ITTO

TFU

Promoting the conservation and sustainable development of tropical forests

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Fast-tracking sustainability

With many indicators of sustainability heading in the wrong direction globally, it's easy to lose sight of the gains being made and the success stories emerging due to efforts in the forest sector. The international community is increasingly recognizing the important role that tropical forests and forest products can play in the fight against climate change, while also providing the world with much-needed materials and enabling rural communities to achieve economic development.

One of the keys to this role, according to ITTO Executive Director Gerhard Dieterle in this double edition of the TFU (page 3), is sustainable supply chains—ensuring that forest industries adhere to the principles of legality and sustainability, from the management of the forest resource through processing, marketing and consumption. In his article, Dr Dieterle also sets out ITTO's new programmatic approach, which was endorsed at the 55th session of the International Tropical Timber Council in Lomé, Togo, in December 2019 and will now be piloted.

Elvis Caballeros (page 5) presents a success story in Guatemala, where an ITTO project has assisted the development of micro, small and medium-sized forest enterprises. One locally owned company benefiting from the support and showing strong signs of sustainability is Sacalá, presented on page 8 as a case study prepared by Francisco Xanté. Sacalá manufactures more than 100 wood products sold nationwide using a local planted-forest resource, employs 12 full-time staff, and plays a strong positive role in community development, including by empowering women.

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Editor Ramón Carrillo
Editorial assistant Kenneth Sato
Secretarial assistant Kanako Ishii
Design DesignOne (Australia)
Printing/distribution Substantial Aps (Denmark)

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International Tropical Timber Organization
International Organizations Center – 5th Floor
Pacifico-Yokohama, 1–1–1 Minato Mirai, Nishi-ku
Yokohama 220–0012 Japan
t 81–45–223 1110
f 81–45–223 1111
tfu@itto.int
www.itto.int

Cover image: Children run on a fast track in forest near the Sacalá community forest enterprise in Guatemala. *Photo: R. Carrillo/ITTO*

Andrew Lowe and co-authors (page 10) present another successful ITTO project, this time in Indonesia. The project had two main aims: to support forest law enforcement by developing a DNA-based timber verification system; and to assist small and medium-sized forest enterprises in verifying the legality of their operations. Key government and private-sector partners in Indonesia were involved in planning and executing the project, including the demonstration of DNA timber identification tools in real-world timber processing and trade.

Also on the general theme of sustainable supply chains, the article on page 13 reports on a major international forum convened by ITTO and partners in Shanghai, China, in October 2019. The forum—the first of its kind to enable a dialogue on how to improve timber supply chains and make them legal and sustainable—brought together major players in the tropical timber industry and trade to discuss how best to harness the role of the industry in mitigating climate change and how to move forward in the development of global green timber supply chains. Forum participants issued a statement (reproduced on page 15) and agreed to create the Global Green Supply Chain Network, which will be a coalition of forest companies and other wood-industry stakeholders committed to working together towards legal and sustainable supply chains.

The article on page 16 reports on outcomes of the 55th session of the International Tropical Timber Council—including additional funds for ITTO's work, a panel discussion on "women and markets" convened by the Civil Society Advisory Group, and speeches by Togo Prime Minister Kome Sélom Klassou, Council Chair John Leigh, and others.

The article on page 21 reports on the inaugural Trade and Markets Day, held during the Council session. It featured a high-level panel discussion, which, among other things, examined the economic benefits of forest plantations and forest landscape restoration. Trade and Markets Day also included this year's Annual Market Discussion, which addressed the challenge of promoting value-adding development in Africa's forest sector. The day concluded with a statement by the Trade Advisory Group, which recommended, among other things, that ITTO play an important role in unlocking obstacles to the creation of tree plantations, especially in the context of ecosystem restoration. This touches on a theme also addressed in a statement made by the Civil Society Advisory Group during the Council session, which expressed concern about what appeared to be an undue focus on the procurement of timber from plantation forests. Nevertheless, the views of the two advisory groups are not incompatible—as long as efforts to plant forests conform to the principles of forest landscape restoration and sustainable forest management.

Phan Thi Thu Hien (page 25) explores the phenomenal emergence of Viet Nam's timber industry in recent years (with exports valued at nearly USD 9 billion in 2018), based in part on a plantation resource that exceeds 3 million hectares. Despite its success, Viet Nam's plantation sector faces challenges, including verifying its legality and sustainability and meeting growing wood demand while performing the many social and environmental services expected of it. The article explores the factors behind the success of the country's timber industry and concludes with recommendations for its continued growth and improvement.

An article by Fran Maplesden (page 31) summarizes the findings of ITTO's latest review of the world timber situation, which provides insights into trends in the global timber sector and markets, including the production and trade of primary and secondary processed wood products. Finally, a report by Mike Adams (page 33) explores developments in the main tropical timber markets in 2019.

By sustainably producing timber and non-timber products and maintaining or increasing the delivery of environmental services, the tropical forest sector clearly has a huge role to play in global efforts to address environmental and developmental challenges. Fast-tracking this role will require a renewed effort at all scales and from all actors—and the international community can lead the way.

From the Executive Director

The increasing recognition of the role of wood in mitigating climate change has major implications for ITTO's work

by Gerhard Dieterle
ITTO Executive Director
oed@itto.int

by Gerhard Dieterle
ITTO Executive Director
oed@itto.int

In its special report on climate change and land, the Intergovernmental Panel on Climate Change (2019) states that:

> *Sustainable forest management can maintain or enhance forest carbon stocks, and can maintain forest carbon sinks, including by transferring carbon to wood products, thus addressing the issue of sink saturation (high confidence). Where wood carbon is transferred to harvested wood products, these can store carbon over the long-term and can substitute for emissions-intensive materials reducing emissions in other sectors (high confidence). Where biomass is used for energy, e.g., as a mitigation strategy, the carbon is released back into the atmosphere more quickly (high confidence).*

This is the first time that the role of wood products has been recognized as a significant element in the global fight against climate change. The report further states that the goal of keeping the global temperature increase below 1.5 degrees Celsius cannot be achieved without forests and forest products. The situation is even more crucial now. The UN Environment Programme's latest emissions gap report (UNEP 2019) found that average temperatures are on track to rise by 3.2 degrees Celsius from the baseline average temperature at the start of the industrial age, more than double the target of 1.5 degrees Celsius. Previous work indicates that the potential contributions of forests and forest products are about 8 gigatonnes per year, or roughly 15% of the global mitigation target (according to Yale University and World Bank publications).

This clear recognition of the role of forests and forest products has practical implications for ITTO's work. For example, it means that we need to:

- Address forest management and the use of forest products in an integrated way to account for the climate benefits at all stages. In short: we need to look at the sustainability of whole supply chains, from trees in the forest to products in the market.
- Address the emerging supply gap in timber, wood-based energy and other forest products for satisfying the needs of the many millions of new citizens in Africa and across the tropics in coming years.
- Ensure that forests and forest industries contribute, to their maximum extent, to the advancement of bio-based and circular economies while meeting the needs of a growing global population.
- Ensure that the economic functions of forests also contribute to other important needs of society and the environment.

This is a substantial shift from previous approaches worldwide, in which timber and wood-based energy were often treated as a cause of the problem rather than an integral part of the solution. We are now seeing a trend towards integrated approaches in which development and economic growth, climate, and the multiple other benefits of forests and forest products are seen as part of win–win solutions with tremendous potential, especially for producer countries (Table 1).

More people on the planet means a need to supply not only more food but also more wood, woodfuel and other important forest services. Imagine what would happen if the rapidly growing population in the tropics, and especially the additional 3 billion people who will be living in Africa by the end of the century, need to rely on an inadequate forest resource. It would mean more degradation, more competition with agriculture, more consumption of non-renewable materials and energy, more losses of jobs and livelihoods—especially in rural areas—and more migration and conflict. The cost of inaction will be incredibly high, and the task for ITTO is clear: to be a leader in promoting sustainable value chains, restoring forest landscapes, and protecting forest biodiversity and other vital public-good functions of forests.

By creating sustainable value chains and accelerating the restoration of forest landscapes, tropical timber producer countries can boost their domestic supply of wood products as well as export earnings from international trade. By protecting forest biodiversity through sustainable forest management, they can ensure that forests continue to adapt to changing environmental (as well as economic and social) conditions.

Table 1: Multiple wins from legal and sustainable supply chains, forest conservation and forest restoration, versus the cost of inaction

Benefits of legal and sustainable supply chains, forest conservation and forest restoration	Cost of inaction
Address multiple Sustainable Development Goals	Increased poverty/loss of rural jobs
Economic growth	Increased carbon dioxide (CO_2) emissions from the degradation and loss of forests
Reduced rural poverty	Increased CO_2 emissions from use of non-renewable materials/energy
Improved rural livelihoods	Reduced export earnings and dependence on imports
Wood security	Loss of biodiversity and other environmental functions
Substantial climate benefits (up to 8 gigatonnes per year)	Risk of increased migration and conflict
Environmental improvement and biodiversity conservation	
Improved global water regime	

Link in the chain: Sustainable wood supply chains can contribute to a range of development and environmental goals, including the mitigation of climate change. *Photo: T. Yanuariadi/ITTO*

Piloting a programmatic approach

Delegates at the 55th session of the International Tropical Timber Council took account of the fact that winning the fight against climate change cannot be done without addressing the development needs of rapidly growing populations in the tropics. It endorsed the ITTO Secretariat's proposal for piloting a new programmatic approach to focus future work on the following four programme lines:

1) Legal and Sustainable Supply Chains (LSSC)
2) Biodiversity in Productive Forests
3) Forest Landscape Restoration and Resilient Livelihoods
4) Emerging Issues and Innovation.

