



# TFU

Promoting the  
conservation and  
sustainable development  
of tropical forests

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TROPICAL FOREST UPDATE

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## Looking for the positives

And so we bid farewell to 2020 with little regret—it was an unusually difficult year for many, including in the tropical forest sector. Worldwide, more than 75 million people contracted the COVID-19 virus, and at least 1.7 million people died from it. Economies dived almost everywhere, and unemployment soared. The tropical forest industry, on which millions of rural people depend, took a major hit in many countries. And tropical forests themselves came under increased pressure as urban dwellers took refuge from the pandemic in their former rural homes.

But even in these grimmest of times, there is cause to look forward with hope. Effective vaccines are being distributed—although it is unclear how easy it will be for many people, especially the poor, to gain access to them.

Greenhouse-gas emissions dipped as fossil-fuel use declined dramatically due to the impacts of the pandemic, perhaps buying us time to avoid worst-case climate change. For many of us, the COVID-19 “pause” provided an opportunity to re-evaluate our lives, slow down, and reconnect with our local communities and with nature.

ITTO has continued to work through the pandemic, and this edition of the TFU presents some of the positive outcomes of this effort. The Organization’s Executive Director, Gerhard Dieterle (page 3), notes that a statement on the pandemic by the Collaborative Partnership of Forests, of which ITTO is a founding member, urges us all to seize the opportunity to shift to greener, more inclusive economies—in which forestry must play a central role. ITTO,

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**Cover image:** A farmer in Ghana poses in his agroforestry plot, which could generate additional income for him if part of a REDD+ scheme. *Photo: F. Tease*

**Right:** Minato-Mirai, Yokohama, Japan. *Photo: T. Yanuariadi/ITTO*

writes Dr Dieterle, is well-placed to help achieve such a shift, including through its new programmatic approach to project work.

Kwame Oduro and his co-authors (page 6) report on an ITTO project in Ghana to support the country in its efforts to reduce greenhouse-gas emissions through REDD+. The project had many important outputs, but perhaps most interesting was the identification of five activities that could be implemented in off-reserve areas. The project also found mixed perceptions among farmers about the effects of REDD+; for example, many worry that increasing the number of trees on their farms would cause an upsurge in the incidence of crop diseases. In any strategy to introduce REDD+ in off-reserve areas, it will be important to demonstrate the benefits to farmers and to alleviate their concerns through demonstration and extension.

An article by May Thet Htoo and co-authors (page 9) report on an ITTO project in Myanmar designed to identify suitable areas for the establishment of teak plantations. The project used a geographic information system and a “matching” method dating to 1984 to generate an initial assessment of land suitability in the Bago Yoma region, the first such assessment ever conducted in Myanmar. More work is now needed to further develop Myanmar's teak plantations as a means for improving local livelihoods, safeguarding natural teak forests, and boosting the timber sector.

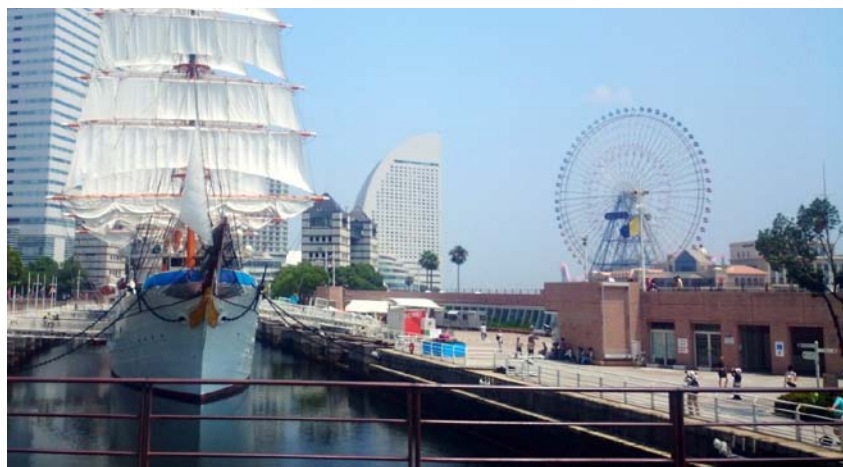
Milton Kanashiro (page 12), the coordinator of an ITTO project in the Brazilian Amazon, reflects on the response to the virus in Brazil—there has been “a strong feeling of solidarity”—and how it should motivate us all to do things differently in the future. The forest sector, says Dr Kanashiro, “can help societies find a new path”.

Dharendra Dugaya and co-authors (page 14) present a success story in the restoration of a highly degraded tropical deciduous dry forest on the campus of the Indian Institute of Forest Management in Bhopal, India. They report the results of a study on the quality of the restored forest, finding that it is now similar to other comparable forests on a range of measures, including the diversity of tree species and the carbon content of aboveground biomass.

The outcomes of the 56th session of the International Tropical Timber Council in November 2020 are presented on page 18. The Council, which, for the first time, met virtually, announced voluntary contributions of more than USD 4 million to support ITTO's work, including several projects in countries around the tropics. It also requested the Secretariat to advertise the position of Executive Director, with Dr Dieterle due to complete his term in the first quarter of 2021. The advertisement for the position can be found on page 5.

This edition of the TFU also includes an ITTO Fellowship report by Jean-Bosco Saha Tchinda and his co-author, which presents the results of research to create a new material using recycled polyvinyl chloride and wood waste. And Mike Adams summarizes the impacts of the COVID-19 on tropical timber markets. Recovery will be erratic, he concludes, and will vary enormously between countries.

Few people will dispute that 2020 has been a terrible year, with the new virus sickening and killing millions and causing economic chaos and hardship. We don't want another year like it—but we can turn the calamity into a positive if we seize the opportunity to change course now towards a greener, more equitable, healthier global society.



# From the Executive Director

**ITTO is well-placed to help countries shift to greener, more inclusive economies by restoring and sustainably managing tropical forests and benefiting from their sustainable products and ecosystem services**



**by Gerhard Dieterle**  
ITTO Executive Director  
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**Building back green:** ITTO's work bridges the various aspects of sustainable forest management, including the conservation and sustainable use of tropical forests, the development of viable forest-based enterprises, and a sustainable tropical timber trade. *Photo: Randi*

Recognizing that the pandemic is the result of a breakdown in the relationship between human and natural systems, responses to it should encompass the protection of ecosystems and the maintenance of their functions. Sustainable forest management, which involves the restoration, conservation and sustainable use of forests, provides essential goods and ecosystem services to support human health and livelihoods.

Forest products and services are especially essential in many tropical countries, the economies of which have been affected heavily by the COVID-19 pandemic. Forests provide communities with security and income, especially among the most vulnerable, and increase their resilience. In the present economic crisis, forests are providing a refuge to many people who, to survive, have left the cities and returned to their rural homes.

There is no question that the evolving crisis will have a deep impact on forest industries and domestic and international markets. Moreover, the crisis is amplifying existing challenges, such as the ever-growing pressure on forests, the difficulty in meeting sustainability standards, the lack of finance for biodiversity conservation, and forest governance.

I and other members of the ITTO Secretariat were intimately involved in the drafting of a joint statement<sup>1</sup> by the Collaborative Partnership on Forests (CPF) on the role of forests in the COVID-19 pandemic. The CPF brings together 15 international organizations, institutions and secretariats with substantial programmes on forests in a voluntary partnership—it therefore encapsulates a wide range of expertise that transcends national borders and vested interests. I believe that the CPF's statement on the

importance of forests in the pandemic is a landmark in its efforts, and it is worth quoting from it at length:

“The COVID-19 pandemic has increased awareness of the need for and benefits of living in harmony with nature. This historic opportunity must be seized. The private sector is showing more interest than ever in investing in sustainable, nature-based solutions. The finance sector is increasingly aware of the risks posed to their portfolios by climate change and biodiversity loss. There is a strong need to unlock investment opportunities that strengthen livelihoods, are deforestation-free, and mitigate the risks of future zoonotic diseases. Now is the time for new asset classes that incorporate nature-based solutions as an opportunity to build back better.

“Investment in education and human capital relevant to sustainable natural resource management is essential, not only for building a net-zero-carbon future but also for building back better. People living at the margins of societies must be at the centre of recovery plans focused on ensuring equity for the most vulnerable and equal rights for all women, men and children.

“Having entered the UN Decade of Action, we need to work harder than ever to achieve sustainability, including by promoting traceable and sustainable value and supply chains. The UN Decade on Ecosystem Restoration presents an opportunity to align efforts to restore forest ecosystems to their full functionality, thereby benefiting livelihoods and biodiversity. The CPF urges all to turn the COVID-19 pandemic—a historic challenge—into an opportunity by shifting to greener, more inclusive economies and societies that will ensure a sustainable future for people and the planet.”

<sup>1</sup> Available at [www.itto.int/news](http://www.itto.int/news)



**Green future:** A mangrove nursery managed by staff drawn from surrounding communities in the Pyindaye Reserved Forest, Myanmar. Photo: © Mélanie Feurer

Through the objectives laid down in the International Tropical Timber Agreement (ITTA) 2006 and the Strategic Action Plan, ITTO has considerable potential to help achieve the shift to sustainable economies and a greener planet.

ITTO's new pilot programmatic approach to its project work provides an excellent basis for responding to the needs of member countries during the crisis—and beyond—in a timely and focused manner. At a time when pressure on forests and demand for forest products and services are increasing, the three programme lines—Legal and Sustainable Supply Chains; Biodiversity and Ecosystem Services; and Forest Landscape Restoration and Livelihoods—offer exactly the right mix of thematic priorities and organizational orientation for addressing those challenges.

Under this new approach, ITTO will play a proactive role in matching the needs of producer-country members with available funds from donors. If a project idea or concept note is of mutual interest, a process to codevelop a full project proposal will commence between the project developer, ITTO and the donor. This will ensure that funding needs, donor policies and ITTO's overall programmatic goals and criteria will be taken on board and expectations are aligned. The approach will help manage expectations, will be efficient and cost-effective, and ultimately will lead to better development outcomes. It will also enable ITTO to better demonstrate and document its overall contribution to the Sustainable Development Goals, the United Nations Forum on Forests' 2030 Strategic Plan on Forests, and the goals of the ITTA 2006.

As ITTO's new programmatic approach gathers pace, ITTO members and other donors announced pledges<sup>2</sup> of about USD 4.14 million at the most recent (56th) session of the International Tropical Timber Council in November 2020. Among other things, these funds will support field projects in Cambodia, Ghana, Indonesia, Peru and Togo; work on legal and sustainable supply chains; ITTO's role in the CITES Tree Species Programme; the development of educational curricula on legal and sustainable supply chains and market access; the dissemination of ITTO's new guidelines on forest landscape restoration in the tropics; a global project on forest education; and the ITTO Fellowship Programme. I am confident that these activities will have a catalytic impact, but ITTO can contribute much more under a scaled-up programmatic approach. The coming years will be crucial for ITTO to fully develop this approach and to actively engage with prospective donors to finance the many unmet needs of tropical producer countries, especially in overcoming the impacts of the economic crisis caused by the COVID-19 pandemic.

The adoption of the pilot programmatic approach and the new financing architecture at the 56th session of the International Tropical Timber Council concludes my four-year term in the lead of ITTO. The next phase to fully implement the approach and to continue rebuilding ITTO will be in the capable hands of a new Executive Director, for which the recruitment process has been initiated (see announcement on page 5). I am tremendously grateful to all colleagues in the Secretariat and to all ITTO members, who have given their unwavering trust and generous support to enable the Organization to flourish again.

<sup>2</sup> Including intersessional pledges.

# Vacancy announcement—Executive Director

The following vacancy announcement is posted consistent with the provisions of ITTC Decision 5(LVI) 'Matters related to Article 14 of the ITTA, 2006, regarding the recruitment, selection, and term of the Executive Director.'<sup>1</sup>

## Deadline for Application:

**15 April 2021**, 23:59 Japan Standard Time (JST)

**Position/title:** Executive Director

**Level (grade):** ASG

**Duty station:** Yokohama, Japan

**Date for entry of duty:** 1 December 2021<sup>2</sup>

**Duration of assignment:** Fixed term: 4 years  
(Extendable for up to 2 years, pending Council approval)

The International Tropical Timber Organization (ITTO), a commodity organization headquartered in Yokohama, Japan is in the process of appointing a new Executive Director. The ITTO mission is to promote the expansion and diversification of international trade in tropical timber from sustainably managed and legally harvested forests and to promote the sustainable management of tropical timber producing forests. The Executive Director is the chief administrative officer of the International Tropical Timber Organization and is responsible to the International Tropical Timber Council for the administration and operation of the International Tropical Timber Agreement, 2006, in accordance with decisions of the Council. (Article 14.3, ITTA, 2006).

## Functions:

- The Executive Director will strategically lead, oversee and direct the work and the performance of the ITTO Secretariat as mandated by the Council;
- Implement strategic priorities, policies and initiatives as decided by the Council;
- Lead the organization's finance, risk management, and corporate governance;
- Ensure efficient, effective and transparent management of existing structures and procedures for the administration and operation of the ITTA, 2006;
- Foster and enhance synergies and collaboration among members of the organization;
- Represent ITTO; strengthen and maintain close partnerships with high-level stakeholders, including the relevant Multilateral Agreements, International Organizations, representatives of government at relevant levels, civil society, including the private sector, and the UN to support of the delivery of the ITTA, 2006;
- Oversee and implement strategies for the mobilization of resources necessary for the implementation of the strategic priorities, policies and initiatives as decided by the Council, development of relations with donors other than ITTO members and strategies for partnership with stakeholders, including innovative modalities for the mobilization of resources;
- Create an environment in the Secretariat that fosters innovation and that empowers staff to translate vision into results.

The ITTO applies an equal opportunity recruitment policy and will consider all applications regardless of gender, religion, race or sexual orientation. Candidates must however be citizens of an ITTO member country.<sup>3</sup>

## 1. Competencies

Demonstrates:

- i. Professionalism: Professional competence and mastery of subject matter, is conscientious and efficient in meeting commitments, observing deadlines and achieving results;
- ii. Accountability: Ability to operate in compliance with state-of-the-art organizational rules and regulations, to deliver high quality results within agreed timeframes, within projected cost and to agreed quality standards in a transparent manner;
- iii. Communication: Ability to communicate effectively orally and in writing to a wide range of audiences. Listens to others, correctly interprets messages from others and responds promptly and appropriately. Openness in sharing information and keeping people informed;
- iv. Leadership: Ability to motivate staff and to delegate the appropriate responsibility, accountability and decision-making authority to each staff member. Makes sure that roles, responsibilities and reporting lines are clear, and that progress is monitored against targets;
- v. Ethical standards: Committed to the highest ethical standards in furtherance of his/her mission and the objectives of the ITTO;
- vi. Diversity and gender balance: Committed to promoting equal opportunities and the implementation of the ITTO Guidelines on Gender Equality and Empowerment of Women;
- vii. Diplomatic and negotiation skills: experience in working with high-level representatives from government, international organizations, private sector/civil society, and engaging with donors.

## 2. Professional experience

- i. Managerial experience: a proven track record and a minimum of 15 years of progressively responsible experience in managing complex programs, financial/human resources and strategic planning in areas relevant to forestry, trade, environment and other related fields;
- ii. Specific experience: demonstrated experience in the field of natural resource management, in particular sustainable forest management and related timber trade would be a distinct advantage;
- iii. International experience: demonstrated track record of professional experience of work in a leading capacity at the international level in and/or international organizations and of working in diverse, multicultural settings; Working experience in ITTO related fields in more than one region of ITTO membership would be an advantage;
- iv. Partnership building and fundraising experience: Demonstrated experience in creating strategic partnerships/networks and promoting initiatives with partner organizations. Demonstrated experience in mobilization of financial resources would be a distinct advantage.

