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A resilient ITTO for turbulent times

Ecotourism in Sarawak,
Costa Rica's balsa wood,
Monitoring Thailand's forests,
Orchids of Myanmar

Interview with Frances Maplesden on the new ITTO publication on plywood conversion factors

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Cover image: A proboscis monkey (*Nasalis larvatus*) climbs a tree in Kota Belud Weston Wetland Park in Sabah, Malaysia. © New Yee Leong/MTCC

Photo: Ye Lwin Aung

EDITORIAL

A resilient ITTO for turbulent times

Resilience has long been a buzzword in ITTO circles. For anyone concerned with tropical forests, it evokes sustainably managed, tree-rich ecosystems with the health and vibrancy to deliver timber and many other benefits over the long term, despite the impact of climate change and other stressors.

Now resilience is gaining wider significance for the Organization and its members, as economic and political uncertainty clouds the outlook for international trade in timber and related products and raises questions about the global pursuit of equitable and sustainable development.

Just as governments must find answers to disrupted trade relations and falling economic growth forecasts, so ITTO must demonstrate its own resilience. That means continuing to deliver practical, effective solutions that help authorities, businesses and communities—many still recovering from the COVID-19 pandemic and the subsequent cost-of-living crisis—to thrive in tough conditions.

These challenges were already looming when the International Tropical Timber Council held its 60th session in December 2024 to take stock of the situation facing tropical timber producer and consumer countries and to plot a course for the Organization.

As described in our lead article on p.4, the Council made pivotal decisions about ITTO's future, including by extending the term of its Executive Director Sheam Satkuru and preparing for the negotiation of a new International Tropical Timber Agreement.

Ms Satkuru, who was appointed in December 2021 and will now serve until January 2028, assured Members of her motivation to lead the Organization through "these difficult times."

The difficulties were evident at several points in the Council's deliberations, including its annual "Trade and Markets Day" discussion of the conditions facing the tropical timber sector, such as high shipping costs and the impact of legislation such as the EU Deforestation Regulation.

But so were the moves toward solutions: the Council also took important decisions on new projects and approved ITTO's programmatic and fund-raising activities.

A concrete example of how ITTO helps safeguard the resilience of tropical forests facing disruption is showcased on p.10, where Chakrit Na Takuathung, Yongyut Trisurat and Tetra Yanuariadi describe how forests in Thailand have come under pressure from the arrival of thousands of refugees and asylum-seekers from neighbouring Myanmar.

ITTO implemented a project to strengthen forest surveillance and monitoring, and provide more livelihood options in order to make the use of the forest in the mountainous border region more sustainable.

Reducing pressure on natural forests while meeting rising demand for timber and wood products was also the goal of ITTO research carried out under very different circumstances in Costa Rica.

Researchers Olman Murillo, Yorleny Badilla, Róger Moya and Mario Guevara describe on p.16 how they identified Balsa (*Ochroma pyramidale)* as a timber species with the potential to boost commercial reforestation in the country, especially with genetic improvement.

More knowledge-building work is described on p.22, where Frances Maplesden, co-author of a new ITTO publication that provides conversion factors for tropical veneer and plywood, explains why accurate trade volume data is so important to the tropical timber trade.

Away from the sharp end of the commercial timber trade, communities living in tropical forests become better stewards of those ecosystems when they recognize how they can support improved—and more resilient—livelihoods.

On p24, for example, Evelyn Jugi tells how an ITTO project in Sarawak, Malaysia is showing Indigenous communities how they can tap ecotourism to generate additional and reliable income and maintain their cultural identity.

Global market strains resurface in our regular market trends feature p.28, where Mike Adams shows how the woes of housing markets in key economies damped global demand for tropical timber in 2024.

Wrapping up with more research, ITTO Fellow Ye Lwin Aung plots the development of an identification guide for the dazzling diversity of orchids within and beyond the vextensive tropical forests of Myanmar p.34.

Taken together, the articles in this edition of TFU show not only the breadth of the challenges facing tropical forests but also the range of tools that ITTO and others have developed to address them—a toolkit likely to be more in demand than ever in a constantly changing world.

ITTO Executive Director Sheam Satkuru addresses the Council, which extended her term until January 2028.
© Alexander Knapp

ITTC looks to the future

As ITTO navigates a period of turbulence in the tropical timber sector, its governing body made critical decisions on leadership and the fundamental basis of the Organization

by ITTO Secretariat

During its 60th session, the International Tropical Timber Council (ITTC) made pivotal decisions as it looks to the future, including extending the term of the ITTO Executive Director and preparing for the negotiation of a new International Tropical Timber Agreement (ITTA).

The Council, ITTO's governing body, meets once a year to discuss a wide-ranging agenda aimed at promoting sustainable tropical forest management and the trade of sustainably produced tropical timber. About 180 delegates and observers attended its most recent session on 2–6 December 2024 in Yokohama, Japan, for discussions on global timber market developments and ITTO's performance and prospects.

In a unanimous decision, the Council extended the term of appointment of ITTO Executive Director Sheam Satkuru by two years to 31 January 2028. Several ITTO members congratulated Ms Satkuru and praised her leadership, highlighting her team-oriented approach, enhancement of collaborative partnerships, and fundraising efforts.

The delegation of Côte d'Ivoire at the 60th session of ITTC.
© Paula Sarigumba/ITTO

The traditional drum group, Odawara Hayashi Tako Hozonkai, performed at the opening of the 60th ITTC session.
© Alexander Knapp

"We have achieved a lot, but we have a lot more to pursue," Ms Satkuru said, referring to ITTO's 38-year history. "I want to clearly indicate the energy I still have, the drive I still have. I want to lead the Organization through these difficult times."

The Council also approved several projects and authorized the financing of projects, pre-projects and activities with a total value of USD 4.3 million through voluntary contributions from members. One project—on the conservation of African barwood *(Pterocarpus erianceus)* in Côte d'Ivoire[1]—was fully funded at the session, while several others received partial funding.

Another important decision involved the ITTA 2006, particularly the negotiation of a new ITTA to replace the current agreement, which expires on 6 December 2029. The decision extends the mandate of a Preparatory Working Group for the negotiation process until the 61st Council session in October 2025 in Panama.

The Council also decided to uphold ITTO's Programmatic Approach and four Programme Lines, which until now have been in a pilot phase as part of the Organization's fundraising strategy for the implementation of approved projects and activities.

A fifth decision supported the process to secure observer status for ITTO in the UN General Assembly. This move will improve ITTO's access to high-level international meetings and support its engagement with external bodies and funding mechanisms.

[1] Project PD808/16 Rev.5 (F)

Call for unity

Earlier in the five-day session, ITTO working groups, experts, and officials discussed developments at the Organization and in the tropical timber industry.

At the opening plenary, after a pre-session cultural programme involving Japanese puppetry, origami and drumming, ITTC Chair Anna Tyler of New Zealand urged ITTO members to unite in prioritizing the importance of sustainably managed tropical forests and the role of ITTO.

Ms Tyler pointed out that many Council delegates are also involved in conferences of the parties to the biodiversity and climate conventions, and their discussions of ever-increasing pressures on biodiversity, natural resources and the environment.

"Those pressures, and increasing political tensions globally, highlight the need, but also the opportunity, for us to come together here around our common purpose," Ms Tyler said. "The crucial role of tropical forests in ensuring a sustainable future is undeniable. But if we are to seize the opportunities ahead of us, we need a strong Organization."

Market challenges

The traditional "Trade and Markets Day" on the second day of the session featured presentations on "production and trade: rising costs and weakening demand" and on the impact of new European Union regulation to combat deforestation.

With the sector suffering from skyrocketing shipping costs and negative consumer perceptions, the Trade and Advisory Group (TAG) called on ITTO to focus on rebuilding demand for tropical timber by communicating the "tremendous progress" producers have made on timber traceability, legality and sustainability.

Shipping costs increased ten-fold immediately after the pandemic and were still five times higher than they were earlier, according to the TAG statement, with shippers blaming the war in Ukraine and difficulties in the Red Sea.

Compounding this problem, according to TAG, is the lack of information in traditional markets on the progress tropical timber producers are making towards sustainable forest management.

TAG referred to the Global Legal and Sustainable Timber Forum, which was created in 2023 by ITTO and the Macao Commerce and Investment Promotion Institute. This year, the Forum launched an 'action framework' to strengthen collaboration along timber supply chains, promote the development of the industry, contribute to the Sustainable Development Goals, and combat climate change.

"Together, we can create a narrative that demonstrates what we all know—that wood is sustainable, that trade benefits forests, and that together, we can protect tropical forests for the future," TAG said.

In a presentation on the EU Deforestation Regulation (EUDR), CIFOR-ICRAF Chief Operating Officer Robert Nasi described key risks and opportunities for producer countries arising from the regulation. The EUDR, which aims to combat deforestation resulting from the production of timber and other major commodities, was adopted in 2023 and has been subject to considerable discussion at previous Council sessions.

Mr Nasi said uncertainties remained about the EUDR, particularly around proposed amendments. Implementation of the regulation has been delayed, but it is now expected to come into force at the end of 2025.

Ashley Amidon of the International Wood Products Association, United States of America, delivers the statement of the Trade Advisory Group on Trade and Markets Day. *© Paula Sarigumba/ITTO*

Restoration guidelines

The Civil Society Advisory Group (CSAG) urged ITTO to accelerate support for community-led implementation of its Guidelines for Forest Landscape Restoration in the Tropics.[2]

In a statement issued during a CSAG-hosted discussion panel, the Group said the guidelines could increase the effectiveness of restoration efforts and ensure that communities benefit from them. The guidelines, published in 2020, are a technical guide on tropical forest restoration that can be adapted to the needs and capacities of users.

The panel, comprising community-based speakers from the three tropical regions, was convened to highlight the importance of community-led restoration and the policies needed to ensure financial inclusion, sustainable use and women's empowerment.

Christine Wulandari, a CSAG representative, highlighted the positive impact of women's involvement in forest restoration decision-making in Indonesia. *© Paula Sarigumba/ITTO*

During the event, the MALEBI Women's Association, a women's group in Côte d'Ivoire, presented an award honouring Ms Satkuru for her role in promoting women in forestry and in appreciation of ITTO's support. A small ITTO grant to MALEBI in 2009 led to a larger ITTO project in 2016 to restore a 100-hectare area in the Ahua gazetted forest to ensure a continuous supply of wood for charcoal production. This in turn led to a large World Bank project in 2018 with an estimated 345 000 beneficiaries.

"Together, we can create a narrative that demonstrates what we all know—that wood is sustainable, that trade benefits forests, and that together, we can protect tropical forests for the future"

TRADE AND ADVISORY GROUP (TAG)

[2] Available at: www.itto.int/policy_papers

Fire brigade training in Peru as part of an ITTO project to strengthen the management of tropical forest fires. *© SERFOR*

Fire management

A highlight of the third day of the Council involved an evaluation of successfully completed ITTO projects in Peru and Indonesia to strengthen the management of tropical forest fires. The projects, both funded by the Government of Japan, facilitated training and worked with local communities and other stakeholders to build up fire prevention and response networks and strengthen coordination among different levels of government, consultant Lucy Amissah told delegates.

Lessons learned from the projects will inform the development of guidelines under an ongoing initiative involving ITTO and other members of the Collaborative Partnership on Forests (CPF) to encourage wider uptake of integrated fire management in tropical forests. The guidelines will build on the ITTO Guidelines for Fire Management in Tropical Forests,[3] which were published in 1997.

Cooperation and collaboration with other organizations was also on the agenda on day three, with ITTO providing an update on its many initiatives with members of the CPF and other international bodies.

For example, Ms Satkuru informed the Council that ITTO had been officially accredited by the Green Climate Fund. ITTO was also operationalizing memoranda of understanding with the Convention on Biological Diversity, the Asian Forest Cooperation Organization, the Japan International Cooperation Agency, the UN Convention to Combat Desertification, the UN Forum on Forests, and the Institute for Global Environmental Studies.