We believe that the proposed approach will:

- strengthen the role of forests in achieving the Sustainable Development Goals;
- improve funding (based on initial experience with the LSSC pilot) and increase the role and visibility of ITTO in the international forest, climate and development agendas;
- streamline the Organization's existing complex project development process through a new, agile, flexible and efficient project-cycle concept;
- streamline the outputs and impacts of project implementation, monitoring, evaluation and reporting, with clear and concise indicators; and
- bring together donor funding policies and priorities with the needs and demands of producer members.

ITTO alone cannot solve the tremendous challenges ahead. More than ever we need to act in partnership with other organizations in the Collaborative Partnership on Forests as well as with civil society, local communities, indigenous peoples and the private sector. ITTO continues to reach out to, and work with, partners all over the world, including those involved in global and regional processes, students, local authorities and communities, and high-level national and private-sector leaders.

This article is based on Dr Dieterle's address to the International Tropical Timber Council at its 55th session held in Lomé, Togo, on 2–7 December 2019.

References

IPCC 2019. Summary for policymakers. In: *Climate change and land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems* [P.R. Shukla, J. Skea, E. Calvo Buendia, V. Masson-Delmotte, H.- O. Pörtner, D. C. Roberts, P. Zhai, R. Slade, S. Connors, R. van Diemen, M. Ferrat, E. Haughey, S. Luz, S. Neogi, M. Pathak, J. Petzold, J. Portugal Pereira, P. Vyas, E. Huntley, K. Kissick, M. Belkacemi, J. Malley, (eds.)]. In press. Intergovernmental Panel on Climate Change (IPCC).

UNEP 2019. *Emissions gap report 2019*. United Nations Environment Programme (UNEP), Nairobi.

When micro businesses have macro impact

An ITTO project in Guatemala has helped micro, small and medium-sized forest enterprises move towards sustainability

by Elvis Caballeros

Chief of Forest Trade, National Forest Institute of Guatemala (elvis.caballeros@inab.gob.gt)

Board member: Margarita Loel is a member of the board of Sacalá, a community forest enterprise that is selling kitchen utensils and toys to the national market. Micro, small and medium-sized forest enterprises are important for Guatemala's economy. *Photo: R. Carrillo/ITTO*

Guatemala's total land area is 10.9 million hectares, of which about 40% (4.36 million hectares) is forest. The forest sector is important for the country's economy, and a key to helping it grow is supporting the development of micro, small and medium-sized enterprises (MSMEs) associated with forestry, forest plantations and forest-related communities.

Guatemala's National Forest Institute (*Instituto Nacional de Bosques*—INAB), the government agency responsible for the forest sector outside natural protected areas, has promoted several forest-related programmes since 1998. Two mechanisms, the Forest Incentives Programme (PINFOR) and the Law for the Promotion of the Establishment, Rehabilitation, Restoration, Management, Production and Protection of Forests in Guatemala (*Ley de Fomento al Establecimiento, Recuperación, Restauración, Manejo, Producción y Protección de Bosques en Guatemala*—PROBOSQUE), have attracted a total investment of USD 426 million. As part of these mechanisms, incentives are granted to individuals, communities, organizations and other legal entities that contribute to the conservation, use and restoration of forest areas.

A priority for INAB is to support forest-related enterprises and entrepreneurs and, as part of this, an ITTO-financed project known as the Forest MSME Management Project[1] was implemented from 2015 to 2018. The aim of the project was to encourage informal businesses (such as backyard carpentry workshops) to formalize and register in the National Forest Registry (*Registro Nacional Forestal*) through the Electronic Forest Enterprise Information System (*Sistema Electrónico de Información de Empresas Forestales*—SEINEF[2]) and thus become part of the country's formal economy.

An overview of MSMEs

As in most of Latin America, Guatemala's MSMEs represent the country's largest collective source of employment and are vital, therefore, for the Guatemalan economy. According to the Ministry of the Economy, of a total of 372 779 registered companies, 371 176 are MSMEs and the remaining 1603 are large companies. The classification of MSMEs is based on the number of people employed, as follows: microenterprise = 1–10 employees; small enterprise = 11–80 employees; and medium-sized enterprise = 81–200 employees (thus, large enterprises are those with more than 200 employees). Microenterprises account for 88.7% of all businesses in the country, small enterprises for 9.76%, medium-sized enterprises for 1.08% and large enterprises for 0.43% (Ministry of Economy of Guatemala, 2018).

INAB divides the country into nine administrative regions (Figure 1). Table 1 shows some of the major characteristics of forest companies in each of these regions.

1 PD 756/14 Rev.1 (M): "Establishment of the Business Management Services Program for Forest MSMEs in Guatemala"

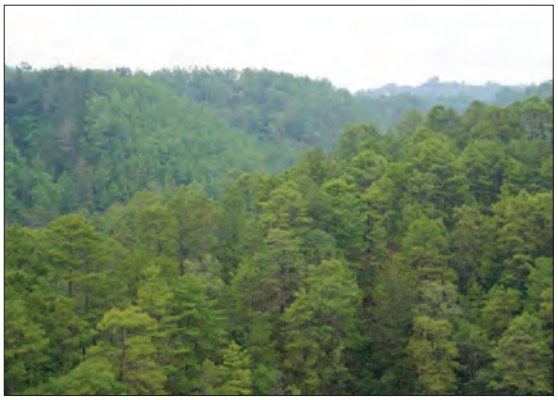
2 SEINEF was established with the support of another ITTO-financed project (TMT-PD 004/11 Rev.2 (M)).

The objective of the project reported here was to help alleviate poverty and support local development by strengthening the management capacity of community enterprises involved in the production and marketing of timber and non-timber forest products and environmental services.

Forest MSMEs face a wide range of problems, including:

- a lack of financial and accounting statements;
- obsolete timber-processing equipment;
- a lack of marketing and trade strategies;
- a lack of industrial safety for workers;
- a lack of inventory controls;
- short-term (day-by-day) planning and a lack of a vision for the future (with no clear goals or growth strategies);
- no mission, vision or values;
- in most cases, a lack of logo or brand name;
- a lack of information on financing mechanisms to provide leverage and growth; and
- limited knowledge of opportunities and demand for products and about potential clients.

Thus, the project helped developed business plans to strengthen MSME capacities.



Healthy development: INAB has promoted the development of the forest sector outside protected areas since 1998, such as this forest area in the department of Chimaltenango. *Photo: R. Carrillo/ITTO*

Operational strategies

Project implementation was based on six operational strategies:

1) Assess the status and capacities of MSMEs through a national survey.
2) Based on their degree of development, identify the needs of individual MSMEs through a business situation diagnosis.