## 3. Education

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

## 4. Language

Proven ability in both oral and written communication in one of the official languages of ITTO (English, French and Spanish) and preferably a working knowledge in the other two official languages of ITTO. Very good command of English orally and in writing is essential.

## 5. Salary and emoluments

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

## 6. Conflict of interest

Candidates or any close relatives should have no financial interest in the timber industry or timber trade and related activities. Candidates must – in their application – identify any professional or personal ties – also those linked to previous, terminated employment, that could be perceived as conflict of interest. Candidates must provide clarifications and information on how they intend to proactively prevent and manage situations in which such ties or other personal interests may conflict or appear to conflict with the interests of the ITTO, should the individual be appointed to position of the Executive Director.

## 7. Criminal record clearance

Shortlisted candidates will be required to complete a self-attestation stating that they have not committed, been convicted or, nor prosecuted for any criminal offense. If there is information to the contrary, candidates should provide clarification and information in writing on these circumstances, for the consideration of the selection panel.

## 8. Terms of service

The appointment is for a period of four years. There is an option to extend for up to another 2 years if approved by Council. Any appointment takes into account Regulation 7.4a of Staff Regulations and Rules of the ITTO, which sets the retirement age as prescribed by the United Nations.<sup>4</sup>

## 9. Applications

Written applications including a cover letter explaining how the candidate meets the required qualifications, a completed United Nations Personal History form (form P.11), a curriculum vitae and additional supporting materials related to the job qualifications and a recent photo must be received at ITTO headquarters by **15 April 2021, 23:59 hours (Japan Standard Time)**. Applications may be submitted electronically or by mail or fax and should be sent to:

Executive Director,  
International Tropical Timber Organization  
International Organizations Center,  
5th Floor Pacifico-Yokohama,  
1-1-1, Minato-Mirai, Nishi-ku,  
Yokohama, 220-0012 Japan  
Tel: (81-45) 223-1110 Fax: (81-45) 223-1111  
E-mail: itto@itto.int

<sup>1</sup> Available at [www.ito.int/council\\_committees/decisions](http://www.ito.int/council_committees/decisions)

<sup>2</sup> Or as otherwise decided by the ITTC at its 57th Session.

<sup>3</sup> See: [www.ito.int/about\\_itto/members](http://www.ito.int/about_itto/members)

<sup>4</sup> Staff members shall normally not be retained in the service of the Organization beyond the retirement age prescribed by the United Nations and are expected to retire at that age. Earlier retirement consistent with the rules of the Provident Fund may be agreed between the Organization and the staff member.

# Cocoa warms to REDD+ in Ghana

**An ITTO project has helped develop sustainable options for REDD+ outside forest reserves, with a focus on local livelihoods and shade-grown cocoa**

**by Kwame A. Oduro,<sup>1</sup>  
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and Ernest G. Foli**

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**Farmer-led restoration:** Farmers plant tree seedlings in the Ntabene community as part of an ITTO project. *Photo: L.Damnyag/CSIR-FORIG*

The challenge in implementing REDD+<sup>1</sup> in Ghana is to conserve natural resources in ways that enable them to continue supporting economic growth. Cocoa, the major crop in Ghana's high forest zone, is mostly produced by smallholders and has shaped the zone for a long time. Recently, the development of medium- and low-shade cocoa varieties has increased the rate of tree-cover loss. It is widely agreed that the reinstatement of traditional varieties, which require much more shade and humidity, would have a positive impact on carbon stocks in Ghana.

The principal drivers of deforestation and degradation in Ghana, as identified in the country's readiness preparation proposal (R-PP), are agricultural expansion (50%); wood harvesting (35%); urban sprawl and infrastructure development (10%); and mining and mineral exploitation (5%). The R-PP specified 14 potential REDD+ strategic actions, including a reduction in agricultural expansion and unsustainable wood harvesting and clarification of the land and tree tenure and carbon rights regimes. An ITTO project,<sup>2</sup> which began in April 2013 and concluded in February 2019, focused on a key element of the R-PP—the restoration of off-reserve forests, the development of agroforests, and other carbon conservation activities with the potential to become pillars of Ghana's REDD+ strategy.

Ghana's national strategy for REDD+, which goes beyond forest boundaries to include trees and woodlots in agricultural landscapes ("off-reserve"), recognizes the multiple advantages that increased tree density can provide. The approach of seeking REDD+ opportunities outside official forest

boundaries makes sense in a country where agricultural zones traditionally include a relatively high density of tree cover and where agricultural and forest zones are understood as parts of a continuum. The opportunity to increase tree density in agricultural and agroforestry systems means that the forest and agriculture sectors need to collaborate and work together at a landscape scale. It also means that increasing tree stocks on farms must be endorsed by the women and men of farming communities and by both the agricultural and forest services.

## The ITTO project

The ITTO project was implemented by the National REDD+ Secretariat of the Ghana Forestry Commission in collaboration with the Forestry Research Institute of Ghana in the Council for Scientific and Industrial Research (CSIR-FORIG) and the School for Agricultural, Forest and Food Sciences at the Bern University of Applied Sciences. It was instrumental in the development of sustainable off-reserve production systems, thereby enabling Ghana to benefit from future carbon-trading schemes. It also addressed the challenge of deforestation and forest degradation within the processes of the REDD+ programme to enable the alignment of project outputs with national policies. The project supported Ghana in the preparation of its low-carbon development strategy and its efforts to reduce greenhouse-gas emissions through REDD+.

The project's development objective was to contribute to the strengthening of Ghana's capacity to prevent and reduce deforestation and forest degradation. Specifically, the project sought to provide Ghana with proposals for the enhancement of sustainable off-reserve production systems under REDD+ schemes, with a focus on local livelihood improvement. The project was conducted in the Western, Central and Bono East regions of Ghana (Figure 1).

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.

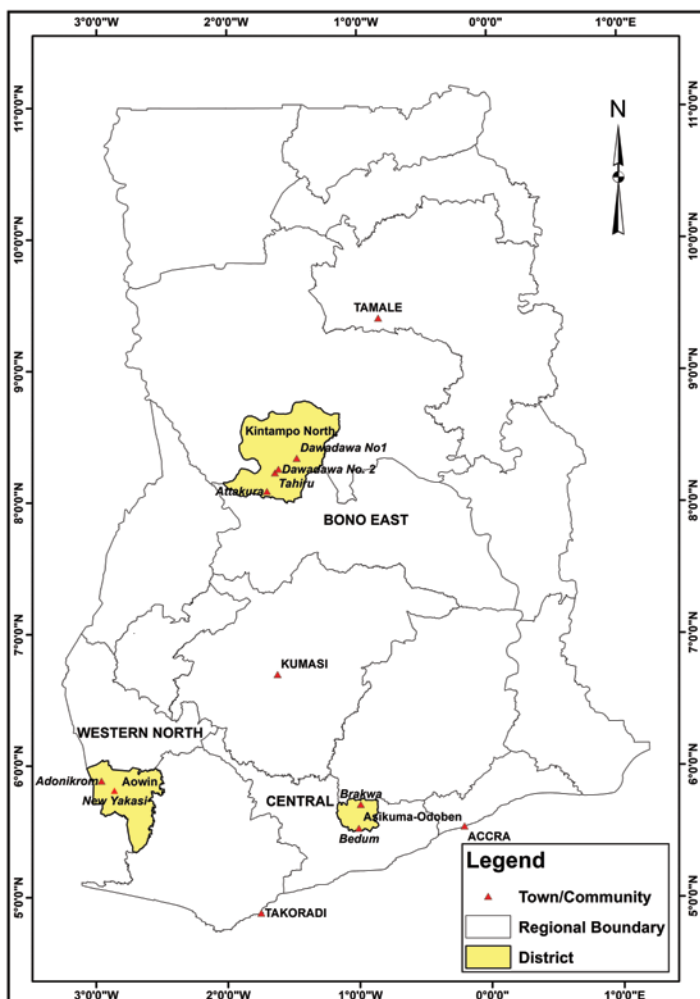
2 RED-PD 093/12 Rev.3 (F): "Advancing REDD+ in Ghana: preparation of REDD+ pilot schemes in off-reserve forests and agro-forests".

## Project outputs

The project achieved the following key outputs:

- **A proposal for enhancing sustainable off-reserve production systems under REDD+ schemes:** a project proposal was designed to support Ghana in the implementation of REDD+ in off-reserve areas while increasing the export potential of selected crops cultivated in biomass-intensive multiyear production systems. The specific objective of the project is to develop best practices for carbon management in a variety of agricultural production systems in Ghana with the potential to be scaled up.
- **A guide containing criteria and modalities for developing and implementing a REDD+ programme in Ghana:** this guide describes and explains the concept of REDD+ to key stakeholders interested in learning more about the concept and the opportunities it presents in Ghana. Specifically, the guide is intended to help project proponents, stakeholders, decision-makers, researchers, forest-resource users and non-governmental organizations gain a practical understanding of what it means to implement a REDD+ project or programme.
- **An increase in the capacity of 100 participants (women and men) in local communities in the project area through training on issues related to climate change:** the objectives of the training were to create awareness about global climate change and REDD+ in local communities; provide communities with information on the opportunities and risks associated with tree and forest protection under a REDD+ regime; and

Figure 1: Map of Ghana showing the project's study districts and communities



Source: Developed by William H. Brown, CSIR-FORIG.

discuss the rights and responsibilities of communities to ensure successful forest and tree protection (and REDD+ projects).

- **Publication of a book, *REDD+ in Agricultural Landscapes: Evidence from Ghana's REDD+ Process*:**<sup>3</sup> the book explores approaches for generating short-term revenues and longer-term gains from tree resources. It also describes the outcomes of empirical and literature studies conducted under the ITTO project exploring the potential for off-reserve REDD+ in Ghana.

The project maintained close coordination and collaboration with key stakeholders in Ghana, including local communities, the Ghana Cocoa Board (COCOBOD),<sup>4</sup> local government and traditional authorities, and the private sector to ensure the sustainability and scaling up of project outcomes.

## Off-reserve land use and implications for REDD+

The project identified the following five emission-reduction and removal-enhancement activities that could be implemented under a REDD+ strategy in off-reserve areas in Ghana:

- 1) avoided deforestation (planned and unplanned)—for example by halting the rate of primary and secondary forest conversion;
- 2) avoided degradation (planned and unplanned)—for example by avoiding unauthorized logging in natural forests (primary and secondary), particularly sacred groves and relict forests;
- 3) sustainably managing production forests;
- 4) forest carbon-stock enhancement—for example through agroforestry interventions, especially the use of shade trees and the management of natural regeneration leading to the development of secondary forests, woodlots and afforestation; and
- 5) the conservation of forest carbon stocks—for example through the conservation management of sacred groves and other dedicated forests and gallery forests.

Strategies can also be combined to create a tailored methodology at a landscape (or jurisdictional) scale, such as for carbon accounting in project activities that reduce emissions from mosaic deforestation and degradation. Importantly, Ghana's off-reserve areas are characterized by diverse land uses and drivers of land-use change, including conflicts over land-use rights, land and tree tenure and stakeholder interests. Therefore, determining the feasibility of REDD+ projects in off-reserve areas requires the careful analysis of a wide range of factors. To achieve major impacts in Ghana, such projects should always be considered at a landscape scale.

<sup>3</sup> Available at [www.ito.int/project/id/RED-PD093\\_12-Rev.3-F](http://www.ito.int/project/id/RED-PD093_12-Rev.3-F)

<sup>4</sup> COCOBOD is a government institution dealing with the production, processing and marketing of cocoa, coffee and shea nuts. It works with farmers to integrate trees on their farms. More information is available at <https://cocobod.gh>



**Coco-benefits:** Using trees as shade for cocoa production has potential benefits for farmers, but not all farmers are convinced. *Photo: A. Deppeler*



**REDD+ potential:** Degraded forestland restored through agroforestry could generate additional income for farmers if part of a REDD+ scheme. *Photo: G. Ametsitsi*

## Case studies in potential REDD+ pilot areas

If REDD+ is to be effective in mitigating climate change, its potential positive and negative impacts need to be identified (Bamfo 2010; Bell et al. 2012). The ITTO project evaluated the potential implications of REDD+ implementation for livelihoods, farming practices and conflicts in natural-resource use at the farm level in Ghana in order to understand the broader social implications and long-term political feasibility of REDD+.

### Farmer perceptions of potential effects of REDD+ on livelihoods

Farmers expressed mixed perceptions about the effects of REDD+ in their communities using their farmlands. Although they recognized that the promised benefits of REDD+ could boost livelihood outcomes and increase their wellbeing, they dreaded disease outbreaks and subsequent yield decreases, which they felt could result from an increase in trees on their farms. Possible coping strategies put forward by the project and other researchers include changing crop varieties, the careful selection of tree species to combine with crops, and the diversification of livelihoods with proceeds from REDD+ implementation. A proactive approach to implementing REDD+ successfully in the studied communities would be to make available sufficient agricultural and forestry extension services when REDD+ projects are under way.

### Farmer perceptions of potential conflicts in natural resource use

Conflicts that could arise in the use of natural resources include those associated with potential crop damage arising in the process of felling trees grown under REDD+ implementation; those caused by deceit practised by farmers, in which they could sign onto REDD+ projects but continue to use agricultural lands solely for crop production rather than planting trees for carbon; and those between loggers and farmers when loggers fell trees on farms and damage crops in the process.

### Farmer expectations of REDD+ benefit distribution

The effective distribution of REDD+ benefits involves the following steps: identifying the actors/beneficiaries of REDD+; determining existing processes that could be used in the allocation of REDD+ benefits; and deciding the most appropriate means for delivering benefits. The distribution process must ensure the inclusion of all social groups with a stake in REDD+ benefits and co-benefits. There is a wide range of beneficiaries of REDD+ compensation at the farm level, and REDD+ interventions and benefit distributions should focus on households while not overlooking the community as a whole and household composition. Economic feasibility, local institutional capacities and governance structures, and the effects on local economies, should carefully be weighed to assist in identifying an all-inclusive REDD+ benefit-distribution scheme. Given that community preferences could change over time, these elements should be assessed periodically and the distribution mechanism adjusted accordingly (Mohammed 2011).

