are from Latin America (Brazil, Colombia, Ecuador, Guatemala and Peru).

Encouraging farmers to plant trees in their savannas

An ITTO project in Papua New Guinea has created a model reforestation framework to address key constraints to community reforestation

by Simon Rollinson,[1] Hwan Ok Ma,[2] Ruth Turia,[3] Dambis Kaip[4] and Frank Agaru[5]

[1] Managing Director, Pacific Island Projects, Rabaul, Papua New Guinea (PNG) (simon@pip.com.pg)

[2] Projects Manager, ITTO, Yokohama, Japan

[3] Director of Policy and Planning, PNG Forest Authority, Boroko, PNG

[4] Manager of Policy and Aid Coordination, PNG Forest Authority, Boroko, PNG

[5] Aid Coordinator, PNG Forest Authority, Boroko, PNG

Trial system: NFS field workers inspect teak seedlings growing in ploughed soil, intercropped with pineapple. *Photo: S. Rollinson*

Log exports from primary forests have made a significant contribution to the economy of Papua New Guinea (PNG). As accessible forests become increasingly depleted, however, the PNG Forest Authority (PNGFA) is focusing increasingly on reforestation as a means to maintain a permanent forest estate that supplies existing and new forest industries. Under its national reforestation programme, *Operation Painim Graun na Planim Diwai* ("Operation Secure Land and Plant Trees"), the PNGFA aims to plant 800 000 hectares of trees for commercial, community and conservation purposes by 2050. The *Pacific 2020 Review* (AusAID 2006) concluded that, although there is potential to establish large plantations in the Pacific Islands, community and household arrangements are more likely to succeed due to land-tenure constraints. The review recommended growing high-quality furniture timber such as teak and mahogany and reducing the harvesting of natural forest stands, which would drive up demand and export prices. ITTO's diagnostic mission to PNG (Lakani et al. 2006) also found that:

> *"[l]arge areas of degraded land and grassland areas are available for establishing commercial forest plantations. However, this option is subject to availability of investment funds, willingness of the landowners to participate, ownership rights of the landowners being respected, availability of planting materials and appropriate seed sources. The role of the government agencies, private sector together with the customary landowners is the prime catalyst to stimulate the growth and further the plantation development."*

Project background

The aim of the ITTO project[1] (which began in January 2012) described in this article is to create a model reforestation framework (MRF) to address the key constraints to community reforestation through the provision of tailor-made awareness-raising, training and support services. The project, which involves partnerships with service providers from the public and private sectors, is focusing on teak but also encompasses other suitable species, such as mahogany and sandalwood. The MRF enables the establishment of model reforestation enterprises (MREs) that promote effective land groups, production systems and business arrangements in the wider community.

The project is being implemented in Central Province, which lies on the country's southern coast and has an area of about 3.1 million hectares. The topography comprises coastal lowlands and hills that rise up to the rugged Owen Stanley Ranges. There are extensive areas of tropical savanna (163 000 hectares) and grasslands (535 000 hectares) along lowland coastal areas and northern ranges, representing 23% of the total land area. This vegetation is strongly influenced by a monsoonal climate, weathered soils and land-use practices (particularly fire).The province is well-linked to the national capital, Port Moresby, and therefore offers good access to the marketing infrastructure needed to target both domestic and international markets. Central Province contains large areas of unoccupied land, a good road network, and four administrative districts. Many areas have access to power and a cellular phone network.

1 ITTO project PD 552/09 Rev.1 (F): "Encouraging customary landowners in the lowlands of PNG's Central Province to reforest their grasslands with high-value trees".

Creating the model reforestation framework

The project selected three sites in the Kairuku-Hiri and Rigo districts with a population of around 3000 residents (400 households). Each community has adequate structures and resources in place for the planned reforestation activities. Working closely with five landowner groups (clans), the project partners developed an MRF that addresses the key constraints to community reforestation through the following tailor-made support:

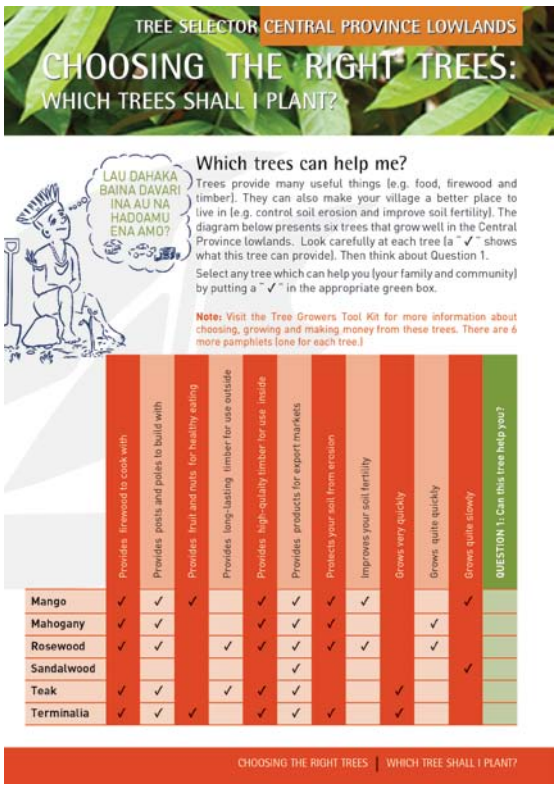
- information services for reforestation enterprises, field workers and the wider community;
- training services for reforestation enterprises; and
- planting stock and materials for reforestation enterprises.

Access to information

Pacific Island Projects (PIP) was selected to provide project partners and landowners with a one-stop source of information. A rapid appraisal exercise showed that schools in the three project sites had adequate physical resources (e.g. electricity, internet and communication equipment suitable for accessing, sharing and using information on Google Drive) to act as community outreach centres under the project. Such centres were duly established, with ongoing support from PIP.

Damien Agai, head teacher at the Gomore Primary School, said he was pleased his school had become a community outreach centre:

Figure 1: The front page of the tree selector, designed to help landowners decide which trees to plant on their lands



Educator: Damien Agai, head teacher at the Gomore Primary School, says that the resources provided by the project will greatly benefit his teachers, students and community members of all ages. *Photo: S. Rollinson*

> *"It's the first of its kind for us to have this centre here at our school. It's a great privilege to connect us to the whole world through the internet. These resources will greatly benefit our teachers, students and community members of all ages."*

The following three resource packs are now available at each community outreach centre:[2]

1) The **Landowner Awareness Pack**, which is being used to raise community awareness about reforestation issues and options using selected pamphlets, posters and videos. Landowner awareness packs assist the PNGFA to identify landowners and landowner groups ready to plant trees on their land under *Operation Painim Graun na Planim Diwai*.

2) The **School Teacher Pack**, which is being used to promote the benefits of trees and forests to the next generation of landowners through the PNG school curriculum's learning areas of science, culture and community. Fifty-eight new sets of teaching aids were selected to suit the Central Province context (e.g. grassland biomes), as well as fill information gaps (e.g. on climate-change mitigation). Schoolteacher packs now contain more than 100 multimedia teaching aids for elementary, primary and secondary school teachers to choose from.

3) The **Tree Growers Tool Kit** (TGTK), which is being used to help landowners and field workers choose, grow and make money from trees. Seven pamphlets (one "tree selector"—Figure 1—and six tree factsheets) were prepared to promote six high-value trees that grow well in the Central Province lowlands: damson terminalia (*Terminalia sericocarpa*); mahogany (*Swietenia macrophylla*); mango (*Mangifera indica*); rosewood (*Pterocarpus indicus*); sandalwood (*Santalum macgregorii*); and teak (*Tectona grandis*). These pamphlets provide information on tree products and ecosystem services, site selection, nursery establishment, planting-out and maintenance, and market opportunities and requirements. The TGTK now contains over 250 multimedia resources.

Open days were held at each target community to showcase the selected resource packs at community outreach centres and to register landowners interested in planting trees under *Operation Painim Graun na Planim Diwai*. The Landowner Registration Form was completed by 29 open-day participants (37% female), who were interviewed by trained data collectors using KoboCollect software on their mobile phones. This survey found that

2 The resource packs are also available at http://pip.com.pg.

Plant depot: Local distribution centres such as this one in Rigo district provide a cost-effective means of delivering planting stock and materials to reforestation enterprises. *Photo: S. Rollinson*

a high proportion of active farmers are women. Although only 24% of respondents were currently growing trees (77% were growing cash crops), everyone interviewed indicated they would like to grow (more) trees in the future. Information needs were broad, ranging from reforestation awareness through to technical training. Most people interviewed preferred print to electronic media. All community members who answered the question, "Would you like to use the community outreach centre again?", responded positively.

Access to training

The National Agricultural Research Institute (NARI), the National Forest Service (NFS) and the Small and Medium Enterprise Corporation (SMEC) continue to provide specialized training services for target communities. The project has assisted these agencies to improve the delivery of their training programmes through the provision of relevant, user-friendly resources for landowners and field workers (such as the resource packs described above). The following training services are now available:

- Field workers from NARI and NFS are providing agroforestry training to assist target communities select and manage the most appropriate production systems for their local environment (e.g. regarding soils, slope and accessibility) and local needs (e.g. for woodfuel, timber and soil erosion control). Training topics include land-use planning, site–species election, site establishment, fire control, site operations through to harvesting, and nursery management. Training resources are selected from the TGTK (e.g. the seven new pamphlets for the Central Province lowlands).

  Grade 10 student Koselyn Douglas appreciated the training activities conducted in her community:

  > *"It is a great offer to come to our community and teach us more about trees. Thanks for all the important information. Please continue to help the community understand how trees are very important and valuable."*

- Field workers from SMEC are providing business training under its Start Your Business programme. This programme is licensed by the International Labour Organization and comprises business awareness and planning activities. It uses various learning approaches, including simulation games, case studies and group discussions.

  Business awareness topics are tailored to individuals and groups and their business ideas. Business planning topics include legality, costing, pricing, marketing, cash-flow and start-up capital. Training resources are selected from the TGTK (e.g. the checklist "Are you ready to start a tree business?" and the "Cost & returns calculator").