[3] Available at: www.itto.int/policy_papers

Industry outlook

The penultimate day of the session featured a presentation based on an upcoming ITTO report on production and trade of tropical forest products and the status of tropical forests in ITTO member countries for 2023 and 2024.

The report author, consultant Frances Maplesden, described how trade in most tropical wood products declined significantly in 2023 in response to a slowdown in economic growth in most consumer economies, a cost-of-living crisis caused by inflationary pressures, and a slowdown in China's property sector.

Ms Maplesden said that despite positive signs of a rebound in trade in 2024 and 2025, uncertainties clouded the outlook, including geopolitical conflicts and tensions, the emergence of protectionist trade policies in consumer countries, the risk of a deeper contraction in China's property sector, and the impacts of the EUDR.

Takinami Hirofumi of Japan's Ministry of Agriculture, Forestry and Fisheries addresses the Council. Japan is one of ITTO's most important donors as well as its host country. *© Paula Sarigumba/ITTO*

Also on day four, donors announced new funds to support ITTO's work, bringing the total committed in 2024 to about USD 4.33 million. Of this amount, Japan contributed USD 1.79 million, China, Macao SAR USD 1.54 million, the United States of America USD 555 000, the Republic of Korea USD 119 000, Australia USD 105 000, and Canada USD 37 000.

Meanwhile, the Fellowship Selection Panel recommended that the Council award 19 fellowships in 2024, enabling applicants to undertake activities such as ground-truthing teak plantations in Panama, a master's programme in natural resource management in Thailand, and PhD research on agroforestry in southwest Togo.

Looking forward

On the fifth and final day of the session, apart from making its five major decisions and adopting the reports of various ITTO committees, the Council welcomed Carlos Espinosa Peña of Panama as the incoming Chairperson for 2025.

In her closing address, Ms Tyler, outgoing Chairperson, expressed satisfaction with the outcomes and processes of the session and encouraged members to take the goodwill exhibited during the session forward into 2025.

> **"This year, it feels that we have all been moving in the same direction, and that is greatly encouraging for the future of the Organization,**
>
> ANNA TYLER, OUTGOING CHAIRPERSON

The outgoing (Anna Tyler) and incoming (Carlos Espinosa Peña) chairpersons of the ITTC. *© Paula Sarigumba/ITTO*

Detailed coverage of the Council session, including official documents and presentations, is available at: www.itto.int/ittc-60/

Daily coverage of the session by IISD reporting services is available at www.enb.iisd.org/ittc60-international-tropical-timber-council.

Community forest members and Royal Forest Department officers attend training on forest monitoring systems.
© Chakrit Na Takuathung

Surveillance and sustainability in Thailand's borderlands

A recently completed ITTO project has strengthened monitoring and livelihoods to make the use of forests near the Thai border with Myanmar more sustainable

by Chakrit Na Takuathung[1], Yongyut Trisurat[1] and Tetra Yanuariadi[2]

Communities and the environment in Thailand's remote and mountainous northwest have come under increasing pressure because of the displacement of tens of thousands of people by the ongoing armed conflict in neighbouring Myanmar.

[1] Faculty of Forestry, Kasetsart University, Thailand (chakrit.n@ku.ac.th)
[2] ITTO Projects Manager

As of April 2025, an estimated 81,000 refugees and asylum-seekers were living in Thailand,[3] many of them in the frontier provinces of Tak and Mae Hong Son and housed in camps called Temporary Safety Areas (TSAs) run by the Thai military. Often lacking food, clean water, healthcare, and livelihoods, refugees have come to rely heavily on nearby forests for survival, collecting non-timber forest products (NTFPs) and other resources. This has fuelled deforestation and exerted additional pressures on the region's rich biodiversity.

Community forests, 279 of which are found in Tak and 191 in Mae Hong Son, are critical for the subsistence of both local and displaced populations. However, intensified forest use, illicit trade, and competition for limited resources are heightening tensions and threatening ecosystems. Climate-related stressors such as forest fires and flash floods have further exacerbated forest degradation and food insecurity.

To help address this complex crisis, ITTO implemented a project designed to strengthen surveillance and monitoring in and beyond community forests to counter the surge in forest loss and land degradation in the border areas.[4]

Funded by the Government of Japan's Ministry of Foreign Affairs and led by the Faculty of Forestry at Kasetsart University in Thailand, the project set the ambitious target of deploying a comprehensive, tech-enabled strategy to monitor forests, building local capacity, and promote sustainable livelihoods for targeted communities living near community forests—all in just nine months.

The project began by identifying areas at greatest risk of forest loss. Using GIS-based land-use change analysis for the period from 1990 to 2023, combined with predictive statistical models, the project team created a deforestation risk map. The map provided a basis for the targeting of subsequent surveillance and interventions. Notably, it confirmed that forest areas near roads, camps, and settlements—but far from ranger stations—were particularly vulnerable.

The team also aimed to develop a monitoring system that could provide real-time data, detect threats early, and support local enforcement efforts. This required bringing together technology, people, and policy in an integrated framework that had never been implemented before in community forests and forest reserves in Thailand.

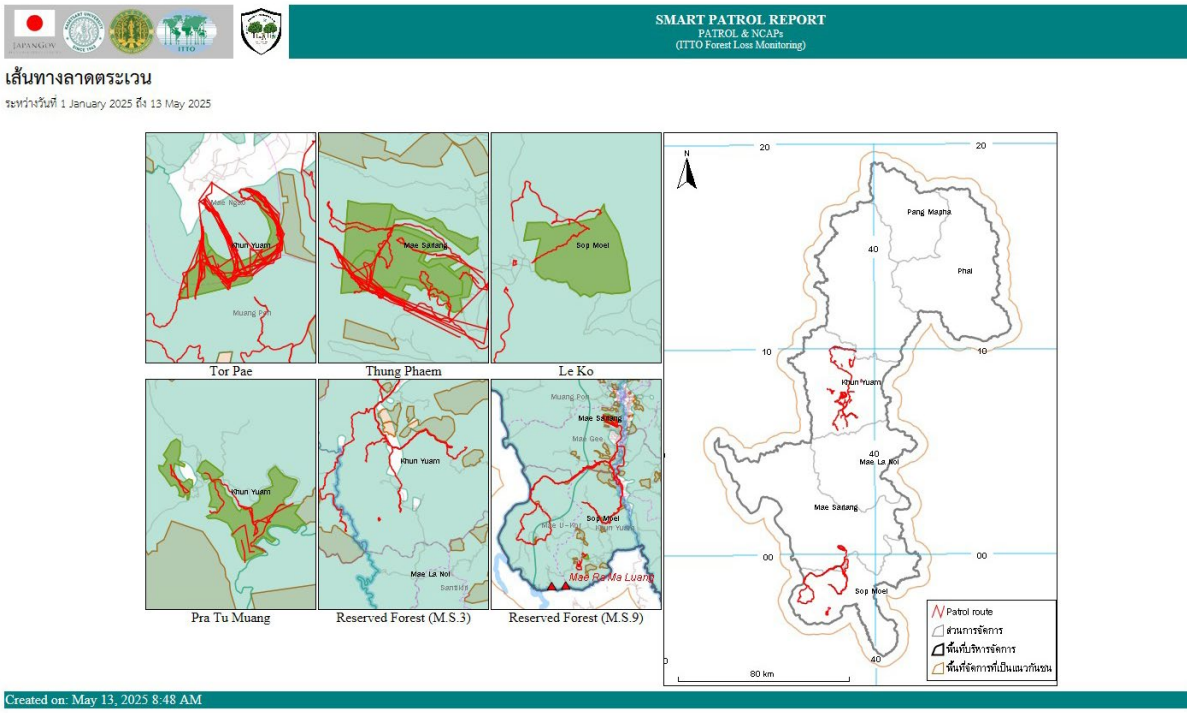
A trainer demonstrates the installation of a camera to monitor known poaching and illegal logging trails.
© Chakrit Na Takuathung

Protective technology

The surveillance system employed a blend of high-tech and low-tech tools designed to be accessible, replicable, and effective. Operated by trained local forestry officers, a drone provided aerial monitoring of hard-to-reach areas in at-risk zones, enabling them to capture imagery and video footage of illegal activities or environmental degradation that would otherwise have gone unnoticed.

The team also installed 15 Network Centric Ant-Poaching Systems (NCAPs) at hidden locations in four community forests and one forest reserve. The motion-activated cameras were strategically placed along known poaching routes and illegal logging trails and in high-biodiversity areas. In three months, the cameras captured more than 6000 images, some of which provided direct evidence and early warning of forest crimes. The images were transmitted to a central database and reviewed regularly by both forest department officials and community volunteers. Some of the evidence was used to arrest suspected poachers.

[3] https://data.unhcr.org/en/situations/myanmar
[4] PP-A/60-369 *"Strengthening surveillance and monitoring to tackle the surge in forest loss and land degradation, induced by intensifying conflict in Thailand's border areas"*



A page from the SMART PATROL dashboard showing the routes patrolled in different locations.

One of the most transformative tools introduced was the SMART PATROL system, a mobile application that allows rangers and trained community members to document their patrol routes, record observations, and submit georeferenced data in real time. Integrated with the drone and NCAPs data, SMART PATROL forms the backbone of a unified digital dashboard that aggregates forest health indicators across multiple sites.

The dashboard itself[5] is a powerful visualization tool. Users can generate many types of queries, view incident maps, and access data summaries for patrol routes, species sightings, and illegal activities. More than just a repository, the platform serves as a command centre for coordinating responses, planning interventions, and informing policy discussions at both local and national levels.

Training played a crucial role in the system's success. In October 2024, 37 local participants underwent hands-on workshops on drone operation, NCAPs camera use, and SMART PATROL reporting. The training emphasized not only technical skills but also environmental ethics and participatory governance. Community members learned how to maintain equipment, interpret data, and communicate findings to local authorities.

[5] The SMART Patrol dashboard can be accessed at www.itto-forestloss.org

Forestry department officials operating a drone as part of a strengthened monitoring system. *© Chakrit Na Takuathung*

Alternative income

Beyond surveillance, the project recognized the need to reduce pressure on forests by providing alternative sources of income. To that end, it launched a comprehensive livelihood development component aimed at both Thai villagers and displaced persons from Myanmar. Participants received training in:

- **Cultivation, harvesting, processing, and commercialization of bamboo and NTFPs.** Participants were introduced to the cultivation and marketing of konjac, a starchy root vegetable with export potential. Practical training on plant tissue culture was held for community members, teachers, and students, including essential skills in plant propagation. Topics covered included media preparation, sterilization, sub-culturing, and transplanting techniques. Additionally, two small

tissue culture laboratories were established at local primary schools to be used by the students. School administrators and teachers were very committed to maintaining and carrying on these activities.

- **Bamboo cultivation and biochar production.** This training emphasized modern applications of bamboo, the process of producing biochar, and its role in improving soil fertility and agricultural output. Participants gained hands-on experience and learned how biochar aligns with Thailand's goals for sustainable agriculture and a circular economy. The training also highlighted how communities could generate additional income while contributing to climate resilience and soil health. A few trainees became trainers themselves and shared their experiences with their neighbours and interested individuals and groups.
- **Sustainable resource use through a study visit to the Pha Taem Protected Area Complex**. Community representatives explored practical models of wild orchid domestication and sustainable use of forest products that were established in buffer zones near the protected areas under an earlier ITTO project.[6] They visited sites such as bamboo and malva nut plantations and orchid nurseries and participated in activities including stingless beekeeping, and handicraft production. The visit facilitated knowledge exchange and strengthened collaboration and partnerships between participating communities. It also inspired new ideas for enterprise development and demonstrated that economic gain and environmental stewardship can go hand in hand. For example, participants witnessed how bamboo plantations can provide raw materials for bamboo handicrafts production.