Project outputs can be found by inserting the project code RED-PD 093/12 Rev.3 (F) into the ITTO project search function at [www.itto.int/project\\_search](http://www.itto.int/project_search)

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# Putting teak in the right place

**An ITTO project has conducted a first assessment of suitable areas for teak plantation establishment in Myanmar's Bago Yoma region**

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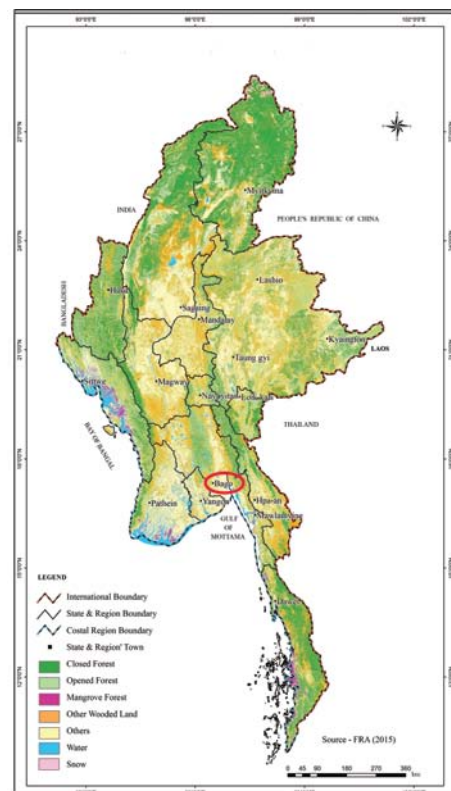


**Local assets:** Teak plantation in Bago Yoma, Myanmar. Photo: Y. Trisurat/Kasetsart University

Teak (*Tectona grandis*), which occurs naturally in semi-evergreen forests, mixed deciduous forests and deciduous dipterocarp forests, is one of the world's most valuable hardwoods because of its outstanding physical and aesthetic qualities. Natural teak forests are found in the Lao People's Democratic Republic, India, Myanmar and Thailand. According to Kollert and Cherubini (2012), the current extent of natural teak forests is estimated at 29 million hectares (ha), almost half of which (13.5 million ha) is in Myanmar, followed by Thailand at 8.7 million ha and India at 6.8 million ha. Planted teak occurs in more than 70 tropical countries in Asia, Africa, Latin America and Oceania, with large-scale plantations in India (2.5 million ha), Indonesia (1.5 million ha), Thailand (0.8 million ha) and Myanmar (0.4 million ha) (ITTO, 2009).

Myanmar contributes more than 40% of the global teakwood trade (FAO 2015). The timber, which originates mainly in old-growth natural teak forests, generates a large amount of foreign income. The extent of natural teak forests has declined in all countries in recent decades, however, due mainly to unsustainable logging and encroachment for agriculture. In Myanmar, for example, total forest cover declined from 59% of the country's land area in 1990 to 43% in 2015 (Figure 1); Thailand lost more than two-thirds of its forest cover between 1960 and 1990. The main reasons for the loss and degradation of natural teak forests in Myanmar are unsustainable logging, poaching, agricultural expansion, shifting cultivation and mining.

**Figure 1: Forest cover map of Myanmar**



Source: Forest Research Institute (2015).

**Table 1. Teak plantation establishment, Bago Yoma region, 2016–17 to 2019–2020**

Year	2016–17	2017–18	2018 (additional, April–September)	2018–19	2019–20	Total
Area (ha)	1073	1715	1765	1785	1741	8079

Source: Forest Department, Bago Region.

**Table 2: Land-suitability criteria for teak plantations**

Land-use requirement	Diagnostic factor	Ranking/suitability			
		0 (unsuitable)	1 (marginally suitable)	2 (moderately suitable)	3 (highly suitable)
Landform	Slope (%)	40–50	30–40	20–30	< 20
	Elevation (m)	700–900	0–200	200–400	400–700
Moisture availability	Rainfall (mm)	<1000 and >2500	1000–1250 and 2250–2500	1250–1500 and 2000–2250	1500–2000
	Temperature (°C)	16–20	20–25	30–35	25–30
Rooting system	Soil pH	<4.5	4.5–5.0	5.0–5.5	5.5–7.0
	Soil depth	<75	75–100	100–150	>150
	Soil texture	Gravel sand, clay, silt	Loam sand, massive silt	Sandy loam	Loam, sandy clay loam, silty loam, clay loam, sandy clay, silty clay loam, silty clay

Sources: Based on Htwe (2016); Kaosa-ard (1981); Meunpong et al. (2017); Nicolay and Hokamp (2014); Nugroho et al. (2015).

## Restoring and planting

The Myanmar Forest Department established the Myanmar Reforestation and Rehabilitation Programme (MRRP) in 2016 with the aim of increasing forest cover by 5% (about 1 million ha) between 2017 and 2027, mainly by planting teak and pyinkado (*Xylia xylocarpa*, also known as Burmese ironwood). The MRRP involves a combination of plantation establishment, community forestry, agroforestry, natural forest regeneration and enrichment-planting projects.

The Bago Yoma region is recognized as the home of teak because of the excellent quality of its natural teakwood. The wood-based industry in Myanmar began facing difficulties, however, after the ten-year log-export ban in Bago Yoma in 2014 and the nationwide logging ban in 2016–17. These policy interventions significantly reduced the supply of good-quality teak logs and led to increased interest and investment among private companies and smallholders in establishing and managing teak plantations. Table 1 shows that about 8000 hectares of teak plantation have been established at Bago Yoma since 2016–17.

The aim of an ITTO teak project in the Mekong<sup>1</sup> funded by Germany’s Federal Ministry of Food and Agriculture is to help communities and smallholders grow teak in plantations, improve their livelihoods through legal and sustainable supply chains, boost wood processing and marketing, and enhance regional collaboration and coordination in teak management.

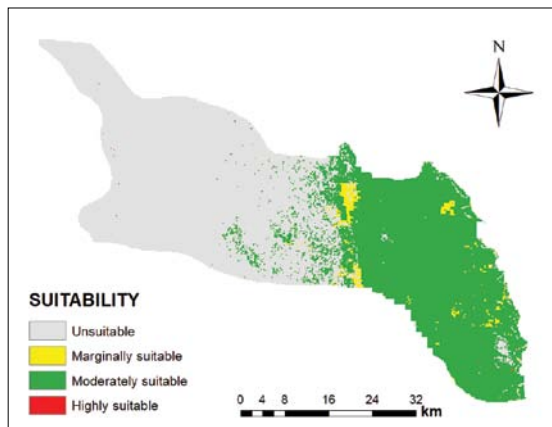
## How to identify a suitable site

Selecting the right site for teak plantation establishment is crucial, given the long rotation period (30–50 years) and the implications for wood quality and production. Teak planted at good-quality sites in the Bago Yoma region could achieve growth rates of 8–12 m<sup>3</sup> per ha and yield 15–20 m<sup>3</sup> per ha per year on a rotation of 20 years with appropriate silvicultural practices. On the other hand, teak grown on the wrong sites and with inadequate management might yield only 2–5 m<sup>3</sup> per ha (Enters 2000).

Various methods are available for assessing site quality and estimating productivity. On a wider scale, spatial analysis is recommended for determining land suitability based on land requirement factors to identify possible areas for new plantations. In this study, we used a geographic information system (GIS) and the FAO matching method (FAO 1984) to provide an initial assessment of land suitability in the Phyu township (210 000 ha) in the Bago Yoma region. It involved three main steps: 1) identifying land-use factors related to growth, management and constraints; 2) assigning a ranking and weighted score for each land-use requirement based on suitability and importance; and 3) generating a spatial analysis by combining land-use factors in provisional land-suitability classes (Table 2). Based on previous studies, variables relevant to teak requirements (e.g. soil, climate and topography), teak management and constraints (e.g. the available infrastructure, including transport routes) were selected for identifying suitable locations for teak plantations.

<sup>1</sup> PP-A/54-331 “Enhancing conservation and sustainable management of teak forests and legal and sustainable wood supply chains in the Greater Mekong Subregion”, technically an activity in the ITTO Biennial Work Programme. The participating countries are Cambodia, the Lao People’s Democratic Republic, Myanmar, Thailand and Viet Nam.

**Figure 2: Potentially suitable area for teak plantations in the study area**



Note: The map shows areas suitable for teak plantation establishment after masking with existing forest cover, paddy fields, urban areas and water bodies (for example, areas that have natural teak forest are deemed unsuitable for plantations).

Source: Kasetsart University.

## Potential sites for planting

The preliminary site-suitability classification derived from the spatial analysis was masked by constraint factors for teak plantations; for example, the conversion to teak of land-use classes such as urban and built-up, wetlands and surface water is likely impossible or too costly. In contrast, the land-use classes of orchards and plantations, cropland, barren land, shrublands and areas of abandoned land with or without land improvement comprise an initial selection of potential sites. Existing forested lands were excluded.

Of the 97 500 ha derived from the preliminary result map, 93 200 ha were identified as potentially suitable for teak plantations after masking with existing forest cover. These areas cover moderately suitable and highly suitable classes located mainly in the eastern and central parts of the township (Figure 2).

Note that it was not possible to compare the results of this study with those of others because assessments of land suitability for teak plantations have not previously been made in Myanmar. Pairwise comparisons or other approaches could be used in the future.

## Conclusion

There is ample opportunity to substitute low-productivity cash crops and abandoned areas in Myanmar with teak plantations, especially in light of expected strong continued demand for teak and other timbers. This practice would not only increase forest area but also help communities improve their livelihoods.

Site selection, such as that described here, is important for avoiding problems associated with site incompatibility and land-use conflicts and to help ensure optimal tree growth. Given the long-term investment period required, a robust selection method is crucial for avoiding long-term mistakes.

The process of GIS analysis and FAO matching used in this study produced only a provisional land-suitability classification. Therefore, it should be followed by an assessment of socioeconomic factors and extension measures on the ground.

The findings of this work are likely to be helpful for private-sector investors and smallholders. They can be used to support reforestation activities, the development of long-term reforestation policies, and sustainable forest management in Myanmar.

Project outputs can be found by inserting the code PP-A/54-331 into the ITTO project search function at [www.itto.int/project\\_search](http://www.itto.int/project_search)

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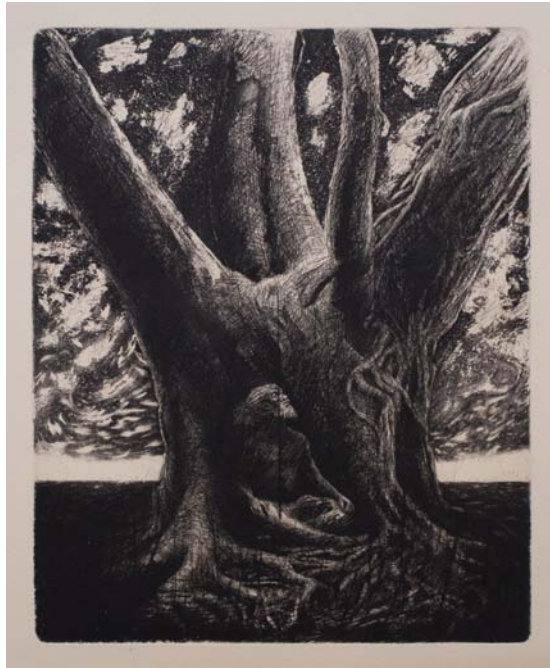
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# The future is NOW

**This unexpected pandemic shows the need to increase resilience in tropical forests, communities and the forest sector—and the time to do it is now**

**by Milton Kanashiro**

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Breathe, listen ... by Rafael Kenji, 2017 (etching). Used with permission

Two important celebrations in 2020 had to be adapted to existing rules on social isolation: International Environmental Day on 5 June, and the 20th Anniversary Celebrations of the Earth Charter for Peace on 29 June. From early in the year, the pandemic caused by COVID-19 spread rapidly around the world, affecting the free movement of people within and between countries and continents. The virus reached São Paulo, Brazil, in mid-February 2020 and spread quickly to other big cities, including Belém in the Brazilian Amazon. By end of November, more than 6.3 million people were known to have been infected with the virus in the country, with more than 172 000 deaths.

## The situation in the Amazon

What impact has this had in the Amazon? Many local communities are struggling due to weak or non-existent healthcare infrastructure. In forestry, some logging activities have continued, albeit with delays compared with regular schedules for timber extraction. Activities under the Bom Manejo project<sup>1</sup> were postponed in mid-March, and there is no clear indication of when they might restart.

In the midst of the crisis there was a very important and strong feeling of solidarity in Brazil, and efforts were made to help remote communities, including through food and clothing collection campaigns. This was due largely to the Observatory of Community and Family Forest Management (*Observatório do Manejo Florestal Comunitário e Familiar—MFCF*),<sup>2</sup> which has been delivering various goods to help fight COVID-19. A webinar, “Amazon Communities and the Pandemic: Resistance in the Forests”, involving community leaders, professionals, technicians and the

staff of the Bom Manejo project, was held in June to raise awareness of actions to limit the spread of the virus in light of the difficulty in accessing proper healthcare. Today, information on the virus and sanitary recommendations for reducing the risk of infection are widely known and understood. The MFCF brings a new perspective to forest management because most of its members cultivate land and produce their own food and are also interested in the production of both wood and non-wood forest products (NWFPs).

The pandemic is having major impacts on communities in the Amazon, exacerbating existing challenges in bringing about sustainable forest management (SFM). The collective recommendations of the symposium, “Positive Agenda for Sustainable Forestry Management”, convened by the Bom Manejo project in June 2019, are vital for “building back better” after the pandemic. The recommendations address four main topics: 1) education and training in SFM; 2) forest management practices; 3) licensing and monitoring for SFM; and 4) certification and marketing. The recommendations are important in the sense that they represent the views of a wider-than-usual group of forestry professionals. A follow-up meeting had been planned for June 2020 on International Environmental Day but was postponed until 2021. In the meantime, the aforementioned webinar reinforced the recommendations contained in the Agenda document. We at the Bom Manejo project intend to use this document to guide our activities in collaboration with our partners.

## The role of the timber sector in building back better

Many advances have been made in the understanding of forest dynamics (ecology, growth and reproduction) since the 1960s and 1970s, when little information was available other than that produced by forest inventories; moreover, reduced impact logging practices are now well known, and there is a variety of tools for planning, logging and monitoring SFM. Despite changes in legislation that have increased the area legally available for forest management, and an increase in the number of forestry professionals and researchers, forestry production has declined—from 28.3 million of m<sup>3</sup> in 1998, to 24.5 million m<sup>3</sup> in 2004, to 14.2 million of m<sup>3</sup> in 2009 (SFB & Imazon 2010). Of course, this is not a direct effect of the current situation, but the pandemic could exacerbate the decline, with drastic impacts on forest supply chains and markets.

The technical, operational and legal complexity of forestry requires a strong sector and the active involvement of public agencies involved in licensing, approval and monitoring, other forest-related agencies, timber companies, research institutes, academics and forest communities. Brazil has enormous potential—with an estimated standing timber resource of 109 billion m<sup>3</sup>, of which about 93% is in the Amazon (Ministry of Agriculture, Livestock and Food Supply 2019a).

Local farmers with diverse cultures, histories and management capacity account for about 77% of the potential for SFM plans in Pará state (P. Amaral, personal

1 PD 452-07 Rev.5 (F): “Sustainable Forest Management of Timber Production in the Brazilian Amazon”, implemented since August 2017.

2 www.observatoriomfcf.org.br .

communication, 2019). A sustainable timber sector could generate enormous income for landholders and provide many flow-on benefits to society through the provision of ecosystem services.

With the support of the MFCE, which provided technical inputs, the Amazonia Development Bank introduced a user-friendly, low-interest credit system (2.75% per year, the lowest rate for consumables offered by the National Programme for Family Agriculture) in October 2019. This and other similar initiatives will be vital for encouraging local farmers and cooperatives to pursue SFM as a viable land-use option.

The area of forest concessions allocated to private companies in Pará is about 3.81 million hectares, which produced a timber volume of 2.73 million m<sup>3</sup> between August 2016 and July 2017. This is another aspect of timber production potential in Pará; data on production data in these forest concessions will help in gauging the impact of the pandemic on the private sector.