Access to seedlings

NARI and NFS provide high-quality seeds and seedlings, which are further distributed through local satellite nurseries. The project has assisted in the provision of nursery equipment and materials. The following distribution centres are operational:

- Provincial nurseries at the Kuriva Forestry Station (NFS) and Laloki Agricultural Station (NARI) are providing high-quality seeds and seedlings to model sites and local nurseries. Teak is the principal species at the Kuriva Forestry Station and the nearby Mount Lawes Clonal Orchard. Scientists at the Forest Research Institute have established a replicate clonal seed orchard for teak comprising 208 clonal ramets on secure state land at the Kuriva Forestry Station. This work was undertaken through a project funded by the Australian Centre for International Agricultural Research (ACIAR).
- Local nurseries are being managed by the two target communities in Rigo district to supply high-quality seedlings of high-value trees and food crops that grow well in the Central Province lowlands. These local distribution centres provide a cost-effective means for delivering planting stock and materials to reforestation enterprises, minimizing transport costs and seedling mortality while encouraging farmers to plant trees. Issues such as water supply, fire control, security and overall management were assessed carefully at each location before establishment.

Promoting model reforestation enterprises

The MRF has encouraged the two target communities in Rigo district to allocate 110 hectares of grasslands for high-value plantations along the Magi highway. The third target community in Kairuku-Hiri district is also preparing to allocate a suitable demonstration area. Four MREs have been established to date, and 10.6 hectares of teak have been planted at roadside locations. Interplanting with agricultural crops has provided these tree-growers with early financial returns at local and provincial markets. Teak thinnings and prunings have also supplied high-quality building materials for community use.

Each community forestry operation promotes the following three key components of MREs to the wider community:

1) a land group that ensures transparent and effective governance;
2) a production system for delivering planned products and services; and
3) a business arrangement for delivering planned financial returns.

Model land groups

Incorporated land groups (ILGs) are a recognized mechanism for enabling customary landowners to take part in the formal economy with support from the legal system. An ILG should provide its members with a solid platform for making

decisions on the use of their land and its resources, as well as for the sharing of benefits derived from these assets. The ILG application process comprises a number of steps that assist landowners to organize themselves into the most appropriate decision-making body for a given area of land (usually a clan group).

NFS field workers have assisted the target communities in Rigo district with ILG awareness, ILG training, priority setting, land-use planning and participatory clan-land boundary mapping, leading to the formation of three ILGs (another ILG application is under way). Each ILG is governed by its own constitution, management committee and dispute settlement authority and is responsible for managing reforestation activities on its land (on behalf of the clan members).

Model production systems

NARI and NFS field workers have assisted the four clan groups in Rigo district to select the most appropriate production systems for their needs and the local environment (e.g. regarding soils, slope and accessibility). Common community constraints relate to high demand for wood products (i.e. woodfuel and timber) for home and community use, soil erosion, and a lack of planting materials and information.

Two production systems were trialled in Rigo district. In one, the sites were ploughed and vegetables were intercropped with teak trees. In the other, vegetables were planted and harvested before the teak trees were planted. Teak seedlings (stumps) were found to grow best in soil ploughed by local tractors during the wet season. Agricultural crops (e.g. pineapple, corn, watermelon, cucumber and Chinese cabbage) also grew best in soils ploughed by local tractors during the wet season. Pineapple, corn and watermelon were found to grow well when interplanted with teak trees, which reduced the time spent on site maintenance (e.g. weeding) and provided quick returns for tree-growers.

Model business arrangements

SMEC field workers have assisted the four clan groups in Rigo district to identify the most appropriate business arrangements for their situation through business awareness and planning activities (see above). Overall, there was unwillingness among the clan groups to immediately establish joint-venture agreements with either public-sector entities (e.g. the NFS) or the private sector. All four clan groups chose to establish independent reforestation operations on their own land with the possibility of establishing joint-venture arrangements in the future (e.g. before harvesting).

Each targeted ILG is now engaged in the preparation of model business plans using selected resources from the TGTK. This includes the production of a land-use plan and estimates of costs and returns for each reforestation enterprise.

Youth leader Raka Rutu is busy promoting the benefits of community reforestation in Rigo district:

> *"The teak project is an opportunity for us farmers and landowners for reforesting our community. Our future generation can benefit from the trees that we plant."*

Roadside teak: Each community forestry operation promotes the three key components of MREs to the wider community. *Photo: S. Rollinson*

What next?

On completion of the ITTO project, project partners will continue to manage the MRF using the tools and techniques being tested during project implementation. Additional support will be provided by an upcoming ACIAR project, which will work with the two target communities in Rigo district and refine the delivery of multimedia communication to benefit stakeholders. Although face-to-face awareness, training and support services may be constrained at times by resource limitations, the growing network of community outreach centres and schools should provide an ongoing source of technical information for landowners and the wider community. This is expected to lead to the gradual "scaling out" of MREs across the Central Province lowlands. The PNGFA's Director Policy & Planning, Ruth Turia, confirms the role of the project and the next steps to be taken:

> *"The Government of PNG is very grateful to ITTO and the Government of Japan for sponsoring this project, which has enabled the concerned communities in the Central Province of PNG to see the benefit of utilizing their land wisely. This project will have a long-term effect for communities throughout PNG as we scale out the outcome of the project."*

Project outputs can be found by inserting the project code PD 552/09 Rev.1 (F) into the ITTO project search function at www.itto.int/project_search

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Growing knowledge on dry forests in Peru

An ITTO project has helped increase awareness about the threats facing this important forest type

by Marioldy Sánchez Santivañez[1] and Mario Palomares De Los Santos[2]

1 Association for Integrated Research and Development (AIDER) Project Coordinator (msanchez@aider.com.pe)

2 Dry-forest expert and AIDER chair

Beyond the Amazon: Dry forest, Peru. *Photo: © Diana Yarlaque*

According to the Millennium Ecosystem Assessment (2005), drylands cover about 41% of the world's total land area and are home to 2 billion people, 90% of whom live in developing countries. An estimated 18% of drylands (1.1 billion hectares) are forests, of which 250 million hectares are tropical and subtropical dry forests (FAO 2016a).

Dry forests are key to eradicating poverty in drylands, protecting them from desertification and drought and increasing their resilience to climate change. Many specialists agree that the risk posed to dry forests is greater than that facing moist forests because of their high level of fragmentation, limited land area, greater vulnerability to the effects of climate change and lack of recognition of their benefits (for example, dry forests are often viewed as wastelands). Nevertheless, dry forests receive relatively little research attention[1] and, consequently, information for sound decision-making and the development of public policies for these areas is often unavailable or incomplete.

Although research on climate change and the carbon cycle is relatively advanced for dry forests in Latin America compared with other areas of the world, the role such forests play in food security is not well researched in the region. There is a need for more specific research on the sustainable management of dry forests and on how dry forests are affected by the policies of the forest and other sectors (Blackie 2014).

Peru has 3.6 million hectares of dry forests (5% of the country's total forest area) (MINAM 2015), with the largest area located on the north coast. These forests are highly threatened due to their aridity, high population density, fragmentation, proximity to urban areas, and the influence of agroindustries. No official data exist on deforestation in Peru's dry forests; nevertheless, it is estimated that more than 20 000 hectares is deforested each year in the department of Piura alone.

An ITTO-funded project[2] is being implemented by the Association for Integrated Research and Development (*Asociación para la Investigación y el Desarrollo Integral*—AIDER) in three departments with the largest areas of dry forests—Piura, Lambayeque and Tumbes—with the aim of improving forest management and increasing knowledge about these ecosystems (Figure 1). The project, which started in May 2017 and is expected to be completed in September 2020:

- generated information on Peru's dry forests and made this available to stakeholders;
- raised awareness about the importance of dry forests to reach those stakeholders with an impact on conservation but who may be unaware of the ecosystem functions of dry forests;
- facilitated dialogue between officials at the subnational and national levels and among government, the private sector and civil-society stakeholders with a view to strengthening linkages and encouraging learning about new approaches to forest management; and
- encouraged networking and partnerships through capacity-building initiatives led by the national forestry authority (SERFOR) and its strategic partners in search of synergies.

This article focuses on the information-generation and awareness-raising components of the project.

1 For example, approximately 14% of articles published on tropical forest research between 1945 and 2004 listed in the Science Citation Index focused on dry forests, and 86% addressed moist forests (Sánchez-Azofeifa 2005).

2 PD 741/14 Rev.3 (F): "Capacity building for the sustainable management of tropical dry forests on the north coast of Peru".

Figure 1: The three north-coast departments of Peru, where a large proportion of the country's dry forests are located

Information on Peruvian regulations for dry forests

Peruvian forest regulations make almost no mention of tropical dry forests; rather, they are dominated by the Amazon forests,[3] which account for 94% of the country's forest area. The Forestry and Wildlife Law (Act No. 29763) mentions dry forests in only one of its articles, and only two of the Act's four regulations specifically mention these forests. The proportion of articles in each of these regulations referring explicitly to tropical dry forests is very low (in no individual case does the number exceed 1.5% of the articles).

Article 74 of the Forestry and Wildlife Law (the only article in the Act that mentions dry forests) recognizes the effects of climate change and human pressures on dry forests; thus, it establishes that the state, in its three levels of government, should prioritize the development of projects and programmes for the restoration, enrichment and sustainable multipurpose use of these ecosystems, as well as climate-change adaptation and mitigation. Missing from the article, however, is the need for dry-forest management to take into account the predominant condition of low rainfall, as well as heavy rain episodes that occur inevitably over time due to the El Niño climatic phenomenon.

Article 50 of the Regulations for Forest and Wildlife Management in Native and Rural Communities restates article 60 of the Forest Management Regulations and indicates that it applies to, and has compliance requirements for, the management of dry forests on rural community lands. This is important given the large proportion of dry forests located on north-coast community lands.

The analysis carried out under the project made a number of recommendations to SERFOR to contribute to new regulatory provisions in support of the sustainable management of dry forests, including the following:

- In tropical dry forests, the definition of plantations should be broadened to include forest ecosystems established by human intervention through assisted natural regeneration and coppice management. This would make it possible for rural communities to devote more energy to these activities, especially if they can benefit from the forest plantation promotion policy.
- Forestland zoning and management is a key policy for the management of tropical dry forests. When implementing this policy, it is necessary to consider the specific aspects of sparse and very sparse dry forests in the lowlands to facilitate their sustainable use and conservation.
- To ensure the success of any policy to promote the diversified use of tropical dry forests, even under harsh drought conditions, it must include (among other things) incentives for water harvesting, the construction of wells. and the use of irrigation systems.
- Given that the main economic activity of rural communities is extensive goat and sheep farming and that community lands include significant areas of dry forest, regulations must take into consideration the link between forest management and established practices in the use of natural pastures and livestock farming.

