TFU

Promoting the conservation and sustainable development of tropical forests

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When communities and governments collaborate

For more than 30 years, ITTO has been bringing communities, governments and the private sector together. It has done this in many ways but especially through its projects and activities, of which there have been more than one thousand. The best results are always achieved when diverse actors work cooperatively towards a shared vision around environmental sustainability, economic development and social empowerment. This edition of the TFU features stories from ITTO projects in which non-governmental organizations (NGOs) have brought together local authorities, communities and enterprises to effect lasting change.

In Ecuador's Chimbo River basin, the NGO Sendas implemented an ITTO project working with women in local communities and staff in municipal authorities to help restore degraded landscapes. The project—described by Andrea Idrovo and co-authors on page 5—tackled the challenge of landscape restoration in many ways: for example, it helped build capacity in local municipal authorities through training and increased public awareness of the importance and benefits of restoration. Most notably, however, the project worked with women to address inherent gender inequalities; as the authors say, the project's success "is based largely on recognition and appreciation of women's involvement and work as an essential component for the sustainable management of natural resources".

In Benin, another NGO, CESAREN, put together a multidisciplinary team as part of an ITTO project to address the degradation of sacred forests in two Ramsar-listed wetland sites. The project, described by Bienvenu Bossou and co-authors (page 8), also involved local communities and the managers of

Chimbo basin · sacred forests · timber tracing · REDD+ · more

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Cover image: A group discussion between Forestry Administration officials, community forestry management committee members and local authorities about field work to update land use in Veal Okdey, Santuk district, Kampong Thom province, Cambodia. *Photo: Chhorn Vireak*

Above: Yokohama Bay Bridge, Yokohama, Japan. *Photo: Yokohama Convention and Visitors Bureau*

sacred forests and worked with municipal authorities and the national forest administration. It developed two kinds of management body (one at the local level and the other at the municipal level) to provide an institutional framework for the ongoing protection of sacred forests. And, among many other things, it assisted in the development of simple forest management plans combining modern and traditional approaches. In a relatively short period, the project reversed several negative trends in the area of influence, showing what can be achieved when people with differing stakes in the landscape work collaboratively.

The ambition was somewhat different for a project in Panama reported by Elvis De Gracia and Felix Magallon (page 13). There, an NGO, WWF, worked with private-sector stakeholders, community groups and the Ministry of the Environment to develop a timber-tracking system in two forest regions in an effort to better monitor timber flows from forests through mills to wholesale traders. The system, called the Forest Traceability and Monitoring System, is proving a hit, with illegality almost fully curtailed and honest operators benefiting from the increased efficiency and reduction in illegal activities.

Phalla Thuch and co-authors (page 16) report on an ITTO project in Cambodia aimed at assisting REDD+ implementation, among other things by building trust and good relations between local communities and government officials in the province of Kampong Thom. One of the novel approaches tested in the project has been the initiation of joint forest patrols by local people and authorities, which has helped reduced illegal forest activities in the area of influence. Local people have also received training in good agricultural practices, and fuel-efficient cookstoves have been distributed to help reduce woodfuel demand. Lessons learned in the project have been fed into discussions at the national level on the development and implementation of the national REDD+ strategy. Should REDD+ be implemented in Cambodia on a significant scale, it now has a greater chance of success.

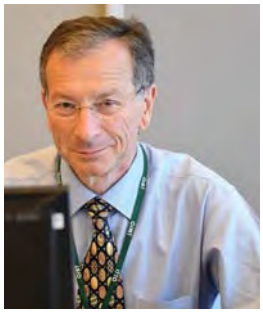
In a regular feature, ITTO Fellow Talía Lostaunau García (page 24) illustrates the power of communication as a tool for bringing together stakeholders in the conservation and management of natural resources.

Also in this edition we feature the key findings of FAO's latest Global Forest Resources Assessment, which were published earlier this year. Among the findings are that, globally, the average rate of net forest loss was lower in 2010–2020 (at 4.7 million hectares per year) than it was in 2000–2010 (at 5.2 million hectares per year). In the most recent decade, Africa had the highest rate of net forest loss, at 3.9 million hectares per year, followed by South America, at 2.6 million hectares per year. Encouragingly, the area of forest under management plans is increasing in all regions, although management plans exist for less than 25% of forests in Africa and less than 20% of forests in South America.

Finally, in this edition, we feature two articles addressing the COVID-19 pandemic and associated economic crisis. Mike Adams (page 26) reports on the impacts on the tropical timber trade—which are already significant, with global demand curtailed until at least mid next year. In his regular column, ITTO Executive Director Gerhard Dieterle (page 3) looks more broadly, including at the risks the pandemic is posing to forest-dependent people, forests and the forest sector. Dr Dieterle makes a case for uniting in the face of this adversity because, he says, "we are all connected—by trade, by our social and economic networks, and by the services the planet's ecosystems deliver". There is no doubt that the pandemic, and other forces, are straining at the bonds between us. But the need to collaborate is greater than ever.

From the Executive Director

The pandemic has increased the threat to tropical forests and those who depend on them, and a united front is needed



by Gerhard Dieterle
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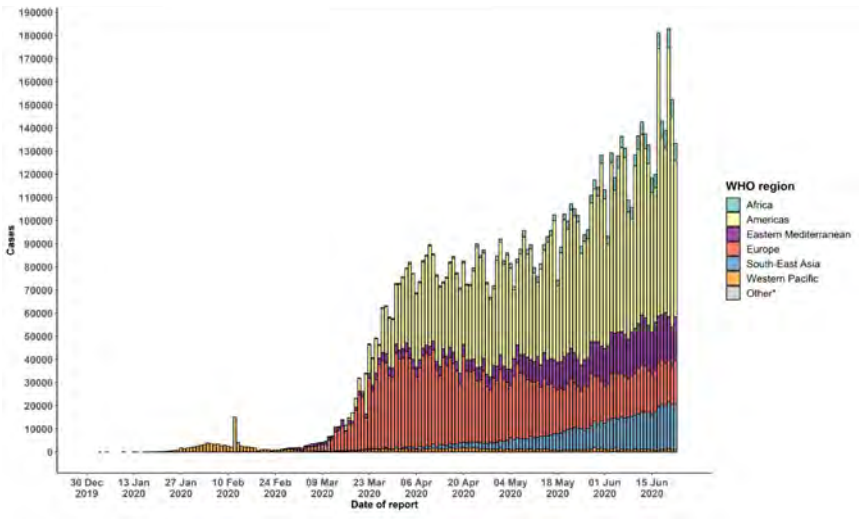
Reaching out: Dr Dieterle visits the site of an ITTO forest rehabilitation project involving displaced people in Duekoue district, Côte d'Ivoire, at a time when handshaking was still commonly practised. Ensuring forest sustainability still requires considerable reaching out. *Photo: P. Masupa/ITTO*

We have all been affected by the COVID-19 pandemic, which hit the planet in the early months of 2020 with the ferocity of a meteorite. The ground is still shaking. By no means is the emergency over, with the number of infections accelerating globally, particularly in the South (as of late June 2020; Figure 1). Nevertheless, with the crisis here to stay for the foreseeable future, governments must make difficult choices between re-opening and reviving their economies to avoid irreparable hardship and maintaining public-health lockdown measures to protect human lives. Regardless of whether such re-openings can avert the worst of a looming economic meltdown, it is clear that some of the impacts of the crisis will resonate for years to come.

Figure 1: Number of confirmed COVID-19 cases, by date of report and World Health Organization region, 30 December 2019–23 June 2020



Source: World Health Organization Coronavirus disease (COVID-19) Situation Report 155 (23 June 2020) (www.who.int/docs/default-source/coronaviruse/situation-reports/20200623-covid-19-sitrep-155.pdf?sfvrsn=ca01ebe_2).

What connects deforestation and COVID-19

We are currently flooded with an increasing body of publications and social media broadcasts suggesting there is a direct link between deforestation and forest degradation, including biodiversity loss, and the emergence of COVID-19. Although such suggestions are yet to be underpinned by scientific research, some previous disease outbreaks (such as ebola and severe acute respiratory syndrome—SARS) have sprung from wildlife to humans. Despite the uncertainties, it is clear that the increasing overlap of the growing global population with natural areas and the fragmentation of landscapes increase the risk of spread of viruses from wildlife in humans.

Productive forests—an essential asset for mitigating the impact of the COVID-19 crisis

As experience from previous economic emergencies has shown, forests and forest products provide safety nets for ensuring the livelihoods and wellbeing of rural populations, particularly indigenous peoples, smallholder farmers and other forest-dependent communities. We have also seen, in times of economic hardship, that many unemployed urban residents move back to their rural communities to better meet their subsistence needs. Rural economies (forestry, agroforestry and agriculture) produce essential products and services that contribute to food security, public health and poverty alleviation. If the current crisis continues, reliance on forest goods and services is likely, therefore, to see a sharp increase. This raises the question of how to ensure that forests continue playing a central role in people's wellbeing without increasing the risk of deforestation and forest degradation.

Sustainable forest management can play a vital role in building resilient economies and societies that can withstand pandemics, climate change and other global challenges.

Worrying times for forest-dependent people

Many forest-dependent communities have strong defences against COVID-19—they live in naturally isolated areas, and they have robust traditional systems for dealing with crises, including to further isolate disease-affected communities. Nevertheless, Victoria Tauli-Corpuz, the outgoing United Nations Special Rapporteur on the Rights of Indigenous Peoples, recently expressed concern that such isolation was increasingly difficult to enforce. Moreover, many Indigenous Peoples are exposed to increased risk and vulnerability due, among other things, to a lack of access to health care and safety nets; reduced governance and law enforcement; increased illegal practices; and a lack of respect for traditional rights and cultures.[1] Equally worrying is the potential for heightened food insecurity in forest-dependent communities, including because of breakdowns in supply chains, which reduces earnings from forest and agricultural products.[2]

The risk to forests

As we know from experience, economic crisis tends to go hand-in-hand with reduced capacities for governmental oversight, law enforcement, technical assistance and technology transfers in rural and remote areas—leading to increased levels of unsustainable practices, forest degradation and forest clearing. An increase in unsustainable practices would be cause for great concern because productive forest landscapes are essential for achieving the Sustainable Development Goals, including combating climate change, avoiding biodiversity loss and providing for essential livelihood needs. We urgently must turn the tide by restoring degraded forests and reducing deforestation—but this is a monumental challenge for governments, especially in times of economic crisis.

The challenge will be exacerbated if development assistance is curtailed. In one survey of development professionals worldwide, conducted in May,[3] more than half the respondents said they were concerned that their organization would not survive the pandemic financially. Development non-governmental organizations were reported to be laying off staff in April because of looming funding shortages.[4] If such cuts occur in our sector, it could set back efforts to increase the number of sustainable forest-based livelihoods and to simultaneously reduce tropical forest degradation and loss.

Risks to the industry and trade

Through its global network of correspondents, the ITTO Market Information Service and the ITTO Trade Advisory Group have been obtaining insights into the impacts of the pandemic on tropical timber producers and traders. As Mike Adams notes in his article (page 26) and also as reported in the ITTO *Tropical Timber Market Report*, the economic downturn has major implications for the industry. Thousands of forest and factory workers have been laid off, at least temporarily, causing personal hardship and sending some companies to the wall. Recovery from this economic blow could take years.

1 https://news.trust.org/item/20200420094913-6wo9g
2 www.un.org/development/desa/indigenouspeoples/covid-19.html
3 www.devex.com/news/exclusive-coronavirus-hits-development-pros-livelihoods-97143
4 www.devex.com/news/ngos-lay-off-furlough-staff-as-financial-crisis-bites-96963

ITTO's work continues

ITTO is a strategic partner for addressing the multiple risks and challenges posed to the tropical forest sector by the pandemic. As part of the Organization's new programmatic approach now being piloted, we have been identifying avenues for responding to the unfolding economic hardship in producer countries along three programme lines: Legal and Sustainable Supply Chains; Forest Landscape Restoration and Livelihoods; and Biodiversity Conservation and Ecosystem Services. Examples of such avenues are:

- Fundraising for innovative community/women's empowerment programmes to link food security and income generation with forest landscape restoration in several West and Central African countries and three Indonesian provinces.
- Analyzing and promoting possible fiscal and non-fiscal incentives for increasing investments in sustainable forest management, forest production and legal and sustainable supply chains. This work involves country case studies throughout the tropics and a global study of tropical timber supply and demand to 2050 with the aim of identifying gaps that will need to be addressed, including through incentives. The global study will also assess the actual and potential impacts of the COVID-19 pandemic on the tropical timber sector.
- Developing a framework for legal and sustainable supply chains, including the use of blockchain technology, in close collaboration with the global forest industry and the Global Green Supply Chain Network, with the aim of promoting demand for tropical timber in consumer markets.

The ITTO Secretariat will continue monitoring the post-pandemic plans and needs of ITTO members, and it will work with the International Tropical Timber Council to develop activities that complement those plans and address the immediate priorities of members. The Secretariat will also continue its work with importing countries on public purchasing policies and other regulations with a view to promoting the use of tropical wood and thereby assisting ITTO producer members (whose forest sectors have been amongst the hardest-hit globally) recover from this disaster.

Time to reach out

In the face of this crisis, countries will undoubtedly want to ensure the health and economic wellbeing of their own people first. Nevertheless, we are all connected—by trade, by our social and economic networks, and by the services the planet's ecosystems deliver.

The tropical forest sector can play an important role in mitigating and overcoming the unfolding economic crisis while also contributing to the achievement of global climate, biodiversity and other goals, including those embodied in the Sustainable Development Goals, the Global Forest Goals and the International Tropical Timber Agreement. We must all work together energetically and efficiently as the landscape shifts beneath us.

Striving for sustainability in the Chimbo River basin

Greater engagement with women is proving crucial in efforts to restore a degraded catchment in Ecuador

by Andrea Idrovo,[1] Mary Cabrera[2] and María Isabel Cordero[3]

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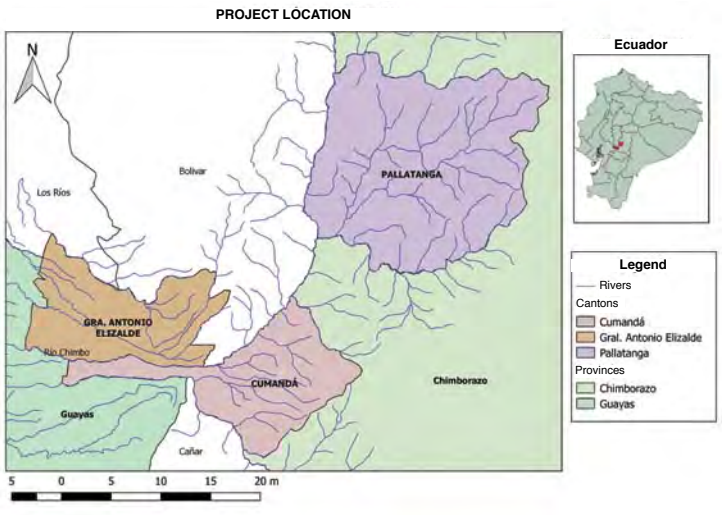
Cuenca, Ecuador

The craft of grafting: Local staff receive instructions on grafting techniques at the Las Teresas tree nursery. *Photo: © R. Idrovo/InWay*

Ecuador is crossed from north to south by the interAndean corridor, which functions as the *divortium aquarium* (literally, the "parting of the waters") of two hydrographic regions: the Amazon and the Pacific. Ecuador has 80 watersheds, and these have been allocated to nine national-level catchment planning units.