Capacity-building activities were tailored to local contexts. Instructors included both technical experts and community leaders from other regions with successful forest enterprise models. Each training session included practical exercises and follow-up mentoring. The project also provided some equipment and materials for pilot initiatives such as biochar production and tissue culture labs, enabling trainees to apply their skills immediately.

When technology is accessible, communities are engaged as partners, and conservation efforts align with economic benefits, and meaningful progress is possible

[6] For example, PD577/10 Rev.1 (F) *"Management of the Emerald Triangle protected forests complex to promote cooperation for transboundary bio-diversity conservation between Thailand, Cambodia and Laos (Phase III)"*.

Meeting the deadline

By the end of the project in March 2025, all planned activities had been successfully completed—a remarkable achievement given the condensed timeline. The surveillance system was fully operational in five forest areas with local patrols actively using SMART PATROL, NCAPs cameras continuing to capture critical data, and drone monitoring becoming a routine part of forest department field operations in Mae Hong Son. Most importantly, communities were engaged, trained, and empowered and are confident in using modern technologies for forest protection.

In total, the project directly trained more than 70 people, including members of local communities and governments, and youth. Indirectly, it reached hundreds more through public awareness campaigns, school visits and village meetings.

Sustainability was built into every aspect of the initiative. All training materials were produced in both Thai and English. Manuals and tutorial videos were distributed digitally and in print, and made available to download. Equipment was handed over to local institutions with maintenance guidelines. The tissue culture activities were attached to a local school curriculum.
The biochar stove provided by the project was installed at the village learning centre, with minimum support from the project.

The final stakeholder workshop in March 2025 marked the end of the project and set the stage for potential next steps. Participants from regional forestry department offices and community forests across Thailand discussed how the model could be scaled up, integrated into national forest monitoring systems, and supported through long-term funding options such as carbon credits, biodiversity offsets, and public-private

Community forest members, teachers and students watch as a trainer demonstrates tissue culture in a school laboratory established by the project. *© Jenjira Fungjanthuek*

Community forest members from Mae Hong Son during a study visit to learn about natural silk dyeing using forest materials such as tree bark. *© Jenjira Fungjanthuek*

partnerships. The project also drew interest from regional organizations exploring similar approaches in other forest areas affected by conflict.

Some challenges persisted. Some community members raised privacy and enforcement-related concerns about the use of surveillance tools such as camera traps and drones. Open communication and transparency played a key role in addressing these issues. In the field, technical glitches, rugged terrain, and unpredictable weather occasionally interfered with data collection. Adaptability and local ingenuity, however, kept the project on track, and the forests of Tak and Mae Hong Son are now better monitored, better understood, and better protected—not by outside experts alone, but primarily by the people who call these places their home.

The project demonstrated that when technology is accessible, communities are engaged as partners, and conservation efforts align with economic benefits, meaningful progress is possible. As pressures on tropical forests continue to grow both inside and outside the country, this model offers a practical approach that supports both environmental goals and community resilience.

The project PP-A/60-369 "Strengthening surveillance and monitoring to tackle the surge in forest loss and land degradation, induced by intensifying conflict in Thailand's border areas" was made possible by funding from the Government of Japan.

Community forest members learning about handicrafts during their study visit to Mae Hong Son. *© Chakrit Na Takuathung*

© Ramón Carillo/ITTO

Can balsa lift Costa Rican plantations?

To boost commercial reforestation in Costa Rica, an ITTO project looked at the viability of balsa species and their potential genetic improvement

by Olman Murillo, Yorleny Badilla, Róger Moya and Mario Guevara

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Balsa *(Ochroma pyramidale)*, a species native to the tropical forests of the Americas, produces one of the lightest woods in the world. For woodworkers, its attraction lies in its softness, high strength-to-weight ratio and white colour, and it has found markets for products including scale models, model airplanes, thermal and sound insulation, and as filler in the blades of wind power generators (Vergara 2022).
As a pioneer species, balsa is highly adaptable to poor, acidic soils susceptible to compaction, which explains its high survival rate in commercial plantations. It grows fast so long as 625–800 trees are planted per hectare (with spacing of 4 m x 3 m to 4 m x 4 m) and timely thinning is carried out.

Even without genetic improvement, it is possible to achieve annual growth of 7–8 cm in diameter at breast height (DBH) and 6–7 metres in height (Levy-Tacher and Morón-Ríos 2024; Zambrano 2022). These growth rates make it possible to plan its final harvest in 4–5 years. With this short production cycle, it is reported that a commercial volume of approximately 100–125 m^3/ha can be obtained (Garro et al., 2025).

In Costa Rica, low planting costs of USD 2000–2500/ha and easy management provide an opportunity to invest in balsa production, provided the sale of the timber in the market can be guaranteed.

Given growing interest in its production, an extensive seed collection programme was carried out in natural balsa populations of the Pacific and Caribbean regions in 2022 as part of an ITTO project[1] to support commercial reforestation in Costa Rica.

The collected seed was used to launch a genetic improvement scheme and develop an improved seed source. Research was also carried out on balsa growth rates, productivity, spacing, and silvicultural management.

Balsa cultivation

Based on experience gained in the Northern and Caribbean regions of Costa Rica, the project developed a technical manual with baseline information for planting and field management of balsa. An extensive survey of balsa plantations was carried out in both regions to gather growth and yield data and details of best silvicultural practices (Garro et al. 2025).

In general, it has been observed that the ideal initial spacing ranges from 4 m x 3.5 m (714 trees/ha) to 4 m x 4 m (625 trees/ha). Weed control is required during approximately the first 9 to 12 months; from this age and with these spacings, tree crowns successfully close the upper canopy, mostly suppressing the growing of weeds. This facilitates and reduces plantation maintenance costs.

Trifurcation occurs in the fastest growing trees at 7 months of age or at the beginning of the rainy season. At 9 months, 67% of trees already show the first trifurcation at an average height of 3.7 m. The first silvicultural intervention should be early shaping and pruning to increase the marketable height of trees. The two branches with the smallest size and worst position in the trifurcation are removed, leaving the most dominant branch to take over as the main stem. There are also individuals with high apical dominance, which suppresses the appearance of branches for a longer period and produces a branch-free stem up to 6–7 m in height. The second trifurcation appears at approximately 15 months at an average height of 6.8 m, which generally defines the commercial height of the trees.

[1] PD 849/17 Rev.2 (F) *"Increasing Commercial Reforestation Competitiveness in Costa Rica"*

It has been observed that under conditions of high competition, diameter growth of balsa trees is drastically reduced. Therefore, balsa can be grown in two ways:

1. Without thinning and harvested after 3.5–4 years. This can be done by planting at a spacing of 4 m x 4 m (625 trees/ha) or 4 m x 5 m (500 trees/ha). This modality seeks to obtain timber and income in a shorter cycle. With sound genetic material that guarantees good growth and stem quality, this option could be the most suitable.
2. With thinning at 18–24 months and harvesting at 4.5–5 years. In this case it can be planted at a spacing of 4 m x 3.5 m or 4 m x 4 m. With thinning, it is possible to generate early income first and stimulate the remaining stand to continue at a good growth rate. The effect of thinning will be to increase the total commercial volume with fewer, better-quality and higher-value trees. This thinning option makes sense in the absence of a good seed source to ensure tree quality.

Density in older wood tends to increase and, since it is an essential factor in the balsawood market, the timber should be harvested at the youngest possible age.

Balsa can be processed into different wood products.
© Ramón Carillo/ITTO

Tree improvement

For the tree improvement programme, a provenance/progeny genetic test was carried out at the TEC campus in San Carlos (Northern Zone) with seed from 40 mother balsa trees (families) of seven native provenances across the country. Seedlings were carefully tagged and planted, following a double tree plot genetic test design (Murillo and Badilla 2024). Two trees per family were planted at 4 x 2m spacing in each of 15 blocks, to promote early genetic expression and faster selection.

As a fast-growing tree that can be harvested after just four years, genetic selection of balsa can occur any time after half of the rotation age (Resende et al., 2018). At this point, the diameter at breast height and first two trifurcation heights were measured aiming to estimate commercial volume. A genetic ranking was established for each productive variable (trait), to determine the best families (mother tree) and best trees within families, to be selected as a new seed source for

the country. Genetic gain estimates were obtained for each of the commercial traits (Table 1), based on the best selections. Heritability parameters are indicators of the degree of genetic control or inheritance potential. Values above 0.20 for individual heritability and above 0.50 for family heritability can be considered as very high, showing great potential for genetic progress through selection. Meanwhile, a variance coefficient within and between families of above 10% indicates very high genetic variability and very high potential for breeding.

Table 1: Genetic parameters of balsa *(Ochroma pyramidale)* from provenance/progeny trial at 22 months of age

	Diameter	Trifurcation height	Commercial volume
Individual heritability	0.40	0.619	0.36
Family heritability	0.78	0.887	0.76
Genetic variance within family (%)	12.67	18.40	23.90
Genetic variance between families (%)	6.33	9.12	11.94
Average expected genetic gain for best 20 trees vs. average for all trees	**16.45cm**	**3.44m**	**0.087m^3**
Potential gain from seed selection (%)	**20**	**43**	**42**

Thus, using this carefully selected seed could boost the viability of balsa plantations, with trees reaching the desired harvestable diameter one year earlier than under the typical five-year rotation.

The potential gain in commercial volume is even more significant; a plantation producing 100 m^3/ha at the end of a 4- or 5-year rotation could increase that figure to 140 m^3/ha by using this improved seed.

At 43%, the potential gain in trifurcation height is also extremely high. This implies that the average height of trifurcation emergence could increase from 3.44 metres to about 4.90 metres, further boosting the commercial value of harvested timber.

Improving wood properties

The market for balsawood is based on its low density with values preferably less than 0.20 gr/m^3 (Ortiz 2018). Table 2 shows the results obtained from testing wood samples from all 40 families in the provenance/progeny test for density, and also for growth stress and pith diameter – key wood properties related to sawmilling yield for lumber production. The tests showed high variability and inheritance in the three properties and therefore very high potential for selection of trees with lower density, lower growth stress and smaller pith diameter.

Eighteen-month-old balsa logs subjected to a cracking test, Northern Region of Costa Rica. *© Róger Moya*

The tests showed large variation in the three properties. Pith diameter exhibited large variation according to the genetic origin of the mother trees and potential problems for sawmilling. Conversely, crack width showed moderate values. Overall, the high values for the variance coefficient indicates high potential for selection to improve these three properties.

Table 2: Study on wood density, crack width and pith diameter in balsa at 18 months, San Carlos, Northern Region of Costa Rica

Parameter	Basic specific weight (g/m^3)	Crack width (mm)	Pith diameter (cm)
Average	0.13	42.75	2.31
Maximum	0.19	56.00	4.40
Minimum	0.11	32.00	1.74
Variance coefficient (%)	11.79	14.07	20.06

Growth model

The project also developed a balsa growth model, adjusted for soil and climate conditions in the Caribbean and Northern regions, and based on spacings ranging between 3.5 m x 4 m to 4 m x 4 m. Both regions experience rainfall of 3500 mm to 4000 mm, which stimulates continuous growth.

Table 3 shows expected growth rates with the use of non-improved seed indicating that, under good management conditions, balsa tree diameter can grow on average at a rate of 7 cm/year. The model was validated and will be further enhanced with future measurements.

Table 3: Growth rates of balsa *(Ochroma lagopus)* in plantations in the Northern and Caribbean regions of Costa Rica

Age (years)	DBH (cm)		
	Low	Mean	High
1	8.20	8.93	10.49
2	14.20	16.14	17.77
3	19.00	22.82	25.05
4	24.00	29.18	32.33
5	27.00	35.31	39.61

These growth rates exceed those reported in other studies for a similar age (Levy-Tacher and Morón-Ríos 2024), which is possibly explained by good management of planting density, with a first thinning of 50% at 18 months. At 22 months, more than 15% of trees had a DBH between 20 cm and 29 cm.