Figure 1: INAB administration regions, Guatemala

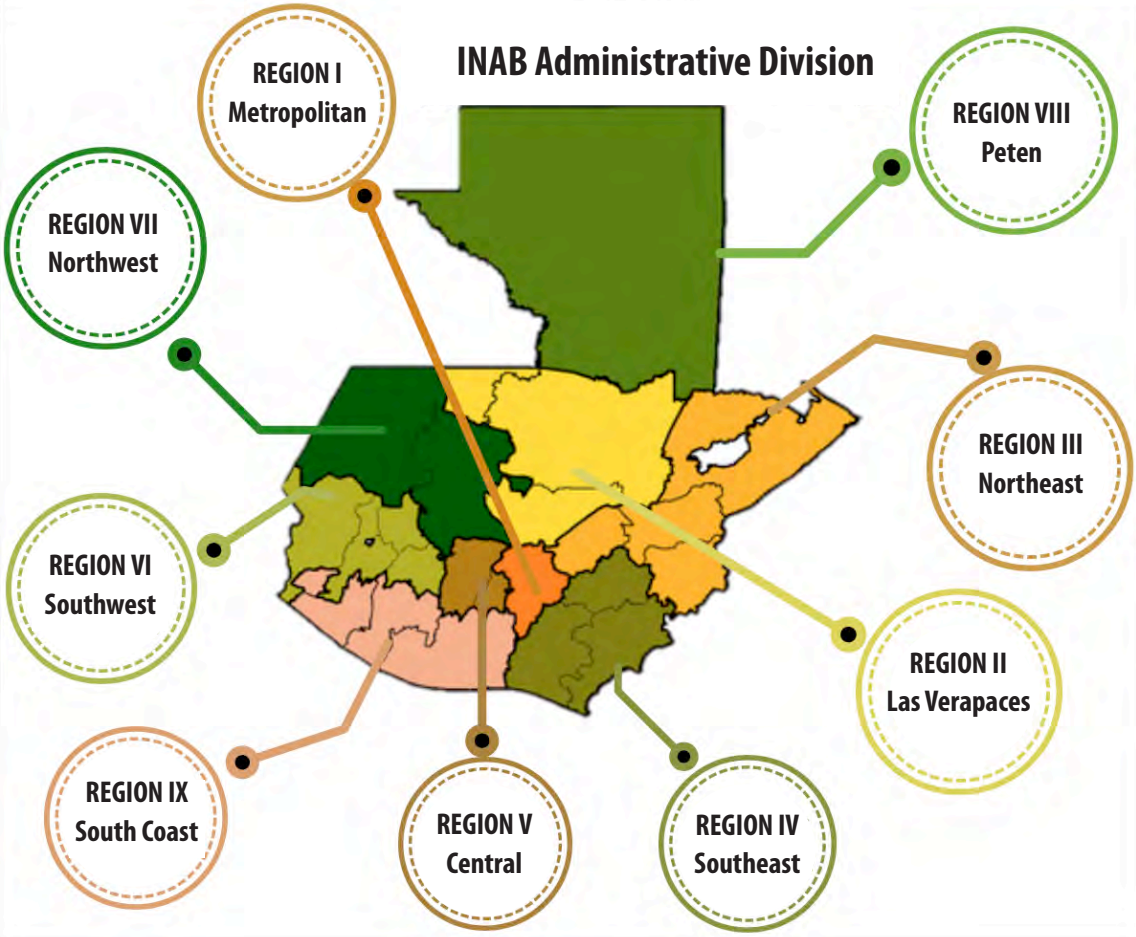


Table 1: Major characteristics of forest MSMEs, by forest region, Guatemala

Region	No. of forest product stocking centres	No. of forest product depots	No. of forest product exporters and importers	No. of wood-based enterprises	No. of non-timber forest product enterprises	Total no. of forest-based enterprises
I	2	151	163	137		**453**
II	5	60	16	80	1	**162**
III	1	39	37	120		**197**
IV		21	6	47		**74**
V	1	37	19	148		**205**
VI	2	106	12	69		**189**
VII		14		32		**46**
VIII	1	21	16	53		**91**
IX		65	7	27		**99**
Total	**12**	**514**	**276**	**713**	**1**	**1516**

Source: Prepared by the author based on 2019 SEINEF data.

3) Support and empower MSMEs by developing their business plans as a strategic and operational tool to assist them in their relationship with the market.

4) Promote the development of networking platforms among MSMEs, both within and outside the forest sector.

5) Increase the level of knowledge among MSMEs through integrated business management training.

6) Offer new product packages to current and potential clients to increase sales and generate employment and income at the local level.

Outcomes achieved

The project benefited several MSMEs owned by individuals, families and communities. A database of 127 MSMEs was created nationwide. Business diagnoses were carried out for 40 of these, and 19 of them developed business plans.

The database includes the following information: region where the MSME is located; trade name; whether the business is registered with the Tax Administration Office (*Superintendencia de Administración Tributaria*—SAT); name of owner or legal representative; business address; landline telephone; mobile telephone; and email address.

New product and service packages were developed to increase supply by including local innovation, thus generating more sales and income for producers. The project provided ten networking opportunities, at which MSMEs shared experiences ranging from internal management to production management and access to markets.

A trade mission was conducted to Belgium, France, Germany and India to:

- search for international markets for MSMEs;
- establish and consolidate business links between foreign companies and national MSMEs;
- raise awareness internationally of the availability of products produced by MSMEs and promote investment in national forest MSMEs; and
- develop a more holistic vision of the needs, requirements and demands of international buyers so as to facilitate trade between other countries and Guatemala.

Outcomes of the trade mission included visits to Guatemala in 2018 by representatives of the German company INTECFOR to establish partnerships with national producers and by representatives of the Indian company M/S Bharat Timbers to see the country's teak and gmelina plantations. Moreover, the company Aron Global (which already imports from Guatemala) expressed interest in receiving not only logs but also some semi-processed products (e.g. flitches); this could generate more income for local producers by adding value and enabling more volume to be shipped per container (it was estimated that Guatemalan producers could earn up to 15% more from this change).

The trade mission also provided other benefits. For example, it gathered information on the requirements, needs and demands of international entrepreneurs as well as on the use of simple modern processes and technologies that could be transferred to MSMEs in Guatemala to increase their efficiency.

It is clear that many companies are looking to purchase timber and non-timber products from Guatemala, especially of species such as teak, gmelina, cypress, pine, mahogany, cedar and pucté. Some companies also expressed interest in investing in the country to establish processing facilities or to develop business partnerships with Guatemalan entrepreneurs.

The project confirmed that all the certification accreditations and treaties that Guatemala has signed relevant to forestry are important internationally. Compared with many other countries, forest management in Guatemala is well advanced.

The trade mission made it clear that action must be taken to facilitate exports of timber products and to increase the skills of Guatemalan enterprises so they can compete internationally in price and product quality and design.

Over the life of the project, 320 people undertook the Diploma in Business Management, which included eight modules: 1) the enterprise; 2) the market; 3) technical analysis; 4) environmental analysis; 5) financial analysis; 6) economic analysis; 7) action plan; and 8) presentation of business plans. These modules were replicated in the regions by INAB officers who had previously participated in the course. Two case studies presented here—on El Buen Samaritano and Sacalá—illustrate the changes that have been achieved in local communities.

"El Buen Samaritano"—from timber depot to forest industry

One of the project's beneficiary enterprises was the forest product depot, *El Buen Samaritano* ("The Good Samaritan"), located in Barrio Santa María, Poptún, in the Petén region. Before participating in the project, the main business of this company was the sale of pine sawnwood, and it did not have its own machinery. After more than a year of work and the follow-up of INAB's regional Industry and Trade Officer, the company developed a business plan, which determined that it could become a processor if it acquired certain equipment (i.e. a mobile sawmill, a planer, a saw, an edger and a vehicle).

The owner has now acquired most of this equipment and is about to register his company as a forest processor in the National Forestry Registry (*Registro Nacional Forestal*—RNF) to begin operations. He is buying roundwood of a range of species popular with end-consumers and carpenters. The company will offer services such as sawing, planing and moulding and will thus create more local employment.

Sacalá

by Francisco Xanté
fxante@tikonel.org, www.tikonel.org

The Sacalá community is located in San Martín Jilotepeque in the department of Chimaltenango, not far from Guatemala City in an area that was seriously affected by the country's civil war. In 1991, the Sacalá community entered into an agreement with Cauque Farms, a private company involved in the production and marketing of organic vegetables and the training of local farmers. Leaders from Sacalá were trained in the production of organic vegetables, but very few managed to move to the commercial production stage due to factors such as a lack of water for irrigation in their area; the steep slope of their lands; and a lack of access roads and communication capabilities.

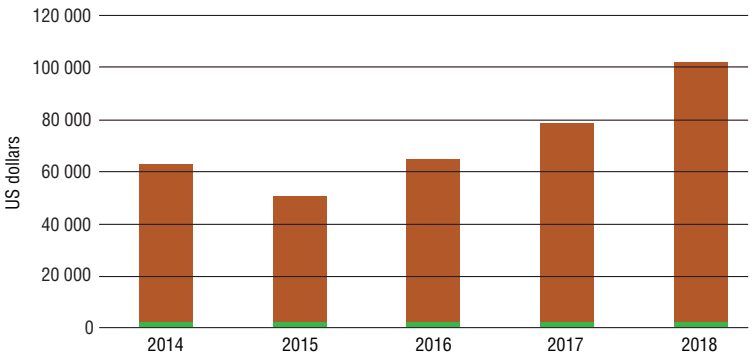
A Sacalá community leader, Patricio Coroy, contacted Cauque Farms in 1994 to see if the community could develop economic alternatives in the forest sector because their lands were suitable for forestry and there was a need to produce woodfuel and protect water supplies. Thus, Sacalá and other communities became involved in the project.

Cauque Farms decided to support a forestry scheme that would focus initially on reforestation, woodfuel production and environmental protection. In 1998, ten community members (five men and five women) received training in carpentry. Cauque Farms secured USD 2000 from Helvetas, enabling them to establish a small carpentry workshop with manual equipment (because there was no electricity in Sacalá). Cauque Farms provided support in the design

Dust has settled: Sacalá was established in 2004 and has now consolidated its operations as a successful community enterprise. *Photo: R.Carrillo/ITTO*

Eggceptional handiwork: Patricio Coroy, founder and president of Sacalá, holds a wooden egg-holder, a product sold by a retailer nationwide. *Photo: R. Carrillo/ITTO*

Figure 2: Sacalá sales value, 2014–2018



Source: Prepared by the author.

of toy products and the search for customers, eventually placing the products in the TEACH store in Guatemala City, which specialized in educational toys. The company became operational in 1999, and it began buying wood from farms and sawmills.

Sacalá was established in February 2004 as a limited company with a total of seven shareholders, one of them being the Tikonel Association, as part of a strategy to ensure its sustainability. In 2012, the Tikonel Association leveraged resources for the refurbishment and expansion of the carpentry workshop, developing industrial safety processes and a "5S" system[3] and generating permanent employment for 12 heads of household (four women and eight men).

The organizational structure of Sacalá has now been consolidated with the support of the Forest MSME Management Project. In 2016, the project supported the development of a business plan with a vision to 2021. This plan was backed by senior management through the company's board of directors, which has nine members, seven of whom are women (including the current chair).

At present, 98% of the company's production goes to the national market, with 13 major clients, and 2% goes to the international market (comprising one client in the United States).

Sacalá offers its clients more than 100 products, such as tea boxes, card boxes, cheeseboards, serving platters, fruit bowls, and serviette holders, all produced from small-diameter logs sourced from locally managed forests. The project helped the company to develop new products and designs.

Sacalá sells its products to retailers, which then sell to end-consumers. One of the retailers is CEMACO, a chain with 17 stores nationwide. Figure 2 shows sales over the five years from 2014 to 2018, coinciding with the project's influence. Sales increased by 23.5% from 2016 to 2017 and by almost 30% from 2017 to 2018.