A watershed-based approach is essential for sustainable development because it forces us to recognize human dynamics in the use and harvesting of natural resources beyond the political division of territories, while at the same time considering social, cultural, economic, production and environmental issues. The Chimbo River Basin is a diverse area where various provinces and municipalities of the highlands and coastal regions interconnect. The Chimbo River is one of the main tributaries in the Guayas watershed, which is one of the country's nine catchment planning units.

Figure 1: The project's area of influence



The ITTO project

The aim of an ITTO project implemented in the lower basin[1] by the Sendas Foundation from January 2018 to June 2019 was to contribute to the conservation of forest resources and agroforestry systems as a mechanism for the economic inclusion of families, especially women. The intervention was coordinated with three decentralized municipal governments: General Antonio Elizalde (Bucay) in the province of Guayas and Cumandá and Pallatanga in the province of Chimborazo (Figure 1). The area has an altitudinal gradient from 250 to 3000 metres above sea level, and moist tropical forests constitute the area's predominant ecosystem. This ecosystem is highly biodiverse in both flora and fauna, and it also provides significant ecosystem services in terms of (for example) carbon sequestration, water quantity and quality, air quality, and natural landscape values.

The three municipalities are similar in their population dynamics, productive activities and internal migration due to seasonal job offers. There are also commonalities in the loss or degradation of natural resources, which has three main causes:

1) The area is highly productive, and the main economic activity in the three municipalities is agriculture (INEC 2010). Thus, the expansion of the agricultural frontier exerts pressure on the natural vegetation; according to a 2015 study by the Ministry of the Environment, the province of Chimborazo had the third-smallest area of native forests in the country, and the province of Guayas had an annual deforestation rate of 2570 hectares.

1 PD PD751/14 Rev.3 (M): "Sustainable forest management in the Chimbo River Basin, Ecuador: Conserving forest resources and agroforestry systems as a mechanism to strengthen the economic inclusion of community families, particularly rural women, settled in the area".

2) The population has a low level of education—on average, in the three municipalities, 54% of the population has completed only primary school education; 17.2% has completed secondary school; and only 0.71% has had access to tertiary education (INEC 2010). The illiteracy rate in the area (where women form the majority) is 17%, compared with the national average illiteracy rate of 11.8%. Agricultural management in the area is carried out with little science: for example, farmers use agrochemicals indiscriminately in an effort to improve production (Sendas 2018).

3) The area's municipal governments have few economic and technical resources, which limits their capacity to manage and execute their responsibilities. For example, each municipality has only one person responsible for environmental management, and that person also has other responsibilities. This situation makes it difficult to provide extension services in rural areas, where communities are far from population centres and there is limited road access with poor transport facilities.

Cloud shroud: Cloud-topped humid tropical forest in Bucay, Ecuador. *Photo: © R. Idrovo/InWay*

Project outputs

It was in this context that the ITTO project was developed and implemented. The following outputs were achieved:

- A diagnosis of on-farm agroforestry systems, including socioeconomic conditions and gender inequalities, which has led to a better understanding of the situation prevailing in the area and the identification of activities to meet the needs of the community.
- The establishment of two nurseries with the capacity to produce 10 000 timber and non-timber forest seedlings per year (e.g. bamboo, mahogany, pachaco, candelo, fruit trees, laurel, teak and cacao) to promote the growing of native species in the area. The two nurseries are
  1) The Las Teresas nursery in the Cumandá municipality, managed by the Mother Teresa of Calcutta Women's Association. Under the project, all 14 women members received support and technical training in the management and sustainability of nurseries as a production venture. They now have a marketing plan, internal regulations, quality-control procedures and sale permits. Local governments are aware of their actions, and the Government of Chimborazo Province includes them in its list of suppliers. A video was produced on this nursery showing the experience of the women as social agents in the face of climate change.
  2) Cambú nursery in the municipality of Bucay, which is managed by the Campamento Association. The work dynamics of this nursery are different, mainly because its 93 beneficiaries work together with the support of the municipality. The seedlings it produces are being used in the restoration of the area's moist tropical forests and to reforest riverbanks, especially in strategic areas, to reduce vulnerability to flooding in winter and to combat climate change. Technical support and training were provided throughout the process to establish the nursery.
- Greater capacity among 40 producers in the area to improve their production and agroforestry systems and the marketing of their products. In Bucay and Cumandá, the main product is cacao, in addition to fruit trees such as citrus; in Pallatanga, beans are the main product, followed by vegetables, particularly capsicums. The project provided training in simple accounting, and an Excel-based tool was developed to estimate production costs to help in calculating after-sales net profits. Experience-sharing with similar projects was conducted and support networks were created.
- The conducting of an awareness campaign that reached 10 000 people through radio spots on the importance of agroforestry systems and the benefits of forests. Training and outreach materials were created for various educational activities implemented by the project. Environment Day (22 April 2019) was celebrated through educational fairs to promote local producers and raise awareness among communities.
- The training of 70 technicians (both women and men) from the three participating municipal governments and the Government of Chimborazo Province in environmental management and planning, gender equality and environmental rights. The objective was to influence the development of local policies for the sound management and conservation of natural resources, the incorporation of climate-change adaptation measures, and the use of a gender approach in land management planning.

Throughout project implementation, coordination was carried out with public institutions in the target areas to avoid the duplication of efforts and to mainstream project outcomes into institutional processes, thereby enabling the replication and scaling up of outcomes over time.

Women's involvement in natural resource management

Gender inequality—and a generally disadvantaged position for women—is a structural problem in Ecuador, where it is anchored in a culture sustained by the gender-based division of labour. This inequality is reflected in the social, economic, political, cultural and environmental spheres.

Women and men have differing needs and interests and make different contributions to the conservation and sustainable management of natural resources. Women predominantly know, use and contribute to the conservation of wild plants; they maintain family gardens for subsistence purposes; they are the guardians of seeds and knowledge; and they support their household economies by carrying out the tasks of care and other daily unpaid work. Their contributions are essential for the management and conservation of natural resources.

Aware of the need to examine the implications of planned public and institutional actions for both men and women, the project:

Grassroots: The Las Teresas nursery. *Photo: © R. Idrovo/InWay*

Outreach: The project helped celebrate Environment Day in April 2019, with school students helping to promote local producers and raise awareness of the importance of forest restoration. *Photo: © A. Idrovo/Sendas*

- identified the obstacles preventing women from having equal opportunities;
- implemented mechanisms for women's participation;
- encouraged institutions and organizations to adjust their regulations and agreements to guarantee women's involvement; and
- highlighted the value of women's contributions.

Gender inequalities are entrenched in the project area and silently perpetuated on an ongoing basis. The almost exclusive responsibility of women for the unpaid work of caring for natural resources is well established and accepted. Despite their active participation in social organizations, women are not recognized in their own right and, rather, are regarded as "delegates" of the heads of families.

Women in the Lower Chimbo River basin face many problems as a result of social and gender inequalities, including gaps in access to education and training and low self-esteem (which generates self-limitations) and a lack of empowerment arising from their social status. Another serious problem is rural gender-based violence, which affects eight of every ten women nationally (INEC 2019). Moreover, at the social level, it is assumed that women must get permission from their parents or partners to attain management positions and to take on responsibilities in public life.

Women are also overloaded with work. In Ecuador, women have a workload of 77 hours per week (versus 61 hours for men); in rural areas, this increases to 83 hours for women (compared with 60 hours for men), according to a time-use survey in 2012 (INEC 2012). It is very common for men to migrate within the coastal region—for example, to take up work offers in banana plantations or in the harvest season. This practice causes an overload of work for women and leaves them little time for other activities, such as training.

The project's approach

The project developed strategies for the recognition of women's rights. It implemented activities to strengthen women's self-esteem and to overcome stereotypes that devalue women. The project sensitized participating women to identify forms of violence that affect them and to provide them with information on safe reporting and comprehensive care. The project prioritized the autonomy of participating women as the basis for overcoming the economic dependence that keeps them in a circle of violence. This was done through training and technical support to increase productivity on their farms; the marketing of their products; and the establishment of the Las Teresas nursery.

The boost to women's economic autonomy provided by the project has been recognized by the women themselves, as reflected in the testimony of Lourdes Tenorio, a beneficiary of the Las Teresas nursery: "... We now have the freedom to make decisions about certain things. We can't always be asking our husbands for money. Now we have our own income and we have the freedom to use it as we see fit".

The project's contribution to the conservation of forest resources and agroforestry systems in the target area is based largely on recognition and appreciation of women's involvement and work as an essential component for the sustainable management of natural resources. There is an urgent need to recognize women's knowledge, participation and efforts more broadly in biodiversity conservation, as well as to promote their access to representation and decision-making. Our organization, the Sendas Foundation, is fully committed and open to working in joint efforts to further this process.

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INEC (*Instituto Nacional de Estadística y Censos*) 2019. *Encuesta nacional sobre relaciones familiares y violencia de género contra las mujeres.*

Sendas 2018. *Diagnóstico de tipologías de sistemas agroecoforestales de fincas, condición económica e inequidades de género, en los cantones Pallatanga, Cumandá y General Antonio Elizalde.*

Project outputs can be found by inserting the project code PD 751/14 Rev.3 (M) into the ITTO project search function at www.itto.int/project_search.

A video about the project in English and Spanish is available on the ITTO YouTube channel at www.youtube.com/user/ittosfm/videos.

Saving the sacred

An ITTO project has helped restore religiously important forests at two Ramsar sites in southern Benin and increase local incomes

by Bienvenu Bossou[1], Orphée Lokossou[2], Macaire Assongba[1] and Marcel Agbangla[1]

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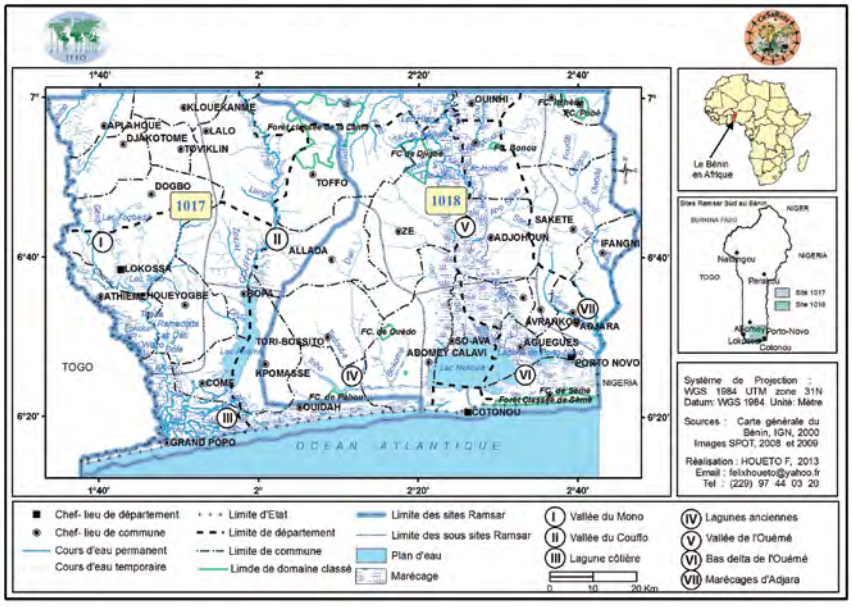
Maize phase: Local people receive training on agroforestry practices on land adjoining the Zounkidjazoun sacred forest, Benin. *Photo: B. Bossou/CESAREN*

Agriculture is the main source of economic wealth in Benin, contributing over 27% of the country's gross domestic product and employing more than 55% of the national workforce. Slash-and-burn shifting cultivation is the dominant farming system.

But Benin also has at least 2940 relict sacred forests covering a total area of 18 360 hectares. More than 90% of these are adjacent to or surrounded by crop fields, which means they are under threat from shifting cultivation and other pressures. Sacred forests in Benin are generally small in size but rich in biodiversity. Most range in area from 2 to 20 hectares, with some exceptions covering 50–200 hectares. Ramsar sites 1017 and 1018, in the coastal south of Benin, feature more than 500 sacred forests (Figure 1).

Figure 1. Map of Ramsar sites 1017 and 1018 and location of selected sacred forests



Source: CESAREN.

Functions and values of sacred forests

Sacred forests serve as traditional laboratories and their "managers" (local dignitaries) serve as living libraries—that is, repositories of local knowledge based on sacred forests. Sacred forests provide a refuge and sanctuary for local biodiversity, including many rare plant and animal species, some of which are on the IUCN Red List. Although sacred forests have no legal or official protection status in Benin, their integrity has been maintained until recently. Sacred forests represent a successful model of traditional biodiversity management and conservation. Their protection is based on traditional local beliefs, the strength of traditional authority, and the power of local dignitaries and religious leaders.

Challenges and threats

Several new factors have arisen in recent years, including the uptake of new religions, considerable population growth, and weakened traditional power accompanied by a decline in beliefs associated with tradition. Rural poverty has increased, with taboos and religious restrictions falling by the wayside. As a result, most sacred forests are now subject to uncontrolled overuse, leading to their degradation and even, in some cases, their destruction. A survey of sacred groves in southern Benin conducted under an ITTO pre-project in 2012 (Lokossou 2014, described further below) showed that 60% were in an advanced state of degradation. Between 1998 and 2013, 34% of surveyed sacred forests experienced a significant reduction in land area, and 14% were lost. This regressive trend is a major threat to biodiversity

and the lives of people in surrounding communities, who depend heavily on the ecosystem and cultural services provided by sacred forests. Despite their socioeconomic and ecological importance, sacred forests have long been neglected by the scientific community. Indeed, they have been considered as marginal elements of the vegetation and, as such, have received little attention.

Addressing the sustainable use and conservation of sacred forests

The above-described situation led the non-governmental organization Circle for the Conservation of Natural Resources (*Cercle pour la Sauvegarde des Ressources Naturelles*—CESAREN) to implement an ITTO pre-project[1] in 2012–2013 with a view to ultimately developing a full project proposal. The pre-project conducted four surveys at Ramsar sites 1017 and 1018: 1) an inventory of biodiversity in sacred forests; 2) the mapping of sacred forests; 3) a project environmental and social impact survey; and 4) a socioeconomic survey of sacred forests. The pre-project also enabled an exchange of views among stakeholders, the development of a common vision, and the design of a project based on a participatory approach. Municipal authorities, dignitaries and local people all expressed a willingness to participate in a project to restore the sacred forests.