In trees with high apical dominance, trifurcation branches are suppressed, and a single axis is maintained, which continues to grow forming the commercial stem. In most cases, the second trifurcation is the one that determines the final commercial height of the tree. Table 4 shows the variation in trifurcation and total height at different ages.

Table 4: Total and trifurcation height in balsa plantation, Northern region of Costa Rica

	Total height in month 10 (m)	Total height in month 18 (m)	1st trifurcation height (month 10, m)	2nd trifurcation height (month 10, m)
Average	5.02	10.15	3.34	6.04
Maximum	7.90	12.18	6.30	10.80
Minimum	1.70	6.91	1.40	1.70
Variance coefficient (%)	26.26	9.73	24.20	33.98

Balsa is a low-cost crop because it is easy to plant, and has low mortality rates and early canopy development, which reduces the occurrence of weeds. Tables 5 and 6 show a cost model per hectare with a breakdown by item, including the costs of technical assistance and social charges. It includes labour costs of USD 700/month per person, or USD 1025/month including social charges and insurance.

Table 5: Balsa production costs (USD/ha) in a 4.5-year cycle, Northern region of Costa Rica (excluding administrative costs)

Year 1 Project formulation and management	34
Year 1 Site preparation and establishment (11 workdays)	1225
Year 1 Maintenance and pruning of trifurcation (month 7 to month 12) up to 4.5m high (10.5 workdays)	675
Year 2 Maintenance (one annual weed control exercise) (3 workdays)	160
Year 3 Maintenance (one annual weed control exercise) (2 workdays)	82
Year 4 Harvesting (4–4.5 years) (3.3 workdays)	135
Technical assistance	150
TOTAL	**2460**

A small or medium-sized producer could reduce costs to as little as USD 1800/ha by incorporating own labour in some activities. This value is slightly higher than the USD 1500/ha reported in Ecuador for the first year (Del Valle 2021), which did not include technical assistance and/or social charges.

In the model including social charges, the investment required in the first year is approximately USD 1890 (84% of total cost), while approximately USD 160 (7%) is required in the second year, together accounting for more than 90% of total balsa plantation costs.

Table 6: Breakdown of costs per hectare of balsa plantation, Northern and Caribbean regions of Costa Rica

Activity	Cost (USD)	Share (%)
Technical assistance	150	6.15
Labour	1000	41.00
Inputs	1100	44.85
Tools	100	4.00
Services	100	4.00
TOTAL	**2450**	**100.00**

Inputs (including planting materials and weed control) and labour are the main expenses (Table 6). This cost model is based on experiences with small and medium-sized farmers for projects of less than 25 ha. For larger plantations, a 10% administrative cost should be included. In terms of financing needs, it was estimated that this is required during the first two years with an approximate value of USD 2150.

An outstandingly tall, straight and apically dominant 2.5-year-old balsa tree in a plantation in the Caribbean Region of Costa Rica. *© Olman Murillo*

Big potential

Balsa farming is a low-cost, short-cycle activity with great potential for timber production in Costa Rica. Its major limitation lies in the possibility of achieving timber sales in the market.

With unimproved seeds, the average annual growth rate in diameter is estimated at 7 cm, which means that harvesting can be performed in 4 to 5 years. However, the species has high potential for genetic improvement in growth, stem quality, commercial height and wood density. It is estimated that the use of genetically improved seeds can increase the productivity and value of the plantations by at least 30%, with a reduction of one year in harvesting time.

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Samples of lauan plywood, Wood and Plywood Museum, Shinkiba Koto City Tokyo. © *JC Claudon/ITTO*

Getting the numbers right

Frances Maplesden, co-author of ITTO's new publication *Tropical Veneer and Plywood: Description, Properties and Conversion Factors,* sat down with Paula Sarigumba, ITTO's Communications and Outreach Officer, to explain why accurate metrics matter in the global tropical plywood trade.

Frances Maplesden is an independent wood products trade and market analyst with more than 40 years of experience in researching global wood products markets and policy issues. Ms Maplesden was employed by ITTO from 2007 to 2010 as a statistician and economist with responsibilities including analysis of tropical timber markets and trade and project monitoring and appraisal, and has subsequently worked for the Organization as a consultant. From 1979 to 2007, she was employed by Scion, formerly the New Zealand Forest Research Institute.

Frances, thank you for joining us this afternoon in Yokohama. Can you tell us why accurate trade volume data is so crucial in the tropical wood products trade?

Accurate trade volume data is foundational for transparency and consistency. It's the standard unit used by international agencies—including ITTO—to track production and trade flows. Without accurate volume estimates, it becomes difficult to monitor trade, assess market trends, or enforce regulations effectively. Yet, many countries report only weight data which introduces challenges. That's where conversion factors come in—to help translate those units into meaningful volume data.

And ITTO has historically used a single conversion factor for tropical plywood?

Yes, ITTO has been using a single weight-to-volume conversion factor for all plywood species for about 30 years. But we've long suspected that this one-size-fits-all approach oversimplifies things. Other ITTO research on logs and sawnwood has already shown significant variation in conversion ratios between species and environmental conditions. So, we set out to dig deeper into what's really happening with plywood.

What was the aim of this new study?

Our goal was to improve the accuracy of volume estimates for tropical plywood by calculating more tailored theoretical conversion factors (CFs). We did this by analyzing the densities of both veneers and plywood from species commonly used in tropical plywood manufacturing. While data on wood densities is fairly abundant, we discovered that information on plywood densities is surprisingly limited.

Why is plywood density so complex to calculate?

Plywood is a multi-layered product. It's not uncommon for different species to be used in a single sheet. Typically, only the outer face is made from tropical species, while more economical plantation woods like eucalyptus, acacia, poplar, or pine are often used for the inner core. These cores—combined with heating, compression, and the use of adhesives—significantly alter the density of the final product.

What were some of the key findings?

We confirmed that a single CF for converting weight to volume can be improved on by taking into account different veneer species to calculate tailored conversion factors. For example, Malaysia often uses mixed light hardwoods, which are denser than the okoumé (*Aucoumea klaineana*) commonly used in Gabon. So, applying a single CF would misrepresent volumes depending on the country and species used. We also found that the density of the core plantation species often has a greater impact on overall plywood density than the tropical veneer used on the outer faces.

What's the practical outcome of this research?

The most important result is the development of a methodology and database that can be used to estimate plywood volumes more accurately from weight data, using species composition. It's a step toward more precise reporting and better-informed decision-making for governments, industry and researchers alike.

How do you hope the new publication will be used?

We hope it becomes a technical resource for those involved in trade statistics, customs, policy, and market analysis. With better tools to convert weight to volume, countries can report more accurately, and stakeholders across the supply chain can benefit from more reliable data.

Frances, thank you for sharing these insights and congratulations on the new publication.

Thank you. It's been a pleasure working with ITTO on this important topic.

The link to the new ITTO publication, *Tropical Veneer and Plywood: Description, Properties and Conversion Factors,* can be found in the Recent Editions section on page 40.

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Tapping the ecotourism potential of Malaysia's tropical forests

An ITTO Project in the Upper Baram region in Sarawak, Malaysia, inspires communities to see rich forest ecosystems as a source of sustainable livelihoods

By Evelyn Jugi

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Upper Baram, located deep within the interior of East Malaysia, is a region of rich cultural heritage and biodiversity. Home to various Indigenous groups, including the Kenyah, Penan, Saban and Kelabit communities, the region boasts scenic landscapes and a deep-rooted cultural legacy. These attributes make Upper Baram a promising site for community-based ecotourism (CBET), which is increasingly seen as a viable strategy to enhance livelihoods while conserving both culture and the environment.

CBET allows local communities to play an active role in managing tourism activities, thereby benefiting directly from tourism income and ensuring the protection of their natural and cultural resources. By choosing CBET, the Indigenous People of Upper Baram are not just adapting to modern challenges; they are becoming proactive stewards of their land, shaping a future where development and tradition coexist.

For generations, these communities have lived in harmony with their surroundings. However, the twenty-first century has brought challenges that threaten this balance. Climate change, economic pressures, and changing land-use patterns have placed increasing strain on traditional livelihoods. Adapting to these changes is therefore essential, and CBET presents a opportunity for Indigenous groups to diversify income sources while preserving their culture and identity.

The CBET initiative in Upper Baram is a project to empower communities in managing and restoring forest landscapes in Sarawak state on the island of Borneo.[1] Other activities in the project, which is funded by the Government of Japan and implemented by the Forest Department Sarawak (FDS), include training in natural forest regeneration and the establishment of model plots.

Building capacity

The initiative emphasizes inclusive development, focusing on building the capacity of Indigenous communities to sustainably manage their natural resources, lead conservation activities, and establish CBET as a long-term livelihood option.

To turn vision into action, the FDS-ITTO project has been working closely with local stakeholders to provide foundational knowledge and skills tailored to the needs of the communities in Upper Baram. Since CBET is still relatively new to the area, the early stages of the project have focused on laying the groundwork, ensuring that communities understand the potential of CBET and are equipped with the tools to manage it effectively.

The Indigenous People of Upper Baram already possess a profound understanding of their environment and cultural traditions. However, tourism demands a different set of skills, including hospitality management, guiding techniques, marketing and customer service. Closing this skills gap is essential to building a strong, self-sustaining CBET model that reflects the community's values and aspirations.

A training session was held on 14–16 February 2024 to introduce basic CBET concepts to 39 participants from 16 settlements within the project area. Topics included:

- Ecotourism guiding and nature interpretation
- Hospitality services for homestays and cultural tours
- Business management, pricing strategies and microenterprise development
- Cultural preservation and storytelling
- Environmental stewardship and climate literacy

The workshop, facilitated by an experienced trainer from Kolej SATT (Saujana Academy of Hospitality & Tourism), proved transformative. Participants gained hands-on knowledge and developed the confidence to begin shaping their own tourism initiatives. They learned how to improve guest experiences, share their cultural stories more effectively, handle tourism operations, and apply environmentally friendly practices—important steps toward building a tourism approach that supports their communities and preserves their way of life. Feedback from participants highlighted renewed enthusiasm and a clearer vision of what their communities could achieve through CBET.

Benchmarking visit

To deepen understanding and provide real-world insights into successful CBET practices, the project organized a benchmarking visit to KOPEL, a village-based cooperative in Kinabatangan, and the Rainforest Discovery Centre in Sandakan, both in neighbouring Sabah state. This visit, held from 23–26 April 2024, involved 25 participants from 16 villages across Upper Baram.
KOPEL is widely acknowledged as a leading example of successful community-run ecotourism in Malaysia. It combines conservation with sustainable tourism and community development, offering a range of activities such as river cruises, homestays and habitat restoration. By observing KOPEL's operations, participants from Upper Baram could see how clear leadership, continuous training and strong community involvement contribute to a thriving CBET model.

At the Rainforest Discovery Centre, participants explored how environmental education can be integrated into tourism experiences. This approach enhances visitor engagement and helps raise awareness about biodiversity and conservation.

The benchmarking trip served as a catalyst for change. It helped participants translate theoretical knowledge into tangible goals and broadened their perspective on what community-based tourism could look like in their villages.

Beyond gaining technical skills, many were struck by the sense of unity and collective purpose observed at KOPEL. The success of KOPEL demonstrated that CBET is not just about income generation; it's about creating a sustainable system where conservation and livelihood development reinforce each other.

"It opened our eyes to what we can achieve if we work as one," said Douglas Tirong, a headman from Long Kerong village. Participants returned home motivated, bringing back a

[1] PP-A/59-352 *"Community empowerment in forest management and forest landscape restoration in Upper Baram, Sarawak, Malaysia"*

Project participants pose with a seedling they planted during a visit to a forest restoration site of KOPEL, a village-based cooperative in Kinabatangan, Sabah state. *© Vincent Wong*

wealth of ideas and strategies. Some saw ways to enhance the visitor experience by improving storytelling, organizing activities more systematically, and incorporating informative signage. Others emphasized the importance of involving more community members, including youth and women, to make CBET a truly inclusive endeavour.