Best practices

The project identified 34 dry-forest management experiences, which were compiled in a manual of best practices[4] and disseminated among key stakeholders. The manual has three parts. The first lays out concepts and definitions related to the sustainable management of tropical dry forests; the second explains good forest management practices arranged in seven categories (silviculture, reforestation, management for timber production, the production of non-wood forest products, agroforestry and silvopastoral practices, the prevention and combating of wildfires, and non-forest-related practices that reduce pressure on forests); and the third part present 34 case studies of good dry-forest management practices in the project area.

Assisted natural regeneration initiatives implemented by communities in Piura stand out for their social impacts. The communities established agreements with the private organization Kinome[5] to protect the species algarrobo (*Prosopis* spp.) with naturally regenerated hedges; as compensation, the communities receive support for social projects agreed based on local development priorities.

3 Peru has 72 million hectares of forests, of which 67.6 million hectares are Amazon forests and 3.93 million hectares are tropical dry forests, with the remaining area comprising other types of forests (FAO 2016b).

4 Available at www.aider.com.pe/publicaciones.html

5 Kinome (https://kinome.fr) is a French company that develops projects with positive environmental and social impacts on forests, climate and biodiversity. It works in 30 countries in Africa and Latin America and has alliances with various actors, such as the French National Office of Forests and Forest Finance. Kinome manages the international reforestation network, "Forest and Life".

Welcome shade: A local farmer pauses for refreshment in dry forest, Peru. *Photo: © José Richards*

As one community member put it:

> *"Taking care of our forest has given us good results. Before we would only cut down the forest once, but now that we are taking care of it, we can get many more benefits through beekeeping, livestock raising and many other activities. The aim is to have products such as honey, carob and other byproducts for life."*
> *Aurelio Vásquez, La Zaranda Ecological Association*

The most prominent best practices are related to dry-forest restoration and the use of non-wood forest products. For example, the sustainable use of palo santo (*Bursera graveolens*), promoted by the National University of Tumbes, is improving local family incomes through the commercialization of essential oil and incense from the species; this success is encouraging the use of the species in reforestation and further research. The oil and incense give economic value to trees that die of natural causes and enable both men and women to participate in collection and processing, contributing to gender equality.

Awareness-raising with audiovisual media

Many people living in north-coast urban areas fail to recognize the importance of dry forests—even though their economy, wellbeing and livelihoods are directly associated with these ecosystems. The regional governments of Piura, Lambayeque and Tumbes agreed on the need to reach out to the "people on the street" with the aim of obtaining the popular support needed to promote public policies on the sustainable management of dry forests. The outreach and awareness-raising plan included the following strategic actions:

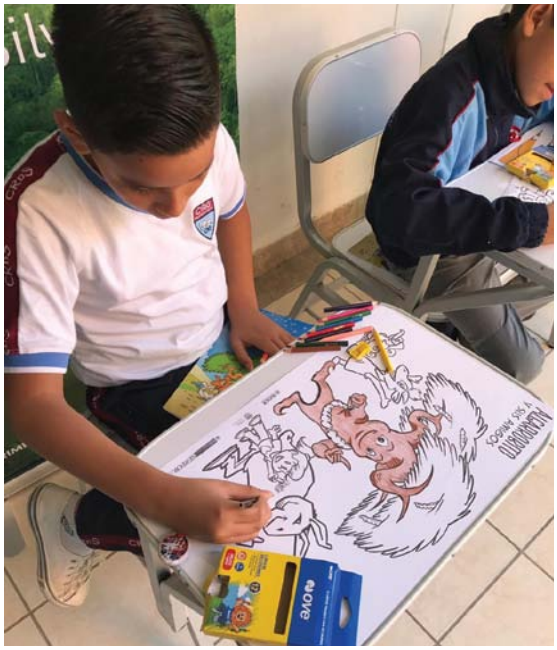
- recreational activities in schools, the design of short stories and comic strips, drawing competitions, and guided tours of dry forests;
- campaigns in shopping centres and information material for restaurants using carob charcoal, given that demand for this product is the main cause of illegal logging in north-coast dry forests;[6]
- a photography competition aimed at young people;
- the broadcasting of six radio spots and the production of videos; and
- the development of interinstitutional partnerships to implement dissemination events aimed at students, officials, farmers and researchers.

The main outputs of this effort were:

- 15 awareness-raising events held in ten schools;
- three internships in dry forests;
- two public events in the busiest shopping centre in the city of Piura;
- the production of five short videos featuring testimonials from authorities and key stakeholders;
- more than 300 broadcasts of radio spots in three local radio stations;[7]
- the formalization of the "adopt a seedling" event in six schools in Piura;

6 The outreach materials are available at www.aider.com.pe/publicaciones.html

7 One-minute radio spots were designed for daily rotation, with friendly music and colloquial language; it has been shown that this format creates memories in listeners and makes it possible, therefore, to rapidly increase awareness. Radio is still the main means of information in rural communities in Peruvian dry forests, and it is heard by all family members. Thus, the radio spots are reaching men, women, children, adolescents and the elderly, fostering a dynamic of dialogue inside homes and between neighbours on the importance of dry forests.



Tree teacher: A student colours in a drawing that is part of outreach materials on dry forests generated by the project. *Photo: © AIDER/ITTO*

- the publication of three editions of the Regional Congress on Dry Forests and the Congress of the Dry Forest Community Council (*Central de Comunidades del Bosque Seco*—CECOBOSQUE); and
- the strengthening of SERFOR's communication strategy in the north coast.

As a result of these outreach and educational activities, people in the project area are now more aware of the benefits provided by dry forests and the importance of conserving them (Box 1).

Box 1: Quotes from stakeholders in the project area

"We are working with certified charcoal, and we are using the teaching materials for children because we want to contribute to the conservation of carob forests, which are gradually deteriorating." Cristina Velázquez, Manager of El Leñador Restaurant, in which educational material from the project is available (e.g. colouring-in books for children)

"My listeners started calling at the radio station responding to the radio spots, to ask how they could improve the situation of dry forests, and I told them that we should plant trees and do new things to improve the environment." Roberth Menis, an announcer at Lambayeque Radio Zone 5, which broadcasts radio spots designed by the project

Ensuring increased political will to promote dry forest management based on scientific information and local knowledge and experience is still a great challenge. AIDER and other local organizations such as CECOBOSQUE will continue to develop initiatives to support both the government and local communities within the framework of established partnerships and using the information generated by the project.

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Project outputs can be found by inserting the project code PD 741/14 Rev.3 (F) into the ITTO project search function at www.itto.int/project_search

Thailand's criteria and indicators for planted and community forests

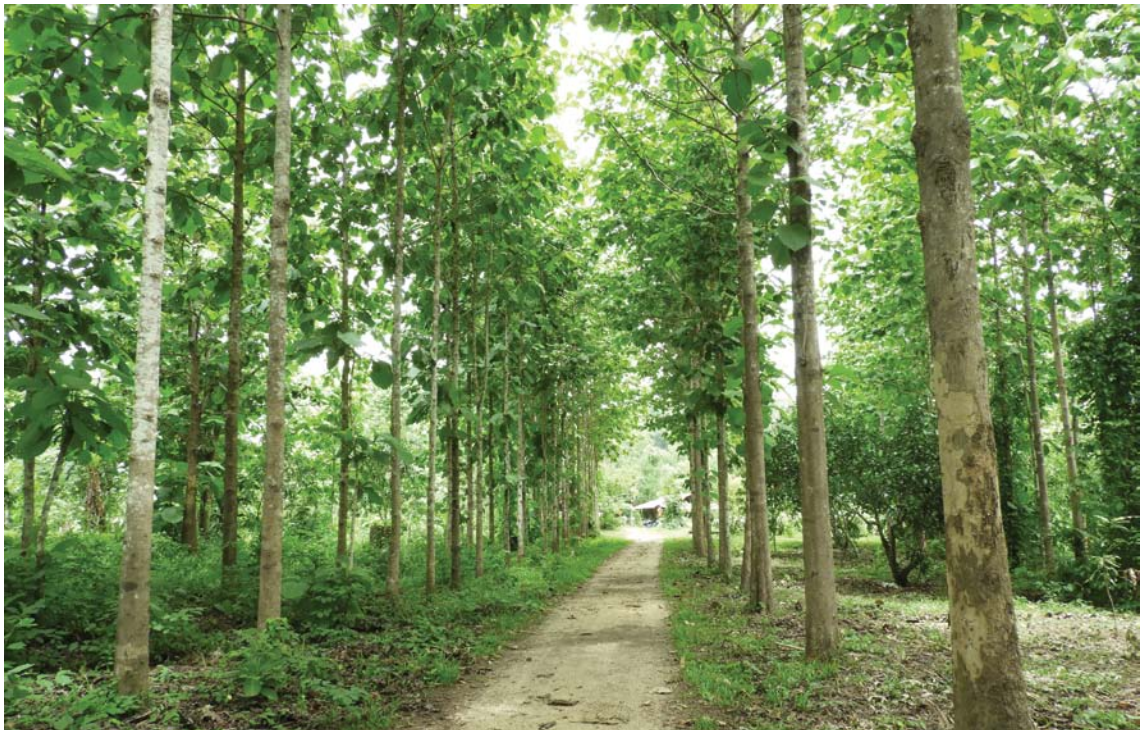
New tools will enable smallholders to pursue good forest governance and engage with the legal timber trade

by Sapol Boonsermsuk,[1] Suchat Kalyawongsa[2] and Ma Hwan-Ok[3]

[1] Director, Forestry Foreign Affairs Office, Royal Forest Department (RFD), Bangkok, Thailand (sapolboonsermsuk@gmail.com)

[2] Director, Forest Research and Development Office, RFD, Bangkok, Thailand

[3] ITTO Secretariat, Yokohama, Japan



Avenue to market: The Thai C&I and CoC system offer means by which communities can participate in formal markets for timber grown in community forests, such as this teak plantation. *Photo: Sapol Boonsermsuk/RFD*

Traditionally in Thailand, forest resources have been an integral part of rural people's livelihoods and wellbeing. Community forestry is well developed, and it is deployed widely to increase the sustainability of forest resource management, enhance food security and improve livelihoods while helping maintaining cultural relationships and traditional knowledge. The 20-year strategic plan of Thailand's Ministry of Natural Resources and Environment envisages increasing the country's forest cover from 31.7% (16.4 million hectares) in 2016 to 40% (20.7 million hectares) of the total land area by 2036 (RFD 2018; MNRE 2016). This implies increasing the forest area by around 4.3 million hectares over the 20-year period through the restoration of degraded forest areas and watersheds, establishing plantation forests, and ensuring the livelihoods and wellbeing of people living in forest areas.