On the basis of the pre-project outcomes, CESAREN prepared a full project proposal, consistent with Benin's national and international policies on forest resource management, which ITTO subsequently approved and funded.[2] The project's development objective was to contribute to the sustainable management of wetland forest resources in southern Benin. Specifically, the project, which CESAREN implemented from April 2017 to March 2020, sought to ensure the sustainable management of sacred forests at Ramsar sites 1017 and 1018 by building the capacity of stakeholders to improve local people's livelihoods. Indicators of success included: the development of operational management tools for 40 sacred forests; a 25% increase in the income derived from sacred forests; the development of appropriate legislative and institutional frameworks for the 40 sacred forests; and the integration of the 40 sacred forests in municipality protected-area systems.

Methodology

Because sacred forests are the property of local communities, their restoration and sustainable management require a participatory approach. The project worked in collaboration with stakeholders involved in sacred-forest management, favouring an "information, education and communication" approach, which enabled project stakeholders to share a vision and to work in synergy to achieve outcomes. The project was implemented by a multidisciplinary team comprising foresters, socioeconomic geographers and cartographers, specialists in integrated wetland management, and local development officers. The project also involved local communities and sacred-forest managers and collaborated with municipal authorities and the national forest administration. Specific surveys were the subject of consultations.

Good medicine: As part of the project, 162 hectares were enriched with 15 300 seedlings of indigenous species in 42 sacred forests. Here, local men enrichment-plant the Wlenanzoun sacred forest with *Garcinia kola*, a medicinal plant. *Photo: B.Bossou/CESAREN*

Three key outputs were identified, as follows.

Output 1: Sacred forest resources are used more appropriately

The sustainable use of sacred forests requires the participatory development and implementation of sustainable management tools as a means to reduce encroachment and increase the sustainable yield of forest products. This output involved:

- **Developing simplified management plans.** Experienced consultants were recruited to develop plans for the 40 identified sacred forests, and these plans were validated at several levels by relevant authorities. Elements of the management plans (e.g. reforestation, protection and enrichment planting) were implemented jointly by the project team and communities.
- **Building the capacity of local stakeholders.** The project sought to improve agricultural production systems in surrounding areas by identifying appropriate techniques and providing support for implementation.
- **Increasing timber production.** This task involved the reforestation and enrichment of sacred forests.

Output 2: Incomes derived from sacred forests are increased

Poverty is widespread in communities living adjacent to sacred forests, and this is a limiting factor in their sustainable management; thus, the local managers of sacred forests are compelled to overuse forest resources or even sell off parts of the land. Output 2 was designed to help reduce poverty in neighbouring communities and thereby some of the pressure exerted on sacred forests. The sustainable conservation of

1 ITTO Pre-project PPD 165/12 Rev.1 (F): "Study for the rehabilitation and sustainable management of sacred forests on Ramsar sites 1017 and 1018 in Benin".

2 ITTO project PD 754/14 Rev.3 (F): "Rehabilitation and sustainable management of sacred forests on Ramsar 1017 and 1018 sites in Benin".

the forests needs to be based not only on their religious and cultural roles but also on their contributions to the incomes of sacred-forest managers. Through this output, the project helped develop income-generating activities focused on economic reforestation and ultimately the production of utility wood and woodfuel from plantations in surrounding areas. Business plans were developed, and key beneficiaries were selected and trained. Beneficiaries were able to obtain loans as green microcredits through microcredit institutions (*systèmes financier décentralisé*—SFDs). A revolving fund was established whereby the initial capital is recovered from beneficiaries as their business plans are implemented and allocated to others, thus ensuring the sustainable and continuous funding of activities in areas surrounding the sacred forests.

Output 3: Sacred forests are integrated into municipality protected-area systems

In addition to developing simplified management plans, sacred forests need a protection framework to ensure their physical integrity. Therefore, the project sought to establish two kinds of management body: local committees for sacred forest management (*comités local de gestion de la forêt sacrée*—CLFSs) at the local level and municipal committees for the coordination and monitoring of sacred forest integration (*comité communal de coordination et de suivi de l'intégration de la forêt sacrée*—CCSIs) at the municipality level. These bodies are responsible for legal recognition procedures, the integration of sacred forests into the permanent forest estates of municipalities, and the sustainability of project actions.

Outcomes

Sacred forest resources are used more appropriately

Forty-two sacred forests were demarcated under surveys carried out by certified expert surveyors.

Eighty-six farmers whose fields adjoin sacred forests were assisted to implement improved agricultural production systems (*systèmes amélioré de production agricole*—SAPs) and related techniques, as appropriate. The total area influenced was 179 hectares; the initiative enabled improved agricultural yields on lands adjoining 40 sacred forests.

Incomes derived from sacred forests are increased

Ultimately, new plantations and other income-generating activities will provide local people with additional income. Until such measures bear fruit, however, the following initiatives are in place:

- Sustainable funding mechanisms for sacred forests have been established and operationalized through the signing of four partnership agreements between CESAREN and three SFDs to establish and manage sustainable funding for SAPs, various income-generating activities and gas credit schemes (aimed at reducing wood-energy consumption).

Posted: 42 sacred forests were demarcated as part of the process of improving their management. *Photo: B. Bossou/CESAREN*

- USD 85 000 in income was generated from reforestation and enrichment activities through the funding of seedlings, plantings and maintenance.
- 129 individuals (organized into 43 groups in charge of conducting various income-generating activities such as beekeeping, livestock-raising, small businesses, SAPs, and gas credit schemes) benefited from USD 67 099 in green credits and were provided with 325 gas-stove kits.

Sacred forests are integrated into municipality protected area systems

All stakeholders (traditional authorities, village chiefs, local residents, farmers living near sacred forests, and municipal authorities) were made aware of the need to protect sacred forests, and various information and awareness-raising sessions were conducted. Moreover:

- 42 CLFSs—one for each sacred forest—were established by mayoral decree and are functional.
- 14 CCSIs—one for each involved municipality—were established by mayoral decree and are functional.
- 40 decrees were issued to strengthen and protect sacred forests through their legal recognition.

Summary of project outcomes and impacts

Overall, the project:

- created operational tools for the sustainable management of sacred forests;
- reduced encroachment on sacred forests (through the implementation of SAP practices and by demarcating sacred-forest boundaries more clearly);

Traditional: Mr Tchannoukin Sozehoue, responsible for cultural matters in the Houinyehoueve sacred forest CLFS. *Photo: B. Bossou/CESAREN*

- increased afforestation rates in the two Ramsar sites;
- decreased wood-energy use (by increasing the use of gas cookers);
- improved knowledge of the socioeconomic development opportunities offered by sacred forests and surrounding lands;
- developed income-generating activities and resource development in sacred forests and neighbouring areas;
- established green credit lines to provide financial support for sacred-forest management and certain other activities;
- improved awareness among stakeholders of the need to protect sacred forests and encouraged the strong adherence of primary stakeholders to project objectives;
- strengthened the organization of local communities neighbouring sacred forests;
- reinforced the participation of municipalities in sacred-forest management; and
- provided formal protection frameworks for sacred forests.

Lessons learned

The project highlighted a range of issues that should be taken into consideration by actors involved in efforts to revitalize landscapes in the face of natural and anthropogenic challenges.

The project's 36-month duration proved too short to implement the simplified management plans in many of the targeted sacred forests. There were many reasons for this. For example:

- The forests are distant from each other and belong to several sociocultural areas.
- Resources are not only community-based; they fall within the realm of the sacred, requiring much more time for external actors to gain the trust of sacred-forest dignitaries and managers through information and awareness-raising activities.
- At least 24 months should be allowed after initial information and awareness-raising activities for the process of conducting preliminary surveys, ensuring participatory development, and validating simplified management plans and other documents.
- Activities related to simplified management plans that do not fall under credit schemes may start immediately after validation of the plans. Credit-related activities, however, involve a lengthy process arising from the need to select credible SFDs and for beneficiaries to understand the way SFDs operate.
- The mechanisms for allocating credit and technical training to beneficiaries can be an issue.

In view of all the above, some activities were started only towards the end of the project. As a result, project beneficiaries and CLFSs were unable to complete the entire cycle of credit allocation and recovery; nor was it possible to assess actual outcomes for and impacts on beneficiaries' incomes before project completion.

Because there was a long gap between the two project phases (pre-project and project), it was necessary, in the second phase, to remind beneficiaries of previous benefits and to start awareness-raising from scratch. Ideally, therefore, the interval between project phases should be kept to a minimum.

Key project innovations include the development of a simplified sustainable management model. This combined traditional management practices and modern management

and was based on the development of local human resources and the integration of sacred forests into municipality protected-area systems. Other innovations include the establishment of a green credit scheme to support local communities with income-generating activities; measures to reduce woodfuel consumption; and reforestation and sacred-forest enrichment. The probability that these interventions will succeed is very high given the enthusiasm of dignitaries and the official commitment of municipal authorities.

The establishment of CLFSs comprising members from various elements of communities helped in building mutual trust because they constitute formal (official) exchange platforms for discussing the sustainable management of sacred forests as major common resources. The proper functioning of these committees makes it possible to address problems common to all stakeholders.

The establishment of CCSIs at the level of municipalities enabled the strong involvement of municipal authorities, as demonstrated by their continuous support for project implementation, both institutionally and financially. In the context of the decentralization underway in Benin, municipal authorities are responsible for the development and sustainable management of municipality resources. They will ensure the sustainability of project actions—provided that monitoring can be conducted.

Given improvements in their livelihoods, local residents now have less need to encroach on sacred forests. Mr Antoine Houenon, chief of Houènonko village and president of the Ayossizoun sacred forest CLFS, said:

> "*The regulatory frameworks put in place and the simplified management plans developed have made it possible to reaffirm our leadership and our knowledge in the management of our natural resources and, consequently, to support the development of our communities*.

> "*land tenure security and the tranquillity that now reigns in sacred forests are conducive to the gradual return of certain animal species. Other activities such as the reintroduction of rare species of fauna and flora increase wildlife potential in our forest. I take this opportunity today to express my joy and gratitude to all those who have helped give us hope*."

Mr Tchannoukin Sozehoue, responsible for cultural affairs within the Houinyehoueve sacred forest CLFS, said:

> "*The legal recognition of sacred forests that resulted from the implementation of this project took into account our traditional beliefs, thus reducing the influence of imported religions which discredit our ancestral practices. The sacred character of forests, which was so feared and respected in the time of our ancestors, is reborn. We are proud to organize cultural festivals and events on sites dedicated to this purpose in the forests. All this contributes to the rebirth and promotion of our cultural identity.*"

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Project outputs can be found by inserting the project code PD 754/14 Rev.3 (F) into the ITTO project search function at www.itto.int/project_search

Panama's new timber traceability system

With ITTO support, the country has successfully piloted a forest tracking and monitoring system and reduced illegal logging

by Elvis De Gracia[1] and Felix Magallon[2]

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Timber tracker: Forest auditor Bertha García attaches a tag in a log yard. The new system enables the tracking of timber from the forest to the mill and beyond. *Photo: B. García*

According to the latest forest resources assessment by the Government of Panama in January 2020, 62% of the country's land area is covered by forests, of which more than 43% is in the national protected estate comprising mostly national parks and other protected areas.

Panamanian forests are highly biodiverse, and they constitute a resource for local communities (mainly indigenous peoples), who are key stakeholders in the management and protection of forest biodiversity. Forests provide local communities with food, water and medicinal plants as well as timber, which is an important source of work and income. The income derived from timber production assists in forest management and conservation.

In Panama, authorized logging is carried out in accordance with sustainable management standards established by law. One of the biggest problems in conserving and regenerating the forests, however, is logging carried out indiscriminately outside the law (i.e. illegal logging) using unsound practices and often leaving no trees standing. This prevents the natural regeneration of species and results in the degradation of the forest.

Diverse cover: Natural forest in Nurra, Guna de Wargandí Comarca, Panama. *Photo: M. Aguilar*

In an effort to ensure a better future for forests and forestry in Panama, the Dialogue Board (*Mesa de Diálogo*) was established in 2015 comprising representatives of government institutions, civil society, universities, indigenous communities, loggers and the private sector. The Dialogue Board initiative stemmed from concerns over illegal logging in the regions of Darién and Eastern Panama.

The traceability system

As a result of such concerns, Panama's Ministry of the Environment (MiAmbiente) took the initiative to design and implement the Forest Traceability and Monitoring System (*Sistema de Trazabilidad y Control Forestal*—STCF) in accordance with the requirements of Panama's forestry law. The work to develop and test the STCF was carried out under two ITTO projects,[1] both implemented by WWF.[2] Through meetings conducted in 2015 and 2016, the Dialogue Board supported the implementation and adoption of the STCF, and its members committed to using the new system.

The system is being piloted in Darién and Eastern Panama with the aim of replicating it progressively in other regions as they become ready to implement it. In the pilot regions, the STCF is enabling the monitoring of timber flows from natural and planted forests to on-site and off-site stockpiling yards, through mills and processing to wholesale traders. It records information from the harvesting area onwards in accordance with forest management plans, annual logging

1 ITTO projects PD 602/11 Rev.3 (F): "Tropical forest governance in the region of Darién, Panama"; and TFL-PD 044/13 Rev.2 (M): "Strengthening of ANAM's management capacity to reduce illegal logging and trade in the eastern region of Panama (Bayano and Darién) through monitoring and control mechanisms".

2 Project implementation was conducted in cooperation with the Food and Agriculture Organization of the United Nations (FAO) through the FAO–European Union Forest Law Enforcement, Governance and Trade Programme, with the endorsement of the Forestry Division of MiAmbiente.

"At the beginning, we did not understand the STCF and we found it difficult to use but, as time went by, we have been learning about its operation and have been adapting to it. It was hard at the beginning because we had to update our entire business (workshop and yard) operations in line with the system; a lot of people thought it was too difficult and abandoned the business for one reason or another. But, for a person like me, who has always been focused on the future, abandoning ship was out of the question.

"My eyes were focused on the way ahead; I started with the registration of my sawmill, my yard, complying with the Ministry´s requirements to the letter. I don't mean to say that we were doing badly before but we needed a better guide. The STCF has helped us to have credibility with both the Ministry and other authorities.

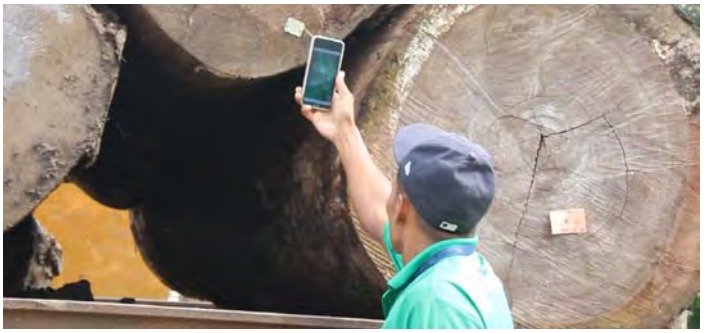
"Our business is going further—everything is in order from the moment the timber leaves the forest until it reaches our sawmill. And, on the other hand, the Ministry has been controlling illegal operators; illegality is not so easy any more. The STCF is helping companies ensure that the products they buy comply with all the standards established by the system, and for me it has been of great help as my business has been growing more and more every day with the help of God. In short, what I want to stress is that the STCF has been a source of great help and recognition for our company, and it has helped the country realize that not everyone who produces timber or forest products is doing something bad and that there are many of us who are complying with everything that is required by law."