At the peak of the pandemic, a positive measure was a call for projects by the Bioeconomy Brazil Programme,<sup>3</sup> an initiative of the Family Agriculture and Cooperatives Secretariat in the Ministry of Agriculture, Livestock and Food Supply. The goal of the programme is to valorize sociobiodiversity products and ecosystem services with the aim of benefiting smallholders, medium-sized farmers and traditional and indigenous peoples. NWFPs account for about 35% of the value of extractive forest production in Brazil. This value has been increasing annually over the last decade, and the income now exceeds USD 2.47 billion nationally (Ministry of Agriculture, Livestock and Food Supply 2019b). The Bioeconomy Brazil Programme's call is timely for helping improve the wellbeing and living conditions of local, indigenous and traditional communities.

Another important initiative is the Forest+ Programme,<sup>4</sup> launched by the Ministry of Environment on 4 June 2020 with the objective of adding value to initiatives to conserve natural forests. The project will start in the Legal Amazon, and more than USD 123 million will be allocated to activities that improve, conserve and restore nature.

These programmes and the recent approval of the Convention on Biological Diversity's Nagoya Protocol<sup>5</sup> by the Brazilian Congress will help in sharing the benefits of the country's genetic resources. The ratification of the Nagoya Protocol now requires the seal of the Senate and the sanction of the President.

## Doing things differently

And so, back to the beginning. Many of us are protected in our homes in these difficult times, but others are having a different experience, crying out for help to survive in the face of the pandemic. The situation is highly uncertain, and



**Pandemic protection:** The MFCF led a campaign to help communities in safeguarding against the COVID-19 pandemic. *Designed by Lucas Pereira*

forecasting future scenarios will be extremely difficult until a vaccine is available. As I write, the calamity seems to be increasing in Pará. The key question is when and if we will go back to our “normal” previous lives—but it is far from clear whether this will ever be possible.

Twenty years after the Earth Charter was launched, and five years after the adoption of the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals, are we closer to a sustainable world? It is time to collectively reflect on the impacts and consequences of the COVID-19 pandemic and to debate how we might do things differently and more effectively in the future.

I believe the forest sector has a unique opportunity. Forests are our common wealth—of this and future generations. We, the stakeholders in the forest sector—local communities, foresters, the private sector, government and others—can help societies find a new path. It is appropriate to quote Slovenian philosopher Slavoj Žižek here: “The problems really come to the surface when we see again the imperative to invent a new form of living, since it is very clear that there is no more the possibility of returning to the previous situation. In other words, really difficult times are approaching now. If we do not find a new way of social living, it will not be a little bit worse, but much worse. . . . my hypothesis is that the COVID-19 pandemic announces a new time, where we have to rethink all, including the basic meaning of what it is to be a human being, and our actions have to go and encounter our thoughts. Maybe today we should reverse; in the twentieth century, we tried to change the world too fast, and now the time has come to interpret it in a new manner” (Žižek 2020).

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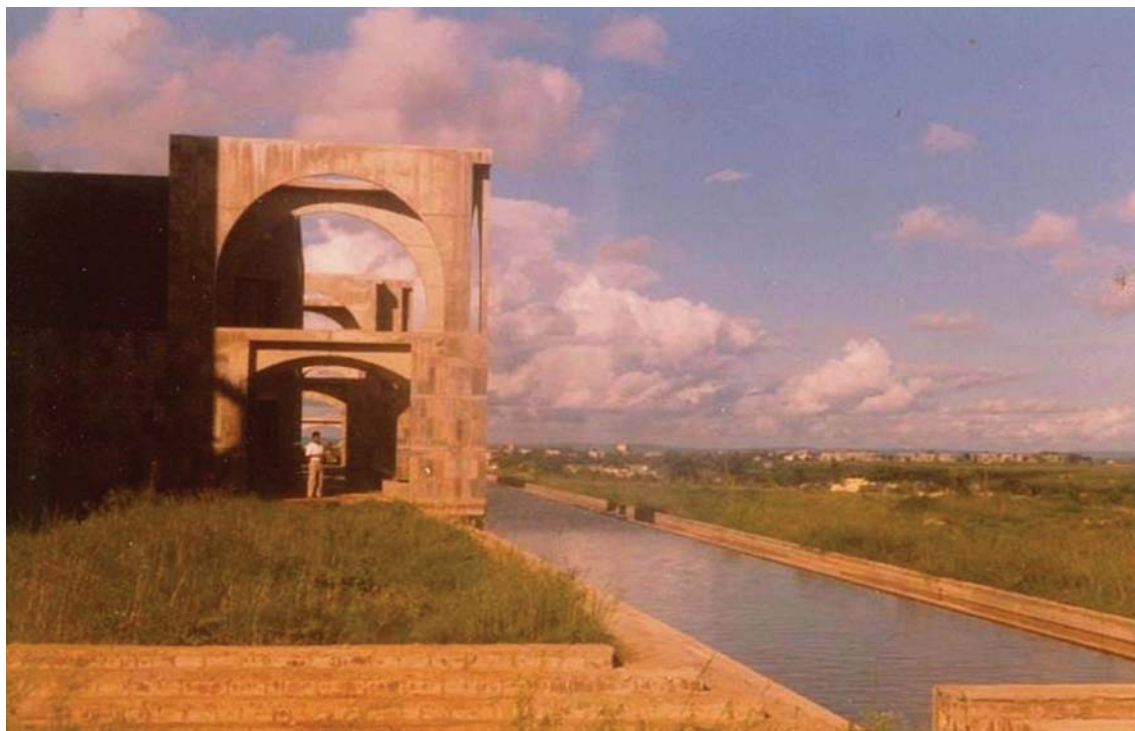
5 <https://agenciabrasil.ebc.com.br/en/politica/noticia/2020-08/senate-ratifies-nagoya-protocol-brazil>

# Creating forest from wasteland

**A study reveals that an ecosystem restoration endeavour in Bhopal, India, has turned degraded dry scrub into a vibrant urban forest**

**by Dharmendra Dugaya, Yatendra Singh Rana, Mayank Singh Negi, Vinay Pratap Singh and Pradeep Chaudhry**

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**Comparison:** These photos show the different look in 1988 (above) and 2020 (next page) along the same water channel in the IIFM campus, Bhopal, India. Photos: Archive & D. Dugaya/IIFM

This article presents a success story in converting a degraded patch of dry deciduous vegetation into a lively, verdant forest in the city of Bhopal, Madhya Pradesh, in central India. Bhopal is considered the “city of lakes”, with its undulating terrain and presence of several lakes and hills. The campus of the Indian Institute of Forest Management (IIFM) is located in hilly terrain, with 80.7 ha of tropical dry deciduous forest comprising mainly the tree species *Anogeissus latifolia*, *Diospyros melanoxylon*, *Lagerstroemia parviflora*, *Acacia catechu*, *Lannea coromandelica* and *Wrightia tinctoria*. The area of the IIFM campus, which is surrounded by dense human habitation and natural water bodies (Figure 1), has been categorized into four segments using an “enhanced vegetation index” (Table 1).

Before 1988, the campus lands mostly comprised weeds and a few hacked trees. The degraded forest recovered remarkably, however, with planting and ongoing care and protection; ecological processes have developed favourably, and canopy cover now exceeds 60% over most of the area. This article presents findings from a study of the IIFM’s urban forest undertaken in 2020, which shows that degraded urban forest patches can be transformed into vibrant forest ecosystems through protection and the incorporation of native species.

## Phytosociology of the study site and observations

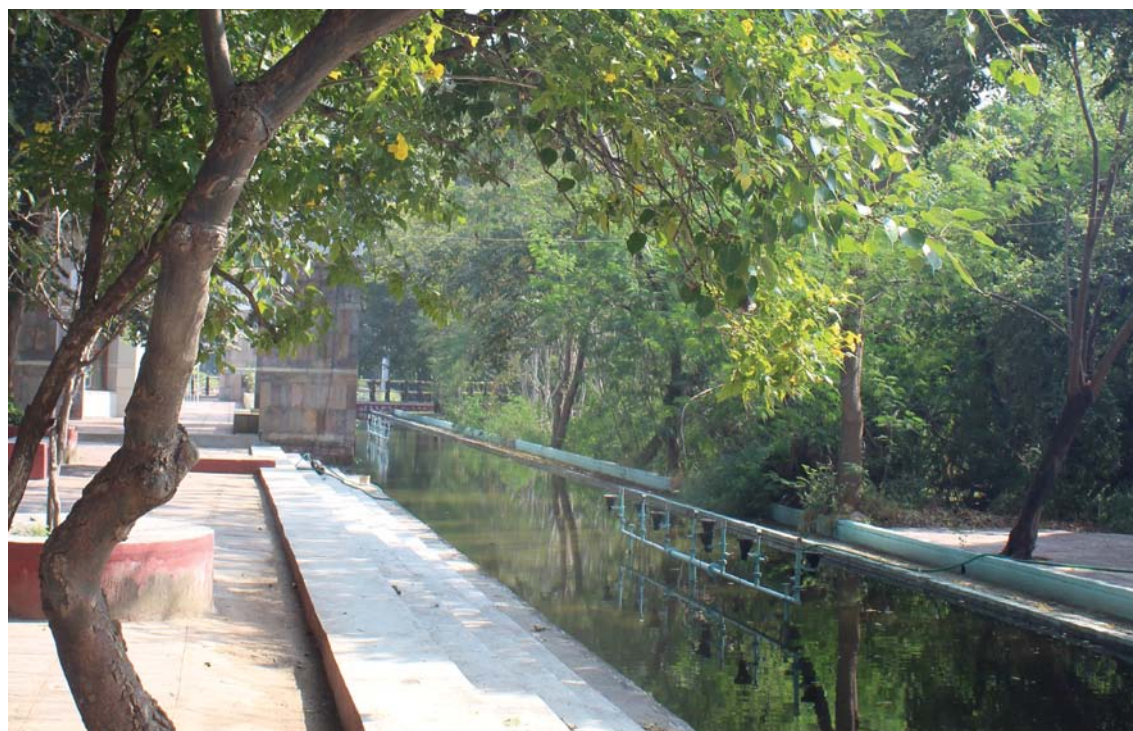
The importance value index (IVI) depicts the phytosociological structure of a species in its totality in a vegetation community.<sup>1</sup>

<sup>1</sup> Phytosociology is a branch of vegetation science that deals with current plant assemblages (communities) at a spatial grain size of vegetation stands. Its principal goals are the delimitation and characterization of vegetation types based on the complete floristic (species) composition (Dengler 2017).

The species with the highest importance value at a site is dominant; the values attained by other species indicate the relative importance of those species in the plant community.

In the IIFM urban forest, the top ten dominant tree species are, in descending order, *Lannea coromandelica* (with an IVI value of 48.6), *Diospyros melanoxylon* (23.9), *Wrightia tinctoria* (23.4), *Leucaena leucocephala* (21.3), *Azadirachta indica* (18.3), *Anogeissus latifolia* (16.0), *Holoptelea integrifolia* (14.2), *Acacia catechu* (12.4), *Butea monosperma* (11.2) and *Milusa tomentosa* (11.1). The Shannon-Wiener index is estimated at 1.31 and Simpson’s index at 0.93. These latter two indices indicate that the forest is species-diverse, with values within the reported respective ranges for forests on the Indian subcontinent (Visalakshi 1995; Sahu et al. 2012; Naidu & Kumar 2016).

The calculated mean tree density is 525 individuals per hectare (ha), which is well within the range of 276–905 stems per ha reported for trees 20 cm girth at breast height (GBH) in other tropical forests (Bhadra et al. 2010; Sahu et al. 2008). The mean basal area of 2.97 m<sup>2</sup> per ha obtained in the current study is less than those reported in other studies in similar types of tropical dry deciduous forests in India (Jha & Singh 1990; Sahu et al. 2008; Bijalwan 2010; Panda et al. 2013) but comparable with the range of 0.01–2.88 m<sup>2</sup> per ha reported for tropical dry deciduous forests in the Malyagiri hill ranges, Eastern Ghats (Sahu et al. 2012). An analysis of the distribution of basal area found that the distribution class of 21–30 cm accounted for 39.5% of species richness and the 31–40 cm distribution class for 26.6%. Mean tree height is 5.80 m, with a height range of 1–17.8 m. Fifty-six percent of individuals are in the height class of 3–6 m, 21% are 6–9 m tall and 12.5% are 1–3 m in height.



**Table 1: Categorization of the IIFM campus forest, according to canopy density**

	Category of area	Canopy density	Area (ha)	Colour representation
1	Dense forest	0.65–0.8	19.6	Dark green
2	Moderately dense forest	0.45–0.65	29.4	Light green
3	Grassland and scrub forest	0.15–0.45	26.5	Yellow
4	Built up area	<0.15	5.21	Blank
	<b>Total area</b>		<b>80.7</b>	

The IIFM campus's forests and grasslands are frequented by a number of birds, including *Dicrurus adsimilis*, *Acridotheres tristis*, *Lanius excubitor*, *Pavo cristatus*, *Halcyon smyrnensis*, *Tockus birostris*, *Centropus sinensis*, *Turdoides straitus*, *T. caudatus*, *Psittacula krameri* and *Nectarinia asiatica* (Kotwal et al. 2004). The unique landscape of the campus provides habitat for various species of mammals and reptiles. Wild mammals commonly observed on campus include mongoose, hyena, field mouse, spiny field mouse, hare, wild cat, mole and porcupine, and leopards occasionally visit the site from the nearby Kerwa forest. Important reptiles are cobra, Russel viper, python, monitor lizard and common Indian krait.

## Tree carbon assessment

The biomass and carbon (C) stock of woody vegetation were assessed using a non-destructive method. The aboveground biomass (AGB) of trees 20 cm GBH was estimated using volume equations obtained from reports of the Forest Survey of India (FSI) or, for species for which volume equations were unavailable, with suitable form factors. Species-specific wood-density values were obtained from a global wood-density database (Chave et al. 2009). Following an FSI study of tropical dry deciduous forest in Madhya Pradesh, the

belowground biomass (BGB) of woody vegetation was assumed to be 39% of AGB. Total woody carbon (TWC) was estimated using the equation:  $TWC = (AGB + BGB) \times 0.5$ , where 0.5 is a conversion factor on the assumption that the C content comprises 50% of the total biomass of tropical dry deciduous forest (IPCC 2006).

Thus, the carbon stock on the IIFM campus is estimated at 18.3 megagrams per ha for natural forest and 15 megagrams per ha for the *Hardwickia binata* plantation.<sup>2</sup> Extrapolating to the 49 ha of dense and moderately dense natural forest in the study area and 0.405 ha of *Hardwickia binata* plantation, the total aboveground carbon stock is estimated at 905 megagrams. For the entire area of tropical dry deciduous forest on campus (80.7 ha—see Table 1), the cumulative score for AGB and BGB is estimated at 1258 megagrams of carbon, or 4613 megagrams of carbon-dioxide equivalent.

The carbon content of AGB in the current study (15–18.35 megagrams C per ha) is comparable with other studies, including Gibbs et al. (2007) for tropical dry forests of Africa

<sup>2</sup> A patch of *Hardwickia binata* plantation was established on the campus in 1987–88 as an introductory experimental trial (the species is not native to the Bhopal region). The species is doing well in the campus forest and is reported to enhance land-use efficiency as an agroforestry species.