Several communities began taking concrete steps soon after the visit. In Ba Data Bila, discussions have commenced on forming a CBET committee to coordinate tourism activities and manage logistics. Villages like Ba Muboi and Long Ajeng are exploring the idea of launching homestay initiatives, using traditional longhouses as accommodation while offering cultural experiences.

A renewed focus on conservation was also evident. Participants recognized that protecting the forest is not only a moral responsibility but also a practical strategy for long-term tourism success. Ideas such as forest monitoring, eco-trails, and guided nature walks were discussed as ways to blend conservation with tourism revenue.

Recognizing potential

The impact of the training and benchmarking visit has been both immediate and far-reaching. Participants now have a clearer understanding of how CBET functions and how it can be tailored to fit their local context. Exposure to established models like KOPEL helped build confidence and demonstrated that community-led tourism is both achievable and rewarding.

Beyond the acquisition of skills, the initiative helped cultivate a mindset shift. Communities began to see themselves not just as residents, but as entrepreneurs, educators, and stewards of their land. The training sessions and exposure visits have ignited a sense of agency and ownership, laying a strong foundation for future CBET initiatives.

Moreover, the program has encouraged inter-village collaboration. Participants who previously had little interaction are now communicating, sharing experiences and best practices. This network of mutual support is critical for the long-term success of CBET in the region.

Building on this early momentum, the FDS-ITTO project will continue to support the communities through follow-up workshops focused on more advanced topics. These include product development, hospitality standards, forest conservation techniques, and marketing strategies.

The goal is to help communities transition from inspiration to implementation. The project aims to nurture a thriving, community-led tourism ecosystem in Upper Baram by providing the necessary tools and continuous learning opportunities.

Foundation laid

The journey of the Indigenous communities in Upper Baram toward sustainable, community-driven ecotourism is just beginning, but the foundation is strong. Through capacity building, hands-on training, and exposure to successful models, these communities are now better prepared to take control of their future.

CBET offers more than an income. It offers a pathway to preserve priceless culture, community, and nature. It creates opportunities for young people to stay in their villages and find meaningful work. It fosters pride in local traditions and ensures that the knowledge of elders is passed down. Most importantly, it demonstrates that with the right support, Indigenous communities can create sustainable livelihoods that respect the past while looking to the future.

The hope is that Upper Baram will benefit from ecotourism and become a leading example of how community empowerment and environmental stewardship can go hand in hand, unlocking potential and empowering change for generations to come.

Project outputs can be found by inserting the project code PP-A/59-352 into the ITTO project search function at www.itto.int/project_search.

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Market trends

Tropical timber trade data for 2024 show how troubled housing sectors in major economies are clouding the outlook for timber producers

Compiled from the ITTO Tropical Timber Market Report[1] and other sources by Mike Adams (mis@itto.int)

Housing construction and related activities are major drivers of timber demand. A significant portion of sawnwood and panels from softwoods are used in the residential housing sector while hardwoods are used for interior joinery, doors, flooring and furniture. Consequently, developments in the housing markets of major economies are critical for tropical timber demand.

This article presents some major shifts and trends in key housing markets as an introduction to the full-year 2024 data for key importers of wood and wood products, especially as they relate to product sourced from tropical producers.

In Europe, housing markets have suffered in recent years. Following a surge after the COVID-19 pandemic, house prices in some cities experienced a significant correction in 2022–2024, as high inflation, rising interest rates, and a weakened economic climate squeezed household finances and sapped demand.[2]

[1] www.itto.int/mis
[2] https://www.oxfordeconomics.com/resource/european-housing-market-has-turned-a-corner/

In the United States of America, the picture is more mixed. An estimated 1.628 million housing units were completed in 2024, up 12% from 2023. However, housing starts data tell a more sober story. In 2024, about 1.36 million housing units were started, while 1.47 million were permitted, an annual decline of 3.9% and 2.6%, respectively.[3]

The housing market in China, meanwhile, faces a "pivotal moment", according to one recent commentary. The common perception of property as a safe investment has been badly shaken. Housing is now viewed by many as a risky gamble, forcing younger generations to reconsider before taking loans to buy property. If house prices continue to rise while economic growth slows, the disconnect between wages and housing costs could widen further, threatening consumer confidence.[4]

The Chinese government has prioritised property market stabilisation in its 2025 agenda, urging measures to ease home-buying restrictions and stimulate demand for upgraded housing.
Initiatives reportedly include city-specific policies to adjust home-buying curbs and tap into the potential demand for first homes and better housing. Still, structural issues such as demographic shift, stagnant income and a glut of unsold homes continue to dampen sentiment.[5]

The extensive correction in the Chinese real estate market continues to negatively impact both housing price trends and development activity, while the effect of new government support measures is yet to materialize fully.

Japan saw a total of 792 133 housing starts in 2024, a 3.4% decline compared to the previous year. This is only the second time since 1995 that starts fell below 800 000. The housing market is suffering from the country's low birth rate and falling population. Some 9 million homes across Japan lie empty, and land prices are expected to fall in the coming decades.

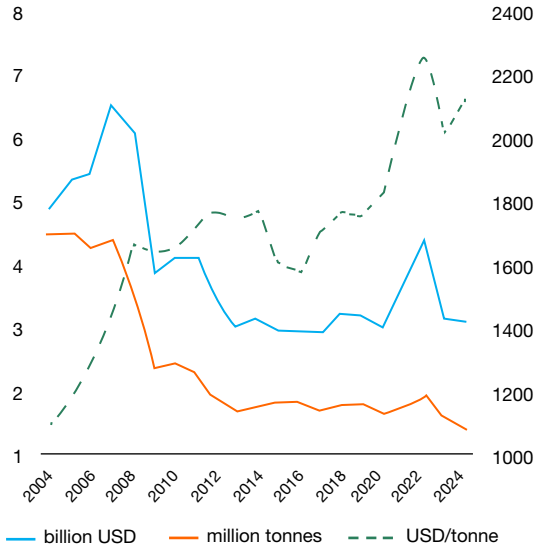
EU imports hit historic low

In 2024, the European Union imported 1.46 million tonnes of tropical wood and wooden furniture products with a total value of USD 3.09 billion, respectively 8% and 3% less than the previous year (Figure 1). In terms of quantity, this is the lowest level of imports of these products recorded since the European bloc was formed in 1957. Imports were also 19% below the average for the pre-pandemic 2013–2019 period, when imports were static at a historically low level. Quarterly data provides some slight grounds for optimism that the market may have hit bottom at the end of last year.

[3] www.housingwire.com/articles/housing-completions-were-up-in-2024-a-bright-spot-for-builders/
[4] https://thediplomat.com/2024/12/chinas-real-estate-crisis-why-the-younger-generation-is-not-buying-houses-anymore/
[5] https://finance.yahoo.com/news/chinas-home-prices-fall-february-013956955.html?guccounter=1

The European Union imported 726 900 m³ of tropical sawnwood in 2024, 14% less than the previous year and the lowest level ever recorded. This is only the second time in history that EU imports of tropical sawnwood have fallen below 800 000 m³.

Figure 1: EU tropical wood and wood furniture imports 2004–2024



Source: ITTO analysis of Eurostat data

EU tropical sawnwood imports declined from nearly all leading supply countries, including (largest suppliers first) Cameroon (-16%), Gabon (-18%), Brazil (-7%), the Republic of the Congo (-21%), Malaysia (-7%), Ghana (-16%), Côte d'Ivoire (-34%), the Democratic Republic of the Congo (-42%), Suriname (-20%), Indonesia (-4%), and the Central African Republic (-56%).

The European Union imported 250 700 m³ of tropical veneer with a total value of USD 171.2 million in 2024, both down 5% compared to the previous year. Still, imports of tropical veneer from Gabon, by far the largest supplier, were 136,000 m³ in 2024, 2% more than in the previous year.

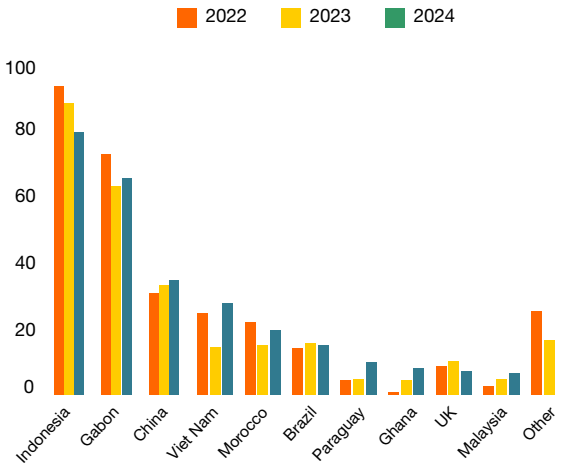
Tropical veneer imports also increased last year from the Republic of Congo (+12%) and Ghana (+16%). However, these gains were offset by falling imports from Côte d'Ivoire (-6%), Cameroon (-22%), Indonesia (-5%), and Equatorial Guinea (-81%).

The European Union imported 283 200 m³ of tropical plywood with a total value of USD 205.7 million in 2024, both figures up 6% compared to 2023. Imports fell 10% from Indonesia, which nevertheless remained the leading supplier (Figure 2). Imports from Brazil were also down, by 3%.

However, these losses were offset last year by rising imports from Gabon (+4%), China (+5%), Viet Nam (+93%), Morocco (+29%), Paraguay (+110%), Ghana (+84%), and Malaysia (+39%).

Over the past two years, Europe has seen sluggish economic performance and a marked slowdown in the construction industry. As a result, consumer demand for furniture has come under considerable strain.

Figure 2: EU tropical plywood imports 2022–2024 (1000 m³)



Source: ITTO analysis of Eurostat data

The European Union imported 285 500 tonnes of wooden furniture from tropical countries with a total value of USD 1 193 million in 2024. Import quantity and import value were up 7% and 6% respectively, compared to 2023. Closer analysis of the data reveals that the recent growth in wooden furniture imports into the European Union and the United Kingdom has been driven almost entirely by China.

In 2024, EU imports of wooden furniture from tropical countries increased from Viet Nam (+9%), India (+16%), Malaysia (+19%), and the Philippines (+3%). However, the value of imports value fell from Indonesia (-6%), Thailand (-25%), and Mexico (-15%). EU wooden furniture imports from all other tropical countries were negligible.

China's log imports down

According to China Customs, log imports in 2024 totalled 36.1 million m³ and were valued at USD 6.159 billion, a decline of 5% in volume and 4% in value year-on-year.

Within this category, softwood log imports fell 7% to 26.12 million m³, accounting for 72% of the total, while hardwood log imports in 2024 rose 1% to 9.98 million m³, making up the remaining 28%.

Of total hardwood log imports, tropical log imports constituted 5.52 million m³ valued at USD 1.408 billion, down 3% in volume and down 7% in value from 2023. Tropical log imports accounted for 15% of the national total log import volume in 2024 (Table 1).

Papua New Guinea was the largest supplier of tropical logs to China in 2024, even though China's imports fell 9% to 2.068 million m³ compared to 2023. This is the main reason for the overall decrease in 2024. In contrast, China's imports from Solomon Islands, the second-largest supplier, rose 7% to 1.582 million m³ year-on-year, while imports from Suriname, Democratic Republic of the Congo, Equatorial Guinea and Mozambique rose 7%, 3%, 13%, and 12% respectively.

In 2024, sawnwood imports totalled 26.74 million m³, valued at USD 6.86 billion, a year-on-year decrease of 4% in volume but a small increase of 0.3% in value relative to 2023. Of this total, tropical sawn hardwood imports amounted to 7.46 million m³, valued at USD 2.14 billion, a year-on-year increase of 8% in volume and 11% in value. This accounted for about 28% of the national total, up 3 percentage points from 2023 (Table 2).