Impacts

Sacalá is providing direct, permanent employment for 12 heads of households, with indirect benefits for about 60 people. The imperative to emigrate is reduced because the place of employment is near the workers' homes. Service providers in the community, such as shops and businesses supplying food products and education and health services, are deriving benefits from the additional spending of these families. The project has also had an impact on the shareholders and participants of local MSMEs in terms of economic empowerment, accountability and decision-making.

The capacities developed during the project helped Sacalá to leverage an investment of USD 15 000 from the Rural Development Bank (*Banco de Desarrollo Rural*—BANRURAL) and helped increase sales by 13% above the target of USD 96 300 per year.

Conclusion

The MSMEs involved in the project are now applying what they learned in the business management diploma course and are strengthening their management skills. They have greater control over production and improvements are ongoing, and they are expanding their client portfolios and increasing innovation through business promotion events.

Sales projections for the 19 MSMEs that developed business plans amount to USD 5.8 million over the next five years. To achieve this goal, however, it will be necessary to leverage an investment of about USD 650 000.

Project outputs can be found by inserting the project code PD 756/14 Rev.1 (M) into the ITTO project search function at www.itto.int/project_search

3 5S is a workplace organization method.

Supporting legal timber supply in Indonesia

An ITTO project has helped develop a DNA-based timber-tracking system

by Andrew Lowe[1], Eleanor Dormontt[1] and Anto Rimbawanto[2]

[1] Environment Institute, School of Biological Sciences, University of Adelaide, Adelaide, Australia (andrew.lowe@adelaide.edu.au; eleanor.dormontt@adelaide.edu.au)

[2] Centre for Forest Biotechnology and Tree Improvement at the Ministry for Conservation and Forestry, Yogyakarta, Indonesia (rimba@indo.net.id)

Core activity: Supi, a member of the field staff at Cabang Panti in West Kalimantan, Indonesia, takes an increment core sample from a *Dipterocarpus* species. *Photo: Eleanor Dormontt/University of Adelaide*

Illegal logging and the trade of illegally sourced timber cause many economic problems, such as tax revenue losses for governments and the deterioration of livelihoods for forest communities, as well as environmental problems such as forest degradation. Legislative instruments such as the SVLK in Indonesia, Australia's Illegal Logging Prohibition Act, the European Union Timber Regulation, and the Lacey Act in the United States of America have been established to combat illegal logging and the trade of illegally sourced timber, but practical mechanisms for identifying the origin of wood and wood products are still lacking. Many methods used to identify timber legality and to control associated trade have met their limits with tropical tree species. Species identification tests can rarely get beyond the genus level, and existing timber-tracking systems (using mostly paper-based documentation) are vulnerable to fraud because they rely on externally affixed markers rather than on characteristics inherent to the wood itself.

Project overview

An ITTO project[1] began in August 2015 with the aim of developing a more robust timber-tracking system. It was led by the Environment Institute at the University of Adelaide, Australia, in partnership with the Centre for Forest Biotechnology and Tree Improvement at the Forestry and Environmental Research, Development and Innovation Agency in Indonesia. The project focused on the development of DNA-based markers, which can be used to identify the species, region and even individuals of origin of important Indonesian timber species in the Dipterocarpaceae family.

1 ITTO project TFL-PD 037/13 Rev.2 (M): "Implementing a DNA timber tracking system in Indonesia".

DNA markers use characters inherent in the timber, making them impossible to falsify; externally affixed markers like tags, on the other hand, can never be completely tamper-proof. DNA identification can provide high spatial resolution—meaning that different genetic populations can be determined within areas of forest that otherwise seem continuous and cannot be differentiated by other means. DNA identification can also distinguish unambiguously between closely related or similar species where other identification methods that rely on wood appearance generally fail to do so. DNA-based techniques, therefore, have considerable potential as important tools for verifying timber origin.

Project aims and outputs

The project had two main aims: to support better enforcement of forest laws through chain-of-custody and tracking and tracing systems and improved verification and monitoring procedures; and to increase the capacity of small and medium-sized enterprises in the harvesting, processing and handling of timber from legal and sustainably managed sources.

These aims were realized through the following project outputs:

- the development of genetic reference data for 72 important Dipterocarpaceae timber species, including the red merantis (e.g. *Shorea parvifolia*, *Shorea palembanica* and *Shorea pauciflora*), the yellow merantis (e.g. *Shorea multiflora*), the white merantis (e.g. *Shorea agamii*), merawan (e.g. *Hopea dryobalanoides*), lauan (e.g. *Dipterocarpus grandiflorus*), kapur (e.g. *Dryobalanops aromatica*), and resak (e.g. *Vatica nitens*);

Industry feedback: A participant asks a question at a project workshop for wood-industry stakeholders in Yogyakarta in August 2018. *Photo: Purnamila Sulistyawati*

- increased capacity in Indonesia in the use of DNA markers for timber tracking and species identification through training in Indonesia and Australia; and
- the development of chain-of-custody methods using DNA identification for bangkirai (*Shorea laevis*) involving key industry stakeholders. Bangkirai was chosen for this because it is a highly traded species that is becoming rarer in the wild. Its high value means that it may increasingly be harvested illegally, and other woods may also be sold erroneously as bangkirai, risking the reputation of the species.

Challenges

The project was ambitious, and it faced several challenges. The sampling of trees to develop a genetic reference database is labour-intensive and complicated. It needs advanced taxonomic expertise as well as highly trained and coordinated teams and advanced data-capture and handling processes. The application of DNA markers to assign species and origin to processed timber also requires that extracted DNA is of sufficient quality to obtain a result. Finding the right DNA regions to analyze (i.e. that exhibit sufficient between-species variation but are small enough to work well in timber-derived DNA) is complex and requires the use of next-generation sequencing capabilities and skilled bioinformatic analysis. The project also faced the challenge of demonstrating that the technology could be used effectively and routinely in the Indonesian timber trade.

In planning and implementing the project, the team considered how to approach these challenges and mitigate the associated risks they posed to overall success. The highly skilled field teams developed standard operating procedures to control data and sample collection. Additional taxonomic verification steps were employed to ensure the correct species identification of samples. The extraction of DNA from timber was optimized and novel approaches employed to identify suitably variable gene regions, and existing genetic resources for these species were also leveraged. Forest authorities and logging companies in Indonesia were involved in planning and executing the project, including the demonstration of DNA timber identification tools in real-world timber processing and trade by industry partners.

A financial impairment in ITTO resulted in a significant delay in the delivery of project funds as well as some cuts. Nevertheless, the partner organizations worked hard to deliver against a restricted project plan, providing additional support to maintain staff contracts in a period of uncertainty. The results were encouraging given the reduced size of the sample set that could be analyzed; they represent an excellent basis for future work to fully develop DNA timber identification capacities in the Dipterocarpaceae in Indonesia.

Stakeholder engagement

With a view to increasing uptake of the research, the project delivered two stakeholder workshops involving representatives of scientific, governmental, industry, certification and non-governmental organizations. The first of these workshops was held in March 2016 and the second in August 2018.

The first workshop helped identify stakeholder requirements and how these could be incorporated into the project, increasing the likelihood that outputs would be implemented. The following key recommendations emerged from the workshop:

- Focus on bangkirai products because species substitution is an important issue threatening the reputation of legally sourced Indonesian timber.
- Develop tests that are cheap for the end user.
- Develop tests that are easily implementable with government legislation—such as Indonesia's SVLK certification process.

Taxonomy: Field staff work in the evening organizing sample collections to produce genetic reference data on Dipterocarpaceae timber species.
Photo: Rainbo Belton/University of Adelaide

The project's overall aims and achievements were presented at the second workshop. Participants were encouraged to contribute to the identification of future research and development opportunities to build on the project outcomes by broadening the scope and application of DNA technologies in support of legal timber trade in Indonesia. The following key suggestions were made:

- Expand the reference data to allow the determination of Indonesian versus Malaysian timbers.
- Build more capacity in Indonesia to facilitate better DNA extraction from timber, next-generation sequencing capabilities, and the development of bioinformatics resources.
- Explore complementary wood identification methods, such as stable isotopes.
- Engage more with smallholders.

Capacity building and technology transfer

The project included training and development activities for Indonesian staff to aid capacity building in Indonesia and technology transfer between Australian and Indonesian researchers. These activities occurred in Indonesia at the Centre for Forest Biotechnology and Tree Improvement and in Australia at the Advanced DNA Identification and Forensics Facility (part of the Environment Institute), where training in DNA identification methods and techniques was provided.

Demonstration of DNA verification in industry

Industry partner Double Helix Tracking Technologies worked with timber traders sourcing Indonesian Dipterocarpaceae products to successfully demonstrate the utility of DNA testing to verify species claims. In a range of tests for multiple clients, DNA testing was able to verify claims, as well as indicate where misidentifications had been made. These results proved valuable for traders, who were able to update their species declarations for export and identify those supply chains with less-reliable claims.

Future work

The completed project lays the foundation for expanding the DNA reference database to include all species and samples collected and for further demonstrating and integrating these methods into Indonesian timber supply chains to support legal trade. The work is continuing with the appointment of a doctoral candidate in Australia and the planned appointment of a doctoral candidate in Indonesia; these two students are expected to further develop this approach to timber identification and tracking to support the legal timber trade.