Edwin Almanza, sawmill owner

permits, supply, processing and marketing plans, reforestation plans and statistical controls. The harvesting and transport of forest products from authorized areas in the two pilot regions may not take place without the use of the STCF, in accordance with the conditions and exceptions established by MiAmbiente.

The STCF involves the following steps:

- The identification of (harvestable, seed and remaining) trees in forest inventories and the tracking of harvested logs and pieces (blocks and dimensioned timber) during transport through the use of electronic chips attached to each tree and to the stump of each harvested tree.
- The input of data on, for example, the logging/harvesting permit holder, forest registry, ministerial resolutions approving the general inventory and management plan, the harvesting permit, and the annual logging permit. The system uses two types of microchip, both of which are connected to a central database: one for storing forest inventory data, and one containing the QR code.



Appy times: A MiAmbiente technician uses the STCF app to monitor transported logs at the Agua Fría checkpoint in Darién, Panama. *Photo: A. Castillo/MiAmbiente*

"The Forest Traceability and Monitoring System (STCF) has allowed us [MiAmbiente] to expedite the assessment of applications for forest management plans. In addition, after the relevant permits have been issued and all the requirements have been complied with, it allows us to monitor and control the origin of timber. We have seen a reduction in the number of permits and the number of infractions. Officers' work has become more efficient."

Melanio Aguilar, forest technician, MiAmbiente

- The registration and monitoring of company supply plans.
- The issuance of transport waybills.
- The recording of geospatial information to provide a key centralized tool for forest law enforcement and governance.
- An application to enable the use of Android mobile devices to directly input field data and for the verification of transport waybills at checkpoints.
- The production of statistical information from the data stored in the system to provide a basis for informed decision-making related to sustainable forest management.

The STCF was launched officially on 7 October 2019 after a series of pilot sessions and validation workshops. Part of this process involved restarting the STCF after the transfer of data from the servers of the consultancy firm that generated the system to the MiAmbiente servers, as well as adjustments and upgrades to put the STCF into operation.

The benefits of the STCF

The STCF saves users considerable time in permit-approval procedures, which can be completed directly in the STCF to obtain authorization for actions such as felling, yarding, transport waybill processing, and supply allocations. The time required to transport timber is also significantly reduced because permit holders have the option of printing waybills and taking them to transport checkpoints for review and stamping by inspectors to continue the transportation process to the final destination. The STCF digitizes and stores data, updates transported stock volumes on an ongoing basis, generates alerts on stock balances, and enables the production of various statistics related to forest harvesting permits. The STCF has assisted forest auditors (*regentes forestales*) in their work by enabling the production of maps showing the locations of trees to be harvested as well as those to be retained and the estimation of volume per species. The system also generates alerts if insufficient seed trees per species have been marked for retention. For processors, supply plans now guarantee the sourcing of legally sourced timber because all incoming stock is accompanied by permits granted by MiAmbiente.

For MiAmbiente, the STCF is proving to be a valuable tool for enabling: the production of clear, up-to-date technical data and information on the real origin of timber; the expeditious approval of permits and issuance of waybills; efficient, effective monitoring at checkpoints; a reduction in illegal logging by monitoring timber flows through electronic chips with verifiable information; and the provision of real-time information on stock balances by permit and species. Moreover, it is now easier to demonstrate to civil society that there is transparency in the management of forest resources. The generation of up-to-date statistical reports makes it possible to improve decision-making on sustainable forest management.

The ongoing revision and improvement of the STCF, and indications of future improvement, are contributing to the system's growing acceptance among users (see boxes). MiAmbiente, with the support of other organizations, is fully committed to the continual improvement of the system.

Progress is being made towards the aim of extending the STCF to other regions of the country, which is scheduled to start in 2021. Coverage will also be expanded from industrial mills to timber distribution centres. A follow-up project has recently been submitted to ITTO to facilitate this process.

"With the STCF we are doing a better job in the field, both in commercial surveys and in the assessment of yearly plans of operation. In 2020 we are seeing improved performance for the first time. The system allows us to do the work more effectively and we now have better accessibility and better transfer procedures. This is the best work we have seen under the Marragantí Community Project, which is being implemented now.

"We are specifically using the STCF to improve control. There are so many people on social media that have no idea what forest management is about. With the use of the STCF we are doing a better job; we are able to monitor the whole process, from the stump of the tree to be felled. The system gives us all the data we need; the chip includes data on coordinates, larger diameters, smaller diameters, and stem lengths. When the tree is cut, the chip stays on the stump, and then the log is traced through the traceability system. The branches are also harvested, we are not wasting them. When we had no traceability, the branches were not harvested because we could not handle the process, but now we can.

"With the STCF we are handling everything very well, in a transparent manner, and we are showing the government that we are doing an adequate job with technical professionalism."

Clamedes Guaynora,
Marragantí Community spokesperson

"The STCF facilitates both administrative and field procedures, since all the data collected are accompanied by an order (to help with organization). The system also allows us to better determine the location of seed, remaining and other trees so as to improve the management and restoration of the forest. The surveys are now quicker and more reliable; similarly, extraction is done in an orderly manner so that there is less economic loss for loggers, as well as less environmental loss. The issuing of transport waybills is now more expeditious and procedures at checkpoints are less tedious. The system gives us more control and confidence in the sustainable management of the forest."

Bertha García, forest auditor (see photo on page 13)

"Sustainable forest management is an important tool for ensuring ecosystem life and increasing carbon sequestration, while at the same time yielding a social benefit. At MiAmbiente, ensuring adequate management is a priority for us in our commitment to fight and eliminate illegal logging.

"This is being achieved through the use of the STCF, which allows us to carry out a systematized monitoring of logging processes from the forest under a sustainable management plan. This system not only guarantees the adequate management of resources, it is also an effective tool for monitoring the harvesting process, at the mill, the checkpoints, the yard and the forest. Thanks to this tool, in 2020 we are able to guarantee that all the timber that is properly tagged comes from a legal source."

Víctor Francisco Cadavid,
Director, Forest Directorate, MiAmbiente

MiAmbiente gratefully acknowledges ITTO's support for the STCF through the two projects mentioned in this article as well as previous projects that established the basis for their implementation. The support of other organizations, especially FAO and WWF, has also been of great importance.

Project outputs can be found by inserting the project code PD 602/11 Rev.3 (F) or TFL-PD 044/13 Rev.2 (M) into the ITTO project search function at www.itto.int/project_search

A video on the project is available at www.youtube.com/user/ittosfm/videos

Rising to the challenge of REDD+

An ITTO project has helped prepare for REDD+ by building the capacity of local authorities and improving the livelihoods of communities in a forest in Cambodia

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3 Project staff, Kampong Thom province, Cambodia

Forest patrol: A project officer conducts a capacity-building exercise for a community-based forest patrol in Kampong Thom province, Cambodia. *Photo: © V. Chhorn/Forestry Administration*

Cambodia has achieved remarkable economic growth in the last decade. In 2018, its gross domestic product (GDP) was USD 24.5 billion, an increase of about 7 percent per year since 2010. Forestry (including the wood-processing industry) contributes 3.2–5.7 percent of GDP and provides direct and indirect employment for about 14 000 people (Government of Cambodia 2019). In addition to contributing directly to GDP, forests are important for supporting rural livelihoods. Moreover, forest resources, especially non-wood forest products, have traditionally provided important safety nets for rural people during extreme weather events such as floods and drought.

Cambodia depends largely on the agriculture, land, water resources, forestry and fisheries sectors, all of which are highly vulnerable to the impacts of climate change, particularly floods, drought, windstorms and saltwater intrusion. Rural households—and especially women and other vulnerable groups—are already struggling to cope with the impacts of climate change. According to estimates by the Asian Development Bank, Cambodia lost USD 1.5 billion (about 10 percent of its GDP) in 2015 due to the negative effects of climate change (Khmer Times 2016).

The Government of Cambodia recognizes that deforestation and degradation negatively affect the livelihoods of poor, forest-dependent communities and are significant sources of greenhouse-gas emissions, both nationally and regionally. Cambodia therefore fully supports the development and implementation of REDD+ and has been a strong advocate for its adoption.[1]

The Cambodia REDD+ readiness process was implemented from 2008 to 2016. The "national roadmap" was finalized in 2010 and a national REDD+ programme was established in 2012, leading to stakeholder engagement, capacity building and the implementation of institutional arrangements. The Government of Cambodia endorsed the national REDD+ strategy for implementation in late 2016. Several REDD+ pilot projects were also established as part of this process: the Oddar Meanchey Community Forestry REDD+ project; the Keo Seima Wildlife Sanctuary REDD+ project; and the Prey Lang REDD+ project.

The collective experiences of these REDD+ projects highlight the importance of standardizing procedures for meeting carbon standards and of ensuring that REDD+ projects are developed and implemented equitably, efficiently and effectively. Cambodia is also in the early stages of developing a jurisdictional REDD+ programme consistent with the development of current REDD+ pilot projects, and it is imperative to ensure that the programme takes into account the outcomes of those projects.

The ITTO project

The Forestry Administration of Cambodia's Ministry of Agriculture, Forestry and Fisheries received support from ITTO to implement a project[2] in Tumring Forest in Kampong Thom province to address some of the challenges of REDD+, building on the experiences of previous REDD+ projects. One objective of the project, which began in 2015 and is expected to conclude later this year, is to standardize procedures for meeting, efficiently and effectively, the

1 The term REDD+ encompasses efforts to reduce emissions from deforestation and forest degradation in developing countries and to account for the role in the carbon cycle of forest conservation, sustainable forest management and the enhancement of forest carbon stocks in developing countries.

2 PD 740/14 Rev.2 (F): "Sustainable forest management through REDD+ mechanisms in Kampong Thom province, Cambodia".

technical specifications of REDD+ jurisdictional standards as a means for reducing deforestation and forest degradation. Another objective is to provide three local communities—Veal O Kdey, Kbal Khla and O Krovak—with appropriate incentives to reduce their dependence on unsustainable forest use, especially by increasing community participation in the management of Tumring Forest. And a third objective is to strengthen the capacity of government officials and community members—who are expected to assume increasingly important roles in efforts to reduce deforestation and forest degradation—to implement REDD+.

This article highlights the achievements of the ITTO project, presented in three sections corresponding with the three main outputs outlined in the project document.

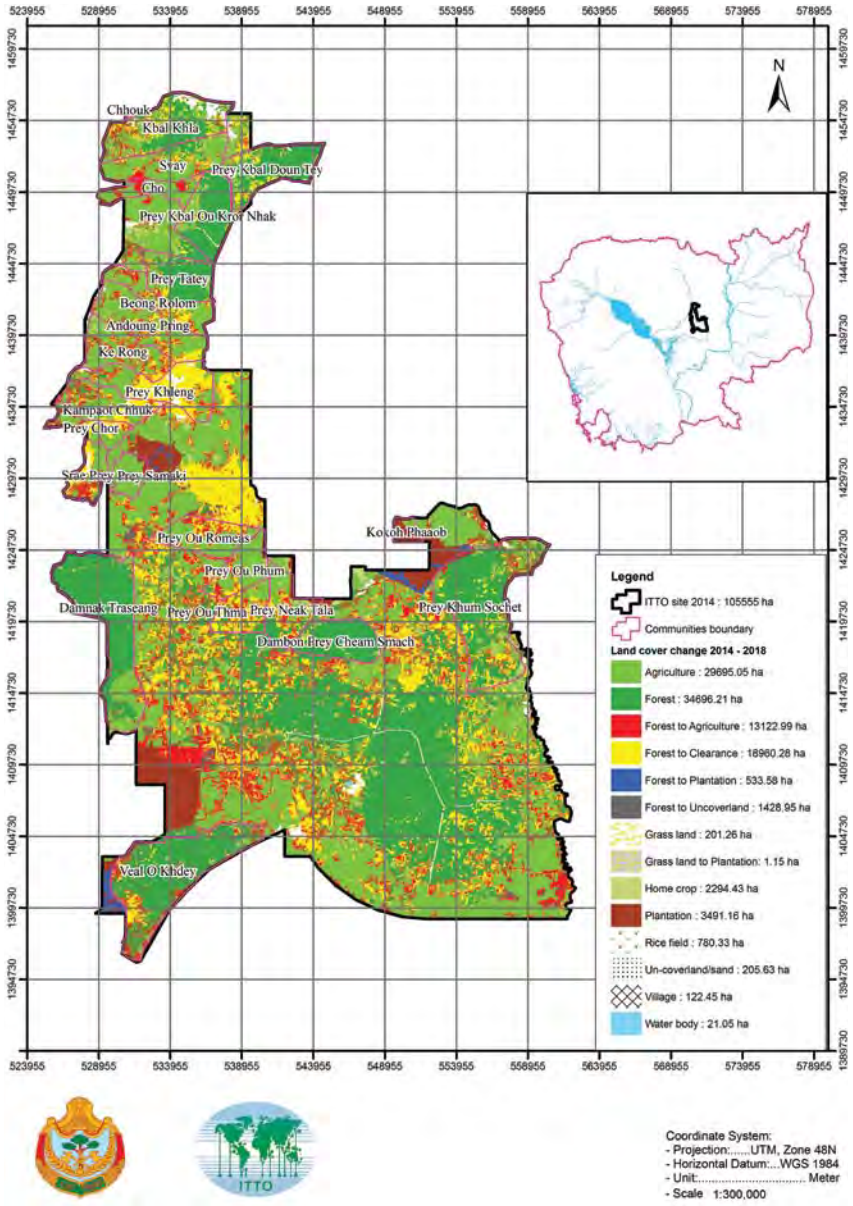
Improving understanding and knowledge

The project has conducted various activities to improve the understanding and knowledge of REDD+ among stakeholders (including women) at the national-to-local level. For example, the project has organized and conducted meetings, training and workshops to raise awareness among local authorities, local communities and other stakeholders at the provincial and national levels on sustainable forest management, climate change, forest law enforcement, livelihood improvement and REDD+.

Importantly, awareness-raising activities for this project emphasized the participation of provincial authorities, who are in close physical proximity to the project site and who have the authority to manage the site along with local communities. The project has helped build trust and good relations between provincial authorities and local communities. Over the course of the project, more than 70 representatives from over 20 provincial departments have benefited from awareness-raising activities. The participating departments were Environment; Land Management; Rural Development; Women Affairs; Fisheries Administration Cantonment; Forestry Authority Cantonment; Commissariat of Provincial Police; Provincial Gendarmerie; Provincial Military Subdivision; Stung Sen Municipal Hall; and Cross-Sector Affairs Office (Provincial Hall). In addition, the project has conducted multiple onsite awareness-raising training exercises for members of local community forestry groups and organized exchange visits between these community forestry groups and those communities who participated in the Oddar Meanchey REDD project.