Table 1: Top suppliers of China's tropical log imports in 2024

Supplier	1000 m³	YoY % change
Total	**5 521**	**-3%**
Papua New Guinea	2 068	-9%
Solomon Islands	1 582	7%
Congo	407	-5%
Cameroon	331	-25%
Suriname	154	7%
Democratic Republic of the Congo	150	3%
Equatorial Guinea	127	13%
Mozambique	125	12%

Source: China Customs

China's sawn hardwood imports from Thailand, already the largest supplier, grew 9% to 4.913 m³ in 2024, with most of the shipments consisting of rubberwood. China's imports of sawn tropical hardwood from Gabon also jumped, by 43% to 768 000 m³, with the African country replacing the Philippines as the second-largest supplier.

The top three countries supplied 85% of China's sawn tropical hardwood requirements in 2024, namely Thailand (66%), Gabon (10%) and the Philippines (9%).

Table 2: Top suppliers of China's tropical sawn hardwood imports in 2024

Supplier	1000 m³	YoY % change
Total	**7 461**	**8%**
Thailand	4 913	9%
Gabon	768	43%
Philippines	636	-18%
Myanmar	217	-0.30%
Viet Nam	186	13%
Malaysia	129	19%
Cameroon	128	2%
Indonesia	70	-26%

Source: China Customs

Table 4: US imports of sawn tropical hardwood in 2024

Supplier	1000 m³	YoY % change
Total	**179 542**	**-7%**
Brazil	46 007	5%
Indonesia	27 076	-9%
Cameroon	21 646	8%
Malaysia	16 904	-36%
Republic of the Congo	16 553	0%
Ghana	7 068	-3%
Ecuador	4 818	-28%
Côte d'Ivoire	2 254	16%
Peru	1 137	21%
Other	36 079	-10%

Source: US Department of Agriculture, Foreign Trade Statistics

Indonesia, Viet Nam gain

At nearly 2.8 billion m³, the amount of hardwood plywood imported into the United States of America in 2024 was nearly identical to 2023 (Table 3). Imports from Indonesia and Viet Nam surged by 41% and 44%, respectively, as both gained market share.

While volumes remained steady, the value of imports rose a marked 13% year-on-year to more than USD 1.7 billion.

Table 3: US hardwood plywood imports in 2024

Supplier	1000 m³	YoY % change
Total	**2 759 612**	**0%**
Indonesia	725 995	24%
Viet Nam	725 728	44%
Russian Federation	180 742	-4%
Cambodia	136 848	9%
Ecuador	129 140	-7%
Malaysia	91 392	41%
China	39 288	-15%
Other	730 479	-33%

Source: US Department of Agriculture, Foreign Trade Statistics

US imports of sawn tropical hardwood fell significantly in 2024, dropping 7% to 179.5 million m³ from 193.6 million in 2023 (Table 4). While imports from two top US trade partners, Indonesia and Malaysia, fell 9% and 36%, respectively, imports from No. 1 supplier Brazil rose 5%.

Imports of Sapelli, the most imported sawn tropical hardwood, fell 12% in 2024 while imports of Keruing plunged by 47%. Imports of Ipe, which grew 17% in 2024, surpassed Keruing as the second-most imported tropical hardwood by volume.

The value of US imports of tropical hardwood veneer ended 2024 down 17% from the previous year. Imports from Italy were especially weak, falling 77% from 2023, while imports from Cameroon, the top US trading partner for veneers, were off by 11%. Imports from Côte d'Ivoire were the exception, gaining 18% year-on-year, while imports from all other major trading countries fell by at least 10%.

Imports of assembled flooring panels into the United States climbed by 32% in 2024, with imports from top trading partners seeing even larger gains. Imports from Canada, the number one source, rose 34% while those from Viet Nam and Thailand surged 44% and 92%, respectively (Table 5). Imports from Indonesia (down 10%) and Brazil (down 29%) were among those losing share. Total imports of assembled flooring panels were worth USD 340.7 million in 2024.

The value of US imports of hardwood flooring was not nearly as strong in 2024, as imports fell by 12% for the year. Imports from Indonesia tumbled 34% while imports from Malaysia slid 29%. Imports from Brazil gained 84% in 2024, moving it ahead of Indonesia as the lead trade partner for the year.

US imports of wooden furniture rose by 7% in 2024 as imports from Viet Nam showed solid growth (Table 6). After falling below USD 20 billion in 2023, imports surpassed USD 21.2 billion in 2024, though it remained well short of the record USD 25 billion in 2022.

The rise was fuelled by a 21% jump in imports from Viet Nam, a supplier that accounted for more than two-fifths of all 2024 imports. Imports fell for the year from other top suppliers, namely, China (down 2%), Mexico (down 6%) and Canada (down 5%).

Table 5: US imports of assembled flooring panels in 2024

Supplier	1000 m³	YoY % change
Total	**340 717 779**	**32%**
Canada	69 473 455	34%
Viet Nam	69 205 118	44%
Thailand	50 226 004	92%
Indonesia	20 783 977	-10%
China	12 231 654	34%
Brazil	826 701	-29%
Other	117 970 870	18%

Source: US Department of Agriculture, Foreign Trade Statistics

Table 6: US imports of wooden furniture in 2024

Supplier	1000 m³	YoY % change
Total	**21 208 833 683**	**7%**
Viet Nam	8 877 337 720	21%
China	3 208 440 482	-2%
Mexico	1 585 771 810	-6%
Canada	1 571 316 415	-5%
Malaysia	1 099 422 521	8%
Indonesia	840 502 167	2%
India	437 577 282	0%
Other	4 026 042 568	0%

Source: US Census Bureau

A changed Japan

Long before industries in China and Viet Nam "discovered" tropical timber, Japan was the Asian powerhouse for tropical timber imports. In the 1970s, Japan was importing around 1 million m3 of timber mainly from the Indonesia, Malaysia and the Philippines. Over the recent decades, however, there has been a major change in wood product trade flows to Japan.

Japan has moved away from raw material imports to imports of finished or semi-finished products, such as wooden furniture and parts, wood flooring, doors and window frames and mouldings, especially from Southeast Asian countries.

The total volume of logs and sawnwood imported into Japan in 2024 was 9.58 million m³, 6% more than 2023 but well below the average for the past several years. Housing starts in Japan have been steadily declining and production plants in Japan have increased the utilisation of domestic logs and sawnwood, impacting import volumes.

The United States was the main supplier of logs to Japan in 2024, but the volume of imports declined 14% (Table 7). New Zealand was the second ranked supplier of logs, with the volume of imports maintained at around the same level as in 2023.

The volume of logs imported from tropical countries in 2024 was around 18% higher than in 2023 but, at just 36 000 m3, was only around 10% of the volume a decade earlier.

Plywood imports fell sharply (24%) in 2023 but increased in 2024. With more factories in Japan using domestic logs, along with supply issues in Malaysia, 2024 imports failed to recover to pre-2022 levels.

Table 7: Major suppliers of wood product imported into Japan in 2024

Supplier		1000 m³	YoY % change
Southeast Asia	Logs	36	17.7
	Sawnwood	290	-2.3
Canada	Logs	413	-29.5
	Sawnwood	838	9.1
United States	Logs	1476	-14.2
	Sawnwood	939	6.7
Russian Federation	Sawnwood	535	13.2
New Zealand	Logs	238	-0.8
	Sawnwood	75	23.9
Chile	Sawnwood	170	-8.7
Europe	Logs	3	-13.9
	Sawnwood	2196	32.9
All sources	Plywood	2107	6.2
Of which Southeast Asia	Plywood	1488	-1

Source: Japan Lumber Report

Clouded outlook

Looking forward, tropical timber trade and market observers can take little encouragement from the outlook for housing construction in key regions. Indices of construction activity in the EU indicate that the sector remained weak going into 2025. High prices and mortgage rates continue to weigh on the US housing market,[6] house prices and rents in Chinese cities face further declines,[7] and housing starts in Japan are expected to slip in 2025.[8]

Tropical timber markets and trades will struggle to escape this dynamic, which risks being compounded by the ongoing uncertainty surrounding global tariffs and international trade in a more general context.

[6] www.forbes.com/advisor/mortgages/real-estate/housing-market-predictions/
[7] www.globalpropertyguide.com/asia/china/price-history
[8] www.//e-housing.jp/post/2025-japan-property-market-insights

Conserving the dazzling orchids of Myanmar

An ITTO Fellow developed an identification guide to the many orchid species found in the tropical forests and other areas of Myanmar

by Ye Lwin Aung
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Dendrobium cariniferum Rchb. f., an orchid species native to the tropical forests of Myanmar and some neighbouring countries.
© Ye Lwin Aung

I first learned of the ITTO Fellowship call announced on the Organization's website while on a training course on plant biodiversity conservation at the Kunming Institute of Botany. The course in China reinforced how conservation must go hand in hand with research to achieve results, so when I returned to Myanmar I started to prepare my Fellowship application with a clear focus on effective biodiversity conservation.

Through desk research, I identified gaps in the knowledge of Myanmar's orchid flora, which spurred me to develop a research proposal for the development of an identification guide to the orchids of Myanmar, hoping that ITTO would support this work. Towards the end of 2023, I heard the good news: I had been granted the Fellowship. As an early-career researcher, the award has inspired me to work hard to pursue this career path, and I am deeply grateful to ITTO for helping me on my way.

I began my research in early 2024, conducting fieldwork on orchid biodiversity in two protected areas in Myanmar and preparing a manuscript based on existing literature and herbarium specimens. The resulting guidebook, titled *Identification Guide to Orchid Biodiversity in Myanmar: Implication for Biodiversity Conservation,* was published in December 2024 and disseminated to stakeholders working in biodiversity research and conservation.

The guidebook is organized in chapters that include a general introduction to the biodiversity of Myanmar, and discussions on orchid uses, orchid conservation, taxonomic identification of the orchid flora of Myanmar, and future directions for research and conservation. The guidebook underlines the importance of biodiversity data for systematic conservation planning and implementation.

Myanmar's natural heritage

Myanmar's biocultural landscape is well endowed with natural resources, with forests covering large areas and diverse ethnic communities living in harmony with nature. The central arable plains are surrounded by forested mountain ranges that run from north to south, as do the main rivers, which drain into the Andaman Sea. The southern part of the country is covered by tropical evergreen rainforests and the long coastline harbours many mangrove forests. The country lies in the Asian monsoon region, where rainfall patterns influence vegetation growth. All these factors contribute to Myanmar's rich biodiversity including many eye-catching orchid species.

With their showy flowers and special properties (i.e. ethnomedicinal importance), orchids attract people from different walks of life, including amateur growers, horticulturists, herbalists, ornamental floriculturists, businesspeople, and scientists. Generally, orchids can be regarded as having both aesthetic, food, and medicinal value, the latter applied in traditional Chinese medicine.

While Myanmar's orchid biodiversity is very rich, it remained poorly known due to the persistence of large gaps in botanical collections in past decades. At the start of the twenty-first century, botanical explorations resumed across the different ecosystems of Myanmar, resulting in the discovery of many new species and records. Currently, more than 1,000 orchid species from Myanmar are known, compared to only about 800 species in 2003 (Aung et al. 2020; Kress et al. 2003; Ormerod et al. 2021).

Globally, the family Orchidaceae is one of the largest families of flowering plants, with a great diversity of species across various ecosystems (Chase et al. 2015; Royal Botanic Gardens 2017). The same is true for Myanmar, with its orchid flora well represented by members of all the subfamilies of Orchidaceae. Myanmar is home to 84 endemic orchid species, all of which need conservation attention. In addition, the natural distribution range of Myanmar's orchid flora extends across the region. For example, about 64 percent of the orchid species of Myanmar are also found in neighbouring Thailand (Aung et al. 2021; Aung et al. 2020; Ormerod et al. 2021).

Taxonomic studies revealed the exceptional diversity of Orchidaceae species in Myanmar, ranging from those with large, beautiful, and showy flowers to others with tiny, inconspicuous, and greenish flowers. Habitats and ecological requirements also vary from species to species and, while most orchid species are photosynthetic plants, some are mycoheterotrophic.