Project outputs can be found by inserting the project code TFL-PD 037/13 Rev.2 (M) into the ITTO project search function at www.itto.int/project_search

International forum creates network for green supply chains

Participants have agreed to work together to develop a mechanism designed to speed the development of green timber supply chains

by the ITTO Secretariat

Yokohama, Japan
(itto@itto.int)

In harness: Panellists discuss the role of the wood industry in mitigating climate change. *Photo: CTWPDA*

An international forum of forest enterprises, timber associations, governments and intergovernmental organizations has agreed to create a voluntary network among forest managers, producers, traders, the processing industry and consumers to add value to forests through the recognition of their economic, social and environmental values and the incorporation of legality and sustainability in all forestry operations.

The Global Green Supply Chain (GGSC) Network, which will be maintained by a coalition of forest companies and other wood-industry stakeholders committed to legal and sustainable supply chains, received support in a statement (reproduced in full on page 15) by companies pledging to help build a "collaborative network of global green supply chains to promote the sustainable development of forest industries and contribute to the conservation and sustainable use of global forest resources". The network is open to all interested parties worldwide, including stakeholders in producer countries and along supply chains to the consumers of final products.

The forum was attended by more than 350 people, including major players in the tropical timber industry and trade. ITTO, its lead co-organizer, has a mandate to promote sustainable forest management (SFM) and the expansion and diversification of tropical timber trade from legal and sustainable sources. It has helped lead the GGSC initiative through its Legal and Sustainable Supply Chains Programme. The other co-organizers of the forum were the China Timber and Wood Products Distribution Association (CTWPDA), the International Tropical Timber Technical Association (ATIBT), and China's Center for International Forest Products Trade/National Forestry and Grassland Administration (CINFT/NFGA), and all four co-organizers committed to supporting and facilitating the establishment and operation of the GGSC Network.

"The development of global green timber supply chains will enhance the production, processing, distribution and consumption of legal and sustainable timber and forest products, including tropical timber," said ATIBT president Robert Hunink.

"In so doing it will bring benefits to all stakeholders, from governments and forest owners in the tropics to end-consumers, and it will help us solve some of the world's most urgent problems."

Forum participants heard that the world is facing unprecedented environmental challenges, including climate change, deforestation, species extinctions and desertification.

"We know that forests, and especially tropical forests, contain extraordinary biodiversity, are crucial for efforts on climate-change mitigation, and have huge cultural importance for indigenous and other traditional peoples," said John Leigh, Chair of the International Tropical Timber Council.

"Yet the land they occupy is also valuable for farming, ranching, mining and urban development. To minimize the risk of losing the forests, therefore, it is imperative that they generate substantive economic benefits for income, jobs, livelihoods and development in general. This is why we need green supply chains to ensure stable supplies—domestically and internationally—of legal and sustainable timber from sustainably managed forests."

Among other things, forum participants discussed how to harness the role of the wood industry to mitigate climate change; the increasing demand for wood products globally; efforts to ensure legality and sustainability in global wood supply chains; and how to move forward in the development of global green timber supply chains.

Applause: Participants at the international forum praised efforts towards improving the image of the tropical forest sector. *Photo: CTWPDA*

"The industry faces many challenges in the global adoption of green timber supply chains," said Zhu Guangquan, Chief Expert of CTWPDA. "It requires a spirit of partnership throughout the industry and, ultimately, all actors will benefit."

The GGSC Network will foster closer collaboration and exchange between all partners in global supply chains by sharing information and enhancing collaboration and know-how.

Improving the image of the forest sector

A key topic of discussion during the forum was the lingering perception among many people worldwide that logging causes deforestation and therefore the forest industry is a destructive agent. Changing this perception is crucial if wood-based products, and the forest industry, is to play its role in mitigating climate change.

There was apparent consensus among participants that a main priority should be to eliminate illegality, because illegal timber ruins the reputation of the entire sector and acts as a brake on increasing prices for legal timber and thereby increasing the competitiveness of sustainable forest management as a land use. Another key is building trust among stakeholders in timber supply chains, which can best be done through open dialogue and transparent processes.

Demonstrating—through green supply chains—that wood-based materials are from legal and sustainable sources could be the decisive factor. "Do this," said one speaker, "and the world is the 'oyster' for wood-based products".

The International Forum—Together Towards Global Green Supply Chains was supported financially by the Federal Ministry of Food and Agriculture of Germany (BMEL). Other supporters included the European Union, the Food and Agriculture Organization of the United Nations (FAO), the French Development Agency (AFD), the German Development Bank (KfW), the UK Department for International Development (DFID), the China Green Carbon Foundation (CGCF), the CTWPDA Hardwood Sub-Committee, the Shanghai Timber Trade Association (STTA) and the Global Green Supply Chain Secretariat.

Download forum presentations at www.itto.int/news/international_forum_creates_network_to_encourage_global_green_timber_supply_chains.

Contact itto@itto.int for more information on the forum and the Global Green Supply Chain Network.

Nature-based solutions: Wood products are key elements for decarbonizing and moving towards a bio-based circular economy, according to the latest report of the Intergovernmental Panel on Climate Change. *Photo: R. Carrillo/ITTO*

Key Outcomes – INTERNATIONAL FORUM – Together Towards Global Green Supply Chains – A Forest Products Industry Initiative –

Forests are crucial terrestrial ecosystems, providing essential environmental, social, cultural and economic services and functions on which humanity depends. Their restoration and sustainable management will contribute to the achievement of several of the Sustainable Development Goals (SDGs), particularly those related to responsible consumption and production, climate action, and life on land.

Indeed, forests can contribute to solving many of the unprecedent global challenges we face today, including by mitigating climate change through carbon sequestration and storage. Sustainable forest management, particularly in the tropics, will reduce biodiversity loss and prevent the degradation of land and water resources while meeting rising demand for wood products from the rapidly growing global population.

Wood products, one of the main revenue earners of sustainable forest management, has been an essential material through history. It is used in housing, construction, shipbuilding and the furniture sectors, among many other applications. The latest special report by the lntergovernmental Panel on Climate Change states that sustainably managed forests and wood products are key elements for decarbonizing and moving towards a bio-based circular economy by sequestering carbon dioxide from the air and storing it in terrestrial sinks and forest products and by substituting the use of non-renewable materials and energy. This is of critical relevance to the forest industry gathered here today, because nature-based solutions to climate change involving trees and forests can only be fully achieved within the framework of legal and sustainable supply chains, from the forest to the market.

Harnessing the benefits of legal and sustainable supply chains will require the strong commitment of, and coordinated and well-documented actions by, the many actors in supply and value chains. Participants in this Forum identified the following key ingredients for achieving legal and sustainable supply chains: sufficient technical expertise, research, capacity building and know-how; fiscal and other macro-economic incentives for good business; access to finance at affordable interest rates; the availability of information and data for decision-making; stable legislation; and transparency and good governance.

To this end, the International Forum "Together Towards Global Green Supply Chains – A Forest Products Industry Initiative" held in Shanghai on 22–23 October 2019 highlighted the need to foster closer collaboration and exchange between all partners in global supply chains by sharing information and enhancing collaboration and know-how based on a voluntary network among forest managers, producers, traders, the processing industry and consumers. This network, referred to as the Global Green Supply Chain Network (GGSC Network), will be open to all interested supply-chain operators and related stakeholders.

The International Tropical Timber Organization (ITTO), under its Legal and Sustainable Supply Chains Programme (LSSC), and the co-organizers of this forum are committed to supporting and facilitating the establishment and operation of the GGSC Network. The work will include the following immediate next steps:

- the development of modalities of work and collaboration by building on the existing experiences of the GGSC platform in China;
- the building of an information database accessible to all, including the existing Global Timber Tracking Network (GTTN);
- taking into account existing verification of legality and sustainability mechanisms within existing global rules and legal frameworks;
- supporting the implementation of a business-to-business communication and information exchange as part of the GGSC Network, building on the output of an ITTO project, making this information publicly available on a monthly basis (including information and data on markets for timber and wood products).

The additional noteworthy key outcomes from this Forum are:

- Enhanced collaboration between the Union des Forestiers Industriels du Gabon et Aménagistes (UFIGA) and the Union Forestière des Industries Asiatiques au Gabon (UFIAG) in support of the establishment of GSSC Initiative and the commitment from the Gabonese forest industries in moving towards independent third-party certification of legality and/or sustainability for their forest operations within a three-year period.
- The establishment of an international enterpreneurs' and private-sector expert team who will communicate regularly to consolidate challenges, opportunities and measures to be taken to further the aims of legal and sustainable supply chains, to be fed into the GGSC Network.
- The enhanced collaboration between the International Tropical Timber Technical Association (ATIBT) and the Global Green Supply Chains (GGSC) Secretariat, based in China.
- The strengthened dialogue, collaboration and formalization of the working relationship between the ATIBT and the China Timber & Wood Products Distribution Association (CTWPDA) in order to increase the impact of sustainably produced wood from West and Central Africa.

The Forum acknowledges that markets for legal and sustainable wood products could further incentivize sustainable forest management, particularly in the tropics, and further acknowledges the important role of the private sector in connecting the various links of the supply chain. Therefore, we invite all stakeholders to join the GGSC Network, which aims to add value to forest resources through the full recognition of their economic, social and environmental values, and the incorporation of the concepts of legality and sustainability in all forestry operations with a voluntary stepwise approach. We further urge the private sector to embrace the multiple benefits above, requiring sustained efforts and participation at the global level and for current and future members of the GGSC Network to incorporate progress towards achieving legal and sustainable supply chains. The joint efforts through this International Forum will contribute positively to the Collaborative Partnership on Forests (CPF) Joint Initiative, Sustainable Wood for a Sustainable World (SW4SW).