Figure 1: Forest categories and surrounding features of IIFM, Bhopal, India



Source: V.S. Vyas and R. Desadla/IIFM

(17 megagrams per ha); Pereira Junior et al. (2016) for tropical dry forests in Brazil (19.3 megagrams C per ha); and FSI (2017) for tropical dry deciduous forests in India (12.8–62.5 megagrams C per ha).

### Key findings

All 35 tree species in the study area show an aggregated dispersion (also called contagious distribution) pattern,<sup>3</sup> which indicates the transformation of the area from scrubland to natural forest. Contagious distribution is the most common pattern of plant distribution in nature (Odum 1971). Kumar and Bhatt (2006) reported that most species in the foothill forests of Garhwal Himalaya follow a contagious distribution pattern, and Rao et al. (1990) made similar findings for tree species in a subtropical forest in northeastern India.

The relatively high presence (26.4% of all trees) and flourishing of species in the Leguminosae, a nitrogen-fixing family, on the IIFM campus has created a conducive environment for the colonization of other associated species. Thus the incorporation of Leguminosae species from nearby natural forests can assist in ecosystem development and increase prospects for a successful transformation.

<sup>3</sup> Aggregated dispersion occurs either when individuals tend to be attracted to (or are more likely to survive in) particular parts of the environment, or when the presence of one individual attracts or give rise to another individual close to it. The result is that individuals are closer to others than might be expected due to chance (Begon & Townsend 2020).

### Forest benefits

The ecosystem services provided by the restored forest on the IIFM campus are benefiting the city's people. Schools in the local area organize excursions to the campus so students can learn about nature. Trainee forest rangers from forestry training institutes around India regularly visit the IIFM campus, where, among other things, they are introduced to the flora and fauna of central India in the campus forest. The Institute's own postgraduate students, and participants in the government's Green Skill Development Programme, also use the forest as a learning platform. The number of bird sightings in the area has increased substantially in recent years.

Research indicates linkages between deforestation, habitat loss and various vector-borne diseases (Colfer et al. 2006; Burkett-Cadena & Vittor 2018). The COVID-19 pandemic has reminded us all of the complex but strong relationships between and among wildlife, human societies and disease, and their interaction with the environment. Clearly, there is an imbalance in these relationships brought about by the clumsy and often greedy nature of many human societies. It is possible to restore forests to regain many of their original ecological and cultural values; efforts such as those on the IIFM campus can help correct the imbalance in nature we have created.



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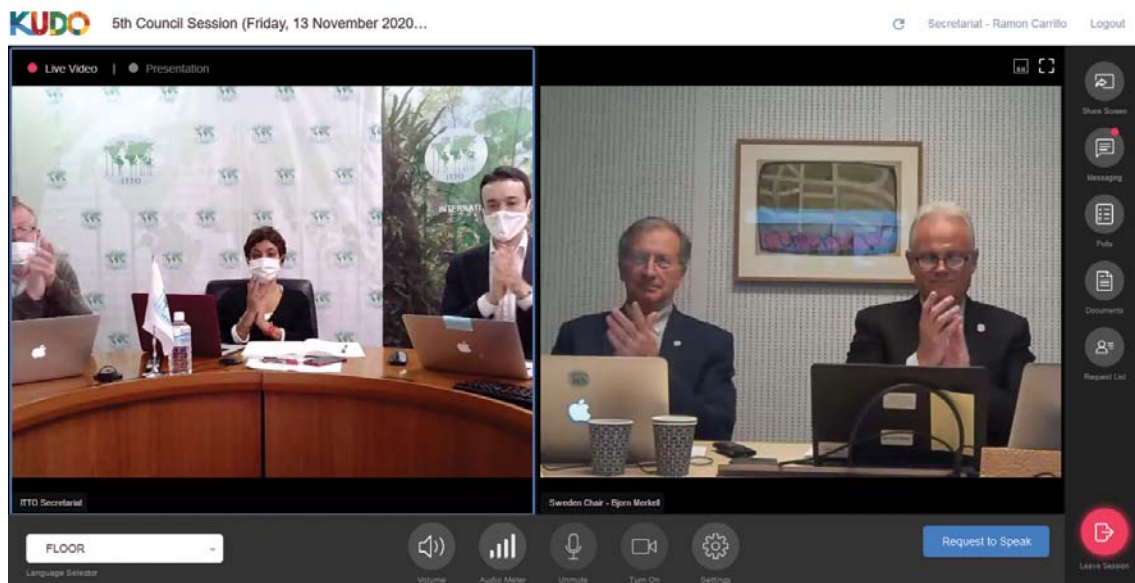
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# Council reviews impacts of pandemic on tropical forest sector

**The Chairperson of the 56th Session of the International Tropical Timber Council says that ITTO is well-placed to assist the tropical forest sector recover from the COVID-19 crisis**

by the ITTO Secretariat

Yokohama, Japan  
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**Virtual applause:** Council Chair Björn Merckell (right), ITTO Executive Director Gerhard Dieterle (second from right), and Secretariat staff (left panel) applaud the adoption of a decision at the 56th Session of the International Tropical Timber Council.

The COVID-19 pandemic has reinforced the crucial roles played by healthy forests, indigenous peoples, smallholders and local communities but it has also increased pressure on tropical forests, tropical forest industries and forest-dependent people, according to International Tropical Timber Council Chairperson, Björn Merckell, speaking at the virtual opening of the Council's 56th Session on Monday 9 November 2020.

"In addition to being a global health crisis, the COVID-19 pandemic has negatively affected global production, with millions of companies worldwide at risk of collapse," said Mr Merckell. "Small and medium-sized enterprises are the most affected."

Global timber supply chains are reported to have been severely disrupted, said Mr Merckell, exposing their fragility; thousands of workers have been laid off and demand has

plummeted. Citing ITTO-commissioned modelling,<sup>1</sup> Mr Merckell said that the sector may not return to pre-crisis production levels until 2026. He noted that tropical forests are under increased pressure as people migrate back to rural homes in search of refuge, with an associated spike in the use of forest resources to support local needs for food, fibre and energy.

ITTO Executive Director Gerhard Dieterle, who also spoke on the opening day of the virtual Council session, echoed Mr Merckell's views on the pandemic.

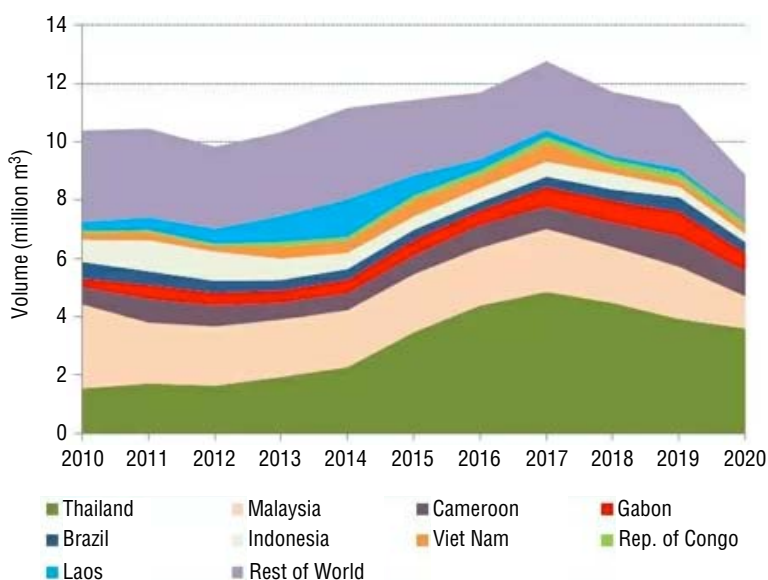
"There is no question that the evolving crisis will have a deep impact on forest industries and domestic and international markets," said Dr Dieterle. "Moreover, it is amplifying existing challenges, such as the ever-growing pressure on forests, the difficulty in meeting sustainability standards, the lack of finance for biodiversity conservation, and forest governance."

Dr Dieterle said the pandemic is the result of a breakdown in the relationship between human and natural systems, and responses to it should therefore encompass the protection of ecosystems and the maintenance of their functions.

Mr Merckell said the pandemic provided further impetus for ITTO to encourage the massive restoration of degraded forest ecosystems as part of the UN Decade on Ecosystem Restoration, and also to strengthen its efforts to promote wood as a material of choice for "building back better".

"ITTO is well placed to assist in the recovery of the tropical forest sector," said Mr Merckell. He listed the provision of sound information on tropical timber markets, the promotion of success stories on sustainable forest management, landscape restoration and legal and sustainable supply chains, and the funding of country-driven projects as means by which ITTO could help tropical forest stakeholders recover from the crisis.

**Tropical sawnwood exports, major tropical countries, 2010-2020**



<sup>1</sup> See [www.itto.int/news/2020/11/05/itto\\_modelling\\_examines\\_recovery\\_timeframe\\_in\\_tropical\\_timber\\_sector](http://www.itto.int/news/2020/11/05/itto_modelling_examines_recovery_timeframe_in_tropical_timber_sector).



**Fellowship:** ITTO Fellow Ana Luiza Violato poses with ITTO Executive Director Gerhard Dieterle at the International Union of Forest Research Organizations World Congress in Curitiba, Brazil in 2019. Ms Violato used her ITTO Fellowship to organize a community exchange among users of six sustainable-use forests in the Brazilian Amazon to promote social learning on community-based forest management as part of her doctoral research. Photo: R. Carrillo/ITTO

The 56th session of the International Tropical Timber Council, which originally was scheduled to be held in ITTO's host city of Yokohama, Japan, was convened virtually for the first time in the Council's history due to the COVID-19 pandemic. In his remarks to the Council, Yokohama Deputy Mayor Hayashi Takumi spoke about the close relationship that has developed over more than 30 years between the City of Yokohama and ITTO and the joint work they have done to promote public awareness about international engagement and environmental protection in tropical forests.

## Tropical timber trade takes big hit from pandemic

The COVID-19 pandemic has had a drastic impact on tropical timber trade, with log exports down by 28% in 2020, sawnwood down by 16% and tropical plywood down by 8%, according to preliminary findings of a report presented by the ITTO Secretariat during the Council session.

ITTO's Biennial Review and Assessment of the World Timber Situation provides data on the production and trade of tropical forest products and the status of tropical forests in ITTO member countries, as well as an overview of production and trade statistics for all timber products in these countries. The report for 2020 is still under preparation, but, as per usual practice, the Secretariat presented early results to delegates in advance of the final report to be released mid next year.

The ITTO Secretariat's Jean-Christophe Claudon reported that, in addition to declines in primary timber products such as logs and sawnwood, all major tropical exporters of secondary processed wood products except Viet Nam are expected to suffer double-digit declines (by value) in 2020 due to the pandemic. Viet Nam is the world's biggest tropical exporter of secondary processed wood products, and its exports have almost tripled in the last ten years. The value of its exports is expected to increase by an additional 7% in 2020 despite the COVID-19 crisis. Viet Nam's wood sector has been advantaged by the trade dispute between China and the United States of America and a consequent trend towards outward investment by processors operating in China to avoid US tariffs and reduce their production costs.

## Review of ITTO's pilot programme lines

ITTO Executive Director Gerhard Dieterle informed delegates during the session that a total of about USD 7 million had been raised in 2019 and 2020 under ITTO's new programmatic approach for a wide range of activities. Dr Dieterle stressed that voluntary financial contributions to the work of the Organization have been on a declining trend for more than a decade, indicating a need to re-assess the mechanisms by which the Organization attracts funds. The programmatic approach, which is being piloted until 2022 under Council decisions, has four programme "lines": 1) Legal and Sustainable Supply Chains; 2) Conservation of Biodiversity and Ecosystem Services; 3) Forest Landscape Restoration and Resilient Livelihoods; and 4) Emerging Issues and Innovation.

## Working group tables objectives for ITTO programme lines

The Co-chairpersons of the ITTO Finance Architecture ad hoc Working Group (AHWG), Jennifer Conje (United States of America) and John Leigh (Peru), presented the report of the working group during the session. Among other things, the AHWG developed draft objectives for ITTO's four programme lines at the request of Council to guide the development and financing of project proposals, the streamlining of the regular project cycle and the concept-note approach. Ms Conje outlined four funding scenarios to Council delegates and explained that the “virtual informed feedback loop”—put in place by the Council—would add transparency to the project cycle and enable members to provide feedback to the Secretariat before funding agreements are entered into with potential donors.

## Council awards 20 Fellowships

The Council awarded 20 ITTO Fellowships at its 56th session. The newest group of Fellows is from 14 producer countries and one consumer country and includes nine women. The total value of the Fellowships is about USD 145 000.

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

The new Fellowships will be used by 13 of the awardees to pursue postgraduate degrees in topics such as assessing the potential of REDD+ and the restoration of degraded natural tropical forests; by three awardees to prepare technical documents, including one on economic aspects of forest restoration using exotic species as pioneers; by three awardees to conduct study tours, such as a field trip to assess forest practices for promoting the sustainable management of natural forest ecosystems and ensuring community livelihoods; and by one awardee for a short course on project monitoring and evaluation.

ITTO's long-running Fellowship Programme has enabled more than 1400 awardees to improve their professional knowledge and career prospects (see page 22 for an example that illustrates the value and impacts of this programme).

## Committees review policy and project work

The Committee on Economics, Statistics and Markets and the Committee on Forest Industry met jointly during the Council session. Among other things, the joint session received a report on the work of the Independent Market Monitor (IMM), a European Union (EU)-funded project hosted by ITTO. The IMM's Sarah Storck reported on a recent IMM study of the furniture sector, which drew on

interviews with Asian furniture manufacturers and European furniture buyers as well as trade-data analysis and expert opinion. The study found that “assurance of legality” was the second-most important factor—after quality—in the purchasing decisions of European furniture companies. This was encouraging for the EU's Forest Law Enforcement, Governance and Trade programme, said Ms Storck. The study also revealed that, among EU furniture companies, Indonesia had the lowest perception of difficulty in proving negligible risk of illegality and China the highest.

The joint sitting of the two committees also closed one project that developed and tested a national forest stock monitoring system in the Philippines,<sup>2</sup> approved three projects and one pre-project for funding, discussed related policy work, and decided to postpone further project ex-post evaluations until the easing of COVID-19-imposed travel restrictions.

The Committee on Reforestation and Forest Management recommended to the Council the immediate funding of five projects and one pre-project and also reviewed two recently completed projects—one designed to increase Myanmar's national capacity in biodiversity conservation<sup>3</sup> and the other aimed at improving the management of sacred forests at two Ramsar sites in southern Benin (as reported in TFU 29/2)—and declared them closed.

Two projects were reported completed under ITTO's thematic programmes. One of these helped develop a timber-tracking system in Panama<sup>4</sup> (as reported in TFU 29/2), which is already proving a valuable tool for the Ministry of Environment by increasing transparency and ensuring the legality of timber flows in the pilot area. The second assisted in the formulation of a national strategy in Guatemala for the conservation and sustainable management of the country's mangrove resources;<sup>5</sup> this strategy led, in turn, to the enactment of a national regulation on sustainable mangrove management in 2019. The project also built local capacity in mangrove conservation, rehabilitation and sustainable use in four pilot mangrove areas involving 13 local communities.

## Biennial Work Programme

The Council discussed progress on the implementation of the current Biennial Work Programme (BWP) and a modified BWP for 2021–2022. The new BWP comprises 24 activities in five aspects: 1) field-oriented activities; 2) normative work; 3) collaboration; 4) communication and outreach; and 5) analytical, statistical and other recurring work. The total budget is USD 1.86 million in core operational costs and USD 4.35 million in voluntary contributions.