Myanmar's tropical forest ecosystems provide important habitat for various kinds of orchid species. Most orchid species are epiphytic in the forest canopy, while others are terrestrial, taking advantage of the humus-rich forest floor. Interestingly,

Dienia ophrydis (Koenig) Seidenf. *© Ye Lwin Aung*

there are also some lithophytic species. Obviously, the ability of orchid species to thrive largely depends on their specific ecological requirements, such as host tree preferences, specific pollinators, symbiosis with mycorrhizae, relative humidity, elevational range and so on. The conservation of orchid habitats will be essential to secure the survival of orchid species in the long run.

As for their appearance, most orchid species can be identified from such features such as their distinct pseudobulbs, canes, and flowers. But some species, particularly terrestrial orchids (including mycoheterotrophic orchids), are inconspicuous in the wild. Due to these highly diverse features, the accuracy of orchid identification largely depends on the availability of species-level information such as flowering stage, habitat status, and elevational distribution range.

While the guidebook provides researchers and conservation biologists with essential taxonomic knowledge on orchid flora, much more botanical exploration is required to better understand the orchid species richness of the country.

Some orchids, particularly *Dendrobium, Bulbophyllum, Coelogyne* and *Cymbidium* species, have horticultural value for their beautiful flowers and these can also be easily cultivated by hobby growers. Commercially important orchid species, however, face various threats, such as unsustainable (and possibly illegal) wild collection, reflecting high market demand for such beautiful species. In fact, many orchid species are likely under pressure from several factors, including climate change, habitat loss, and habitat fragmentation, as well as overexploitation. It is evident that deforestation and land use change pose direct threats to the survival of some species, and efforts are underway to conserve the orchid bioresources in Myanmar.

Conservation efforts

Myanmar is a Party to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), meaning that trade in all CITES-listed species, including all species of Orchidaceae, is subject to controls in the country (CITES 2024). In Myanmar, the Forest Department

is the national CITES Management Authority and is mainly responsible for compliance with and enforcement of CITES rules and regulations in the management of CITES-listed taxa.

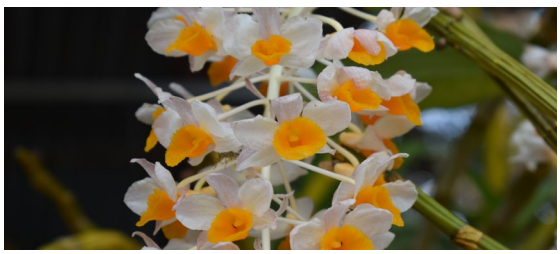
In addition, all orchid species are included in the national protected plant species list issued by the Forest Department under the mandate of the Conservation of Biodiversity and Protected Areas Law (2018). Moreover, some policy measures support the granting of permissions for the commercial propagation and cultivation of native orchid species to encourage orchid industry development and mitigate unsustainable harvesting pressures on wild populations.

As for *in situ* conservation, an increasing number of protected areas are being established for the conservation of various species of fauna and flora in intact ecosystems across the country. There are currently 61 protected areas, amounting to 6.4 percent of Myanmar's land area.

Two relevant national 10-year programmes are being implemented by the Forest Department and funded mainly by the Myanmar government: the Myanmar Reforestation and Rehabilitation Program (2017–2027) and the Re-establishing Natural Habitats Programme (2019–2029). The first is a nationwide reforestation programme that has already delivered some results in areas such as tree planting and upgrading nursery infrastructure. The latter is being implemented principally in 19 targeted protected areas across the country and has made progress in, for instance, habitat restoration and biodiversity surveys.

In addition, *ex situ* conservation measures are in place for various threatened species. These include a seed conservation project jointly implemented by the Forest Department and the Worldview International Foundation that saw the seeds of about 400 orchid species from Myanmar deposited at the Svalbard Global Seed Vault (Svalbard Global Seed Vault 2018).

Biodiversity conservation represents the long-haul solution for the survival of the wonderful variety of orchid species. Effective conservation strategies should be formulated based on holistic, interdisciplinary and all-inclusive approaches. Such strategies can provide the enabling conditions for all stakeholders to effectively participate and play their role in the key steps such as consultation, planning and implementation.



Dendrobium thyrsiflorum Rchb. f. *© Ye Lwin Aung*

My experience studying Myanmar's orchids with ITTO support has deepened my conviction that we need long-term conservation to preserve their remarkable diversity. With many species still unexplored and their ecological roles unknown, I believe biodiversity research is crucial for understanding these plants and crafting effective protection strategies. Meaningful conservation demands holistic approaches where researchers, communities, and policymakers work together. When we combine scientific insights with inclusive stakeholder participation, we can develop conservation plans that protect these precious ecosystems for future generations.

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Global forest loss hit a record in 2024 as fires raged

Global forest loss rose to a record high in 2024, fueled by a "catastrophic rise" in fires, according to the World Resources Institute (WRI).

Citing data gathered by the University of Maryland, WRI said the loss of tropical primary forest alone reached 6.7 million hectares—nearly twice as much as in 2023 and an area nearly the size of Panama. WRI said it was the first time that its Global Forest Watch programme had identified fire—rather than agriculture—as the greatest cause of tropical forest loss.

The figures show that the world is "alarmingly off track" to meet the commitment made by leaders of over 140 countries who signed the Glasgow Leaders Declaration in 2021 promising to halt and reverse forest loss by 2030, WRI said.

Read the full story: www.wri.org/news/release-global-forest-loss-shatters-records-2024-fueled-massive-fires

New maps identify opportunities for global reforestation

New maps have identified the best "win-win" opportunities across the world to regrow forests and help tackle the climate crisis without harming people or wildlife, the Guardian newspaper reported.

The most promising reforestation locations range from the eastern United States of America and western Canada, to Brazil and Colombia, and across Europe, the report said, citing a recent scientific study. They add up to 195 million hectares (482 million acres), an area the size of Mexico that—if reforested—would remove 2.2 billion tonnes of carbon dioxide a year.

Previous maps suggested much larger areas have potential for regrowing trees but were criticised for including important ecosystems like savannahs and not considering the impact on millions of people who live in or depend on forests.

Read the full story: www.theguardian.com/environment/2025/jun/11/maps-forests-study-environment-wildlife-climate-crisis

European Commission clarifies EUDR, sets risk categories

The European Commission has announced steps designed to make the implementation of the controversial EU Deforestation Regulation "simple, fair and cost-effective".

The Commission published guidance in April on "simplified measures and clarifications" for countries and businesses to demonstrate that key commodities, including tropical timber, are deforestation-free and therefore eligible for import into the European Union. It said it was taking further measures to avoid unnecessary costs associated with the regulation, which comes into force at the end of 2025.

In May, the Commission classified countries into risk categories. Four countries have been assessed as high risk: Belarus, the Democratic People's Republic of Korea, Myanmar, and the Russian Federation. Standard-risk countries include tropical timber exporters Brazil, Malaysia, and Indonesia, while low-risk countries include China.

Read the full story: https://ec.europa.eu/commission/presscorner/detail/en/ip_25_1063
https://sustainablefutures.linklaters.com/post/102kcd4/eu-deforestation-regulation-country-risk-classification-adopted-by-the-commissio

Community sawmills in Mexico auger well for forests

Vertical integration of wood products supply chains in community-managed forests in Mexico can help reduce deforestation and stimulate forest regrowth, according to a new study.

Researchers found that the presence of community sawmills, which serve as an indicator of vertical integration and help communities engage in value-adding timber processing, was associated with greater effort to protect and restore forests – and benefits for climate, biodiversity and other ecosystem services.

Writing in the journal Ecological Economics, the researchers said their findings had a "somewhat counter-intuitive policy implication: programs that increase financial resources for communities to invest in forestry operations could improve forest protection and restoration."

Read the full story: https://doi.org/10.1016/j.ecolecon.2025.108658

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Tree bark vital in removing methane from atmosphere

Scientists in the United Kingdom have found that microbes in the bark of trees provide a climate-change mitigation service by absorbing methane from the atmosphere.

In a study published in Nature, a team from the University of Birmingham examined various forest types and discovered that tropical forests recorded the highest levels of methane absorption, where the warm and wet environment allows microbes to thrive.

The discovery demonstrates that efforts to curb deforestation and rehabilitate deforested areas can play a vital role in contributing to cutting methane emissions and thus help mitigate the rise in global temperatures.

Read the full story: www.theguardian.com/environment/article/2024/jul/24/tree-bark-vital-role-removing-methane-atmosphere-climate

Ghana: minister calls for fast-track prosecution of forest crime

Ghana's minister of lands and natural resources has called for the creation of a fast-track court to quickly prosecute people who destroy the country's forests, the Ghana Broadcasting Corporation (GBC) reported.

The minister, Emmanuel Armah Kofi Buah, said both the attorney general and the chief justice of Ghana had shown support for the idea. Mr Buah said the ministry could only combat activities such as illegal mining and illegal logging in forests with the support of other government agencies.

GBC reported separately that seven forest reserves overrun by illegal miners have been reclaimed in an operation involving military, police and forestry officials.

Read the full stories: www.gbcghanaonline.com/general/lands-minister-calls-for-fast-track-court-to-punish-forest-destroyers/2025/ www.gbcghanaonline.com/general/government-reclaims-seven-out-of-nine-forest-reserves-from-illegal-miners-minister-of-lands-and-natural-resources/2025/

ITTO Fellowship Programme

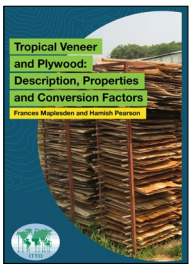
Since 1989, the ITTO Fellowship Programme has empowered more than 1,400 young and mid-career forestry professionals from around the world to strengthen their expertise in tropical forestry. This prominent and competitive initiative is a cornerstone of ITTO's commitment to building the capacity of future forest leaders, especially women, through professional development, training, and research opportunities.

The impact is clear: over 80% of Fellows report making a significant contribution to forest conservation efforts in their home countries. Many also credit the Fellowship as a transformational step in their careers, helping them grow as leaders and changemakers in the forestry sector.

The total funds for this Programme to date amount to approximately USD 9.8 million, which was made possible by members' voluntary contributions and with the generous support of private sector and individual donors.

For more information about the Programme and how it supports the next generation of tropical forest stewards, please visit www.itto.int/fellowship.

Recent editions



Maplesden, F. Pearson, H. 2025. *Tropical Veneer and Plywood: Description, Properties and Conversion Factors.* International Tropical Timber Organization (ITTO), Yokohama, Japan.

ISBN: 978-4-86796-006-6

Available at: www.itto.int/other_technical_reports

This publication aims to provide an analysis onf how to improve the accuracy of reported trade volumes of tropical primary wood products, thus improving transparency in the tropical wood products trade. Based on the weighted average of the species exported and available data on wood and bark density and moisture relationships, an earlier ITTO study formulated conversion factors from weight to volume for tropical logs and sawnwood for major tropical exporting countries. Similarly, an FAO study has reviewed forest products conversion factors in a more general context. This study builds on and complements these studies by deriving theoretical conversion factors from weight to volume for tropical veneer and tropical plywood, as well as from square metres to volume for tropical veneer by species, for major tropical exporting countries.

Murillo, O., Guevara, M., Badilla, Y., and Esquivel, E. (2025). *Manual de cultivo de melina* (Gmelina arborea *Roxb) en ciclo corto.* Escuela de Ingeniería Forestal, Instituto Tecnológico de Costa Rica.

ISBN: 978-9930-617-69-4

Available at (in Spanish): www.itto.int/files/itto_project_db_input/3228/technical/Manual%20cultivo%20de%20melina.pdf?v=1740039230

This updated technical manual offers producers a practical guide to growing clonal melina (*Gmelina arborea* Roxb) and maximizing its commercial potential, marking the first comprehensive update in over 20 years. Melina has become one of the most important commercial reforestation species in Costa Rica since its introduction in the 1960s. Valued for its fast growth, ease of processing, and versatility, it now dominates the national market for packaging and pallet materials. With advances in clonal cultivation, genetic improvement, and plantation techniques, melina can now yield up to 200 m³/ha in cycles as short as 4.5 to 6 years.