We call on all stakeholders to strive towards the common goal of achieving legal and sustainable timber supply chains, and we commit to convening again next year to report on progress and share experiences gained.

Council welcomes new guidelines, funds pledged

The most recent session of the International Tropical Timber Council considered a range of issues related to the sustainable management of tropical forests and the sustainable trade of tropical timber

by the ITTO Secretariat

Yokohama, Japan
(itto@itto.int)

Seeking guidance: This forest landscape in Togo may require action to arrest degradation processes and ensure sustainability. *Photo:"IMGP0035" by j_bg is licensed under CC BY-SA 2.0*

The International Tropical Timber Council has welcomed new guidelines aimed at assisting the restoration of degraded tropical forests and forest lands and thereby enabling the sustainable management of landscapes over time. This was one of the outcomes of the Council's 55th session, which was held on 2–7 December 2019 in Lomé, Togo.

Also during the session, the Council adopted guidelines on environmental and social management with the aim of providing a user-friendly, implementable system for integrating safeguards and risk management into the ITTO project cycle. The Council, which is ITTO's governing body, comprises 74 members (73 countries and the European Union) concerned with promoting the trade of sustainably produced tropical timber.

Developed using the global principles agreed by the Global Partnership on Forest Landscape Restoration, ITTO's new guidelines on forest landscape restoration provide direction at the policy and operational levels for restoring degraded forests and formerly forested landscapes in tropical forest biomes. The Secretariat will revise the draft, taking into account comments received from ITTO members, for formal adoption intersessionally.

The Council decided to pilot a new programmatic approach to its work in the period 2020–2022, with four programme lines: 1) Legal and Sustainable Supply Chains; 2) Conservation of Biodiversity and Ecosystem Services; 3) Forest Landscape Restoration and Resilient Livelihoods; and 4) Emerging Issues and Innovation. During the piloting phase, the Council will seek to further develop the programmatic approach with clear objectives and a streamlined project-cycle process. It has established an advisory board to receive updates on the pilot phase and provide advice to the Executive Director.

The Council made five other decisions related to the administration of the Organization.

Several donors pledged new funds at the session: the Government of Japan, the Government of the United States of America, the Government of the Republic of Korea, and the Government of China. Among the work funded with this money is a project to improve traceability in the forest production chain in Guatemala and a pre-project to build stakeholder capacity in the private and community forest sector in Togo. Partial funding was provided for a project to improve landscape management in the Giam Siak Kecil-Bukit Batu Biosphere Reserve in Riau Province, Indonesia, and for a project to increase the capacity of local communities and the Forest Administration to implement a community forestry programme in Kratie and Mondulkiri provinces, Cambodia. Several existing programmes, such as the Legal and Sustainable Forest Product Supply Chains initiative, cooperation between ITTO and CITES, and statistical capacity-building workshops, received additional funding, and 14 candidates were awarded ITTO Fellowships. Overall, about USD 5.1 million of voluntary contributions have been pledged for the Organization's work in 2019, including intersessionally. Other donors include the European Union and the Government of Germany.

Speaking at the close of the session, Professor David Wonou Oladokoun, Togo's Minister of Environment, Sustainable Development and Nature Protection, paid tribute to the efforts made and the energy deployed to ensure that the session was inclusive and resilient.

ITTO Council Chairperson John Leigh thanked Minister Oladokoun and, through him, the government and people of Togo for the excellent arrangements for the session and their superb hospitality. Mr Leigh reminded delegates of

Goodwill: Mr Maekawa Hidenobu, a delegate of Japan, makes an intervention during a session of the Committee on Finance and Administration at the 55th Council session. *Photo: R. Carrillo/ITTO*

Friendship: Togo's Minister of Environment, Sustainable Development and Nature Protection, Professor David Wonou Oladokoun (right), shakes hands with outgoing Council Chair John Leigh at the close of the 55th session. *Photo: R. Carrillo/ITTO*

the need for a strong ITTO, "because no other organization has the capacity to both develop universally agreed policies and help countries implement these on the ground".

In his closing speech, ITTO Executive Director Dr Gerhard Dieterle told the Council that the Secretariat would invest all its efforts to bring new and additional financial resources to the Organization for the benefit of people and forests in ITTO member countries.

"This is our key priority and commitment to all of you," he said.

Sustainable timber supply chains seen as urgent response to climate change

Bringing about sustainable forest management, led by a sustainable trade in forest products, is now urgent in the face of climate change, according to Togo's Prime Minister, Kome Sélom Klassou, who spoke at the opening of the Council session.

Mr Klassou said that forests face enormous risks, and their degradation and loss are contributing to global warming.

"Forest resources are not infinite; on the contrary they are deteriorating at an alarming rate," he said. "Facing these major challenges, we need to reverse this trend to promote consistent policies for sustainable forest management."

Also speaking at the session opening, Dr Dieterle said there was now clear international recognition that forests and forest products can contribute substantially to the mitigation of climate change.

"This is a substantial shift from previous approaches, in which timber and wood-based energy were treated as a cause of the problem rather than an integral part of the solution," he said.

The need to produce more wood by sustainable means was more urgent than ever, said Dr Dieterle, as the global population grows and climate change looms ever larger.

Close listening: The house was packed for the opening of the 55th session of the Council. *Photo: R. Carrillo/ITTO*

Climatic urgency: Togo's Prime Minister, Kome Sélom Klassou, says that bringing about sustainable forest management is now urgent in the face of climate change. *Photo: R. Carrillo/ITTO*

"More people on the planet means a need to not only supply more food but also more wood, woodfuel and other important forest services," he said.

A failure to adopt sustainable timber supply chains, said Dr Dieterle, would mean more degradation, more competition with agriculture, more consumption of non-renewable materials and energy, more loss of jobs and livelihoods, especially in rural areas, and more migration and conflict.

"The cost of inaction will be very high," he said.

Council chair Leigh said that timber, including tropical timber, should be seen as an opportunity for sustainable development and a potential part of the solution to climate change.

"There is an urgent need to improve the image of the forest sector and to address the lingering perception among many people worldwide that logging causes deforestation and therefore that the forest industry is a destructive agent," he said.

Sustainably managed forests and wood products can play a major role in "decarbonizing" economies by sequestering carbon dioxide from the air and storing it in long-term wood products such as house frames and furniture, and by using wood as a substitute for non-renewable and high-carbon-emitting materials and energy, said Mr Leigh.

"Therefore, nature-based solutions to climate change involving trees and forests can only be fully achieved within the framework of legal and sustainable supply chains, from the forest to the market," he said.

ITTO has embarked on an initiative to encourage the development of "legal and sustainable" tropical timber supply chains. It is working with governments in the tropics, as well as importing countries, wood producers and exporters, and civil-society bodies to increase transparency in such supply chains, adopt sustainable practices such as low-impact logging and efficient processing techniques, and ensure the equitable distribution of benefits from the tropical timber trade.

Among other things, the Organization has worked with major Chinese timber importers to develop the Global Green Supply Chain Network, a network of like-minded companies and industry associations to address sustainability in tropical timber supply chains (see previous article).

The development of sustainable tropical timber supply chains would benefit everyone, according to Professor Oladokoun. Such supply chains should, he said, "make it possible to improve the quality and availability of information on tropical forests, markets and trade in wood forest products in order to reassure consumers about legal and sustainable sources of the products they buy".

This, in turn, would assist tropical timber producers, including smallholders, to gain greater access to global markets for their products and increase their earnings from it, which would enable them to invest more in sustainable forest management.

Prime Minister Klassou concluded that such approaches were essential for sustainable development to become a reality.

"We must reconcile freedom of trade and respect for the rule of law, economic development and the urgent need to reconcile ourselves with nature," he said.

Market talk: Women are strongly involved in forestry in Togo but need help to grow their businesses, according to a panel discussion on women and markets convened by the Civil Society Advisory Group during the 55th session of the Council. *Photo: R. Carrillo/ITTO*

Togo women take initiative in forest sector, need help

Involving women in forestry can reduce pressure on deforestation and improve forest management, but they need assistance to enable their enterprises to grow. This was one of the conclusions to arise from a panel discussion on "women and markets" convened by the Civil Society Advisory Group (CSAG) during the 55th session.

Yawa Edzodzinam Dogbe said that, in Togo, women had taken the initiative to intervene in the sustainable management of forests through actions that reduce pressure on forests.

Ms Dogbe is a member of the African Women's Network for Community Management of Forests (REFACOF), a non-governmental organization (NGO) promoting collective action by African women to address social, political, legal and economic challenges related to forest management in Africa. REFACOF has chapters in several countries on the continent.

Ms Dogbe said that a group of about 60 women's NGOs in Togo had joined forces to implement a small project financed by the World Bank to promote the use of improved stoves in rural households. The project had worked in 60 townships to raise awareness of the effects of climate change, the causes and consequences of deforestation and the benefits of using better-designed cookstoves. Improved metal and ceramic stoves had been distributed to 2000 rural households. Three hundred rural women entrepreneurs had received training in the manufacture of improved cookstoves, which they are now selling in local markets.

According to Ms Dogbe, the use of improved stoves in rural households has made it possible to reduce the consumption of wood energy, the time women spend cooking, and household costs incurred by women.

Ms Dogbe expressed the hope that financial support will be forthcoming for a national capacity-building programme for rural women entrepreneurs that would help scale up the manufacture and commercialization of improved stoves to national and regional markets.