In addition to this direct engagement with stakeholders to increase their understanding, the project has conducted technical assessments and studies to build knowledge that contributes to discussions at the national level. For example, with support from the project, studies were conducted on: the drivers and agents of deforestation and forest degradation in Kampong Thom province; the development of adjusted forest reference emission levels for Kampong Thom province; the development of default forest reference emission levels for Kampong Thom province; the lessons learned from REDD+ project development in Cambodia; existing benefit-sharing mechanisms in forestry and REDD+ projects for designing

Figure 1: Land-cover change at the project site, Tumring Forest, Kampong Thom province, 2014–2018



effective national REDD+ incentive allocations in Cambodia; the design, implementation and monitoring of safeguards for sustainable forest management through REDD+ mechanisms in Kampong Thom province; and the development of a commercialization and sustainable financing strategy for REDD+ in Cambodia. These assessments, which have been compiled in a single volume due to be published soon, have helped in standardizing procedures for efficiently and effectively meeting the technical specifications of REDD+ jurisdictional standards as a means for reducing deforestation and forest degradation. Finally, the project has been informing the public about its activities, achievements and lessons learned through social media.[3]

3 See www.facebook.com/FA.ITTO.REDDPlus

Table 1: Outcomes of community patrolling

Cases	Prey Kbal O Kranhak	Kbal Khla	Veal O Kdey	Total
No. of means for transporting illegally harvested wood confiscated	10	1	1	12
No. of attempts at illegal logging prevented	13	25	5	43
No. of attempts at illegal non-wood forest product extraction prevented	3	1	2	6
No. of attempts to illegally hunt wildlife prevented	0	0	1	1
No. of land encroachments prevented	12	7	17	36
No. of attempts to illegally burn forest prevented	1	1	0	2
No. of chainsaws confiscated	1	1	0	2

Forest patrols, and livelihood improvement

The project addressed the participation of local communities in sustainable forest management via joint forest patrolling; it also sought to improve the livelihoods of the three local communities in the project area. Members from the three communities jointly conducted patrolling with local authorities. Table 1 shows the number of items confiscated through these patrols over the course of the project. Overall, the communities confiscated 12 means for transporting illegally harvested wood (mostly hand tractors or ox-carts) and two chainsaws. They prevented 43 cases of illegal logging, 36 cases of illegal land encroachment, six cases of non-wood forest product extraction, two cases of illegal forest burning and one case of wildlife hunting.

In close collaboration with officials in the Kampong Thom Provincial Department of Agriculture, Forestry and Fisheries, the project introduced the three communities to the concept of "good agricultural practice" and helped establish demonstration sites following a successful pilot in Prey Veng province. The project also supported non-forest-dependent livelihood options such as livestock raising (chickens) and cash-crop vegetables (cucumber, long bean, spinach, water glory, radish and eggplant). Nearly 300 community members have benefited from this intervention. To reduce the use of woodfuel collected from the forest, the project distributed 1600 fuel-saving cookstoves to the communities. Recipients of these stoves have reported that not only have the stoves reduced their use of woodfuel, they have also helped improve household health by reducing indoor pollution. The need to use less fuel has also saved time for recipients in foraging for woodfuel. For some, the fuel-saving cookstoves also generated financial savings, given that they now spend less on woodfuel purchases for consumption in their households.

As mentioned, one of main focuses of the project has been to contribute to discussions at the national level on the development and implementation of the national REDD+ strategy, building on lessons learned at the provincial level, particularly in the project area in Kampong Thom province. The preliminary findings of the seven technical assessments were presented to and discussed with stakeholders. Comments

Knowledge brokers: Project officers conduct community training on sustainable forest management in Kampong Thom province, Cambodia. *Photo: © V.Chhorn/Forestry Administration*

from these consultations were taken into account before finalizing the assessments,[4] thereby helping ensure the credibility and legitimacy of the report in REDD+ discussions at the national level.

The assessments found, among other things, that there are nine direct drivers of deforestation and forest degradation in Tumring Forest. These are: illegal logging; commercial wood products; land clearing for commercial agriculture; charcoal production; land clearing for subsistence cultivation; new settlements; natural disasters; human-induced forest fire; and the gathering of woodfuel for domestic consumption. There were four indirect drivers: limitations on law enforcement; demand for wood; issues pertaining to land tenure and rights; and population growth. Furniture-makers, medium-sized and large agricultural investors, charcoal makers, land migrants, woodfuel collectors and subsistence farmers were common agents of deforestation and forest degradation in the area.

Based on the greater understanding of the drivers and agents of deforestation and forest degradation, assessments were conducted using a hypothetical scenario of a provincial-level REDD+ project in Kampong Thom province. These assessments examined:

4 Available at www.itto.int/project/id/PD740_14-Rev.2-F

Smart cookers: Local women show their newly acquired fuel-efficient wood stoves, which have helped reduce woodfuel consumption in the communities.
Photo: © S. Sineth/Forestry Administration

- potential emissions reductions in Kampong Thom using an adjusted forest reference emission level;
- policies and measures to address drivers and agents of deforestation and forest degradation and improve livelihoods among local communities in Kampong Thom province;
- the design of an equitable, efficient and effective benefit-sharing mechanism for a REDD+ project at the provincial level;
- the design, implementation and monitoring of a REDD+ safeguards information system and framework at the project level; and
- a commercialization and sustainable financing strategy for REDD+ projects.

Conclusion

Among other things, implementation of the ITTO project has had positive impacts on stakeholders, from local communities to provincial and national authorities. Local communities have benefited through their participation, with local authorities, in law-enforcement patrols, which have built community capacity and understanding of the legal framework as well as a sense of ownership of the forest resource. In the longer term, this should help in ensuring sustainable forest use. Importantly, community engagement in forest patrols has increased mutual understanding and appreciation among stakeholders of the situations, challenges, strengths and aspirations of others. Sustainable forest management depends on a concerted effort among all stakeholders. The project's emphasis on the participation of women in the patrols has helped highlight the gendered roles of stakeholders in the forest sector.

Local communities have also learned, through the project, about various improved agricultural practices, and they have benefited from the distribution of fuel-saving cookstoves. Provincially and nationally, the lessons learned from the project are now available and should be used to enrich policy discussions on the challenges and opportunities of REDD+.

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Project outputs can be found by inserting the project code PD 740/14 Rev.2 (F) into the ITTO project search function at www.itto.int/project_search

Global Forest Resources Assessment 2020 key findings

FAO's latest report shows that the world's forests are changing—with both encouraging and worrying signs

Forest view: A forest canopy in the Betung Kerihun National Park, Indonesia. Nearly half (45%) of the world's forests are in the tropical domain. *Photo: K. Sato/ITTO*

This article contains the main findings of the *Global Forest Resources Assessment 2020* (FRA 2020), published in April 2020 by the Food and Agriculture Organization of the United Nations (FAO).[1] The data summarized herein, for most of the world's countries, have been obtained through a transparent, traceable reporting process and a well-established network of officially nominated national correspondents. The application of a standardized reporting methodology enables the monitoring of change over time in parameters such as forest area, management, ownership and use and the aggregation of data at the regional and global levels.

The information provided by FRA presents a comprehensive view of the world's forests and the ways in which the resource is changing. Such a clear global picture supports the development of sound policies, practices and investments affecting forests and forestry.

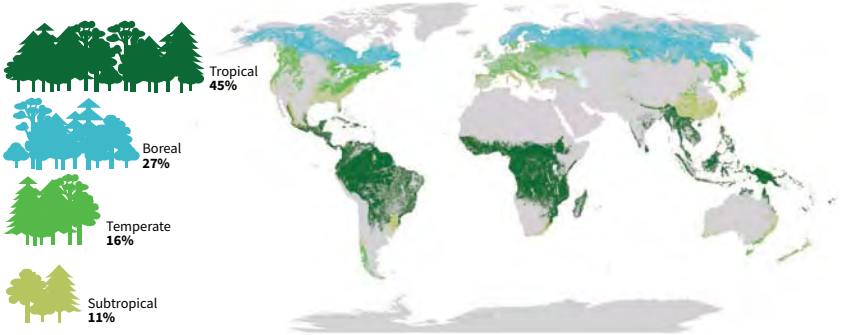
FRA is the mechanism for collecting data on two forest-related indicators of the Sustainable Development Goals (SDGs), which the United Nations General Assembly adopted in 2015. Specifically, data submitted to FRA contribute to reporting on SDG indicator 15.1.1 (forest area as a proportion of total land area in 2015) and indicator 15.2.1 (progress towards sustainable forest management).

Forests cover nearly one-third of the land globally

The world has a total forest area of 4.06 billion hectares (ha), which is 31% of the total land area. This area is equivalent to 0.52 ha per person[2]—although forests are not distributed equally among the world's peoples or geographically. The tropical domain has the largest proportion of the world's forests (45%), followed by the boreal, temperate and subtropical domains.

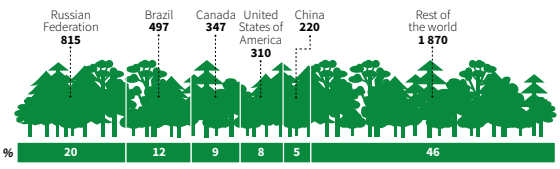
More than half (54%) of the world's forests is in only five countries—the Russian Federation, Brazil, Canada, the United States of America and China.

Proportion and distribution of global forest area by climatic domain, 2020



Source: Adapted from United Nations World map, 2020.

Top five countries for forest area, 2020 (million ha



1 This article reproduces text and figures contained in: FAO 2020. *Global Forest Resources Assessment 2020—Key findings*. Rome. https://doi.org/10.4060/ca8753en

2 Calculated assuming a global population of 7.79 billion people, as estimated in United Nations, Department of Economic and Social Affairs, Population Division 2019. *World Population Prospects 2019, Online Edition*.

The world's forest area is decreasing, but the rate of loss has slowed

The world has lost 178 million ha of forest since 1990, which is an area about the size of Libya.

The rate of net forest loss decreased substantially over the period 1990–2020 due to a reduction in deforestation in some countries, plus increases in forest area in others through afforestation and the natural expansion of forests.

The rate of net forest loss declined from 7.8 million ha per year in the decade 1990–2000 to 5.2 million ha per year in 2000–2010 and 4.7 million ha per year in 2010–2020. The rate of decline of net forest loss slowed in the most recent decade due to a reduction in the rate of forest expansion.

Africa has the highest net loss of forest area

Africa had the largest annual rate of net forest loss in 2010–2020, at 3.9 million ha, followed by South America, at 2.6 million ha.

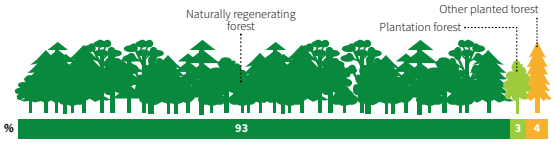
The rate of net forest loss has increased in Africa in each of the three decades since 1990. It has declined substantially in South America, however, to about half the rate in 2010–2020 compared with 2000–2010.

Asia had the highest net gain of forest area in 2010–2020, followed by Oceania and Europe.[3] Nevertheless, both Europe and Asia recorded substantially lower rates of net gain in 2010–2020 than in 2000–2010. Oceania experienced net losses of forest area in the decades 1990–2000 and 2000–2010.

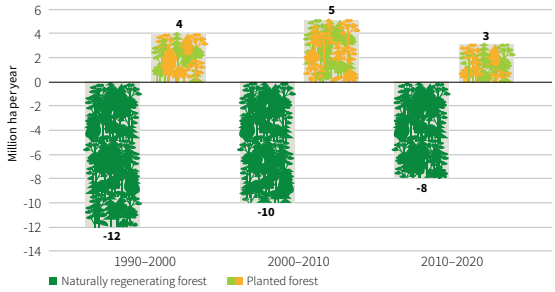
More than 90% of the world's forests have regenerated naturally

Ninety-three percent (3.75 billion ha) of the forest area worldwide is composed of naturally regenerating forests and 7% (290 million ha) is planted.

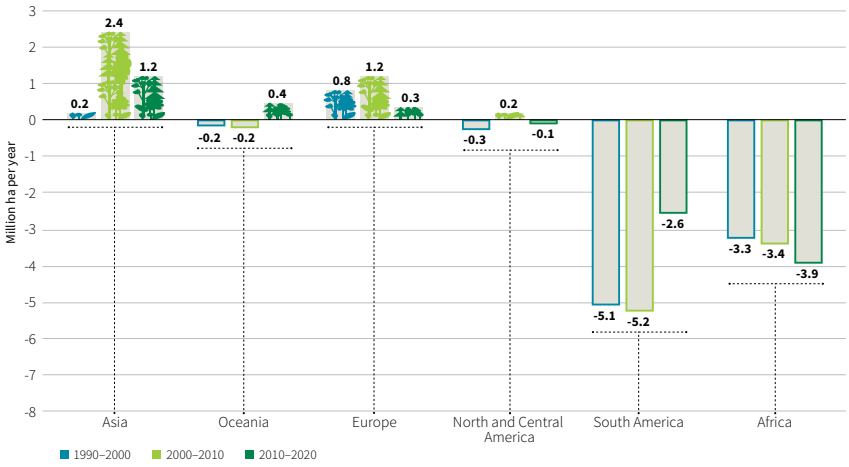
Naturally regenerating versus planted forests, 2020 (% of global forest area)



Annual net change in area of naturally regenerating and planted forest, by decade, 1990–2020



Annual forest area net change, by decade and region, 1990–2020



The area of naturally regenerating forests has decreased since 1990 (at a declining rate of loss), but the area of planted forests has increased by 123 million ha. The rate of increase in the area of planted forest has slowed in the last ten years.

Plantations account for about 3% of the world's forests

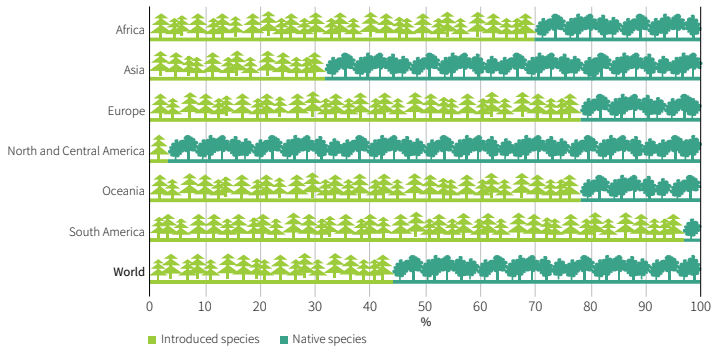
Plantation forests cover about 131 million ha, which is 3% of the global forest area and 45% of the total area of planted forests.

> Plantation forests are intensively managed, composed of one or two species, even-aged, planted with regular spacing, and established mainly for productive purposes. Other planted forests, which comprise 55% of all planted forests, are not intensively managed, and they may resemble natural forests at stand maturity. The purposes of other planted forests may include ecosystem restoration and the protection of soil and water values. The highest share of plantation forest is in South America, where this forest type represents 99% of the total planted-forest area and 2% of the total forest area.

The lowest share of plantation forest is in Europe, where it represents 6% of the planted forest estate and 0.4% of the total forest area.

Globally, 44% of plantation forests are composed mainly of introduced species. There are large differences between regions: for example, plantation forests in North and Central America mostly comprise native species and those in South America consist almost entirely of introduced species.