Logging operations in natural forests were banned in Thailand in 1989, making it imperative to develop plantations to sustain the wood industry. Until recently, however, the Forest Act (1941) and the Forest Plantation Act (1992) have imposed restrictions on the harvesting and transport of timber from a number of valuable tree species, making it difficult to increase the area of forest plantations (especially for smallholders). A recent amendment of the Forest Act has changed this: treegrowers on private lands with secure land titles are now about to plant trees and harvest them for commercial purposes without requiring permission from the forest authorities. This is facilitating the establishment of forest plantations by smallholders and increasing their timber production for local and domestic timber markets. After a three-decade-long debate, the National Legislative Assembly also adopted, in February 2019, the Community Forestry Act, thereby empowering local people with decision-making roles in the upkeep of their environment (Bangkok Post, 2019). Under this Act, the Royal Thai Forest Department (RDF) plans to establish 15 000 community forests covering 1.6 million hectares by 2024.

Over the past decade or so, certifying the legal ownership and sustainable management of forests has become important in Thailand's timber trade, despite the high costs involved in certification. The area of forest certified by the Forest Stewardship Council in Thailand stands at about 108 400 hectares, of which 52 100 hectares is teak plantations belonging to the Forest Industry Organization (a state enterprise). About 39 900 hectares of rubber plantation is also certified (Laemsak, 2020), and certified plantations of other species amount to 16 400 hectares. With smallholders and local community forest groups set to play a more important role in timber production in coming years, there is a growing need for simple, low-cost, practical methods to enable smallholders and community forests to validate the legality of their trees.

Project aims and outputs

As part of government efforts to strengthen the capacity of smallholders and community forests, an ITTO-financed project[1] was implemented from 2017 to 2019 with the overall aim of improving the availability of wood and non-wood forest products from sustainable and legal sources by establishing a comprehensive system of criteria and indicators (C&I) for sustainable forest management (SFM) and a chain-of-custody (CoC) system for legal timber production and trade.

1 ITTO project PD 470/07 Rev.1 (F): "Development and implementation of criteria and indicators for sustainable management of planted forests and community forests in Thailand".

Forest presence: Kanoksak Wongkaewruen, president of the Mae Tha Subdistrict Administration, patrols a community-managed forest area. *Photo: Surasit Wongkawin/RFD*

Table 1: Indicators of criterion 1, "Compliance with national laws, policies and strategies"

Indicators	Applicable to:	
	Planted forests	Community forests
1.1 Availability of documentation of legal status, land tenure ownership and resource utilization	+	+
1.2 Existence of forest management plan	+	+
1.3 Monitoring and evaluation of forest management is conducted continuously	+	+
1.4 Availability of appropriate budget administration and accounting system 1.4.1 Transparency of budget and accounting 1.4.2 Accountability of budget and accounting	+	+
1.5 Existence of appropriate conflict management mechanism and solutions	+	+
1.6 Availability of communication channels with relevant stakeholders 1.6.1 Local stakeholders 1.6.2 National stakeholders 1.6.3 International stakeholders	+	+
1.7 Forest plantation manager and community are aware of international agreements and willing to apply them into forest management activities	+	+

A key project output was the "Thai criteria and indicators for sustainable management of planted forests and community forests" (Thai C&I). The process to develop the Thai C&I involved the following:

- The Director General of the Royal Forest Department (RFD) established (on 18 July 2017) a national working group with a membership comprising representatives of the RFD, academia and the private sector. Three sub-working groups were also created: the Sub-working Group for the Development of C&I for Planted Forests; the Sub-working Group for the Development of C&I for Community Forests; and the Sub-working Group on Chain of Custody.
- The sub-working groups, assisted by consultants, developed a draft set of Thai C&I and a CoC system. These were subject to extensive consultations among the national working group and stakeholders representing the social, economic and environmental interests related to forestry, and the final draft C&I document was made available in December 2018. The overall aim of the C&I is to promote SFM practices, taking into consideration the social, economic, environmental, cultural and spiritual needs of stakeholders.
- The development of a CoC certification system was driven by the Sub-Working Group on Chain of Custody and the work of two national consultants from Kasetsart University. A draft CoC system was field-tested in Mae Tha (Chiang Mai province) and Santisuk (Nan province) in March 2019. The later involved smallholders interested in market development, who were introduced to timber companies engaged in teak timber enterprises as potential future partners in the legal trade of timber and timber products.

The CoC system begins with the standing tree in the forests and tracks logs through harvesting, transportation, storage and processing. It provides guidance for supervisors and auditors.

The draft Thai C&I comprise seven criteria and 35 indicators. The seven criteria are:

1) Compliance with national laws, policies and strategies
2) Extent and condition of forests
3) Forest ecosystem health and adaptation
4) Forest production and ecosystem services
5) Forest biodiversity
6) Soil and water conservation
7) Economic, social and cultural aspects for local communities.

The Thai C&I embody the concept of SFM and international standards of forest management. Each criterion is accompanied by indicators that, if monitored over time, will help managers assess the extent to which management is consistent with forest sustainability and the wellbeing of forest-dependent communities. For example, criterion 1 of the Thai C&I has seven indicators (Table 1).

To assist in the uptake of the Thai C&I and the CoC certification system, a training workshop was convened in Chachangsao and Sra Kaew in December 2018, with 35 participants from the RFD, the private sector, civil-society organizations and community forest leaders. The project also organized a training workshop in April 2019 to introduce the Thai C&I and the CoC certification system to 110 RFD officers.

Promoting the Thai C&I: Participants listen to a panel discussion on the Thai C&I and the CoC certification system at a project workshop for certification stakeholders held in Bangkok in April 2019. *Photo: H.O. Ma/ITTO*

Field-testing in the Mae Tha community forests

The Mae Tha community in Chiang Mai province has a long history of community forest management in an area of 11 680 hectares. Most of the Mae Tha community forests are in state forests. Given capacity constraints, community forest leaders have struggled with the local government's forest department in proving that their forest resource use is in line with community bylaws. They continue to collaborate and work with external organizations, including academic institutions and non-governmental organizations, to prove that locally established mechanisms can maintain their forest in the long term and provide enough wood and non-wood products for their consumption. Young community leaders are now applying new information technologies for monitoring and collecting data in forest management units via a mobile phone app and introducing sustainable agricultural practices while avoiding the encroachment of forest land. These techniques and skills are showing that the community can sustainably and effectively manage their forest ecosystems.

Community leaders see the application of the project's C&I and CoC certification system in their planted forests as an opportunity to join formal (legal) supply chains for their timber and value-added timber products, especially during the management transition from an old to a new generation. In applying the C&I and the CoC system, the community's forest management has improved significantly. Community members now have greater capacity to maintain ecosystem services, use their forest resources efficiently and sustainably, and keep informed about the state of the forests and relay such information to third parties. The C&I and the CoC system, therefore, have assisted the community in scaling up its existing processes and led to more collaboration with the RFD and timber-trade-related organizations.

Project outcomes

The project has shown that the development of C&I for SFM and a CoC certification system is vital for assisting communities to establish legal and sustainable wood supply chains. The RFD is now using the C&I and the CoC system as an internal auditing guide; it is expected that these will become key tools for auditing SFM and marketing forest products within Thailand and other markets where third-party certification is not a requirement. The RFD is pilot-testing the project's C&I and CoC certification system for the sustainable management of planted forests and community forests in Nan province as part of the ITTO teak project for the Greater Mekong Subregion,[2] with a view to endorsing their use as a national standard in the RFD's internal auditing system for SFM.

Importantly, the project has helped increase the forest-governance knowledge and skills of RFD policymakers, especially through their engagement in the process of developing the seven criteria and 35 indicators. In addition, the knowledge of Thai stakeholders of the basis and requirements for timber certification has increased thorough their participation in the C&I and CoC certification consultation meetings and training workshops. A handbook on the C&I and the CoC system has been produced in Thai, along with a range of other outreach materials (such as infographics—Figure 1).

The project enabled collaboration among government bodies, non-governmental organizations, community organizations and the private sector in the development of the C&I and the CoC certification system. It also contributed to academic research programmes, especially at Kasetsart University.

Lessons learned

Key lessons from the implementation of the project include the following:

- C&I and CoC are efficient tools for monitoring the sustainable management of planted and community forests, and they are essential for certifying good forest management practices and the legal origin of forest products produced from sustainable sources. C&I and CoC are also useful tools for promoting public awareness about SFM and safeguarding the environment and livelihoods.
- The participatory process in formulating and testing the C&I and the CoC system was effective, but it required considerable time and resources. Communication with key stakeholders, and the public consultation process, provided good opportunities for awareness-raising and collaboration.
- The engagement of the academic community was crucial for the effective development of the C&I and the CoC certification system. The establishment of a national working group and three sub-working groups demonstrated the will of the RFD and made significant contributions. The national consultants were experienced professors at Kasetsart University, and their involvement was essential for the work of the national working groups.

The project's results have been put to use in the implementation of a new ITTO project on teak in Nan province.

2 ITTO activity PP-A/54-331: "Enhancing conservation and sustainable management of teak forests and legal and sustainable wood supply chains in the Greater Mekong Subregion" (activity in the ITTO Biennial Work Programme).

Figure 1: An infographic developed by the project illustrating the seven Thai C&I and the CoC system

The project's C&I and CoC certification system are tools not only for strengthening participatory processes in the management of trees and forests but also for promoting mutual understanding among forest officers and local communities in the management of forest resources. Large private plantation operators have the resources to use international certification systems such as the Forest Stewardship Council and the Programme for the Endorsement of Forest Certification, but smallholders and community forestry groups do not. The project's C&I and CoC certification system, which are adapted to their reality, enable smallholders to pursue good forest governance and engage with the legal timber trade. In line with the commitment of the RFD to implementing the Community Forest Act passed in May 2019, the project's C&I and CoC certification system are valuable contributions towards safeguarding forest-dependent communities in Thailand and the sustainable management of their forests.

Project outputs can be found by inserting the project code PD 470/07 Rev.1 (F) into the ITTO project search function at www.itto.int/project_search

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Fellowship report

An ITTO Fellowship in the Brazilian Amazon has helped a doctoral researcher organize a community exchange among users of six sustainable-use forests and promote social learning on community-based forest management

by Ana Luiza Violato Espada[1] and Karen A. Kainer[2]

[1] School of Forest Resources and Conservation, Tropical Forest Lab, and Tropical Conservation and Development Program, University of Florida, Gainesville, United States of America (violatoespada@ufl.edu)

[2] School of Forest Resources and Conservation, Tropical Forest Lab, Tropical Conservation and Development Program, and Center for Latin American Studies, University of Florida, Gainesville, United States of America

View swap: Participants listen attentively during a community exchange held in the Verde para Sempre Extractive Reserve in September 2019. *Photo: A. Espada*

The Amazonian context

As the world watches to see if the sustainable-use paradigm can attend to both biodiversity conservation and human wellbeing, the literature on joint government–local-community co-management has matured. Key decision-making challenges include how to prioritize and assimilate a diversity of knowledge systems (e.g. local, technical and scientific), interests (e.g. socioeconomic and environmental) and needs (e.g. for income and infrastructure). There is, however, limited empirical information on the integration of knowledge systems, community empowerment and women's strategic role in sustainable timber management, as well as few practical examples of how to go about doing it.