Another speaker on the panel, Rachel Awoussi Boyindjo, from the NGO Dimension Humaine in Togo, said women play extremely important roles in forestry in her country.

"They cut the wood and transport it, they produce charcoal, and they help reforest degraded areas," she said.

According to Ms Boyindjo, women account for 97% of the charcoal market in Togo and 35–40% of the lumber market. They also produce large quantities of palm oil harvested in forests, generating considerable revenue. Such activities enable women to make important contributions to family, community and national economies and reduce pressure on natural ecosystems.

Nevertheless, said Ms Boyindjo, women work mostly in the informal sector and face many problems because of this; moreover, women still lack adequate access to land and forests for developing their enterprises. She called for more support for reforestation, the allocation of forests and land to women, capacity building for women, and improvements in the legal framework to enable small producers, especially women, to develop their businesses.

During the panel discussion, REFACOF president Cécile Ndjebet announced the launch of the REFACOF chapter in Togo. She reported that REFACOF had convened a two-day workshop—funded by ITTO—in Lomé immediately before the Council session. The aim of the workshop, which was attended by 24 Togolese women involved in various aspects of forest management, was to inform participants of the work of ITTO and thereby enable them to participate actively in the Council session.

In closing the panel discussion, moderator Sheam Satkuru from the ITTO Secretariat said the striking point in the presentations was the ways in which involving women in forestry can help reduce forest degradation and loss. Nevertheless, she said, women entrepreneurs need assistance in legalizing their enterprises and developing their capacity to operate profitable, efficient businesses. Ms Satkuru pointed out that ITTO's Legal and Sustainable Supply Chains pilot programme could help address these needs.

Be cautious on plantations, says Civil Society Advisory Group

CSAG has urged caution about assuming that tree plantations are always good and beneficial. The CSAG statement, presented by coordinator Chen Hin Keong during the Council session, expressed deep concern about what appeared to be an undue focus on the procurement of timber from plantation forests.

"Governments need to wake up to the fact that their forests are the greatest natural resource a country possesses," according to the statement.

The statement acknowledged that tree plantations would inevitably become more important in the forest sector. Nevertheless, ITTO should continue to address the sustainable management of natural forests for the many services and benefits they provide.

"We urge Council to work with members to find markets for sustainably sourced higher-value timber species from natural forests … and work with indigenous peoples and local communities, including women and the youth, to manage forests sustainably and to ensure sustainable use of their many forest products." ITTO should, "go back to basics—focus on sustainable forest management and species conservation for sustainable utilisation—for the people of this world, and for the health of our planet."

The CSAG statement commended the ITTO Secretariat for initiating a new programmatic approach to the Organization's work. Moreover, "throughout the long history of ITTO, the Organization has done great work in developing guidelines to help SFM". The statement urged the Council to adopt the Guidelines for Forest Landscape Restoration in the Tropics and the ITTO Environmental and Social Management Guidelines. The statement indicated that CSAG will continue to advocate and share the various ITTO guidelines widely, and it recommended regular monitoring and evaluation, in collaboration with CSAG, of progress towards the implementation of the ITTO guidelines.

Read the full CSAG statement at www.itto.int/ittc-55/presentations.

Adding value to timber in Africa

The International Tropical Timber Council convened its first "trade and markets day" to examine the challenges facing the tropical timber trade and sustainable supply chains, especially in Africa

by the ITTO Secretariat

Yokohama, Japan
(itto@itto.int)

High table: The podium of the high-level panel discussion held as part of Trade and Markets Day. *Photo: R. Carrillo/ITTO*

The massive restoration of degraded forest landscapes in West Africa, combined with strong incentives for private-sector investment, could help lead economic development while meeting a looming timber supply deficit, according to speakers at a high-level segment on the inaugural Trade and Markets Day, held during the 55th session of the International Tropical Timber Council in Lomé, Togo.

Speaking during the segment, ITTO Executive Director Dr Gerhard Dieterle said that the growing population in Africa, combined with ongoing forest degradation, meant there was considerable danger of a downward spiral in which people put increasing pressure on increasingly scarce forests, leading to ongoing land degradation and a range of other serious consequences.

On the other hand, said Dr Dieterle, "If we were to rebuild degraded forests, it would have tremendous benefits for wood security and employment".

Optimizing the economic benefits of a substantial forest landscape restoration programme requires sustainable and legal supply chains, he said, but developing these was a major endeavour requiring capacity building among many stakeholders, especially small-scale producers.

Other speakers in the high-level segment, which was moderated by ITTO's Director of Operations Sheam Satkuru, indicated a strong intent in governments to develop forest plantations as a means to pursue sustainable development objectives related to a green economy, climate change, poverty alleviation and the reversal of land degradation, among other things.

David Wonou Oladokou, Togo's Minister of Environment, Sustainable Development and Nature Conservation, said there was increasing interest among smallholders in his country in growing wood in planted forests. These actors need to organize so they can better engage with government on policy issues and to build capacity in forest and business management, he said. It was also important to add value to the wood being harvested in the country's plantations, and this required government support.

Dr Oladokou said his government had policies in place to incentivize forest-growing, but more was needed.

"We are attached to the fate of the private sector, we need to support them," he said. "Forestry requires long-term investments."

Cameroon's Minister of Forests and Wildlife, Jules Doret Ndongo, said that his government was setting up a national forest plantations programme to create a new forest economy based on plantation-grown timber. This would require major investment.

Dieudonné Sita, Director of Forests in the Congo's Ministry of Forest Economy, pointed out that a major problem facing any potential investor in forests, wood processing and legal supply chains, especially smallholders, is a lack of access to finance.

"At the level of the subregion and in my country, banks are unlikely to finance operations to increase the value of timber products," he said. Many domestic actors are experiencing serious cash-flow problems and are looking to governments for support, he said.

The problem is acute. According to one intervention from the audience, "forest industries in our countries are on their knees. No banks are willing to support the timber industry to grow".

New resource? Cameroon's Minister of Forests and Wildlife, Jules Doret Ndongo (left), spoke about his country's plantation ambitions during the high-level panel discussion held during Trade and Markets Day. *Photo: R. Carrillo/ITTO*

Some countries, such as Benin and Togo, have government policies in place to encourage private-sector investment in reforestation, but more is clearly needed, said speakers and delegates. There was a call for governments to create major incentive packages, as had been done in other regions, especially Asia, to stimulate the forest industry. Panellists requested ITTO to continue supporting efforts to increase investments in forest plantation development, value adding and legal and sustainable supply chains, especially through capacity building.

Change of mindset needed to create value-added industry in Africa

Africa's governments and the private sector must jointly take ownership of the challenge of developing a value-added wood industry, focus on opportunities and stop being daunted by problems, according to one of the speakers at this year's Annual Market Discussion, which took place as part of Trade and Markets Day.

"Africa should take heart from the success of other regions but develop solutions specific to its situation rather than copying what the winners did," said Mafa Chipeta, who spoke provocatively at the Annual Market Discussion.

"Africa's development in all areas has been weak, and a culture of laying blame on others instead of finding their own solutions has taken root," he said. "The failure of private investment in Africa is almost certainly mostly due to failure of government policy, commitment and discipline."

Mr Chipeta set out five "intervention areas" he said were needed to industrialize Africa's forest sector: changing mindset; having higher ambition and persistence; promoting a local stake in the industry; growing the African market and negotiating fairer trade and investment agreements; and investing—in plantations, infrastructure, and human and institutional capacity.

Other speakers at the Annual Market Discussion addressed various aspects of the challenge of promoting value-adding development in Africa's forest sector.

Mind reset: Mafa Chipeta set out five intervention areas he considers essential for industrializing Africa's forest sector, including a change in mindset. *Photo: H. Apedo*

Pyoabalo Alaba, Water and Forest Engineer and Director General of Togo's Office of Forest Development and Exploitation (ODEF), described the status of Togo's forest resources and forest industry and addressed some of the constraints.

"We have a real need to modernize and overhaul our processing," he said. "The private sector cannot obtain funds from banks because of insufficient safeguards and guarantees. The economic agents of the timber industry largely work informally. Everyone is acting in isolation from everyone else, and we need to formalize the sector."

Get together: ODEF Director-General Pyoabalo Alaba said that Togo's forest sector needs to formalize and organize if it is meet the challenges facing wood processing. *Photo: H. Apedo*

Tuned in: Participants listen to discussions during Trade and Markets Day. *Photo: R. Carrillo/ITTO*

A young entrepreneur in Togo's forest sector, Ayite Gaba, said that the country's teak processing industry faces two major challenges: an overdependence on buyers from India, which means that local processors need to buy their logs at international prices, which few can afford; and the low quality of locally produced teak furniture, largely because of the low-quality teak logs the industry inevitably obtains. Mr Gaba made four recommendations to address the situation, including that the government provide incentives to help Togolese grow successful teak businesses that can compete internationally.

Fifonsi Ayélé Dangbo presented the recommendations arising from the ITTO Regional Workshop on Smallholders Forest Landscape Restoration in West Africa, held in Lomé just before the Council session. She said the common characteristics of forest smallholders include limited access to land; low financial capital; a general focus on subsistence; the use of only simple production technologies; and dependence on others for marketing, which creates a high level of vulnerability and risk of exploitation. The workshop made five recommendations, including the following two: governments should establish land and tree tenure for the effective empowerment of smallholders undertaking forest landscape restoration, and create incentive mechanisms and management support for smallholders; and smallholders should be supported to improve the growth, quality and productivity of plantations and in the development of markets.