2 PD 599/11 Rev.1 (M): “Development and testing of national forest stock monitoring system with improved governance capabilities at all levels of the forest administration”.

3 PD 723/13 Rev.2 (F) Phase I Stage 1: “Capacity building for strengthening transboundary biodiversity conservation of the Taninthayi range in Myanmar”.

4 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 Darien) through monitoring and control mechanisms”.

5 RED-SPD 079/12 Rev.1 (F): “Strengthening governance and sustainable management of mangrove ecosystems in Guatemala as a climate change adaptation measure”.



**Stick-in-the-mud:** The restoration of this mangrove ecosystem in Iztapa, Escuintla, Guatemala, was initiated as part of an ITTO project. *Photo: A. Lopez*

## Civil Society Advisory Group wants new status report

In a statement during the session, Civil Society Advisory Group (CSAG) coordinator Chen Hin Keong said CSAG was concerned that, in some ITTO producer member countries, the implementation of sustainable forest management (SFM) is failing.

“All of us in the Council have sat in many workshops, read reports that show the issues and problems facing SFM is not related to technical aspects of forest management,” he said. CSAG proposed a new report on the status of tropical forest management, which the Organization assessed most recently in 2011.

“CSAG would be more than willing to work with ITTO members, Council and the donor community to carry out the status assessment, in an objective, open and transparent manner,” said Mr Chen, who also expressed CSAG’s appreciation for ITTO’s new programmatic approach.

## More than USD 4 million pledged for ITTO work

Council members and other donors announced pledges in 2020 (including those made intersessionally) totalling USD 4.14 million in voluntary contributions to support the Organization’s work. Of this, Japan contributed about USD 3 million, the United States of America USD 480 000, the Netherlands USD 227 000, China USD 100 000, Sweden USD 20 000, FAO USD 148 000 and Soka Gakkai USD 93 000.

Among other things, these funds will support field projects in Cambodia, Ghana, Indonesia, Peru and Togo; work on legal and sustainable supply chains; ITTO’s role in the CITES Tree Species Programme; the development of educational curricula on legal and sustainable supply chains and market access; the dissemination of ITTO’s new guidelines on forest landscape restoration in the tropics; a global project on forest education; and the ITTO Fellowship Programme.

The Council adopted five decisions during the session, including one in which the Council endorsed eight new projects and two new pre-projects. The other decisions were on the 2020–2021 BWP; the extension of the ITTO strategic action plan; phase 2 of the implementation of ITTO’s new financial architecture; and the recruitment, selection and term of the Executive Director. The latter decision, made after the Council had discussed related matters in closed meetings during the session, requested the Secretariat to immediately advertise the Executive Director’s position (see recruitment announcement on page 5).

The Council will convene its next session on 2–7 November 2021 in Yokohama, Japan. It elected Kheiruddin Rani (Malaysia) and Jesse Mahoney (Australia) as its next Chair and Vice-chair, respectively.

Daily highlights of the 56th Session of the International Tropical Timber Council, including presentations and links to Council documents, are available at [www.itto.int/ittc-56](http://www.itto.int/ittc-56).

Daily coverage of the session by IISD reporting services is available at <https://enb.iisd.org/forestry/itto/ittc56>.

# Fellowship report

**Wood chemists in Cameroon have produced a promising composite product combining ayous and iroko wood waste with recycled polyvinyl chloride**

**by Jean-Bosco Saha Tchinda and Maurice Kor Ndikontar**

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**Termite proof?** Test pieces of biocomposites using wood waste were placed on a termite mound to test their biodegradability. Photo: J.B. Saha Tchinda

Plastics invented in the nineteenth century have replaced traditional materials such as wood and metals in many uses. Their good thermal insulation qualities and moulding ductility have made plastics irreplaceable and ubiquitous in our daily lives. The industry offers a wide variety of products, all based on three types of synthetic plastics available worldwide: thermoplastics, thermosetting materials, and elastomers. However, these plastics are toxic to the environment. They are not biodegradable and, when burnt, they produce noxious gases such as hydrogen chloride, hydrogen cyanide and sulphur dioxide, which also have negative impacts on the ozone layer and contribute to global warming. Companies recycle only about 20% of plastics produced, and the rest litters streets, rivers, oceans and soils (Gélinas 2013; Lewis and Stanley 2012). It is important, therefore, to find a means to recover and reuse this plastics waste.

Cameroon has an abundance of about 600 wood species, of which 300 are usable and 80 are commonly used. Wood use generates large amounts of waste, which is mostly burnt or abandoned, even though it could be recovered (Saha Tchinda 2015).

We conducted research on the recovery of timber waste for use as a filler with plastics materials, focusing on sawdust from ayous (*Triplochiton scleroxylon*) and iroko (*Milicia excelsa*), two heavily logged forest tree species in Cameroon. Because the intended end use of our material is piping, we selected recovered waste polyvinyl chloride (PVC) (a thermoplastic) as the matrix. Ideally, the material obtained should be durable, relatively inexpensive and easily recyclable. We took into account the interaction between the PVC matrix and the wood flour, which is a determining factor in obtaining homogeneous wood–plastic composites. We then made composites with soda-treated sawdust and virgin sawdust from each of the two timber species.

This research, which took place from 1 February to 30 June 2020, was fully funded by an ITTO Fellowship (awarded to the first author of this report in 2019).

## Methodology

### Collection, drying and micronization

Sawdust from ayous and iroko was collected from the SFIL Ndeng timber processing plant in the department of Boumba-et-Ngoko in eastern Cameroon. After collection, the sawdust was dried in the open air for three days and then steamed for 30 minutes in an oven at a temperature of 100 °C. The dried sawdust was then micronized (i.e. broken into small particles) to a size of 50 microns using a micronizer. This micronized sawdust (wood flour) was collected in a bag and stored away from light for later use.

### Alkaline treatment

Samples of the sawdust of iroko were treated with soda (ayous doesn't take up sufficient soda to affect its properties). The ratio between the mass of the sawdust and the volume of soda solution was 1:10. We added a specific volume of 5% alkaline solution to a specific mass of sawdust and stirred the mixture for four hours (Chokouadeu Youmssi et al. 2017). The treated sawdust was then washed thoroughly in distilled water using an 80-micron porosity sieve. After washing, the sawdust was dried in an oven at 100 °C for two hours, and then packed.

### Formulation

Table 1 shows the percentages of ingredients used for producing the composite plastics, based on the work of Djomi et al. (2018).

**Table 1: Ingredients used in the manufacture of three experimental composites**

PVC resin	Lubricant	Stabilizer	Titanium dioxide	Plasticizer	Colourant	Wood flour	Total
(%)							
92.69	2.13	3.52	0.25	1.32	0.06	0	100
87.81	2.02	3.34	0.25	1.26	0.06	5.27	100

Note: the first row of values is for the PVC-only material.

**Table 2: Moisture content of pipes**

Composite material combining PVC and:				PVC only
	Treated iroko	Untreated iroko	Untreated ayous	
Moisture content (%)	0.27 ± 0.01	0.33 ± 0.03	0.57 ± 0.01	0.040 ± 0.001

**Table 3: Water absorption by the composites—high-humidity vapour**

		Treated iroko	Untreated iroko	Untreated ayous	PVC-only
Water absorption rate (%) after:	2 days	6.58 ± 0.06	5.9 ± 0.3	6.3 ± 0.4	7.1 ± 0.6
	12 days	6.6 ± 0.5	6.2 ± 0.3	6.1 ± 0.1	6.3 ± 0.9

**Table 4: Water absorption by the composite materials—full immersion in liquid water**

		Treated iroko	Untreated iroko	Untreated ayous	PVC-only
Absorption rate (%) after:	2 days	5.9 ± 0.3	5.9 ± 0.5	5.4 ± 0.9	5.4 ± 0.3
	12 days	6.3 ± 0.7	6.2 ± 0.5	5.3 ± 0.2	5.4 ± 0.3

**Table 5: Biodegradability of composite pipes**

	Treated iroko	Untreated iroko	Untreated ayous	PVC-only
Loss of mass (%) after 16 weeks in a termite mound	0.02 ± 0.00	0.01 ± 0.00	0.03 ± 0.00	0.00 ± 0.00

## Extrusion

To produce the pipes, we placed the ingredients shown in Table 1 in a mixer pot, with four variations: 1) untreated iroko; 2) soda-treated iroko; 3) untreated ayous; and 4) PVC only. We adjusted the temperature over time according to a schedule and monitored the conditions. When ready, the mixtures were transferred to a hopper; once the production line had started, the material was injected into the screw, where it advanced by heat-induced conduction and was plasticized progressively until purification. On exiting the extruder, the material was conveyed to a hydrostatic pan (which moulds the composites), where it was cooled with iced water. The final product was cut into 4-m lengths.

If used in industrial applications, the resulting composites may be exposed to variable temperatures and moisture regimes. It is essential, therefore, to know how the material behaves in relation to ambient moisture and variable atmospheric conditions. The parameters of the composite materials examined in this study are: 1) water absorption; 2) water vapour absorption; and 3) pipe biodegradability. The first two parameters were estimated by weighing test pieces (2 cm x 2 cm) before and after drying and hydration; biodegradability was assessed by weighing test pieces before and after they were placed in a termite mound on the campus of the University of Yaoundé. The pipes were cut into small strips, placed in the termite mound for 16 weeks and covered with leaves to accelerate termite attack.

## Results and discussion

### Extrusion

The photos show the pipes obtained from the extrusion process. Table 2 shows the average moisture content of the test pieces.

Average moisture content was very low in all pipe materials, but the PVC-only material had by far the lowest; this is because it has no phenol or alcohol function capable of absorbing moisture. Treated iroko recorded a lower moisture content than untreated iroko: this is because treating sawdust with soda makes the fibres hydrophobic. Untreated ayous had a higher moisture content than untreated iroko.

### Water absorption

Table 3 shows water absorption rates of the test materials when exposed to water vapour, and Table 4 shows absorption rates for test pieces fully immersed in liquid water.

The tendency of natural fibres to absorb water is one of the major impediments to their use in the development of composites. Fibres swell in the presence of water, which can deconstruct the internal part of the composite and lead to a decline in mechanical properties and durability. The water absorption of composite materials, therefore, should be as close as possible to zero if their industrial application

is to be viable. In our study, absorption rates for all materials were about 6% after 12 days of exposure to water vapour (with slightly lower rates for immersion in water), which is relatively low. Water absorption could be further reduced by repeating the mixing process several times to increase the coating of PVC around the wood particles.

### Pipe biodegradability test

In the biodegradability test, the loss of mass was well below 1% after 16 weeks (Table 5). Thus, for this length of time at least, the pipes are not biodegradable. We put the strips back in the termite mound after measurement to continue the experiment over a 28-week period.

### Conclusion

The main objective of our work was to recover wood sawdust from ayous and iroko by combining it with recycled PVC. For this purpose, we developed a thermoplastics composite consisting of a matrix of PVC and wood flour (untreated ayous and treated and untreated iroko) with a particle size of 50 microns. The wood flour and recycled PVC matrix demonstrated good adhesion, which allowed us to produce a pipe for examining the material's water and water vapour absorption properties and biodegradability. Water and water vapour absorption tests showed that pure PVC and composite (PVC plus wood flour) pipes absorbed virtually the same content, and none of the pipes biodegraded when placed in a termite mound for a 16-week period. These PVC/wood sawdust pipes can replace commercially available pipes made entirely of PVC, with gains both for the economics of wood production (by adding value to what was previously a waste product) and the environment (by providing a use for recycled PVC).

We recommend performing in-depth studies on the pipes produced to assess their mechanical properties. Provided that the further tests are conclusive, this composite pipe should be marketed.

Applying the results of this research will create many jobs because wood waste will need to be recovered from wood users, stored and converted into the desired particle size. Wood waste that is generally burnt or abandoned in the environment will thus be sent directly to industry for use.



**Pipe dream:** The test products produced by mixing sawdust and PVC.  
Photo: J.B. Saha Tchinda

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## How quickly will timber export markets recover?

by Mike Adams

Compiled from ITTO's *Tropical Timber Market Report* and other sources (itto@itto.int)



**Warehoused:** The pandemic has caused a massive downturn in the timber trade. *Photo: R. Carrillo/ITTO*

No country has escaped from the impacts of COVID-19, but the degree of disruption to daily life and business has varied greatly, along with the ability of governments to respond. Countries with developed economies have the resources and infrastructure to absorb the hit, but less-developed countries have found themselves exposed to previously undreamt-of risks. For these countries, the challenge is compounded by the size of their informal economies and the numbers of families surviving below or barely above the poverty line.

In addition to being a global health crisis, the COVID-19 pandemic has negatively affected production, with millions of companies worldwide at risk of collapse. Representing more than 70% of global employment and 50% of gross domestic product (GDP), small and medium-sized enterprises (SMEs) have been hardest-hit, and solutions are needed to help them survive. For example, the Indonesian government has identified around 37 000 SMEs in need of sustained financial support.

Although global trade is beginning to recover, the United Nations Conference on Trade and Development (UNCTAD) says the outlook remains uncertain. Estimates show that world trade will drop by 5% in the third quarter of 2020, year-on-year; this is an improvement on the nearly 20% decline in the second quarter of the year but still insufficient to pull trade out of the red. “The uncertain course of the pandemic will continue aggravating trade prospects in the coming months”, said UNCTAD Secretary-General Mukhisa Kituyi.

The pandemic has had a very uneven effect on sectors. The World Trade Organization says that trade in agricultural products has fallen by just 5% because food is a necessity and continued to be produced and shipped in the depths of the crisis. The production of fuels and mining products, on the other hand, fell by as much as 38%, and trade in manufactured goods saw a drop of almost 20%.

The European Sustainable Tropical Timber Coalition—an alliance of industry, business, government and non-governmental organizations—reported radically reduced timber trading across Europe in early 2020. Many companies closed temporarily or curtailed operations, delayed orders and asked suppliers for longer payment terms.

A survey by the ITTO Market Information Service at the end of the first quarter of 2020<sup>1</sup> showed that the measures taken to prevent the spread of COVID-19 in producer countries had a substantial impact on the tropical timber sector, with many thousands of workers laid off and demand plummeting.

In response to the pandemic, several governments in the tropics ordered lockdowns that brought production to a standstill. Limited production of outstanding orders restarted as restrictions on people’s movements eased, but many buyers have asked for delays in deliveries or cancelled orders outright, putting producers under pressure—which is likely to be exacerbated because a quick recovery in domestic and international demand seems unlikely.

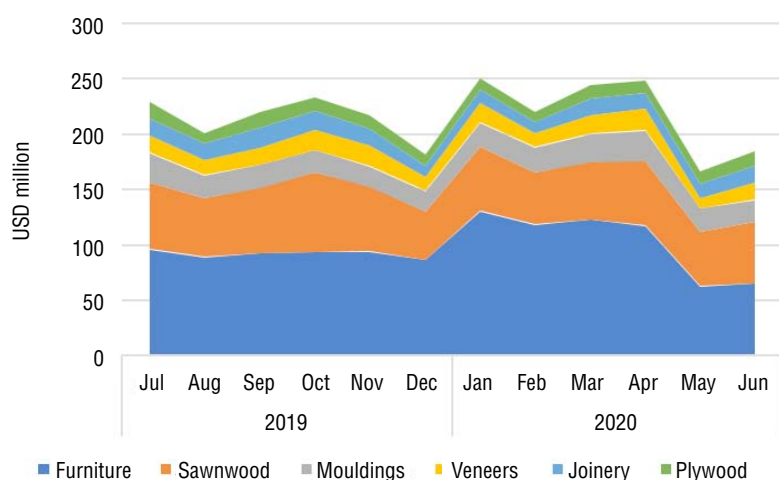
The following provides an overview of market trends in the first 6–8 months of 2020.