Forest-based communities play an important role in both tropical timber supply and forest conservation. In Latin America, communities legally manage 216 million hectares of forest (one-third of the region's forested area) (RRI 2015). In 2010, the countries with the largest areas of publicly owned forest under community management were Brazil and Colombia, with 152 million and 30 million hectares, respectively (Gilmour 2016). Within multiple-use forest management, logging on community land is an important component of forest production, local economies and conservation agendas.

In Brazil, the government strategy of public forest concessions has the potential to supply tropical timber for regional and international markets, but it has been deployed minimally to date and is not achieving its objective. Of the 5.3 million hectares available for timber production in publicly owned forests (including sustainable-use protected areas), only 1 million hectares was under effective logging in 2019 (SFB 2019); it took more than ten years after approval of the Public Forest Management Law (Federal Law 11.284 /2006) to attain this coverage.

A recent study shows that the "effectiveness index" score of forest concessions is very low (Castanheira 2018). To develop this index, the Brazil Forest Service first applies a rigorous, transparent process of excluding ecologically and socially sensitive areas from logging consideration. It reviews this assessment on an annual basis and announces those logging concessions that are open for bidding (*plano anual de outorga florestal*) by cooperatives, private timber companies and others. To date, contracts have been implemented in very few designated areas, however, producing an index score of less than 20. Ideally, all public forested lands available as concessions would be under effective contracts (equating to an effectiveness index score of 100).

New focus on community forestry

The timber industry, therefore, has identified community areas as potential suppliers—with good reason. Fairly recently, communities have been granted more management rights to participate in formal timber markets (logging is legally permitted). Indeed, a novel regulatory standard, the Chico Mendes Institute of Biodiversity Conservation (ICMBio) Normative Instruction No. 16/2011, has enabled forest residents in extractive reserves (IUCN protected area category VI—Dudley 2008) to manage timber for commercial purposes.

Under this rubric, government, local communities, timber companies and non-governmental organizations are adopting governance strategies (e.g. participatory decision-making and community–company partnerships) to promote sustainable forest management (SFM) in Brazilian Amazon extractive reserves, national forests and sustainable development reserves. This approach also raises challenges in decision-making processes, however, such as the integration of local knowledge with technical and scientific expertise

and the prioritization of local needs (infrastructure and income) in conservation initiatives. Local knowledge is the cumulative body of knowledge and associated beliefs that people in a given community have transmitted and developed—and continue to develop—over time (Mulder & Coppolillo 2005). It complements scientific knowledge and, when considered by co-managers, can result in much improved, bottom-up decisions promoting long-term partnerships, mutual cooperation and collective action to conserve standing forests through SFM. It can also contribute substantially to both local livelihoods and regional economies.

Overview of the research

The complexity and novelty of community timber management systems in the Amazon and the Global South more generally led to the following key research question: What variations in community timber management schemes have emerged, and why? Guided by this, one of the authors, Ana Luiza Violato Espada, a doctoral researcher at the University of Florida, organized a community exchange among users of six Brazilian Amazon extractive reserves (Figure 1). This exchange emphasized collective inquiry, experimentation grounded in experience, and the wealth of social learning related to community timber management.

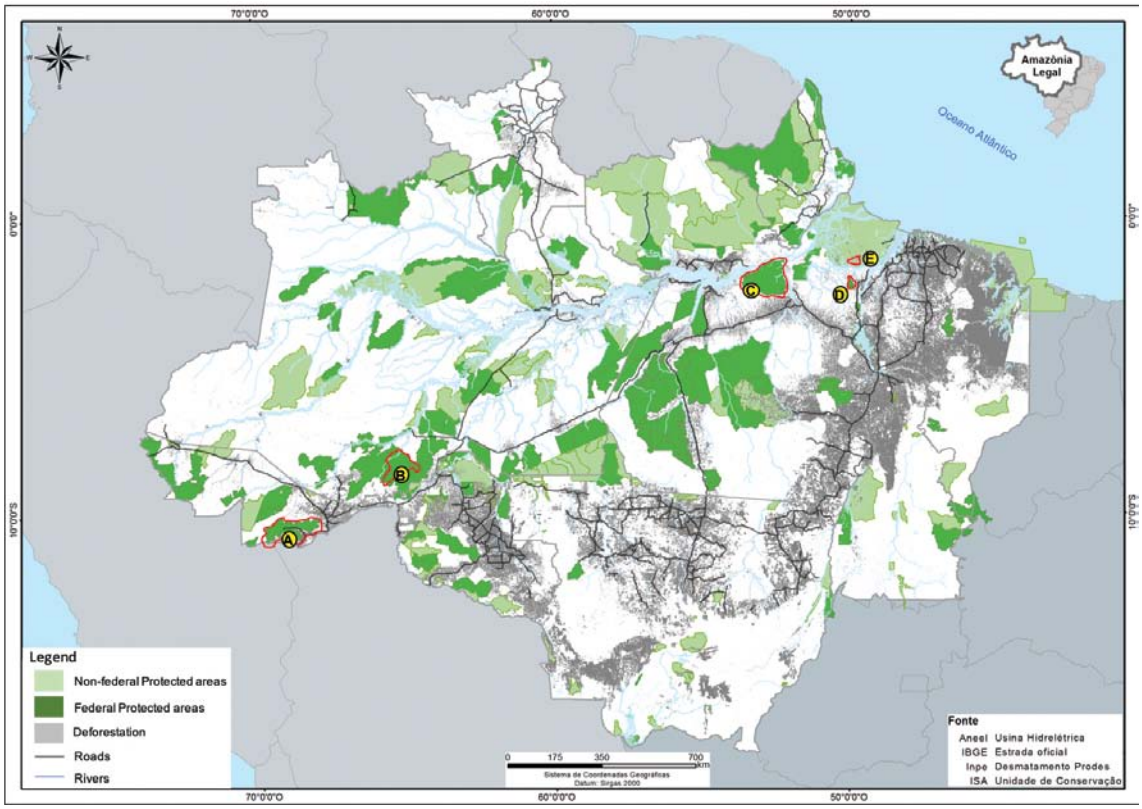
The community exchange was part of Ana's 15 months of fieldwork (May 2018 to September 2019) for her thesis, which consisted of extensive data collection using diverse and complementary methods, including archival research, semi-structured individual interviews, group interviews (six community meetings with, in total, 167 participants), participant observation, and focus groups (a three-day community exchange). Drawing on a decade of experience working in community-based forest management in the Amazon, Ana applied a participatory action research approach, using multiple participatory tools to engage people and emphasizing participation and action towards SFM. This constituted an innovative methodological approach to participatory action research that is replicable in natural resource co-management contexts elsewhere.

The community exchange aimed to:

- share and reflect on community logging experiences in sustainable-use protected areas (Figure 2);
- discuss decision-making processes and socio-productive arrangements for community timber management;
- create spaces for dialogue and action that could result in individual and collective empowerment processes;
- create spaces for strategic actions that could strengthen local governance and tropical timber production; and
- apply participatory methodologies so they can be documented and adapted to other scientific research contexts.

For the first time, extractive-reserve communities who are logging their forests had the opportunity to share experiences, technologies and lessons learned. Participants were encouraged to examine the concept of "empowerment" and to think through their own journeys and those of their

Figure 1: Extractive reserves represented in the community exchange



Note: A = Chico Mendes (Acre); B = Ituxi (Amazonas); C = Verde para Sempre (Pará); D = Terra Grande-Pracuúba (Pará); E = Mapuá and Arióca-Pruanã (Marajó Archipelago Environmental Protection Area, Pará). Map adapted from Araújo et al. (2016).

Figure 2: Community-exchange logo

Note: The logo suggests how community timber management evolved in Brazilian Amazon extractive reserves. The story begins in the state of Acre (left icon with people), where the first timber project was approved under Normative Instruction No. 16/2011 in the Chico Mendes Extractive Reserve. In 2014, Ituxi became the next extractive reserve to approve its timber management project (middle icon with trees). Finally, the Verde para Sempre Extractive Reserve (right icon with timber) approved five projects in 2015. The icons going from left to right also suggest connections (dashed line) between the three extractive reserves, highlighting the meaningful dialogue and knowledge exchange enabled by the ITTO Fellowship and resulting in sustainable timber management.

communities. Understanding outcomes and how and why variations in timber management have emerged in these sustainable-use protected areas is crucial for informing the growing number of such initiatives where local communities are central to their implementation, monitoring and success.

Ana received financial and in-kind support for this community exchange from diverse partners, especially the ITTO Fellowship and a non-profit organization, the Tropical Forest Institute (IFT) (through the Amazon Fund).

Community-exchange activities

The community exchange took place in the Verde para Sempre Extractive Reserve over three days (18–20 September 2019). It included 32 participants, of whom 27 were community members and five were from IFT (one environmental journalist, two forestry technicians and two newly graduated female foresters); the five IFT participants helped execute the logistics of the community exchange. Among the community members, ten were women working in timber co-management projects in their communities.

Day 1 of the community exchange consisted of a visit to a logging area to observe activities and discuss differences in logging operations between the extractive reserves. Day 2 involved storytelling about logging schemes, community engagement, participation in logging operations, and reflections on community empowerment. The narratives and ensuing conversations addressed local rules and benefit-sharing arrangements; the identification of social organizations emerging from the logging schemes; targets regarding forest management (timber tree species); and community aspirations towards local livelihoods (e.g. investment in education, health and food security). Day 3 consisted of a debate on health and safety in logging operations; low-cost technologies for transporting timber; and the engagement of women and youth in decision-making processes and timber management. The entire community exchange was documented through notes, photos and videos.