Proportion of introduced and native species in plantation forest, by region, 2020



3 According to the regional breakdown used in FRA 2020, Europe includes the Russian Federation.

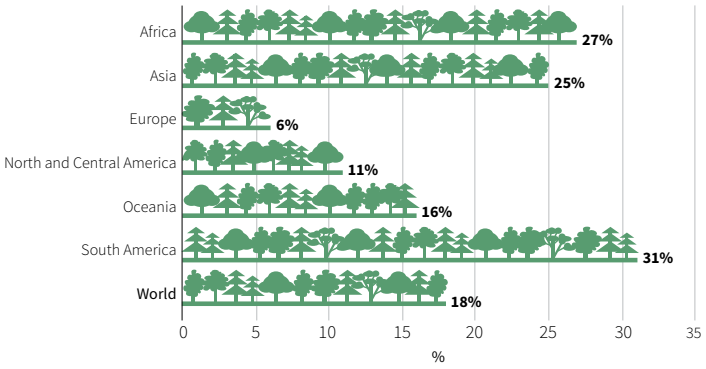
More than 700 million ha of forest is in legally established protected areas

There is an estimated 726 million ha of forest in protected areas worldwide.

Of the six major world regions, South America has the highest share of forests in protected areas, at 31%.

The area of forest in protected areas globally has increased by 191 million ha since 1990, but the rate of annual increase slowed in 2010–2020.

Proportion of forest in protected areas, by region, 2020



Primary forests cover about 1 billion ha

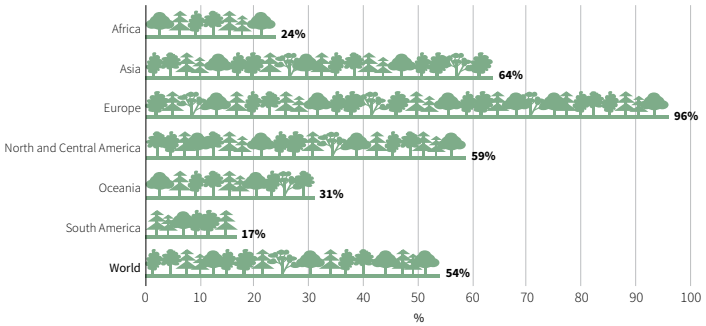
The world still has at least 1.11 billion ha of primary forest—that is, forests composed of native species in which there are no clearly visible indications of human activities and the ecological processes have not been significantly disturbed. Combined, three countries—Brazil, Canada and the Russian Federation—host more than half (61%) of the world's primary forest.

The area of primary forest has decreased by 81 million ha since 1990, but the rate of loss more than halved in 2010–2020 compared with the previous decade.

More than 2 billion ha of forest has management plans

Most of the forests in Europe have management plans; on the other hand, management plans exist for less than 25% of forests in Africa and less than 20% in South America. The area of forest under management plans is increasing in all regions—globally, it has increased by 233 million ha since 2000, reaching 2.05 billion ha in 2020.

Proportion of forest area with long-term management plans, by region, 2020



Fire is a prevalent forest disturbance in the tropics

Forests face many disturbances that can adversely affect their health and vitality and reduce their ability to provide a full range of goods and ecosystem services. About 98 million ha of forest were affected by fire in 2015;[4] this was mainly in the tropical domain, where fire burned about 4% of the total forest area in that year. More than two-thirds of the total forest area affected was in Africa and South America.

Insects, diseases and severe weather events damaged about 40 million ha of forests in 2015, mainly in the temperate and boreal domains.

The world's forests are mostly publicly owned, but the share of privately owned forests has increased since 1990

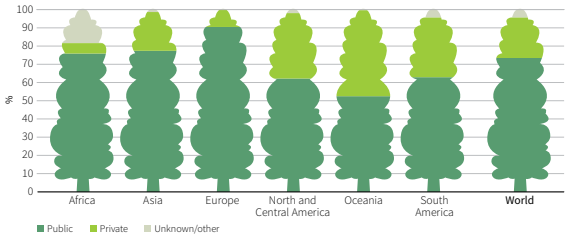
Seventy-three percent of the world's forests is under public ownership,[5] 22% is privately owned, and the ownership of the remainder is categorized as either "unknown" or "other" (the latter mainly comprising forests where ownership is disputed or in transition).

Public ownership is predominant in all regions and most subregions.

Of the regions, Oceania, North and Central America and South America have the highest proportions of private forests.

Globally, the share of publicly owned forests has decreased since 1990 and the area of forest under private ownership has increased.

Forest ownership, by region, 2015



Public administrations hold management rights to 83% of the publicly owned forest area globally. Management by public administrations is particularly predominant in South America, where it accounts for 97% of management responsibility in publicly owned forests. The share of public administration management rights has decreased globally since 1990, with an increasing share of publicly owned forests managed by private businesses, entities and institutions and by indigenous and tribal communities.

The world's forest growing stock is declining

The world's total growing stock of trees decreased slightly, from 560 billion m^3 in 1990 to 557 billion m^3 in 2020, due to a net decrease in forest area. On the other hand, growing stock is increasing per unit area globally and in all regions;

4 The latest year for which data are available.
5 As of 2015, the latest year for which global data are available.

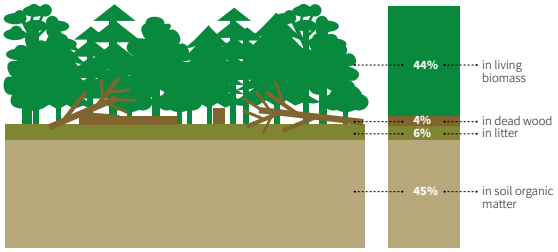
it rose from 132 m^3 per ha in 1990 to 137 m^3 per ha in 2020. Growing stock per unit area is highest in the tropical forests of South and Central America and West and Central Africa.

The world's forests contain about 606 gigatonnes of living biomass (above- and below-ground) and 59 gigatonnes of dead wood. The total biomass has decreased slightly since 1990 but biomass per unit area has increased.

Total forest carbon stock is decreasing

Most forest carbon is found in the living biomass (44%) and soil organic matter (45%), with the remainder in dead wood and litter. The total carbon stock in forests decreased from 668 gigatonnes in 1990 to 662 gigatonnes in 2020; carbon density increased slightly over the same period, from 159 tonnes to 163 tonnes per ha.

Proportion of carbon stock in forest carbon pools, 2020



About 30% of all forests is used primarily for production

Globally, about 1.15 billion ha of forest is managed primarily for the production of wood and non-wood forest products. In addition, 749 million ha is designated for multiple use, which often includes production.

Worldwide, the area of forest designated primarily for production has been relatively stable since 1990 but the area of multiple-use forest has decreased by about 71 million ha.

About 10% of the world's forests is allocated for biodiversity conservation

Globally, 424 million ha of forest is designated primarily for biodiversity conservation. In total, 111 million ha has been so designated since 1990, of which the largest part was allocated between 2000 and 2010. The rate of increase in the area of forest designated primarily for biodiversity conservation has slowed in the last ten years.

The area of forest designated primarily for soil and water protection is increasing

An estimated 398 million ha of forest is designated primarily for the protection of soil and water, an increase of 119 million ha since 1990. The rate of increase in the area of forest allocated for this purpose has grown over the entire period but especially in the last ten years.

More than 180 million ha of forest is used mainly for social services

An area of 186 million ha of forest worldwide is allocated for social services such as recreation, tourism, education research and the conservation of cultural and spiritual sites. The area designated for this forest use has increased at a rate of 186 000 ha per year since 2010.

Note that numbers may not sum to the totals indicated and percentages may not tally to 100 due to rounding. Not all countries reported on all parameters mentioned here.

Fellowship report

Communication: a powerful strategy for the conservation of our ecosystems

by Talía Lostaunau García

Lima, Peru
(talia.lostaunau@gmail.com)

Talking turkey: A communication campaign implemented by CORBIDI in villages close to the habitat of the white-winged guan helped reduce the threatened status of the species. *Photo: CORBIDI*

Some years ago, I embarked on a new professional journey: to become an environmental journalist. Since I made that decision, I have taken courses, attended workshops and read publications on the fundamentals of journalism. Every time I tell someone about this new career choice, they ask me "why would a forest engineer decide to become a journalist?" For a long time, I was unable to answer this question but, after considerable thought, I finally understood. My goal in deciding to study forest engineering in 2008 was to contribute to the conservation of tropical forests in Peru. After more than ten years, my goal is the same but the pathway to achieving it is different. I have realized that no conservation effort can be successful without the involvement of local people, and that local communities do not get involved if they do not understand why conservation is important.

Not long ago, a person I was interviewing confirmed this theory. It was Fernando Angulo, a forester who has worked for many years on a conservation project for the white-winged guan (*Penelope albipennis*), a galliform bird species of the Cracidae family. Until 2018, this endemic, turkey-like bird in the dry forests of northern Peru had been classified by IUCN as "critically endangered". Mr Angulo told me about the efforts made over the years to protect this species, including a zoological nursery to reproduce and release ready-to-be-reintroduced individuals into the wild and the creation of national, regional and private conservation areas in which the bird's habitat is protected.

The project made substantial progress through these actions, but the implementation of communication campaigns aimed at local people—many of them opportunistic hunters of the species—was the key to success. First, a socioeconomic study of the population was carried out. Armed with this information, an environmental education team from the non-governmental organization (NGO) CORBIDI visited each of the hamlets in the area of the bird's habitat, explaining the importance of the conservation of the white-winged guan. As part of the campaign, publicity spots were purchased on local radio stations at times designed to maximize exposure to the targeted communities. The behavioural change was amazing. The hunters, whose protein diet did not depend on turkey meat, began to recognize the birds in the field and stopped hunting them. Mr Angulo pointed out that the hunters are proud to have this endemic species in their territory. By 2018, the population of white-winged guans had recovered to such an extent that IUCN was able to downgrade the threat faced by the species to "endangered".

The white-winged guan conservation campaign is one of many examples of how effective communication can work. Increasingly, state agencies and non-profit organizations are understanding that communication is essential for achieving natural ecosystem management goals.

There is still enormous potential to explore. Communication could be useful, for example, in explaining to civil society the reality of deforestation in Peru's tropical forests, as well as in other countries. Many people point to the timber industry as the main cause of the high rates of deforestation. In fact, according to an article published by the NGO Amazon Conservation in 2018, more than 65% of deforestation in the Andean Amazon (comprising the Amazonian regions in Bolivia, Colombia, Ecuador and Peru) is due to the clearing of areas of 5 hectares or less (mostly for agriculture). The availability of such information will enable individuals and communities to form their own opinions and make decisions based on actual data.

We live in a time when science cannot be only for scientists. Communicators have a responsibility to inform societies, which, today more than ever, have great interest in the environment and specifically in tropical forests. Similarly,

Camera ready: The author spent time documenting and communicating conservation efforts in the Alto Mayo conservation reserve, Peru. *Photo: G. Herrera*

we must provide scientific information in digestible forms to be used by decision-makers in our countries. There are also communication challenges: social networks enable false information to go viral in a matter of seconds. This is how thousands of people shared a devastating image of a monkey carrying another monkey in its arms, which was supposed to have been taken during the Amazon fires in 2019. Days later, it was confirmed that the photograph had been taken in India in 2016.

We need more communicators in the world of science, people with different professional backgrounds and life experiences, with appropriate studies or simply with innate communication skills, but always with the sensitivity to tell someone's story in a humane way. Because even a scientific article has a human story to tell.

At the beginning of this article I mentioned my studies in forest engineering. These studies focused on scientific methods but did not give me the tools I needed to communicate relevant information in a simple way. The first articles I wrote for publication were quite technical, and many times I received comments from editors saying that my texts read like scientific papers. At the beginning it was frustrating, but little by little and after a lot of reading, I started to get better. However, the quality of my work really improved when I completed a certificate in journalism at the University of California, Berkeley, thanks to an ITTO Fellowship. It was there that I understood the need to empathize with readers and to get their attention from the first paragraph. I also learned about the importance of conducting interviews, citing reliable sources and always checking information. Now, I feel more confident with the techniques I have learned, and I am writing for important media outlets worldwide, focusing on the environment.

Not all scientists have to be interested in communication but, for those who are, I strongly recommend that you spend time researching the different media sources that exist today. The box contains advice for scientists who want to communicate with the outside world. Different social networks, for example, are available to everyone and can be useful tools for scientists if used responsibly.

The benefits of forest communication

What benefits can effective communication bring us as managers of forest and conservation projects?

- Increased involvement of local communities, achieving, in many cases, behavioural changes that are beneficial to project outcomes.
- Greater interest from civil society, which has the power to exert pressure on state institutions and public policymakers.
- Increased contributions by donor institutions or individuals, in cash or in kind.

How can I improve communication in my forest and conservation project?

- Identify the target audiences for your message and get as much information as you can about them, especially their motivation for conserving (or not conserving) and their information consumption habits.
- Hire a good communicator to develop communication strategies specific to the audiences you want to reach.
- Try to find the human side of the story you want to tell because this is what creates empathy with your audiences.
- If you have a limited budget, look for partnerships with nature or tourism journals, local or national newspapers, independent documentary makers and other trending media (e.g. social media influencers can be good partners as long as their values are aligned with those of your organization or project).

Talía Lostaunau is a forest engineer specialized in journalism and communication. In 2015 she started "2enRuta", a nature and ecotourism video blog, where she found her true passion, making more than 50 videos related to the conservation of Peru's ecosystems. Currently, she writes articles related to the sustainable use of natural resources and other conservation stories. See Talía's video blog here: www.youtube.com/channel/UCAFWmKfv7On9kGgzvlQjWDw

Market trends

Beat back the health risks—and prepare for the looming economic crisis

by Mike Adams

Compiled from ITTO's *Tropical Timber Market Report* and other sources

Waiting for customers: Many showrooms have been shuttered during the pandemic, although online sales have continued. Tough times lie ahead for the timber industry. *Photo: R. Carrillo/ITTO*

The world is experiencing a crisis that goes beyond health because, in many countries, the pandemic is undermining livelihoods. Few countries in the tropics are prepared for this double shock to human health and economic security. In the forest sector, the immediate task is to support companies so they can continue paying wages to their workers—but another challenge is looming.

The economic disruption as a result of the COVID-19 control measures hit the global industry hard in the first quarter of 2020; in April, the decline in manufacturing output in many countries and in flows of new orders was worse than during the 2008/2009 global financial crisis.

International timber trade flows ground almost to a halt, with new export orders falling most. Herein looms the next challenge—it is likely to take years for demand for tropical timber to claw back to pre-pandemic levels.

Demand for tropical wood products in Western markets will be pummelled by falling housing starts, massive cuts in infrastructure spending, and low consumer spending on discretionary items such as home improvements and wooden household furniture.

Much hope—too much, perhaps—is being pinned on China's purchases of wood products. But China's tropical timber imports are manufactured mainly into items for the domestic market, and domestic consumption will be affected by a decline in the country's gross domestic product and exports and by rising unemployment. Very tough times lie ahead, therefore, for all timber industry sectors—tropical and temperate.