## Downturn in EU tropical imports less severe than forecast

Total European Union (EU27—i.e. excluding the United Kingdom) import value of tropical wood and wood furniture products was USD 1.98 billion in January–August 2020, down by 14% over the same period in 2019. Even though this was a major decrease, it is significantly higher than forecast earlier in the year, when the “great lockdown” had

<sup>1</sup> [www.itto.int/news/2020/04/18/pandemic\\_pandemonium\\_in\\_the\\_tropical\\_timber\\_sector](http://www.itto.int/news/2020/04/18/pandemic_pandemonium_in_the_tropical_timber_sector)

Figure 1: EU27 tropical wood and wooden furniture imports, July 2019 to June 2020



Source: ITTO-IMM Analysis of Eurostat.

a severe impact on EU27 economies and on the supply side in tropical countries. The fact that EU27 trade in tropical wood timber products was cooling even before the onset of the COVID-19 pandemic (Figure 1) makes this performance more remarkable.

### EU plywood trade cautious, but COVID recovery faster than expected

It's still too early to say for sure, but European plywood importers and distributors variously estimate that the pandemic will slice 10–20% off their 2020 bottom lines. Trade has seen a bounce-back of varying degrees among countries, but companies don't expect this to make up for the sales lost when the crisis first hit.

Looking ahead, the sector is hopeful of a continued market recovery. There is wariness, however, about making more than short-term forecasts and concern about the economic fallout as European governments wind down pandemic business-support measures.

### Sharp dip in continental European plywood trade in August

Some plywood businesses in continental Europe said that, after strengthening through June and July, trade dipped again—in some cases sharply—in August.

EU imports of wood products from tropical countries fell sharply between March and May 2020, pulling down the value of imports compared with the same period in 2019. Imports of sawnwood, mouldings, joinery and plywood fell by more than 20%, year-on-year, in the first half of 2020. The value of plywood crashed almost by 30%; value also fell for veneer and marquetry imports but by smaller margins.

Three manufactured products—wooden furniture, sawnwood and mouldings—accounted for over 80% of EU imports from tropical countries in the first half of 2020. Wooden furniture topped the list at around 45% of the value of all wood

products from tropical countries, followed by sawnwood and mouldings. Other products such as veneers, joinery and plywood contributed 5–7% each of the import value.

Just five sources—Brazil, India, Indonesia, Malaysia and Viet Nam—accounted for more than 70% of EU imports of wood and wood products from tropical countries in the first six months of 2020; Cameroon, Gabon and Thailand were other significant sources, and small amounts arrived from Ecuador. The EU's first-half imports of wood and wood products from the top supplier, Indonesia, dropped by 16%, year-on-year; they dipped by just 4% from the second-largest supply source, Viet Nam. African shippers did not do well in the first half of 2020: shipments to the EU fell by 26% from Cameroon, by 22% from the Congo and by 11% from Gabon. The only country recording a rise in exports to the EU was Ecuador.

## United States of America

### Hardwood plywood

US hardwood plywood imports were unchanged to the end of August 2020 compared with the same period in 2019, but there were significant shifts in sources. US plywood import data do not distinguish the plywood of tropical species from other hardwood plywood.

Shippers in five countries—Cambodia, China, Indonesia, Malaysia and Viet Nam—accounted for just over 60% of all US hardwood plywood imports in the first eight months of 2020. In the year to August, hardwood imports declined by 56% from China and by 2% from Malaysia, but all other shippers recorded gains. US imports rose by 36% from Cambodia, by 19% from Viet Nam and by 13% from Indonesia.

### Mouldings

Shipments of mouldings from Malaysia—the US's biggest tropical supplier—accounted for just under 10% of all US moulding imports in the first eight months of 2020, but the value was down by 30%, year-on-year. Brazil—the US's second-biggest tropical supplier—accounted for around 6% of total US moulding imports in January to August, but the value was down by 60% compared with the same period in 2019.

### Assembled flooring

The US imported assembled flooring valued at USD 112.4 million in the period January–August 2020. The value of imports from China—the country's major supplier in 2019—was down by 28%. The major tropical suppliers to the US market are Indonesia, Thailand and Viet Nam, with Brazil also making gains in 2020.

Assembled-flooring shipments to the US declined from Indonesia by 7% to end-August 2020, year-on-year, and by 17% from Thailand. Viet Nam was the big winner, with shipments of assembled flooring jumping by more than 40%, year-on-year. Canada stands out among the top shippers of assembled flooring to the US market, accounting for around one-quarter of all assembled-flooring imports to end-August.

## Wooden furniture

The value of US imports of wooden furniture<sup>2</sup> amounted to about USD 11 billion in the first eight months of 2020 (Figure 2), with imports from seven countries accounting for more than 85% of this: Viet Nam (USD 3.9 billion); China (USD 2.5 billion); Canada (US 883 million); Malaysia (USD 776 million); Mexico (USD 650 million); Indonesia (USD 476 million); and India (USD 174 million). Malaysia was a standout performer, with a 40% rise, year-on-year. Exports of wooden furniture to the US also jumped for Viet Nam (21%) and Indonesia (12%) but fell for India (14%) and Mexico (4%).

## Japan

### Wooden furniture

Shippers in China have accounted for more than 60% of Japan's wooden furniture imports for the last three years, Germany, Italy, Poland and Portugal contributing around 5% each.

More than 80% of Japan's imports of wooden kitchen furniture are supplied by manufacturers in the Philippines and Viet Nam, where Japanese companies have invested heavily. China is not a major supplier of wooden kitchen furniture to Japan. More than 80% of Japan's imports of wooden bedroom furniture originate in China and Viet Nam, with small quantities from shippers in Southeast Asia.

### Plywood

Indonesia and Malaysia accounted for over 80% of Japan's plywood imports in the first eight months of 2020, as they have for the last decade. Japan's plywood imports have declined steadily in the last 3–4 years, however, as Japanese manufacturers start substituting imported plywood with plywood milled from domestic logs. The impact of COVID-19 on business activity further disrupted plywood imports, but imports only declined by 7% in the first eight months of 2020. The surprisingly modest decline could have been because housing starts and construction activity held up well in Japan, despite the pandemic.

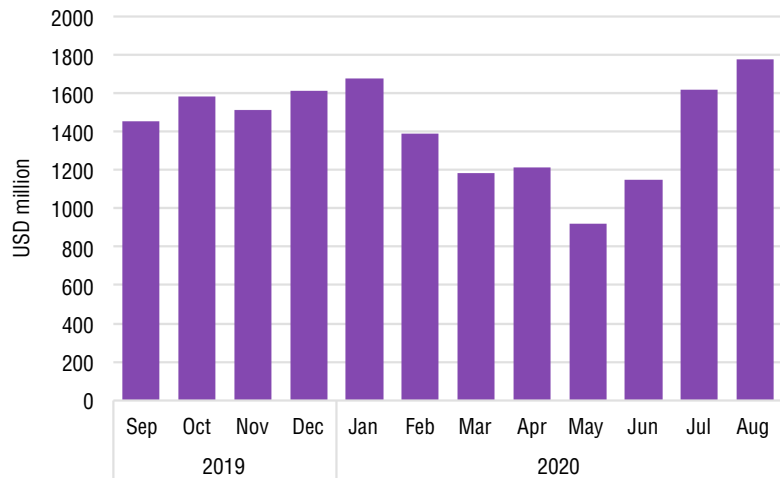
Japan's plywood imports from Malaysia dropped by almost 20% in the first eight months of 2020. In sharp contrast, imports from Indonesia rose by about 2% in the same period.

### Assembled flooring and joinery

Japan's imports of assembled wood flooring dropped in value by almost 15% in the first eight months of 2020, with both the main shippers, China and Viet Nam, posting losses. The value of imports was higher in July than in June but still down, year-on-year.

The main shippers of wooden doors to Japan in the first eight months of 2020 were China, which regularly accounts for about half of all wooden door imports, the Philippines (23%) and Indonesia. Japan's imports of wooden doors tumbled by nearly 26% between January and August 2020 (Figure 3), with shippers in China taking the hardest hit.

Figure 2: Value of US wooden furniture imports, September 2019–August 2020



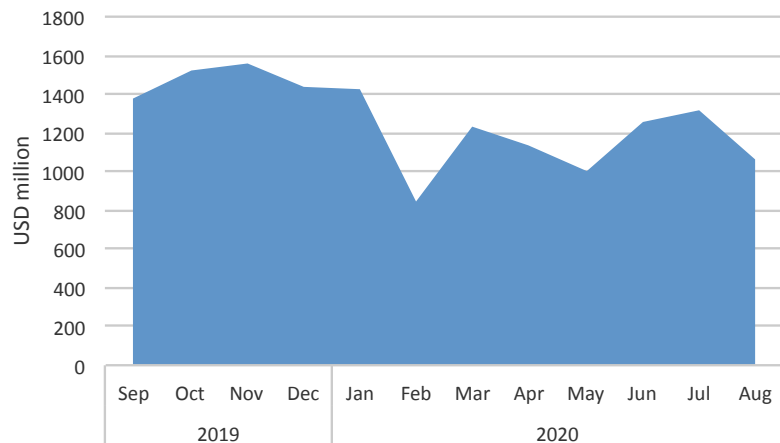
Source: US Census Bureau, Foreign Trade Statistics.

## Big importers of raw materials— China, India and Viet Nam

### India

Only incomplete data on India's imports was available for the first three quarters of 2020 upon which to base an analysis of trends. As of mid-October, India had more than 6.6 million recorded cases of COVID-19 infections, second only to the US. Despite this, efforts to revive the economy appear to be bearing fruit, with some indicators of economic activity showing improvement. For example, there was a 14% rise in power consumption in the first days of October; the pace of decline in diesel fuel sales has slowed considerably; fees from road tolls are rising; and rail freight volumes were up by 15% in September and exports rose by more than 5%, year-on-year.

Figure 3: Japan's imports of wooden doors, September 2019–August 2020



Source: Ministry of Finance, Japan.

<sup>2</sup> Wooden furniture comprises the following Harmonized System codes: 940161, 940169, 940330, 940340, 940350 and 940360.

**Table 1: Main timber imports, Viet Nam, first half of 2019 and 2020**

	1st half 2019	1st half 2020	% change
	(m <sup>3</sup> )		
Logs	1 248 822	959 306	-23
Sawnwood	1 289 627	1 115 402	-14
Veneer	101 709	105 742	4
Particleboard	178 428	179 493	1
Fibreboard	335 520	259 724	-23
Plywood	221 021	209 549	-5

Source: General Department of Customs, Viet Nam.

The September rise in exports was the first for seven months; at the same time, imports continued to decline, albeit at a slower pace than before. Together with a rise in the collection of goods and services taxes, an economic recovery is indicated by rises in the purchasing managers' index and auto sales. Such a recovery is desperately needed, with GDP falling by 24% in the first quarter of fiscal 2020.

### Viet Nam

The major suppliers of logs to Viet Nam in the first half of 2020 were the US (19%), Cameroon (15%), Belgium (11%) and France (8%). Other significant tropical log suppliers in the first half of 2020 were Papua New Guinea (80 000 m<sup>3</sup>), Suriname (42 000 m<sup>3</sup>), the Congo (35 000 m<sup>3</sup>) and Uruguay (26 000 m<sup>3</sup>).

The US and Chile topped the list of sawnwood suppliers to Viet Nam in the first half of 2020. Tropical sawnwood suppliers included Brazil (92 000 m<sup>3</sup>, down by 12%, year-on-year), Cameroon (89 000 m<sup>3</sup>, down by 14%), the Lao People's Democratic Republic (35 000 m<sup>3</sup>, up by 20%) and Gabon (26 000 m<sup>3</sup>, down by 46%).

China was Viet Nam's biggest supplier of plywood, followed by Indonesia, the Russian Federation and Malaysia. Although Viet Nam's imports of most wood products declined in the first half of 2020 (Table 1), imports of wooden furniture parts jumped by 169%, mostly from China.

### China

China's log imports fell sharply in the first half of 2020, year-on-year, by 17% in volume (to 24.51 million m<sup>3</sup>) and by 29% in value (to USD 3.558 billion). Softwood log imports fell by 16%, to 17.6 million m<sup>3</sup>, and hardwood log imports fell by 19%, to 6.87 million m<sup>3</sup>.

Of total hardwood log imports, tropical log imports amounted to 4.11 million m<sup>3</sup> (60% of all hardwood log imports) in the first half of 2020, down by 25%, year-on-year; the value of these imports was USD 956 million, down by 36%. Eight countries supplied nearly 90% of China's tropical log requirements in the first six months of 2020: Papua New Guinea (34% of the total volume), the Solomon Islands (25%), Brazil (8.3%), the Congo (5.9%), Cameroon (5.0%), Equatorial Guinea (4.8%), Mozambique (3%) and Suriname (3%).

**Table 2: China's tropical hardwood log imports, January–June 2020**

Shipper	Volume ('000 m <sup>3</sup> )	% change (year-on-year)
Papua New Guinea	1 404	-16
Solomon Islands	1 023	-22
Brazil	342	-5
Congo	243	-29
Cameroon	207	-23
Equatorial Guinea	195	-65
Mozambique	131	-31
Suriname	126	118
Subtotal	3 861	
All shippers	4 110	-25

Source: China Customs.

(Table 2). Tropical hardwood log imports from the main suppliers were down sharply in the first half of 2020. Log imports from Equatorial Guinea and Mozambique fell by 65% and 31%, respectively.

### Sawnwood imports

China's sawnwood imports in the first half of 2020 totalled 17.0 million m<sup>3</sup> and were valued at USD 3.70 billion, down by 8% in volume, year-on-year, and by 17% in value. Of total sawn hardwood imports, tropical sawnwood imports amounted to 2.99 million m<sup>3</sup> and were valued at USD 942 million, up by 2% in volume but down by 11% in value.

Thailand remains the main supplier of tropical sawnwood to China. China imported 1.67 million m<sup>3</sup> of this product from Thailand in the first half of 2020 at a value of USD 453 million, down by 7% in volume compared with the same period in 2019 and by 15% in value. Ten countries supplied more than 90% of China's tropical sawnwood requirements in the first half of 2020 (Table 3).

**Table 3: China's main sources of tropical sawnwood imports, first half of 2020**

	Volume ('000 m <sup>3</sup> )	% change, first half 2019 to first half 2020
Thailand	1672	-7
Gabon	279	3
United Republic of Tanzania	174	Not available
Brazil	160	7
Philippines	141	-8
Indonesia	94	5
Cameroon	66	-15
Malaysia	60	-37
Viet Nam	59	26
Myanmar	58	51

Source: China Customs.

**Rise in China's wooden furniture imports.** The value of China's wooden furniture imports fell by 26% in the first half of 2020, to USD 389 million. More than 60% of the imports were from Italy, Germany and Viet Nam, although there were big drops from Viet Nam (44%, to USD 38 million) and Italy (26%, to USD 146 million); the import value from Germany increased by 21%, to USD 66 million.