Outcomes achieved

The community exchange enabled discussions and reflections on sustainable tropical timber production on Amazonian communal lands under the auspices of scientific research. This innovative participatory research method brought together community members from six protected areas for

Links in the chain: Participants use a technique for information exchange and learning during the community exchange held in the Verde para Sempre Extractive Reserve in September 2019. *Photo: A. Espada*

Knowledge exchange: Participants in a focus group swap stories during the community exchange held in the Verde para Sempre Extractive Reserve in September 2019. *Photo: A. Espada*

the first time. The methods supported social learning by sharing and reflecting on community logging experiences. The community exchange also created spaces for dialogue among community members and forestry extensionists that ultimately could lead to individual and collective empowerment processes and strategic actions to strengthen local governance and timber production in the tropics.

Some of the learnings from the exchange are described below.

Community-based timber management schemes vary among the extractive reserves, although all cases have similarities: for example, they are under the same Brazilian Federal Normative Instruction No. 16/2011; all the schemes are based in the same category of sustainable-use protected area (i.e. extractive reserves); in all cases, community members work with more than two economically viable forest resources; and, in all cases, communities had support at some point from government and non-governmental organizations to establish timber management in their reserves. On the other hand, historical land-use processes and local political and economic pressures have differed among the reserves, with significant influences on decision-making about timber management in terms of production arrangements and community-level participation. The way in which each community is involved in decision-making processes continues to influence the three dimensions (i.e. social, economic and environmental) of conservation efforts, community development and timber management outcomes.

In extractive reserves in which community members have had high levels of involvement in decisions on how to manage forest resources for local benefit, we observed that:

- there is more local commitment to long-term forest use, which can promote forest conservation;
- awareness is higher on how to distribute timber sales revenues to benefit people other than logging workers; and
- more community members participate in operational logging activities and forest management, which provides more autonomy and capacity to make decisions on community forests.

Ultimately, the participation of community members in all stages of the decision-making process (before, during and after logging activities) promoted a process of community empowerment.

Capacity building via participatory research engaged Brazilian students, newly graduated female forest engineers and forest residents (including young people and women), generating reflection, improving social learning, and providing elements for individual and collective empowerment. Ana trained the female forest engineers using participatory methods derived from a literature review, previous non-governmental experience in Brazil (from 2009 to 2016), and University of Florida classes focused on communication skills. The application of participatory methods in community meetings provided local people with opportunities to reflect on and discuss forest use, social benefits and conservation.

For many years, tropical timber management has been seen as a masculine activity among both timber producers and forestry professionals. This is changing, however, as local communities and their partners strive to encourage the involvement and participation of women in decision-making to improve timber value chains and better reflect family and community interests.

Participation in timber management should have at least three dimensions:

1) access to information and preparatory processes for decision-making on an equal footing;
2) the right to be heard at meetings and in key decision-making moments; and
3) a willingness among other participants to listen, discuss and deliberate on alternatives proposed by women.

The functions performed by women directly reflect on the quality and delivery of timber to industry. Women are becoming involved in all stages of timber management, from administration to forest inventories to the processing of timber products. But there is a need to do more. It is evident that women play an important role in timber management, but men are still the principal protagonists.

Forest-based communities play important roles in protecting and sustaining forests around the world. This is particularly true in remote protected areas, where governments are struggling to protect forests against land grabbing and deforestation for agribusiness. Decision-making processes that involve and engage local people are crucial for creating commitment towards forest conservation. Sustainable timber management is indeed a strategy for both using and conserving forest resources—but not in all circumstances nor in all forests. Forest-based communities have the right and knowledge to decide what to use and how to manage their forests. Outside partners can support their decisions but not decide for them—because undermining the empowerment of local people will jeopardize their strong, generational forest conservation commitment.

During the exchange, community members drew a matrix to compare logging schemes among the extractive reserves.

Outreach and future activities

The community exchange was featured in local and regional Brazilian news.[1] In October 2019, Ana presented preliminary results from the community exchange at the world congress of the International Union of Forest Research Organizations, which took place in Curitiba, Brazil. The dissertation findings, including data on the community exchange, will be disseminated in various ways, including papers in international scientific journals, articles in Brazilian media outlets, academic presentations such as scientific conferences, and field-based presentations with multistakeholder groups.

We are planning a two-day multistakeholder seminar with the participation of community members and governmental and non-governmental organizations that have supported logging projects at the research sites. Day 1 of the seminar will focus on sharing results, key implications for forest conservation and livelihood improvements, public policies, and the potential contributions of the research to natural resource co-management practice. Day 2 will consist of participatory methods—such as working groups with guiding questions—to gather information and perceptions about research results from these audiences, bringing their opinions and data into the collective space for debate.

Finally, we plan to document the multiple participatory tools used in the community exchange in a technical document to disseminate among practitioners and scientific researchers who seek methods for generating knowledge among local stakeholders and researchers (Duchelle et al. 2009) in tropical forest management and conservation.

Acknowledgements

We thank the ITTO Fellowship Programme and IFT through the Amazon Fund, which made the community exchange possible. The Fellowship enabled Ana to experiment with an innovative data-collection method in a remote area and to apply diverse participatory research methods. We thank the following organizations that also helped make the community exchange possible: the Brazilian Chico Mendes Institute of Biodiversity Conservation; the School of Forest Resources and Conservation and the Tropical Conservation and Development Program at the University of Florida; the Rufford Small Grants Foundation; IdeaWild; and the Observatory of the Dynamics of Interactions Between Societies and Environment in the Amazon (Odyssea/CIRAD). Finally, but not least, we are grateful to all community members who participated in the exchange, providing valuable reflections on community tropical timber production, local livelihood improvement, and women's role and participation in forestry.

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1 See, for example, www.ift.org.br; www.revistarural.com.br; and https://observatoriomfcf.org.br/observatorio/intercambio-promove-troca-de-experiencias-em-manejo-madeireiro-comunitario

Compliance courses for North American importers

Training offered by the International Wood Products Association is helping importers and producers develop processes for meeting legality requirements

by Cindy L. Squires

Executive Director, International Wood Products Association, Washington, DC, United States of America (cindy@iwpawood.org)

On behalf of the global wood-products trade: IWPA Executive Director Cindy Squires makes an intervention at the 55th session of the International Tropical Timber Council in November 2019. *Photo: R. Carrillo/ITTO*

A consistent concern for importers of wood products in the United States of America (US) is ensuring they have processes for complying with the requirements of the Lacey Act—a law that, like similar laws in several other wood-product-consuming nations, prohibits the importation of products made from illegally harvested wood.

As a US-based international trade association that works to build acceptance and demand in North America for globally sourced wood products from sustainably managed forests, the International Wood Products Association (IWPA) saw an opportunity to advance its mission. Consequently, it developed training courses to give participants the tools and information they need for creating compliance strategies for the Lacey Act and other laws affecting the wood-products industry. IWPA is uniquely placed to lead such an effort with its focus on the entire marketing chain of wood products destined for the North American market. IWPA works closely with its overseas members to provide them with the information they need to be successful in the market and to promote the use of globally sourced wood products.

Additionally, IWPA seeks to ensure that the global wood-products trade has a seat at the table in important international discussions. IWPA actively participates in ITTO meetings as well as in the Plants Committee and relevant working groups of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). A driving focus of these efforts is to provide policymakers with crucial information on the trade as well as technical guidance so that CITES listings can be implemented fairly and efficiently. This work helps avoid unnecessary disruptions in the trade while protecting vulnerable resources. For example, IWPA advocated for the exemption of plantation-grown products from the *Cedrela* listing, thereby ensuring that scarce conservation resources are directed towards threatened natural neotropical populations.

Compliance through education

IWPA convened its first Wood Trade Compliance Training and Due Diligence Resources Course in 2016, thereby beginning its training of industry professionals across the US. The course had been nearly a year in development, with the steadfast support of IWPA members and help from the World Resources Institute and the US Agency for International Development.

At the beginning of course development, many hoped for a simple, one-size-fits-all solution that would allow importers to easily institute complete due-diligence plans and then move on to other pressing matters. It immediately became clear, however, that the imported-wood-products industry is too varied and complex for that to be a realistic possibility. Instead, the course was developed to inform compliance professionals about wood-product-specific laws and regulations—such as "due care" under the Lacey Act, formaldehyde emissions limits for composite wood products, and CITES requirements—and how these can dovetail with the other quality assurance and compliance tasks that companies complete on a daily basis.

The training encourages importers to work closely with suppliers to ensure they have access to the information needed to understand the rules and conduct robust due diligence. After completing the initial course, one attendee said, "We are revamping our entire Lacey programme, including doing a general overhaul of our procedures. We even went to Asia and conducted a Lacey training with our suppliers so they could understand what we are looking for".

The course was crafted in the hope that it would help develop an industry-wide class of wood trade compliance professionals. Although information on suppliers and marketing plans is

Roundtable discussions: Participants in a wood trade compliance training session convened by IWPA. *Photo: IWPA*

necessarily proprietary, and the implementation of a due-diligence plan is specific to each company's position in the marketplace, the universe of due-diligence tools and resources is common to the entire industry. IWPA plays a crucial role in ensuring that association members, and the industry as a whole, has access to the latest, most complete information so that companies can make informed decisions about what their due-diligence plans should include. The course has helped foster and connect a new corps of compliance professionals armed with the latest knowledge and resources to enable their companies—from the smallest family businesses to huge multinational corporations—to import wood products confidently.

Advanced courses added

The initial compliance and due-diligence course in 2016 was extremely well-received; it led to a series of more advanced courses, comprising, "Advanced Wood Trade Compliance", "Audits for the Wood Trade Professional", "Wood Products Supply Chain Mapping Basics" and "Formaldehyde Emissions Regulations for the Wood Trade Professional". Exit surveys of attendees have made it clear that they want as much information and instruction as they can get their hands on.

A global partnership

IWPA has conducted briefings and training for suppliers worldwide, partnering with organizations, such as the International Tropical Timber Technical Association, the Global Timber Forum, the Malaysia Timber Council, and several Chinese industry associations. IWPA believes that wood-product end-users and overseas producers must work together to improve understanding of the demands of the modern marketplace and to drive critically needed innovation.

Training during COVID-19 travel restrictions

The global COVID-19 pandemic has led IWPA to re-examine how stakeholders access its wood-trade compliance training courses. In the due-diligence space, travel restrictions are requiring that wood-product importers re-evaluate their due-diligence procedures to ensure they continue to meet the requirements of the Lacey Act and other relevant laws and regulations. IWPA will continue to update its courses to reflect the new reality. In particular, and for the first time, it will offer courses virtually and via IWPA's e-learning platform in the second half of 2020.

IWPA will continue to innovate and ensure that it is meeting the needs of globally sourced wood-product supply chains. As an industry working together, we each have an important part to play in supporting sustainable development—from both an environmental and an economic perspective.