Industrial production plunges

Not only China's consumption will be affected, of course. In launching the Spring 2020 Economic Forecast, European Union (EU) Commissioner, Paulo Gentiloni, said it is now clear that the EU has entered the deepest economic recession in its history.[1] According to Mr Gentiloni's press release, the EU economy is expected to contract by a record 7.4% this year—much more than in 2009, when the contraction was around 4.5%. The EU is forecasting a rebound of about 6% in 2021, which is not strong enough to fully make up for the 2020 drop.

France, Germany and Spain are significant consumers of tropical wood products, and the economies of each has been badly affected. French industrial production has fallen sharply due to the crisis, with March month-on-month industrial output in the manufacturing, energy and construction sectors collapsing by more than 16%. German factory output shrank at the fastest rate on record in April, and firms in the export-oriented sector cut jobs at the fastest pace in 11 years. Spanish factory activity shrank to its lowest level since 2008 in April as measures to contain COVID-19 triggered record falls in output, new orders and purchasing.

China's manufacturing sector has been hit by slowing export demand, even though businesses reopened and most workers returned to work in March. The country's National Bureau of Statistics said that manufacturing activity in the companies surveyed (mainly large state enterprises) expanded modestly in April; however, other private surveys, which include a mix of small, medium-sized and large enterprises, contradict the official data.

1 https://ec.europa.eu/commission/presscorner/detail/en/speech_20_822

India's manufacturing activity contracted at its fastest pace in over 15 years in April as factories remained locked down. The IHS Markit (India Manufacturing Purchasing Managers' Index)[2] fell to its lowest reading since data collection began more than 15 years ago.

US wood industries continue to operate

A press release from the Federal Reserve[3] indicated that manufacturing output in the United States of America (US) fell by 6.3% in March and total industrial production fell by 5.4%, both representing the largest declines since 1946.

The US Department of Homeland Security identified the wood products industry as an essential critical infrastructure workforce in the nation's response to the pandemic. Therefore, much of the industry still operated in the first quarter of 2020.

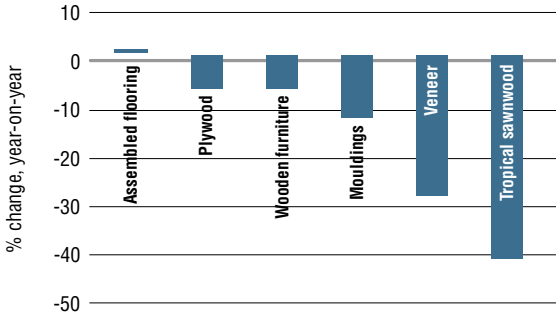
Other manufacturers and traders of home improvement products are also still operating, but at reduced levels. Some have benefited from brisk sales as "stay at home" homeowners started home-improvement projects. Online furniture sales have also been steady. Other building-product retailers such as flooring have switched to an online-order/pick-up model. When permitted, these will shift to a socially distanced retailing model.

Other data reveal that almost 7 million people in the US claimed unemployment benefits in the second week of April, bringing total claims to around 17 million, which is about 10% of the labour force. Most economists expect much larger declines in the future because more states are calling for non-essential businesses to shut down and individuals to stay at home to contain the spread of the virus. More recently, there have been moves to re-open the economy, at least in some states, and the economic picture is somewhat confused.

Tropical hardwood imports

US imports of sawn tropical hardwoods dropped by 42% in the first quarter of 2020, year-on-year. Imports from Ecuador were down by 74%, year-on-year, and imports from Brazil dropped by 40%. Imports of jatoba, sapelli, ipe and acajou d'Afrique remain well below last year's levels. US imports of hardwood plywood expanded by 29% in March, but first-quarter imports were down by 6% overall, year-on-year.

Figure 1: US imports of wood products, first quarter 2020



Data source: US Census Bureau, Foreign Trade Statistics.

2 https://economictimes.indiatimes.com/topic/IHS-Markit
3 www.federalreserve.gov/releases/g17/current/g17.pdf

Compared with the first quarter of 2019, US first-quarter 2020 tropical hardwood imports were down by 77% from China, by 68% from Ghana, by 77% from Cameroon and by 65% from India. There was an almost 30% decline in the value of US veneer imports in the first quarter of 2020 compared with a year earlier (Figure 1).

European timber importers put orders on hold

Accurate estimates of impacts on European timber trade volumes this year will only become apparent when more countries publish trade data for the first quarter. Anecdotally, reports suggest that most European timber importers were putting orders on hold in the second half of March and in April as they struggled to deal with a build-up of stock that couldn't be shifted because manufacturers, retailers and construction sites had gone into lockdown.

It is too early to assess the full impact of the pandemic on EU furniture imports this year, but early signs are that the downturn will be at least as great as during the global financial crisis. With its trade fairs cancelled, showrooms shuttered and deliveries of larger items largely curtailed due to social distancing, the furniture industry in Europe has been hit particularly badly.

An April meeting of the European Sustainable Tropical Timber Coalition Technical Committee[4] concluded that the pandemic has resulted in radically reduced timber trading across Europe. Many companies in the EU are temporarily closed or have curtailed operations and are pushing back orders and asking for longer payment terms.

Port operations and demurrage demands

Europe's port operators have managed to ensure continuity of operations during the pandemic because they have developed and implemented contingency plans. Nevertheless, Isabelle Ryckbost, Secretary General of the European Sea Ports Organisation, said that ports will face serious financial challenges in the near term because business activity will slow, driving down cash flows; it was important, therefore, that ports and the associated businesses were supported "when and where necessary".[5]

Shipper and forwarder groups in Europe have been calling on carriers and terminals to exercise restraint before issuing detention and demurrage charges for goods ordered before the lockdown that were still on the water and due to arrive in April or May.

Adding to the uncertainty, freight rates have become volatile, rising on some Asian routes and falling on others. The number of containers shipped from Asia to Europe, the US and other countries has dropped such that there is a shortfall in containers to transport timber back.

COVID-19 signal missing in March trade data

March trade data for the EU don't show a strong impact of the pandemic on the tropical timber trade, with lockdowns in Europe beginning only late in the quarter. Indices of economic activity in the EU27+UK plunged in April and were recovering only slowly in May as many European countries eased their lockdowns.

In May, the European Commission predicted a decline in EU economic activity this year of 7.5%—and slightly more in the eurozone. The Commission also warned that the outcome could be worse if the pandemic turns out to be longer or more severe than currently envisaged. A European Commission report outlined sharp falls in growth in hard-hit countries such as France,

4 This committee comprises the European Timber Trade Federation, national trade associations, the Forest Stewardship Council, the Programme for the Endorsement of Forest Certification and the International Tropical Timber Technical Association.
5 www.espo.be/news/covid-19-exit-and-recovery-strategy-keep-european-

Italy and Spain—with GDP expected to drop in those countries by more than 8% this year. In Greece and Spain, the fall is forecast to be well over 9%. Even in Germany, which has won praise for its handling of the pandemic, the downturn is expected to be 6.5% in 2020.

China's foreign trade down 6%

Almost all of China's major trading partners have implemented measures to contain the spread of COVID-19, and the slowdown in manufacturing and retailing in major consumer countries is negatively affecting China's foreign trade. Chinese export manufacturers are suffering as demand has evaporated, economic activity has slowed and supply chains have been disrupted.

China's foreign trade in the first quarter of 2020 fell by more than 6%, year-on-year, with exports dropping by over 10%. Trade with the EU, Japan and the US dropped by 10%, 8% and 18%, respectively, in the first quarter.

Housing sales

In a press release, the National Bureau of Statistics reported that investment in real estate dropped by almost 8%, year-on-year, in the first quarter of 2020.[6] China's residential housing market began a steady revival in March, however, as real estate companies reopened across the country following the nationwide shutdown (Figure 2).

Sales in eight of the large cities jumped to levels well above that in the last quarter of 2019 before the virus outbreak caused a shutdown. The beginning of a recovery is a relief to the industry, which has been offering heavy discounts to boost sales. A lively housing market is good for sales of timber and furniture.

Furniture retailers will welcome the recovery in the housing market because sales dropped by almost 30% in the first quarter of 2020. Retail sales of consumer goods were down by almost 16%, year-on-year, in March.

Decline in volumes and value of tropical hardwood imports

China's log imports in the first two months of 2020 totalled 7.73 million m^3, a year-on-year decline of 9%. Softwood log imports, which accounted for 71% of the total, fell by 7%, to 5.49 million m^3. Hardwood log imports (29% of total log imports) fell by 15%, to 2.24 million m^3.

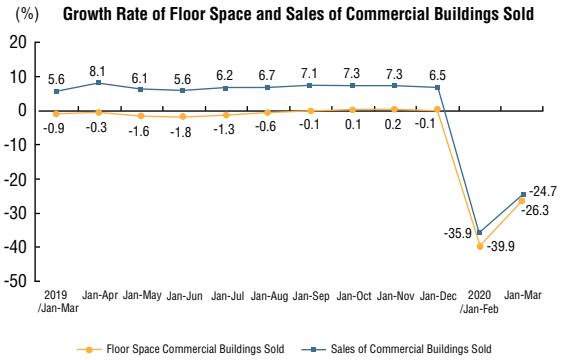
Tropical log imports in the first two months of 2020 amounted to 1.30 million m^3 (17% of the national total), down by 26%, year-on-year. Ten countries supplied 95% of China's tropical log requirements in the first two months of 2020: Papua New Guinea (39%), the Solomon Islands (14%), Brazil (10%), Equatorial Guinea (8.4%), the Congo (5.8%), Mozambique (5.5%), Cameroon (4.7%), Suriname (2.9%), the Central African Republic (2.5%) and South Africa (2.3%).

Log imports were down over the period by 58% from Equatorial Guinea, 54% from the Solomon Islands, 45% from the Congo and 42% from Cameroon.

China's exports crumble

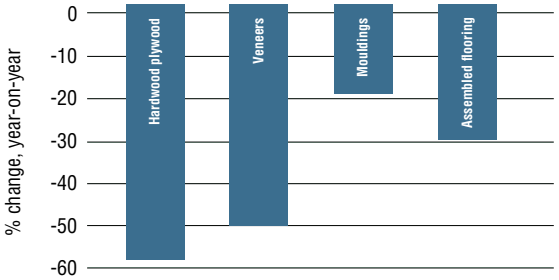
According to China Customs, the country exported 1.85 million m^3 of plywood in the first quarter of 2020, down by 85% compared with the same period in 2019; hardwood plywood and veneer exports to the US dropped by more than 50% (Figure 3). The value of China's furniture exports fell by 84%, year-on-year, to USD 3.10 billion.

Figure 2: Change in sales of commercial building floor space, China, 2019–2020



Source: National Bureau of Statistics, China.

Figure 3: China wood-product exports to the US, first quarter 2020



Data source: China Customs.

India's manufacturing shutdown in April

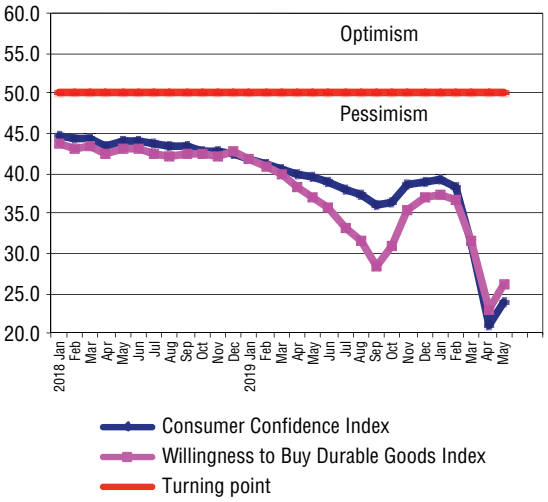
The Indian manufacturing sector was largely unaffected in the first quarter of the year, with the first phase of the shutdown not beginning until April. When it came, however, it brought most manufacturing sectors to a virtual standstill. The shutdown was extended several times but was lifted in mid-May; some states with high infection rates, however, continued with restrictions on worker movements and company operations.

The Department for Promotion of Industry and Internal Trade identified sectors where limited activity should continue, including the timber, plywood and wood-based industries (because they provide packaging material for drug and food companies).

The lockdown resulted in many layoffs, with April estimates by the national government's Periodic Labour Force Surveys suggesting that more than 136 million non-agricultural jobs were at immediate risk. Workers without formal employment contracts, casual labourers and those in small companies were most vulnerable.

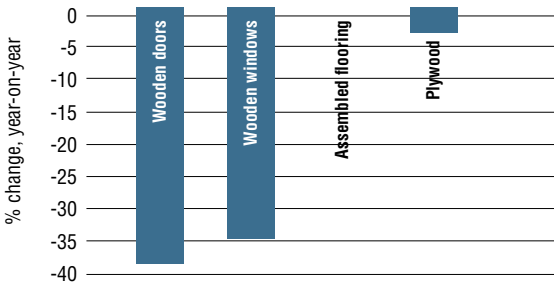
6 www.stats.gov.cn/english/PressRelease/202004/t20200420_1739751.html

Figure 4: Japan Consumer Confidence and Willingness to Buy Durable Goods indices, January 2018–May 2020



Data source: Cabinet Office, Japan.

Figure 5: Japan imports of wood products, first quarter 2020



Data source: Ministry of Finance, Japan.

India's exports slumped by a record 35% in March as supply countries closed their ports and borders to try to limit the spread of the virus. Indian ports were closed to both imports and exports when the lockdown was announced. Packed export containers could not be dispatched because, in most cases, receiving end ports were closed and incoming containers could not be discharged as workers could not travel. There was severe congestion in the ports. Restrictions had been eased by early May, and work had started to discharge containers and truck them out of the ports.

The president of the Federation of Indian Export Organisations said that, with the cancellation of more than 50% of orders, major job losses and rising bad loans among exporters, the prospects for manufacturers were gloomy. Nevertheless, a tepid recovery was expected in May as the government allowed some resumption of economic activity. Following a relaxation of restrictions by the central government, some states have gone further with their easing in areas outside virus cluster zones. Construction activity has resumed, as has some wood-product manufacturing, but outputs are still low.

Japan—everyone urged to stay at home

A nationwide state of emergency was declared in Japan due to the country's coronavirus outbreak. This decision by the central government paved the way for regional governments to launch local campaigns urging everyone to stay home. The state of emergency was set to remain in force until 31 May but was lifted in all prefectures on 25 May.

The Japanese press reported on a survey conducted by NN Life Insurance in late March (i.e. before the nationwide state of emergency).[7] In the survey, 60% of responding small and medium-sized companies said they could survive if the pandemic ended in the next few months. About 16% said their businesses could survive until the end of May and 7% said they could only make it through to the end of March. There are reports that the government is considering a support package for small businesses that were temporarily idle during the state of emergency.

The state of emergency triggered the laying off of a vast number of non-permanent workers. Economists are forecasting up to 1 million newly unemployed, a figure higher than during the global financial crisis.

The first response of many small companies was to consider temporary business suspension, but the mood among companies has changed recently, with many seeking ways to dismiss employees. Labour unions in Japan have pointed to a trend towards the shortening of contracts for temporary employees in preparation for layoffs. Consumer confidence has dived (Figure 4) and is now well below that seen in the global financial crisis.