## Prospects

Until a vaccine for COVID-19 is available worldwide, the prospects for growth in the timber sector are fragile and impossible to forecast as 2020 draws to an end.

China's economic recovery is strengthening, despite a challenging external environment, due mostly to expansion in domestic demand—investment in infrastructure boosted growth in the second and third quarters of 2020. Industrial production also picked up towards the end of the third quarter, but challenges in international trade loom large as some big trading partners are only now tackling second waves of infections.

India's GDP plunged at the sharpest pace on record in the second quarter as lockdown measures battered economic activity. The collapse of household spending and investment put livelihoods in peril. The economy showed some sparks in the third quarter, but risks are high as the number of COVID-19 cases continues to rise.

On a brighter note, India's manufacturing output reversed course in August towards positive territory, but further improvement is hampered by weak international demand.

The EU economy is set to experience a deep recession in 2020. The European Commission projects that the euro-area economy will contract by almost 9% in 2020, a figure derived before lockdown measures were imposed in response to the second wave.

The Conference Board forecast for the US economy suggested that growth could rise firmly in the third quarter following contraction in the second quarter but that it would take considerable effort to bring US economic output back to pre-pandemic levels. Many economic indicators are showing improvement, but the pace of recovery has slowed.

The pandemic continues to dampen Japan's domestic and external markets. Industrial output showed signs of expansion at the end of the first half of 2020, but unemployment is of serious concern and consumer confidence remains depressed. Japan was already in recession when the pandemic emerged, with GDP contracting in the last quarter of 2019 in response to a hike in the consumption tax. Another contraction was recorded in the first quarter of 2020. Recovery is expected to be slow, with domestic consumers cautious and global demand for exports weak.

The honest answer to the question on producers' minds—"How quickly will a recovery in international markets come?"—is that it is impossible to predict until mass vaccinations begin against COVID-19. Even then, recovery in demand will be erratic, varying enormously from country to country.

# Tropical and topical

Compiled by  
Ken Sato

## **ITTO modelling examines recovery timeframe in tropical timber sector**

Production in the tropical timber sector, which has been hard-hit by the COVID-19 pandemic, is likely to recover to pre-crisis volumes by 2026, according to the preliminary findings of an ITTO-commissioned study. Latin America has been most affected by the crisis, according to the report, followed by Southeast Asia.

ITTO undertakes a wide range of work on incentives to promote sustainable forest management in tropical countries. Recently, this has included the development of a model for forecasting trends in tropical timber supply and demand with a view to predicting regional surpluses and deficits of timber supply that incentives might help address. The model has now been used to examine the impacts of the COVID-19 pandemic on tropical timber supply and trade and to estimate the likely time required for the sector to recover to pre-pandemic levels. The full report of the study will be available in 2021.

More: [www.itto.int/news/2020/11/05/itto\\_modelling\\_examines\\_recovery\\_timeframe\\_in\\_tropical\\_timber\\_sector](http://www.itto.int/news/2020/11/05/itto_modelling_examines_recovery_timeframe_in_tropical_timber_sector)

## **Drones that patrol forests could monitor environmental and ecological changes**

According to a recent report in *Science Daily*, researchers at the Imperial College London's Aerial Robotics Laboratory have developed drones that can shoot sensor-containing darts onto trees from several metres away in cluttered environments like forests. The drones can also place sensors through contact or by perching on tree branches. Sensors installed in forests can provide valuable data on climate change and other environmental perturbations and for use in forest management and conservation, but placing them manually is expensive and hazardous. The researchers hope that drones will be used in the future to create networks of sensors, thereby increasing the availability of a wide range of data on forest ecosystems. "Monitoring forest ecosystems can be difficult, but our drones could deploy whole networks of sensors to boost the amount and precision of environmental and ecological data," said lead researcher Mirko Kovac. "I like to think of them as artificial forest inhabitants who will soon watch over the ecosystem and provide the data we need to protect the environment."

More: [www.sciencedaily.com/releases/2020/11/201103112526.htm](http://www.sciencedaily.com/releases/2020/11/201103112526.htm)



## **Want to put forest education in the social-media telescope?**

ITTO, the Food and Agriculture Organization of the United Nations and the International Union of Forest Research Organization invite students, teachers, professors and school administrators from now until the end of January 2021 to promote the Global Forest Education Project on social media by doing the following:

- Using a phone or other video recording equipment, take a short video (less than 30 seconds) of yourself. Start with a short introduction (name, affiliation, country) and then, in a sentence or two in very simple language, explain why forest education is so important.

Examples—

"Forest education is vital for training the next generation of foresters to sustainably manage the world's forests and the many benefits they provide for people, animals and the environment."

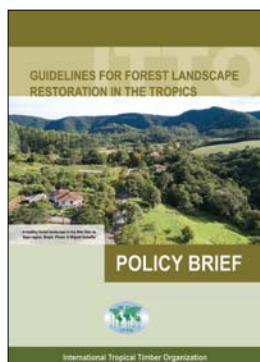
"Forest education is important to help address misconceptions around forestry and maximize the contributions of forests and trees to sustainable development."

- Upload the video to your own social media channels, and don't forget to include the project hashtag, #GlobalForestEducation, in your post.
- Tag us on Twitter and Facebook, as well as any regional, national or local associations you think might be interested in the project. Helpful tags:
  - Twitter: @FAOForestry @itto\_sfm @IUFRO
  - Facebook: @ITTOSFM @IUFRO
- Send us an email at [NFOI@fao.org](mailto:NFOI@fao.org) with links to your post so we can help disseminate and share with partners!
- Regardless of whether you post them on social media, we encourage you to share the videos with us directly by email at [NFOI@fao.org](mailto:NFOI@fao.org) via WeTransfer ([wetransfer.com](http://wetransfer.com)) for potential promotion on the social media accounts listed above. A compilation of the videos will be assembled and used for promotion, including at the International Conference on Forest Education to be held in Rome, Italy (date to be confirmed).

More information on the Global Forest Education Project is available at [www.fao.org/forestry/forest-education](http://www.fao.org/forestry/forest-education)

# Recent editions

Compiled by  
Ken Sato



**ITTO 2020. *Guidelines for forest landscape restoration in the tropics. Policy brief.*** ITTO, Yokohama, Japan.

**Available online:**  
[www.itto.int/policy\\_papers](http://www.itto.int/policy_papers)

This policy brief summarizes ITTO's recently published *Guidelines for Forest Landscape Restoration in the Tropics* with the aim of helping policymakers, practitioners, community-based organizations and others to put forest landscape restoration (FLR) into practice in

the field. The brief outlines the six FLR principles and their associated guiding elements, summarizes some of the lessons learned, and proposes immediate actions for assisting uptake of the guidelines.



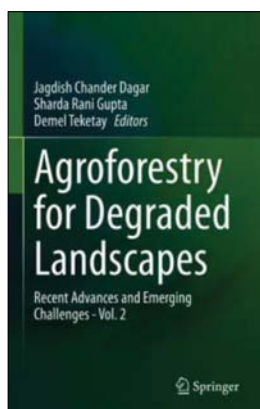
**FAO 2020. *Forests for human health and well-being. Forestry Working Paper No. 18. Food and Agriculture Organization of the United Nations (FAO), Rome.***

**ISBN: 978-92-5-133444-7**

**Available online:** [www.fao.org/documents/card/en/c/cb1468en](http://www.fao.org/documents/card/en/c/cb1468en)

This publication examines the linkages between forests and human health and makes recommendations

for creating an enabling environment in which people can benefit from such linkages. Designed for practitioners and policymakers in fields such as forestry, food security, nutrition, health, and land-use and urban planning, the paper aims to stimulate interest in cross-sectoral collaboration among a new set of stakeholders and thereby help unlock the potential of forests for improving human wellbeing.



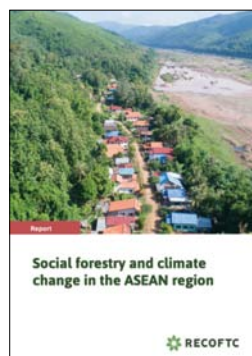
**Dagar, J.C., Gupta, S.R. & Teketay, D. (eds.) 2020. *Agroforestry for degraded landscapes.*** Springer, Singapore.

**ISBN: 978-981-15-4135-3**

**Available online:**  
[www.springer.com/gp/book/9789811541353](http://www.springer.com/gp/book/9789811541353)

This book presents various aspects of agroforestry research and development, as well as the latest trends in degraded landscape management. It examines temperate and tropical agroforestry systems

around the world, focusing on traditional and modern practices and technologies used to rehabilitate degraded lands. It covers the latest research advances, trends and challenges in the use and reclamation of degraded lands, including urban and peri-urban agroforestry, the reclamation of degraded landscapes, tree-based multi-enterprise agriculture, the domestication of high-value halophytes, the afforestation of coastal areas, and mangrove conservation.



**RECOFTC 2020. *Social forestry and climate change in the ASEAN region: situational analysis 2020.*** RECOFTC, Bangkok.

**ISBN 978-616-8089-28-6**

**Available at:** [www.recoftc.org/sites/default/files/publications/resources/recoftc-0000379-0001-en.pdf](http://www.recoftc.org/sites/default/files/publications/resources/recoftc-0000379-0001-en.pdf)

This is the final report in a four-part series documenting the changing status of social forestry in the

Association of South East Asian Nations (ASEAN) region since 2010. The reports were prepared for decision-makers in ASEAN member states across all sectors. Their purpose is to demonstrate the role social forestry plays in climate-change mitigation and adaptation.



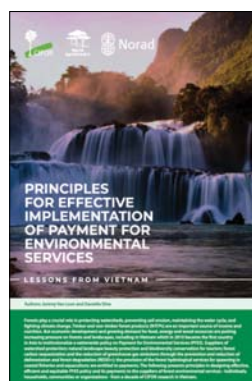
**FAO & UNEP 2020. *The state of the world's forests 2020: forests, biodiversity and people.*** Rome.

**ISBN: 978-92-5-132419-6**

**Available at:** [www.fao.org/documents/card/en/c/ca8642en](http://www.fao.org/documents/card/en/c/ca8642en)

Forests, which cover just over 30 percent of the global land area, provide habitat for the vast majority of the terrestrial plant and animal species known to science. But forests and the biodiversity they contain

are under threat from unsustainable exploitation—much of it illegal—and conversion to agriculture. *The State of the World's Forests 2020* assesses progress towards global targets and goals related to forest biodiversity and examines the effectiveness of policies, actions and approaches in terms of both conservation and sustainable development outcomes. Case studies provide examples of innovative practices that combine the conservation and sustainable use of forest biodiversity to create balanced solutions for people and the planet.



**Van Loon, J. & Silva, D. 2020. *Principles for effective implementation of payment for environmental services: lessons from Vietnam.*** CIFOR-ICRAF, Bogor, Indonesia.

**Available at:** [www.cifor.org/knowledge/publication/7821](http://www.cifor.org/knowledge/publication/7821)

Timber and non-timber forest products are important sources of income and nutrition for forest owners and managers, but economic development and growing demand for food, energy and wood

are putting increasing pressure on forest landscapes. Forests also generate a wide range of ecosystem services, such as watershed protection, natural landscape beauty protection, biodiversity conservation and carbon sequestration, and compensating forest owners and managers for supplying these could help ensure sustainable forest management. In 2010, Viet Nam became the first country in Asia to institutionalize a nationwide policy creating a payment scheme for certain forest ecosystem services. This publication presents principles for designing effective, efficient and equitable payment schemes for forest ecosystem services drawn from a decade of research in Viet Nam.

# Meetings

## ITTO meetings

**23–26 August 2021**

**4th World Teak Conference: Global Teak Market: Challenges and Opportunities for Emerging Markets and Developing Economies**

Accra, Ghana

More: [www.worldteakconference2020.com](http://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.

**2–7 November 2021**

**57th Session of the International Tropical Timber Council and Sessions of the Associated Committees**

Yokohama, Japan

More: [www.itto.int](http://www.itto.int)

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.

**Postponed—new dates to be confirmed**

**International Conference on Forest Education**

Rome, Italy

More: [tetra@itto.int](mailto:tetra@itto.int)

This conference will address the problems and challenges in forest education by analyzing relevant ongoing forest-education initiatives, approaches and key players. It will assess ways forward for enhancing forest education and develop a long-term vision and strategic plan to coordinate international efforts to advance forest education, including through an online platform. The conference is being co-organized by ITTO, the Food and Agriculture Organization of the United Nations and the International Union of Forest Research Organizations within the Collaborative Partnership on Forests, with financial support from the German Federal Ministry of Food and Agriculture.

## Other meetings

**Second quarter 2021**

**(dates to be confirmed)**

**15th Meeting of the Conference of the Parties (COP 15) to the Convention on Biological Diversity**

More: [www.cbd.int/meetings/COP-15](http://www.cbd.int/meetings/COP-15)

**28–30 April 2021**

**16th Session of the UN Forum on Forests**

New York, USA

More: [www.un.org/esa/forests](http://www.un.org/esa/forests)

**2–7 May 2021**

**16th International Peatland Congress 2020**

Tallinn, Estonia

More: [www.ipc2020.com](http://www.ipc2020.com)

**5–8 May 2021**

**Forestry: Bridge to the Future**

Sofia, Bulgaria

More: <https://conf2020.forestry-ideas.info>

**Postponed—new dates to be confirmed**

**XV World Forestry Congress**

Seoul, Republic of Korea

More: [wfc2021korea.org](http://wfc2021korea.org)

**26–28 May 2021**

**Carrefour International du Bois**

Nantes, France

More: [www.timbershow.com](http://www.timbershow.com)

**31 May–4 June 2021**

**Biological Invasions in Forests: Trade, Ecology and Management**

Prague, Czechia

More: <https://iufro.v2.czu.cz/en>

**2–4 June 2021**

**Socio-ecological Conflicts in Forest Management: Risks of (not) Adapting?**

Nancy, France

More: <https://workshop.inrae.fr/iufro-risk-analysis-nancy>

**15–17 June 2021**

**60th Meeting of the Global Environment Facility Council**

Washington, DC, USA

More: [www.thegef.org/council-meetings](http://www.thegef.org/council-meetings)

**30 June–1 July 2021**

**Treescapes 2020**

Birmingham, UK

More: [www.birmingham.ac.uk/facilities/mds-cpd/conferences/forest/index.aspx](http://www.birmingham.ac.uk/facilities/mds-cpd/conferences/forest/index.aspx)

**15–17 July 2021**

**10th International Wood Construction Forum**

Paris, France

More: [www.forumboisconstruction.com/index\\_E.php](http://www.forumboisconstruction.com/index_E.php)

**9–12 August 2021**

**World Conference on Timber Engineering 2020**

Santiago, Chile

More: <https://wctc2020.com>

**16–19 August 2021**

**20th Commonwealth Forestry Conference**

Vancouver, Canada

More: <https://cfc2021.ubc.ca>

**31 August–4 September 2021**

**12th European Conference on Ecological Restoration**

More: [www.fao.org/in-action/forest-landscape-restoration-mechanism/news-and-events/events-detail/en/c/1258817](http://www.fao.org/in-action/forest-landscape-restoration-mechanism/news-and-events/events-detail/en/c/1258817)

**1–12 November 2021**

**2021 UN Climate Change Conference**

Glasgow, Scotland, UK

More: <https://ukcop26.org>

**10–13 November 2021**

**AUSTIMBER 2020**

Victoria, Australia

More: [www.austimber.org.au](http://www.austimber.org.au)

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

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