Secretariat of the Convention on Biological Diversity. 2024. *The Forest Factor: The role of protection, restoration and sustainable management of forests for the implementation of the Kunming-Montreal Global Biodiversity Framework.*

ISBN: 978-9-29225-710-1

Available at www.cbd.int/forest/doc/forest-factor-en.pdf

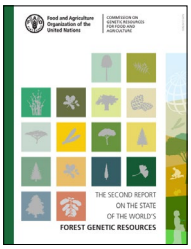
This report highlights the critical role of forest biodiversity conservation and sustainable forest management in achieving the goals and targets of the Kunming-Montreal Global Biodiversity Framework (KMGBF). It discusses current threats to forest biodiversity vis-à-vis recent global and regional trends and data on forest conservation, restoration, and sustainable management. The report also summarizes key analytical information and data and identifies pathways to enhance the implementation of the KMGBF in forests, recommending that stakeholders take the following actions: 1) assist governments to mainstream or update forest-related policies and commitments as planned in their National Biodiversity Strategies and Action Plans; 2) assist organizations and businesses to align their policies and practices with the KMGBF; and 3) provide increased understanding of the relationship between sustaining biodiversity and the associated goods and services from forests.

United Nations Department of Economic and Social Affairs (DESA). 2025. *World Social Report 2025: A New Policy Consensus to Accelerate Social Progress.* United Nations, New York, USA.

ISBN 978-92-1-003555-2

Available at: https://desapublications.un.org/publications/world-social-report-2025-new-policy-consensus-accelerate-social-progress

Key findings from the recently released World Social Report 2025 underscore the disparity between the extraordinary social and economic progress witnessed globally over the past three decades and the situation of the majority of the world's population. A recent global poll, for example, found that 60 percent of the population are struggling and 12 percent are suffering. The belief that life is worske now that it was 50 years ago was also prevalent. The report highlights the following main takeways: 1) The social contract is under threat; 2) Many people remain one misfortune away from poverty; 3) Inequalities persist; 4) Insecurity and inequality are undermining cohesion and fueling distrust; 5) Market-first policies have failed to deliver inclusive social progress; and 6) Governments and the international community can chart a different course.



FAO. 2025. *The Second Report on the State of the World's Forest Genetic Resources.* FAO Commission on Genetic Resources for Food and Agriculture Assessments. Rome.

ISBN 978-92-5-139699-5

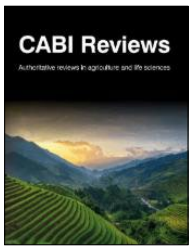
Available at: https://openknowledge.fao.org/handle/20.500.14283/cd4838en

This report provides an assessment of global forest genetic resources based on data from 77 countries that represent more than three-quarters of the world's forests. Emphasizing the integral role of these resources in ensuring sustainable development, the report reviews scientific advances and tracks progress in implementing the Global Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources. It provides recommendations for continued action at the national, regional, and global levels to ensure the sustainable management of forest genetic resources for current use and for posterity.

Rights and Resources Initiative (RRI) and McGill University. 2025. *The Carbon Rights of Indigenous Peoples, Afro-descendant Peoples, and Local Communities in Tropical and Subtropical Lands and Forests - A Systemic Analysis of 33 Countries.* Montreal.

Available at: www.rightsandresources.org/wp-content/uploads/Carbon-Rights-Report_Final-EN.pdf

This report probes the current global context surrounding the operationalization of Article 6.4 of the Paris Agreement through a systematic analysis of the status of carbon rights held by Indigenous Peoples, local communities, and Afro-descendant Peoples in 33 countries in Africa, Asia, and Latin America. The authors find that most governments have not adopted the legal and policy reforms needed to recognize and safeguard the carbon rights of these communities and makes a series recommendations to achieve that goal.



Cubas-Baez, A., Sunderlin, W., Larson, A. M., and Frechette, A. (2025). From promises to practice: Persistent challenges in safeguarding local rights in forest carbon market initiatives. *CABI Reviews (2025)* 20-1, 0025.

Available at: doi.org/10.1079/cabireviews.2025.0025

Following the adoption of the Cancun Safeguards in 2010, which put in place an international policy commitment to ensure the alignment of forest carbon market initiatives (FCMIs) with social safeguards to protect the rights and welfare of Indigenous Peoples and Local Communities (IP&LCs), there has been a stronger push to expand the scope and number of FCMIs. This is envisioned to help combat the impacts of climate change as set out in the United Nations Framework Convention for Climate Change (UNFCCC). Several studies have shown, however, that the significant increase in FCMIs and were marred by reports of conflict with the rights and welfare of local communities. This report discusses the results of a literature review covering 94 sourcers aimed at capturing realities on the ground. To provide structure to assessing equity and effectiveness, an eight-principle framework was developed in evaluating the impacts of FCMIs on the rights and well-being of IP&LCs.

The report found that significant violations of the rights of IP&LCs have occurred in recent years. A prevalent dearth of empirical evidence has also been observed regaridng the implementation of safeguards to protect local rights. These build the case for further strengthing of safeguards and ensuring transparent monitoring, reporting, and verification of measures in place to protect the rights of IP&LCs. This review provides actionable insights and forwards a framework to ensure more effective and equitable implementation of FCMIs.

ITTO Meetings

17–20 September 2025

5th World Teak Conference: "Sustainable Development of the Global Teak Sector – Adapting to Future Markets and Environments"

Cochin, India

Organized by ITTO along with the International Teak Information Network (TEAKNET), Kerala Forest Research Institute, International Union of Forest Research Organizations, and the Food and Agriculture Organization of the United Nations, the conference brings together researchers, students, entrepreneurs and forestry sector professionals to build networks and share knowledge, including on the latest technological developments and market trends in the sector. The fifth edition of the conference is structured around the theme of "Sustainable Development of the Global Teak Sector – Adapting to Future Markets and Environments"
More: www.worldteakconference2025.com

23–24 September 2025

Global Legal & Sustainable Timber Forum 2025: "From forest to home – an international dialogue on emerging consumer trends and supply chains innovation"

Macao SAR, China

The GLSTF 2025 aims to further enhance networking, collaboration and business exchange among timber and wood products industry stakeholders to strengthen support for sustainable tropical forest management, and the uptake of legal and sustainable wood product supply chains to facilitate the legal and sustainable use and trade of wood products in a stable, transparent and predictable business environment while contributing to sustainable development and climate-change mitigation.
More: www.itto.int/events/2025/09/24/global_legal_sustainable_timber_forum_2025

27–31 October 2025

61st Session of the International Tropical Timber Council and Sessions of the Associated Committees

Panama City, Panama

The International Tropical Timber Council is ITTO's governing body. It meets once a year to discuss a wide-ranging agenda aimed at promoting sustainable tropical forest management and the trade of sustainably produced tropical timber. Council sessions are open to official delegates and accredited observers.
More: www.itto.int/council_committees/

Events

29 July 2025
International Forum for Sustainable Asia and the Pacific (ISAP)
Yokohama, Japan
https://isap.iges.or.jp/2025/en/index.html

20–22 August 2025
Ninth Tokyo International Conference on African Development (TICAD 9)
Yokohama, Japan
www.mofa.go.jp/region/africa/ticad/ticad9/index.html

26–28 August 2025
Global Workshop on Forest Ecosystem Restoration Initiative
Seoul, Republic of Korea
www.cbd-feri.org/

24–30 August 2025
APEC Experts Group on Illegal Logging and Associated Trade Plenary Meeting
Incheon, Republic of Korea
www.apec.org/groups/som-steering-committee-on-economic-and-technical-cooperation/working-groups/illegal-logging-and-associated-trade

8–10 September 2025
2025 IUFRO Small Scale Forestry and Extension and Knowledge Exchange Joint Conference
Everett, United States
www.iufro.org/events/2025-iufro-small-scale-forestry-and-extension-and-knowledge-exchange-joint-conference

10–11 September 2025
13th International Conference on Sustainable Development (ICSD): "Creating a unified foundation for Sustainable Development: research, practice and education"
Rome, Italy
www.ecsdev.org/conference/13th-icsd-2025

17 September 2025
COLI International Symposium: "Wood, health and sound"
Tokyo, Japan
www.bmluk.gv.at/en/coli/coli--japan2025.html

18–19 September 2025
2nd Global Summit on Climate Change & Environmental Sustainability: "Sustainable Pathways: Innovating for Climate Resilience"
Los Angeles, United States of America
www.climatechangeconferences.org/program-schedule

22–25 September 2025
Woodrise 2025
Vancouver, Canada
www.web.fpinnovations.ca/woodrise2025/

9–11 October 2025
IUFRO Division 9 Conference: "Integrative Forest Governance, Policy, Economics, and beyond"
Beijing, China
www.iufro.org/media/fileadmin/science/divisions/div9/90000/beijing25-1st-announcement.pdf

9–15 October 2025
IUCN World Conservation Congress: "Powering Transformative Conservation"
Abu Dhabi, United Arab Emirates
https://iucncongress2025.org/

20–24 October 2025
6th World Congress on Agroforestry: "Agroforestry for People, Planet, and Profit"
Kigali, Rwanda
www.agroforestry2025.org

23–24 October 2025
European Business and Nature Summit 2025
Helsinki, Finland
www.green-forum.ec.europa.eu/business-and-biodiversity/european-business-and-nature-summit_en

28–30 October 2025
The Biodiversity Conference 2025: "Nature Positive"
Perth, Australia
www.biodiversity2025.com/

4–6 November 2025
Second World Summit for Social Development
Doha, Qatar
https://social.desa.un.org/world-summit-2025/about

4–7 November 2025
31st Session of the Asia-Pacific Forestry Commission
Chiang Mai, Thailand
www.fao.org/forestry/all-events/events-detail/31st-session-asia-pacific-forestry-commission/en

10–21 November 2025
2025 UN Climate Change Conference (UNFCCC COP 30)
Belém, Brazil
www.unfccc.int/cop30

19–21 November 2025
IX Latin American Forestry Congress (CONFLAT)
Lima, Peru
www.conflat.org

24 November–5 December 2025
20th meeting of the Conference of the Parties to the Convention on International Trade in Endangered Species (CITES CoP20)
Samarkand, Uzbekistan
www.cites.org/eng/cop20

25–26 November 2025
14th Asia Smart City Conference
Yokohama, Japan
ki-ascc@city.yokohama.lg.jp

8–12 December 2025
Seventh session of the United Nations Environment Assembly (UNEA-7): "Advancing sustainable solutions for a resilient planet"
Nairobi, Kenya
www.unep.org/environmentassembly/unea7

23–25 February 2026
COLI Summit: Country-Led Initiative on Advancing Sustainable Forest-based Bioeconomy Approaches
Vienna, Austria
www.bmluk.gv.at/en/coli.html

2–4 June 2026
Carrefour International du Bois
Nantes, France
www.timbershow.com

19–30 October 2026
17th meeting of the Conference of the Parties to the Convention on Biological Diversity (CBD)
Yerevan, Armenia
www.cbd.int

Note that all meetings are subject to change or cancellation. 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.

Global Legal & Sustainable Timber Forum 2025

From Forest to Home — An International Dialogue on Emerging Consumer Trends and Supply Chains Innovation

23-24 September

MGM COTAI
Macao SAR, China

Hosts

ITTO
INTERNATIONAL TROPICAL TIMBER ORGANIZATION

澳門特別行政區
Região Administrativa Especial de Macau
Macao Special Administrative Region
招商投資促進局
Instituto de Promoção do Comércio e do Investimento
Commerce and Investment Promotion Institute

Organizer

GGSC

Diamond Partner

MGM 美高梅

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