Import update

The sharp drop in Japan's first-quarter 2020 wooden door (HS 441820) imports was little surprise. The value of wooden-door imports dropped by more than 40%, year-on-year; the value of Japan's imports of wooden windows (HS441810) also fell sharply in the first quarter (Figure 5).

Surprisingly, however, Japan's imports of assembled flooring (HS 441871-79) showed no signs of decline in the first quarter of 2020; Japanese timber importers had not experienced major impacts from the pandemic in the first two months of 2020, but there were indications of a slowdown in the construction and house-building sectors. Japan's first-quarter 2020 plywood (HS 441210-39) imports were down by just 4% compared with the first quarter of 2019. The true extent of the impact on imports will only become clear, however, when second-quarter 2020 data become available.

Impacts of pandemic to linger into 2021

The consensus among analysts is that the global trade of wood products will be curtailed until at least mid-2021. The most severe declines are expected in the second and third quarters of 2020, with effects through to the first quarter of 2021, followed possibly by a slow recovery that could take as long as two years.[8]

Data contained in this article were current as of May 2020. The situation is highly dynamic and subject to change. Subscribe to ITTO's *Tropical Timber Market Report* for updates at www.itto.int/market_information_service

7 www.japantimes.co.jp/news/2020/04/27/business/economy-business/japan-small-midsize-firms-
8 www.magnoliareporter.com/news_and_business/opinion/article_ddaa6cb8-7938-11ea-b2c5-532a415d891c.html

Tropical and topical

Compiled by Ken Sato

Tropical forests losing their ability to absorb carbon, study finds

The amount of carbon absorbed by the world's intact tropical forests has fallen for the last three decades, according to a study by nearly 100 scientific institutions published in the journal *Nature* in March and reported in *The Guardian*. The study tracked 300 000 trees over 30 years, providing the first large-scale evidence of the decline in carbon uptake by the world's tropical forests. The researchers combined data from two large research networks of forest observations in Africa and the Amazon. Tropical forests are absorbing one-third less carbon than they did in the 1990s because of the impacts of higher temperatures, drought and deforestation on their growth: the uptake of carbon from the atmosphere by tropical forests peaked in the 1990s at about 46 billion tonnes per year (equivalent to about 17% of carbon dioxide emissions from human activities) but had declined to about 25 billion tonnes (6%) in 2000–2010. The downward trend is likely to continue as forests come under increasing threat from climate change and exploitation.

More: www.theguardian.com/environment/2020/mar/04/tropical-forests-losing-their-ability-to-absorb-carbon-study-finds

Eucalypts can assist tropical forest restoration

A paper published in the *Journal of Ecology* by Pedro Brancalion and co-authors in 2019 presents the findings of a seven-year experimental study at three sites in Brazilian Atlantic forests to assess the impacts of incorporating exotic eucalypts as a transitional stage in tropical forest restoration on above-ground biomass accumulation, native woody species regeneration and financial viability. The study found that biomass accumulation was nine times higher in mixed eucalypt–native species plantations than in native-only plantings due to fast eucalypt growth. Nevertheless, the growth of native non-pioneer trees was not affected or was only slightly reduced by eucalypts prior to the logging of the eucalypts. The study also found that the eucalypts did not negatively affect the natural regeneration of native woody species before or after eucalypt logging. Moreover, the income from eucalypt wood production offset 44–75% of restoration implementation costs. The authors concluded that, in Brazil's Atlantic forests, exotic eucalypts can be important allies of tropical forest restoration, and their use and investment opportunities should be considered within the portfolio of restoration options.

More: https://besjournals.onlinelibrary.wiley.com/doi/full/10.1111/1365-2664.13513

The need for wood security

An article published in the *International Forestry Review* in June 2020 (volume 22, S1) by ITTO Executive Director Gerhard Dieterle and a co-author, Alain Karsenty, makes the case for more investment, and policies to address rights and incentives, as part of efforts to provide wood security in the face of growing global demand. This challenge, say the authors, "is poorly understood by most international initiatives focused on climate or biodiversity, which want to conserve forests but neglect the importance of the productive role of forests to support this conservation through their sustainable use."

More: www.ingentaconnect.com/content/cfa/ifr/2020/00000022/a00101s1

Smallholder teak plantations could be a driver of sustainable development in the lower Mekong

Smallholder teak plantations have the potential to be a driver of sustainable development in the lower Mekong by improving the livelihoods and landscapes of rural communities. Knowhow, high-quality planting material and financial support are keys for realizing such potential, according to participants at a meeting on teak in n Vientiane and Luan Prabang, Lao People's Democratic Republic (Lao PDR), in February 2020. About 50 participants in the *Lao Teak Forum: Sustainable Teak Value Chains for Sustainable Local Development* reviewed opportunities and challenges for sustainable teak value chains in Lao PDR. The forum was co-organized by ITTO in cooperation with Lao PDR's National Agriculture and Forestry Research Institute and with financial support from the German Federal Ministry of Food and Agriculture. According to forum participants, the creation of smallholder teak groups will enable the integration of farmers into supply chains for higher value-added teak products.

More: www.itto.int/news/2020/03/03/smallholder_teak_plantations_could_be_a_driver_of_sustainable_development_in_the_lower_mekong

Reforming certification to suit smallholders

A paper published in *Australian Forestry* in June 2020 by Aiden Flanagan and co-authors reviews forest certification systems in the context of smallholder tree-farmers in Southeast Asia and questions whether perceived benefits match operational realities. The question of "who benefits?" is crucial, say the authors. Moreover, it is "particularly important in transactions between relatively weak and vulnerable and relatively strong and powerful individuals and groups, such as the relationships between smallholder tree-farmers in Southeast Asia and purchasers of certified wood products". The paper explores the factors that drive certification and how they intersect with those characteristics of smallholder tree-farms restricting the adoption of certification. The authors argue that new approaches are required to deliver the benefits necessary to expand smallholder participation in wood production supply chains. Innovative approaches should be adopted to deliver a fair, equitable and inclusive model that is relevant, practical, feasible and cost-effective for smallholder tree-farmers. To achieve this, say the authors, certification organizations and forest products businesses should remove existing barriers to smallholder participation and develop initiatives to more fairly link smallholder tree-farmers with others in the supply chain, based on enabling and mutually supportive partnerships.

More: www.tandfonline.com/doi/full/10.1080/00049158.2020.1762150

Air your views on the future of forest education—participate in global survey

A survey to advance forest education globally has been launched as part of a joint initiative of the Food and Agriculture Organization of the United Nations (FAO), the International Union of Forest Research Organizations (IUFRO) and ITTO. Environmental educators, forestry students and forest-related employers are invited to participate in the survey between 15 July and 15 August 2020. Take the survey at https://link.webropolsurveys.com/s/Forest-Education-Survey-2

Recent editions

Compiled by Ken Sato

ITTO 2020. *ITTO environmental and social management guidelines.* ITTO Policy Development Series No. 23. Yokohama, Japan.

ISBN 978-4-86507-058-3

Available at: www.itto.int/guidelines

This publication provides a systematic procedure for integrating environmental and social safeguards into the ITTO project-cycle process. It builds on and consolidates guidance contained in various ITTO guidelines and manuals and draws on best practices in other global bodies in mitigating and preventing harm to communities and the environment.

FAO, ITTO & United Nations 2020. *Forest product conversion factors.* Rome. https://doi.org/10.4060/ca7952en

ISBN: 978-92-5-132247-5

Available at www.itto.int/other_technical_reports

This publication provides the most up-to-date and comprehensive set of conversion factors in forestry. Conversion factors are used primarily for measuring the efficiency and technical progress of forest industries, and this publication will support the work of analysts, policymakers, forest practitioners and manufacturers worldwide.

The forest sector has long used conversion factors as a tool for analyzing forest production, wood product manufacturing efficiency and the performance of industrial processing. A conversion factor is primarily a ratio of raw-material input to output, such as from industrial roundwood to finished and semi-finished wood products.

Analysts, policymakers, forest practitioners and forest-based manufacturers often use conversion factors to understand drivers of efficiency, feasibility and economics in the wood industry. International organizations such as ITTO use them mainly to calculate wood balances between roundwood harvested and the production of wood products (such as the quantity of roundwood needed to produce a given quantity of sawnwood or plywood). Obtaining the most accurate conversions possible is imperative to avoid the misreporting, in statistics, of roundwood shortages and surpluses and to provide stakeholders and policymakers with reliable information on the production and consumption of timber at the national to global levels.

The Food and Agriculture Organization of the United Nations (FAO) and United Nations Economic Commission for Europe (UNECE) have previously published studies on conversion factors, most recently in 2010—although that publication covered only Europe, the Commonwealth of Independent States and North America. To expand the geographic coverage, ITTO joined FAO and the UNECE to update existing factors and include several tropical countries. As a result of this international collaboration, the current publication (which supersedes the 2010 edition) covers 37 countries, the highest geographical reporting to date.

Developing worldwide estimates of conversion factors remains a challenge because many countries lack reliable, consistent information on the efficiency of their forest industries, reinforcing the need to constantly strengthen their statistical capacities.

This publication provides input:output ratios for eight categories of wood-based forest products—such as sawnwood, panels, wood pulp and paper, and energy wood products and properties—as well as easy-to-understand explanations of the units of measure and determinants of ratios, and information on the physical properties of wood-based forest products.

ITTO 2020. *Report of the International Forum. Together Towards Global Green Supply Chains: a forest products industry initiative.* International Tropical Timber Organization (ITTO), Yokohama, Japan.

Available at: www.itto.int/other_technical_reports

This international forum, held in October 2019, was an initiative of the private sector funded primarily by the German Federal Ministry for Food and Agriculture. Its aim was to promote nature-based solutions as part of global efforts to implement the Sustainable Development Goals by advancing legal and sustainable timber supply chains. Such supply chains will incentivize responsible forest production and purchasing practices while also leading to additional benefits in poverty alleviation, the creation of rural and urban employment, economic growth, income generation, and substantial climate-change mitigation.

The forum was co-organized by ITTO, the China Timber and Wood Products Distribution Association, the Centre for International Forest Products Trade of the National Forestry and Grassland Administration of China, and the International Tropical Timber Technical Association. It involved two days of intensive plenary discussions, a field trip to wooden-flooring factories in Huzhou, China, and other activities. Among other things, forum participants agreed to create a voluntary network—the Global Green Supply Chain Network—among forest managers, producers, traders, the processing industry and consumers to add value to forests through the recognition of their economic, social and environmental values and the incorporation of legality and sustainability in all forestry operations.

The forum was the first global dialogue on how to improve the legality and the sustainability of tropical timber supply chains. More than 350 people attended, including major players in the tropical timber industry and trade. The forum's outcomes have set a foundation to enable stakeholders to work together through the Global Green Supply Chain Network, with the aim of incentivizing responsible production and consumption of tropical wood products to provide wide-ranging environmental and socioeconomic benefits in both producer and consumer countries. An article describing the outcomes of the forum was published in TFU 28/3–4.

Storck, S. & Oliver, R. 2019. *FLEGT VPA partners in EU timber trade 2018.* Main report. ITTO.

Available at www.flegtimm.eu/images/IMM_2018_Annual_Report/Final_clean_version_Natalie_VPA-Partners-in-EU-Timber-Trade-Annual-Report-2018.pdf

The Independent Market Monitoring (IMM) mechanism was established under an ITTO project funded by the European Union (EU) to support the implementation of bilateral voluntary partnership agreements (VPAs) between the EU and timber-supplying countries. This, the IMM's annual report for 2018, summarizes the status of VPA implementation and negotiations in all VPA partner countries. It provides an update on the share of VPA partner countries in global tropical wood products trade in 2018 and reports on other issues related to forest law enforcement, governance and trade (FLEGT) in the EU timber trade. It concludes with recommendations for developing markets for FLEGT-licensed products and outlines plans for future IMM work. An article describing the findings of the report in more detail was published in TFU 29/1.

Meetings

ITTO meetings

9–14 November 2020
56th Session of the International Tropical Timber Council and Sessions of the Associated Committees
Yokohama, Japan
Contact: www.itto.int/events
The International Tropical Timber Council is ITTO's governing body. It meets once a year 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 ***New dates!***
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 education initiatives, approaches and key players on forest education. 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 (FAO), the International Union of Forest Research Organizations (IUFRO) and ITTO under the Collaborative Partnership on Forests, with financial support from the German Federal Ministry of Food and Agriculture.

Other meetings

15–17 September 2020
Virtual
The 8th World Sustainability Forum
Basel, Switzerland
Contact: https://wsf-8.sciforum.net

29 September–1 October 2020 ***New dates!***
6th International Climate Change Adaptation Conference—Adaptation Futures 2020
New Delhi, India
Contact: http://adaptationfutures2020.in

7–9 December 2020
New dates!
International Forest Business Conference 2020
Kistowo, Poland
Contact: http://fba-events.com/index.php/2017/09/03/international-forest-businessconference-2018

7–15 January 2021
New dates!
IUCN World Conservation Congress
Marseille, France
Contact: www.iucncongress2020.org

11–14 January 2021
New dates!
World Conference on Timber Engineering 2020
Santiago, Chile
Contact: https://wcte2020.com

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

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

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

24–28 May 2021
XV World Forestry Congress
Seoul, Republic of Korea
Connect: www.fao.org/forestry/96885

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

30 June–1 July 2021
New dates!
Treescapes2020
Birmingham, UK
Contact: www.birmingham.ac.uk/facilities/mds-cpd/conferences/forest/index.aspx

15–17 July 2021 ***New dates!***
10th International Wood Construction Forum
Paris, France
Contact: www.forum-boisconstruction.com

23–26 August 2021
New dates!
4th World Teak Conference 2020
Accra, Ghana
Contact: www.worldteakconference2020.com

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

10–13 November 2021
New dates!
AUSTIMBER 2020
Victoria, Australia
Contact: www.afca.asn.au/www-austimber-org-au

The following meetings have been postponed, with new dates to be determined:

Forests in Women's Hands: International Conference on Women in Forestry 2020
Traunkirchen, Austria
Contact: www.forstfrauen.at/en/conference-2020

25th Session of the FAO Committee on Forestry
Rome, Italy
Contact: COFO-2020@fao.org

Gabon Wood Show
Libreville, Gabon
Contact: www.woodshowglobal.com/gabon/en-US

7th IUFRO International Workshop on the Genetics of Tree-Parasite Interactions in Forestry
Pontevedra, Spain
Contact: www.efi.int/events/7thiufro-international-workshopgenetics-tree-parasiteinteractions-forestry-2020-09-21

15th Meeting of the Conference of the Parties to the Convention on Biological Diversity Kunming, China
Contact: www.cbd.int/cop

26th Session of the International Commission on Poplars and Other Fast-Growing Trees: Sustaining People and the Environment
Rome, Italy
Contact: www.fao.org/forestry/ipc/en

5th European Agroforestry Conference
Nuoro, Italy
Contact: www.euraf2020.eu

GLF Glasgow 2020
Glasgow, Scotland, UK
Contact: https://events.globallandscapesforum.org/glasgow-2020

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.

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