Assisting the development of the tropical wood sector

The International Tropical Timber Technical Association—known universally as ATIBT—will celebrate its 70th anniversary in 2021

by Benoit Jobbe-Duval

General Manager,
ATIBT Secretariat
Paris, France
(benoit.jobbeduval@atibt.org)

Precious wood: These azobe boards have been sawn in a new Precious Woods plant in Gabon. *Photo : © Precious Woods*

The International Tropical Timber Technical Association (*Association Technique Internationale des Bois Tropicaux*—ATIBT) was created in France in 1951 under the auspices of the Food and Agriculture Organization of the United Nations and the Organisation for Economic Co-operation and Development. It was established as an entity governed by the French law of 1 July 1901 for industry associations of property owners, corporate foundations and endowments; it is a non-profit association.

The history of ATIBT is rich. In its early years, the association acted as a technical reference for the tropical wood sector, notably through the publication of the *General Nomenclature of Tropical Timber* (now in its seventh edition). Its focus in the 1990s was on the development of forest management plans in the Congo Basin. Today, much of its work is devoted to promoting sustainability certification and fighting against the illegal trade of tropical wood.

ATIBT contributes to the sustainable and responsible development of tropical forestry, from the forests to the market, and actively promotes certification through its "Fair&Precious" brand. This brand, which was created in 2016, promotes forest management certification obtained under the Forest Stewardship Council and the Programme for the Endorsement of Forest Certification (PEFC). It is intended to support companies that have invested in certification to ensure that such companies find recognition in the market and that consumers appreciate the value of certified tropical timber. Thus, ATIBT carries out marketing and communication work in the media and social networks, and companies benefit from its advice and marketing tools to promote their image. Fair&Precious is becoming increasingly well-known, and it is enabling its partners to highlight the practices implemented by certified companies.

Aims and priorities

ATIBT aims to facilitate effective and innovative cooperation among all stakeholders with a view to implementing sustainable forest management in the tropics and increasing the contribution of the forest sector to the development of national economies. It provides its members with information (e.g. related to legislative, technical, scientific and trade matters), training, and technical and scientific support, and it promotes best practices across the timber industry to ensure economic viability, social equality and the conservation of forest ecosystems.

ATIBT represents forest managers and harvesters (mainly located in tropical Africa), suppliers of tropical timber products, and all other industry players involved in responsible forestry. It also represents traders, mainly in Europe but also in the United States of America and other countries. It promotes global markets for tropical timber harvested using environmentally friendly practices.

Through its actions, ATIBT intends to contribute to the conservation of tropical forests for present and future generations by promoting certified and sustainably managed forest concessions and natural protected areas. ATIBT is aligned with the market's evolving demand for and interest in tropical timber products that are legally harvested and certified.

ATIBT has a team of about ten people based in Europe and the Congo Basin. The mission of this team is to defend the interests of ATIBT members and to lead various projects. These projects concern, among other things, professional training, the implementation of voluntary partnership agreements, the promotion of certification in Congo Basin countries, and efficient wood processing in producer

High standards: A forest worker measures a tree diameter as part of the Dynaffor project. *Photo: © J.L. Doucet*

countries. In a context in which illegal timber still constitutes too large a part of the tropical timber industry, certification is important for ATIBT members because it is a bulwark against bad practices—it enables the sector to demonstrate that a group of companies is exemplary in the management of tropical forest resources.

ATIBT's three strategic priorities are:

1) the sustainable management of tropical forests;
2) the enhanced processing of timber to achieve higher added value; and
3) the improvement of access to international markets and the promotion and development of the market for products made of legally harvested and/or certified tropical timber.

The values defended by ATIBT are:

- responsibility—that is, compliance with the legislative and regulatory framework in all producing and consuming countries involved in products made of tropical timber, including (but not limited to) laws relating to sustainable forest management, the environment and labour;
- transparency—ATIBT demonstrates transparent and ethical behaviour, taking into account the expectations of its members and stakeholders in the tropical timber industry;
- integrity—ATIBT is an organization that condemns all forms of corruption;
- respect—ATIBT respects industry players' various views and interests, as this forms the basis of the association's federating nature; and
- cooperation—ATIBT cooperates with non-governmental organizations, academic institutions and public institutions, and regional and international organizations that share the same values and goals.

Membership

ATIBT's members are legal entities or individuals that wish to contribute to the implementation of the association's mission and goals. The association has 130 members, consisting of producers, importers, professional associations, research institutes, public institutions, individual members, international organizations and states.

For certain ATIBT members, membership also implies complying with specific commitments, as follows:

- Producers in the wood sector that are ATIBT members should at minimum be engaged in a credible verification process of their activities, commissioned by a reputable third party.
- European importers that are ATIBT members undertake to comply with the obligations of the European Union Timber Regulation (EUTR).
- Non-European importers that are ATIBT members undertake to adhere to the chains of custody they have previously set up in terms of the legality of their purchases.
- Professional associations that are ATIBT members undertake to promote the implementation of the EUTR (if based in European Union countries) and voluntary partnership agreements (for timber-producing countries

outside the European Union); they undertake to promote the verification of the legality of their members' activities by a reputable third party, forest certification and anti-corruption measures.

ATIBT governance

ATIBT consists of the following bodies: General Assembly, Board of Directors, Executive Office and Secretariat. The Board of Directors may create subsidiary bodies (e.g. commissions, committees and thematic working groups), with commissions in particular playing key roles. These are meeting and networking places; they generate ideas, decide on directions to be taken, and act to put decisions into practice. Commissions are flexible in their *modus operandi*, exchange views among themselves and, if necessary, hold joint meetings to explore possible synergies. The results of their work must be communicated regularly to the ATIBT membership.

The following commissions are currently active:

- the Marketing Commission, which manages the Fair&Precious brand;
- the Materials and Standardization Commission, which enables debate on technical and regulatory issues relating to tropical timber;
- the Training Commission, the aim of which is to reflect on the themes of professional training, especially in the Congo Basin. This commission is the impetus behind the Support Project for the Development of Continuous Training in the Forest and Wood Sector in Central Africa now being implemented jointly with the Network of Forestry and Environmental Training Institutions in Central Africa (*Réseau des Institutions de Formation Forestière et Environnementale en Afrique Centrale*—RIFFEAC), assisted by the French Development Agency;
- the Forestry–Industry Commission, which is working on the future of development plans in the Congo Basin, 25 years after the first plans were created; and
- the Certification Commission, the aim of which is to contribute to the development of certification schemes, the debate on "intact forest landscapes", and the development of the Pan-African Forest Certification–PEFC standard in the Congo Basin.

These bodies operate autonomously and can consist of ATIBT members and sector experts recognized by ATIBT. The commissions' conclusions are reported to the Board of Directors by a representative of each commission.

Green supply chains

Among the biggest challenges the association faces are the fight against the illegal timber trade and the development of sustainable value chains. On the latter, an important recent action was the convening of the Shanghai forum, Together Towards Global Green Supply Chains: A Forest Products Industry Initiative, organized jointly with ITTO, the China Timber and Wood Products Distribution Association and the Center for International Forest Products Trade/National Forestry and Grassland Administration. This work has an ambitious objective, and considerable effort is still needed to train sector actors in combating these serious issues.

Tropical and topical

Compiled by Ken Sato

Forests recover faster with restoration

Actively restored forests recover aboveground biomass faster than areas left to regenerate naturally after being logged, according to a long-term study in Borneo lowland rainforest. As reported in *Science* in August 2020 (and summarized in *Science Daily*), researchers from 13 institutions studied an area of tropical forest in the Malaysian state of Sabah on Borneo that suffered heavy logging in the 1980s but was subsequently protected from further deforestation and conversion to agricultural land. The study found that areas left to regenerate naturally added as much as 2.9 tonnes of aboveground carbon per hectare per year. According to the study's lead author, Christopher Philipson (quoted in *Science Daily*), "this quantitatively confirms that if degraded forests get effective protection, they can recover well naturally". Importantly, however, the research team found that areas of forest that underwent active restoration— involving cutting lianas, weeding, and enrichment planting with tree seedlings—recovered 50% faster, adding, on average, 4.4 tonnes of aboveground carbon per hectare per year. "This active restoration encourages naturally diverse forest and is therefore much more beneficial for biodiversity than monocultures or plantation forests," said Philipson.

More: www.sciencedaily.com/releases/2020/08/200813142321.htm; 10.1126/science.aay4490

Deforestation has slowed but remains a concern

The rate of forest loss has declined substantially over the last three decades, according to the Food and Agriculture Organization of the United Nations (FAO) in its latest Global Forest Resources Assessment (see also "Recent editions" in this edition). Globally, the world has 4.06 billion hectares of forest but the area continues to decrease, according to the report. FAO estimates that about 420 million hectares of forest have been lost worldwide since 1990, mainly in Africa and South America (although, to some extent, this area has been offset by reforestation). The top countries for average annual net losses of forest area in 2010–2020 were (in descending order by average net annual forest loss) Brazil, the Democratic Republic of the Congo, Indonesia, Angola, the United Republic of Tanzania, Paraguay, Myanmar, Cambodia, Bolivia and Mozambique. There is good news, however, with the overall rate of forest loss declining substantially in the last three decades. The annual rate of deforestation was estimated at 10 million hectares between 2015 and 2020, compared with 12 million in 2010–2015.

More: https://news.un.org/en/story/2020/07/1068761

The importance of empowering local communities in restoration efforts

As reported in *Science Daily* in August 2020, a study published recently in *Nature Ecology & Evolution* has found that nearly 300 million people in the tropics live on lands suitable for forest restoration and about 1 billion people live within 8 km of such lands, many of them in poverty. The just and equitable implementation of forest restoration projects will require that such communities are empowered to manage and use local forests, according to the study's authors. The community management of forest areas includes the rights to access the forests, withdraw forest resources, and manage lands for community benefit.

More: www.sciencedaily.com/releases/2020/08/200824110114.htm

ITTO projects to support forest fire management in Indonesia, Peru

The uncontrolled use of fire—aggravated by drought conditions and heatwaves—is a major cause of forest loss and degradation in Borneo and the Amazon. Reducing the incidence of wildfire requires effective fire prevention and management as well as mechanisms for rapid fire response. Two new ITTO projects announced in September will use integrated, participatory approaches to build capacity in fire prevention and management and help improve early-warning systems. Both projects, with a combined value of USD 2.2 million, are being funded as part of the Japanese Government's emergency assistance for addressing forest fire.

The projects will target regions that are especially vulnerable to forest fire—the provinces of South Sumatera and Central and South Kalimantan in Indonesia, and the departments of Cajamarca, Huanuco, Junin, Pasco and Ucayali in Peru. Expected outputs include a reduction in the incidence of forest fire and associated forest loss; improved agricultural and silvicultural practices; improved fire prevention and management and early-response protocols; improved firefighting capacity; the installation of efficient early-warning and fire monitoring systems; effective coordination and synergies among stakeholders in combating and preventing forest fires; and increased public awareness of fire management.

More: www.itto.int/news/2020/09/15/itto_projects_to_support_forest_fire_management_in_indonesia_peru

Global and collaborative forest education project underway

Ensuring that forest professionals are well prepared for the demands of sustainable development in an increasingly complex world requires forward-looking forest education. ITTO, FAO and the International Union of Forest Research Organizations are collaborating on a global project aimed at developing a long-term vision and strategic plan for coordinating international efforts to this end.

The three organizations are conducting a survey of environmental educators, forestry students and forest-related employers worldwide aimed at generating insights on, for example, education initiatives, approaches, resources and technologies; teacher competencies; key players; and the readiness of forest graduates for the workplace. The survey is targeting all educational levels—primary, secondary and tertiary (including technical and vocational training)—in all regions of the world.

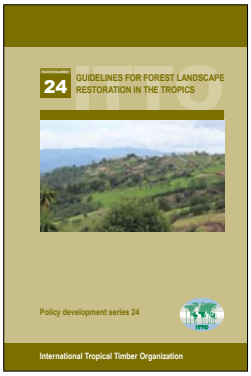
The results of the survey will be compiled in six regional reports and a global assessment. These reports will be presented at the International Conference on Forest Education, the dates of which will be decided when the pandemic situation becomes clearer.

As part of the project, which is financed by the German Federal Ministry of Food and Agriculture (BMEL), ITTO is developing an online learning course on legal and sustainable supply chains for tropical timber and tropical wood products, which should be available in late 2020.

More: www.itto.int/news/2020/07/15/air_your_views_on_the_future_of_forest_education_participate_in_global_survey

Recent editions

Compiled by Ken Sato



ITTO 2020. *Guidelines for forest landscape restoration in the tropics*. ITTO Policy Development Series No. 24. Yokohama, Japan.

Enormous changes have occurred in tropical forest landscapes in recent decades, and large areas—nearly a billion hectares—have become degraded and require restoration. Considerable knowledge and experience exists on how to restore degraded forest landscapes, and there are many inspiring examples of success in the tropics. These guidelines on forest landscape restoration (FLR) in the tropics have been drafted by two world-renowned experts based on vast recent experience in implementing FLR in the field and the invaluable inputs of forest landscape specialists and institutions from around the globe. The guidelines are presented in a comprehensive and easy-to-use form for policymakers, practitioners and other stakeholders; they provide guidance at the policy and operational levels for restoring degraded tropical landscapes for the benefit of local people and wider communities.

The guidelines, which include 18 case studies from the three tropical regions, are designed to provide a basis for policy decisions and a technical guide that can be used or adapted to the needs and capacities of users. They constitute an international reference document for the development and improvement of national and subnational guidelines on FLR in the tropics.

Available online: www.itto.int/policy_papers

Bolin, A., ed. 2020. *Women's empowerment through collective action: how forest and farm producer organisations can make a difference*. International Institute for Environment and Development, London, and FAO, Rome.

ISBN: 978-92-5-132445-5

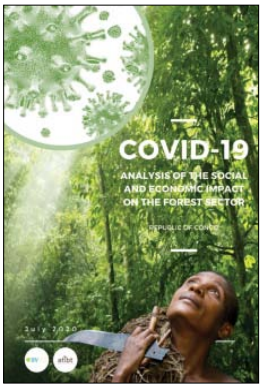
Available at: www.fao.org/documents/card/en/c/ca8713en

This report explores organizational structures and social and cultural services from the perspective of gender equality and women's empowerment. Specifically, it examines how access to social and cultural services can facilitate women's participation in economic and political life. The producer-organization business model provides advantages in creating job opportunities and access to markets for women, positive spillover effects in both household and group businesses, and access to social services such as vocational training, childcare and maternity leave—all of which help women participate in labour markets on a more equal footing to men.

Saunders, J. & Norman, M. 2020. *Conflict, fragility and global trade in high-risk timber*. Forest Trends, Washington, DC, USA.

Available at: www.forest-trends.org/wp-content/uploads/2020/08/doc_5758.pdf

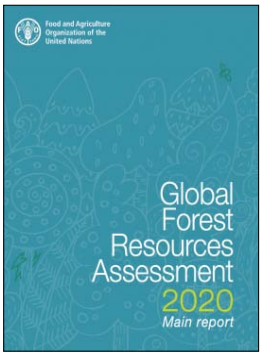
This report analyses the international trade in timber from countries on the World Bank's 2020 List of Fragile and Conflict-affected Situations. It examines the challenges in sourcing legally harvested wood in these contexts and discusses the danger that, without further regulation, the timber trade might fuel further conflict and instability.



ATIBT 2020. *COVID-19: analysis of the social and economic impact on the forest sector. Republic of Congo*. International Tropical Timber Technical Association (ATIBT), Cedex, France.

Available at: www.atibt.org/wp-content/uploads/2020/08/REPUBLIC-OF-CONGO-COVID-19-Analysis-of-the-social-and-economic-impact-on-the-forest-sector-vEN-20200824-1.pdf

This publication reports on a study conducted to better understand the impact of COVID-19 on the Congo's forest sector. It highlights the consequences of the pandemic on forestry and the difficulty in implementing measures to combat the spread of the virus. The analysis examines the direct consequences of the pandemic on the forest sector, which are jeopardizing the production and trade of forest products and the livelihoods of many local people. The study's findings will help in developing means to support forest enterprises and other stakeholders in the Congo forest sector in this difficult period and the livelihoods of local people more sustainably in the wake of the crisis. The study is based on information collected from ATIBT members from April to June 2020, mainly through telephone interviews with 20 companies in the Congo wood industry.



FAO 2020. *Global forest resources assessment 2020. Full report*. Food and Agriculture Organization of the United Nations (FAO), Rome.

ISBN: 978-92-5-132581-0

Available at: www.fao.org/documents/card/fr/c/ca9825en

FAO completed its first assessment of the world's forest resources in 1948. At that time, its major objective was to collect information on available timber supply to satisfy post-war reconstruction demand. Since then, the Global Forest Resources Assessment (FRA) has evolved into a comprehensive evaluation of forest resources and their condition, management and uses, covering all the thematic elements of sustainable forest management.

This, the latest of these assessments, examines the status of, and trends in, forest resources over the period 1990–2020, drawing on the efforts of hundreds of experts worldwide. The production of FRA 2020 also involved collaboration among many partner organizations (including ITTO), thereby reducing the reporting burden on countries, increasing synergies among reporting processes, and improving data consistency. The results of FRA 2020 are also available in an online database containing the original inputs of countries and territories.

Meetings

ITTO meetings

9–13 November 2020
56th Session of the International Tropical Timber Council and Sessions of the Associated Committees (virtual)
Contact: www.itto.int/events

The International Tropical Timber Council is ITTO's governing body. It meets regularly to discuss wide-ranging issues of interest to members, including those related to the legal trade of tropical timber and the sustainable management of tropical forests. Council sessions are open to official delegates and accredited observers.

23–26 August 2021
4th World Teak Conference: Global Teak Market: Challenges and Opportunities for Emerging Markets and Developing Economies
Accra, Ghana
Contact: www.worldteakconference2020.com

This conference, which ITTO is co-organizing, will address the most crucial issues facing the global teak sector, including:

- the sustainable management of smallholder teak farming systems to supply markets with high-quality teakwood;
- improving existing silvicultural systems and practices for better stand management to achieve high-quality teakwood;
- market structures and value chains for teakwood trading and their impacts on the profitability of teak investments; and
- evaluating private and public investments in the teak sector and their impacts on socioeconomic conditions and rural livelihoods.

The conference will make strategic, conceptual and operational recommendations to support the sustainable development of the teak sector.

Postponed
International Conference on Forest Education
Rome, Italy
Contact: tetra@itto.int

This conference will address the problems and challenges encountered in forestry education by analyzing relevant ongoing forest-education initiatives, approaches and key players. It will assess ways forward for enhancing forest education and develop a long-term vision and strategic plan to coordinate international efforts to advance forest education, including through an online platform.

The conference is being co-organized by the Food and Agriculture Organization of the United Nations, the International Union of Forest Research Organizations and ITTO under the Collaborative Partnership on Forests, with financial support from the German Federal Ministry of Food and Agriculture.

Other meetings

Postponed
6th International Climate Change Adaptation Conference—Adaptation Futures 2020
New Delhi, India
Contact: http://adaptationfutures2020.in

3–6 December 2020
Fifth Cairo Woodshow
Cairo, Egypt
Contact: www.cairowoodshow.com

Postponed
IUCN World Conservation Congress
Marseille, France
Contact: www.iucncongress2020.org

3–5 February 2021
Carrefour International du Bois
Nantes, France
Contact: www.timbershow.com

5–8 May 2021
Forestry: Bridge to the Future
Sofia, Bulgaria
Contact: https://conf2020.forestry-ideas.info

2–7 May 2021
16th International Peatland Congress 2020
Tallinn, Estonia
Contact: www.ipc2020.com

24–28 May 2021
XV World Forestry Congress
Seoul, Republic of Korea
Contact: wfc2021korea.org

31 May–4 June 2021
Biological Invasions in Forests: Trade, Ecology and Management
Prague, Czechia
Contact: https://iufro.v2.czu.cz/en

30 June–1 July 2021
Treescapes 2020
Birmingham, UK
Contact: www.birmingham.ac.uk/facilities/mds-cpd/conferences/forest/index.aspx

15–17 July 2021
10th International Wood Construction Forum
Paris, France
Contact: www.forum-boisconstruction.com/index_E.php

9–12 August 2021
World Conference on Timber Engineering 2020
Santiago, Chile
Contact: https://wcte2020.com

16–19 August 2021
20th Commonwealth Forestry Conference
Vancouver, Canada
Contact: https://cfc2021.ubc.ca

1–12 November 2021
2021 UN Climate Change Conference
Glasgow, Scotland, UK

10–13 November 2021
AUSTIMBER 2020
Victoria, Australia
Contact: www-austimber-org-au

Note that all meetings are subject to change or cancellation in light of the COVID-19 pandemic. Please check the contact addresses for the latest information.

ITTO provides this list of international meetings as a public service and is not responsible for changes in date or venue or for other errors.