Professor Labode Popoola, from the University of Ibadan, Nigeria, explored the dynamics of intra-African timber trade. He said that such trade "has enormous potential for creating employment, catalysing investments, fostering economic growth, reducing poverty and enhancing wood and energy security". He made a number of recommendations, including on the need to build sustainable institutions and partnerships across sectors and economies to encourage timber trade among African countries.

Roy Southey, Executive Director of Sawmilling SA, outlined the development of South Africa's forest industry, from its early days in the last century to today. Three factors seem to have been especially important, he said: a strong mining industry, which brought skilled workers to the country and created domestic demand for timber; a timber shortage, which created impetus for the country to develop plantations with the view to achieving timber self-sufficiency; and a period of international trade isolation, which forced investment to create a domestic timber-processing industry.

Rik Sools, Managing Director of Form International, spoke about his company's experiences in developing teak plantations in Ghana and addressed the question of why there is so little teak processing in Ghana.

"Mainly the timber industry is focused on natural forest timber, and the big operators have not seriously moved to plantation timber," said Mr Sools. Moreover, most teak on the market is quite young (12–15 years old), but there is pressure on the resource, leading to the harvesting of small-sized trees and, consequently, low prices for growers. This has led to another problem in the sector.

"Small growers have become discouraged because of this dynamic and are considering other land uses, such as cashew," said Mr Sools. He concluded that, among other things, better organization of producers, investment, and technical support are needed to stimulate improved plantation management and local processing and resolve current bottlenecks. The Government of Ghana, ITTO and other stakeholders could support this transition by providing incentives, supporting pilot projects and facilitating more research.

In the ensuing discussion, a delegate from Viet Nam noted that two key elements underpinned his country's success in developing a wood-processing industry. One of these was land-tenure reform in the 1990s, in which state-owned land was allocated to farmers. Combined with a payment scheme for forest services funded by downstream water users, farmers were encouraged to restore their land with trees. Today, Viet Nam has more than 3 million hectares of commercial planted forests. The other key element of success, said the delegate, was the privatization of industry, enabling the private sector to invest in and develop the wood industry. Today, there are more than 5000 wood-processing enterprises. Viet Nam banned the logging of natural forests in 2016.

Tree planting "revolution" needed to limit climate change, says Trade Advisory Group

ITTO should focus on the positive relationship between trees and carbon sequestration, according to the Trade Advisory Group, which delivered a statement on Trade and Markets Day.

According to the statement, "there is scientific evidence growing trees is good for the climate, [and] we should capitalize on this".

"Council should be aware of the increasing interest shown globally to establish tree plantations. And more importantly, Council should know the struggle by investors and other stakeholders to plant trees. There is probably enough biological science and knowledge available on how to grow trees, with enough care to biodiversity, but what is holding back plantations of significant scale?"

The Trade Advisory Group suggested that ITTO could play an important role in unlocking obstacles to the creation of tree plantations, especially in the context of ecosystem restoration.

Revolutionary: Barney Chan delivers the Trade Advisory Group's statement during Trade and Markets Day. *Photo: R. Carrillo/ITTO*

"There is already a lot of expertise in member countries and elsewhere," said the statement, "but ITTO need to show leadership and harness this collective expertise into a practical way forward."

The Trade Advisory Group requested the Council to fund an international meeting of experts on facilitating commercially viable plantations in the tropics, or the development of an international tropical timber plantations strategy. It posed the question, "Are we capable to ignite a tree plantation revolution to save the climate?".

Presentations made during Trade and Markets Day, and the Trade Advisory Group's statement, are available at www.itto.int/ittc-55/presentations.

Advantage, Viet Nam

Low-cost labour is only one of the reasons why Viet Nam's wood-processing industry is growing

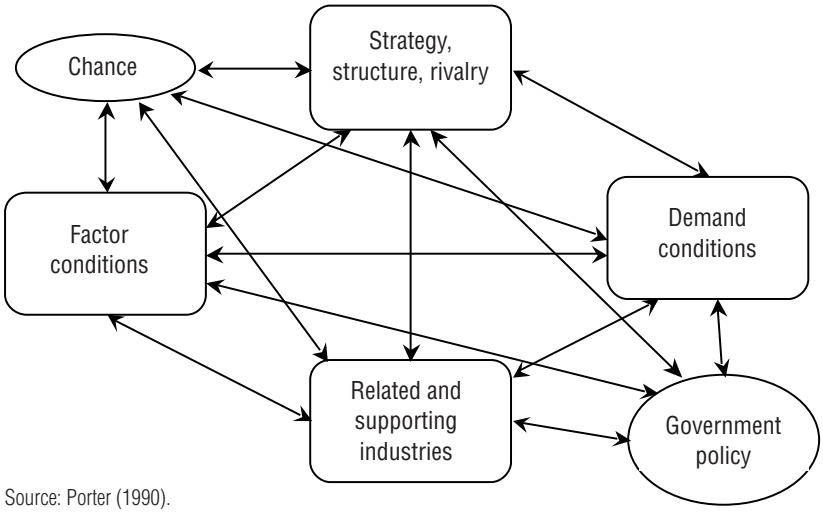
by Phan Thi Thu Hien

Foreign Trade University, Viet Nam
(phanhien@ftu.edu.vn)

Finishing touches: Workers prepare components for later assembly at a furniture factory in Da Nang, Viet Nam. *Photo: J-C. Claudon/ITTO*

The Porter diamond (more fully, the "Porter diamond of national competitive advantage") (Figure 1) was created by Michael Porter, a recognized authority on corporate strategy and economic competition and founder of the Institute for Strategy and Competitiveness at the Harvard Business School in the United States of America (US). This articles looks at the various components of the Porter diamond and, on in light of the analysis, explores the basis for the competitive advantage that Viet Nam's wood-processing industry apparently holds over some other producers of wood products.

Figure 1: The Porter diamond of national competitive advantage



Source: Porter (1990).

Factor conditions

Supply of wood inputs

Viet Nam suffers from an inadequate quantity and quality of wood material for use in the manufacture of wood products that satisfy international technical standards and legitimate regulations.

In the past, Viet Nam gained a competitive advantage from its wide range of handicraft materials, which provided a basis for expensive decorative products made from rare woods with feng shui-style ornamentation. Numerous well-known traditional villages contribute substantially to the country's exports of handicrafts to Asian markets, including China, Hong Kong SAR, and Japan, and the trade has assisted in the socioeconomic development of those villages and the country. It has also contributed to Viet Nam's unenviable position as a hub of illegal trade in timber species listed in the appendices of the Convention on International Trade in Endangered Species of Wild Fauna and Flora.

In 2014, the Government of Viet Nam declared all national natural forests closed for timber-trade-related activities, and it is working to enforce its forest laws to tackle illegal trade in legally prohibited timber. Simultaneously, policies that prohibit timber harvesting and log exports from natural forests in other Asian countries (which previously were suppliers of logs to Viet Nam), such as Cambodia, the Lao People's Democratic Republic and Myanmar, have resulted in serious shortages of input materials for Viet Nam's wood-processing industry, especially in wooden artworks.

The supply of wood inputs for Viet Nam's wood-processing industry is from two sources: locally grown plantations, and imports, discussed below.

Locally grown plantation timber. Given that the Government of Viet Nam has banned logging in national natural forests, legally sourced timber materials are mostly derived from local timber plantations.

Viet Nam had an estimated 3.2 million hectares of planted forest in 2010–2015 with a standing timber volume of 60 million m^3. The annual harvest volume is nearly 5 million m^3, mainly comprising acacia, two-leaf pine and eucalypt. Domestic timber resources, including large volumes from rubberwood plantations and on-farm plantings, cannot meet the full demand of the wood-processing industry, however. Most of the harvested trees are aged 6–10 years and the wood generally does not meet quality and technical requirements for processing materials or comply with international standards such as REACH ("Registration, Evaluation, Authorisation and Restriction of Chemicals"), European Union (EU) Regulation No. 995/2010, and private standards such as those of the Forest Stewardship Council and the Programme for the Endorsement of Forest Certification.

This situation causes difficulties for Vietnamese exporters of processed wood products to the EU and the US, which require guarantees of legality and, in some cases, a minimum quantity of certified timber in their products. Since March 2013, Viet Nam-made wood products imported into the EU market must be manufactured from legally and transparently sourced timber. Viet Nam's newly planted forests are uncertified, however, presenting manufacturers with a major challenge.

The location of timber-processing enterprises is an issue because they are not evenly distributed among the various areas of planted forests. Many large enterprises are in industrial areas with high-quality facilities and convenient transport systems connecting to local seaports (concentrated in the southeast and in Binhdinh Province) but far from planted-forest resources. Only 1% of the country's timber businesses is located in the northwest, the region with the largest areas of planted forests. This makes Viet Nam-originated wood products more costly and therefore less competitive in international markets.

Imported wood inputs. Viet Nam imports primary wood products, especially hardwood, from more than 100 countries. These imports are increasing. In 2018, Viet Nam's wood-processing industry brought in 9.98 million m^3 of logs, which was about 25% of the total wood supply in that year for Viet Nam's wood-processing sector. These imports were valued at USD 2.34 billion, up by 7% compared with 2017; the main suppliers were African countries (USD 515.6 million), China (USD 426.3 million), the US (USD 310.6 million), the EU (USD 246.5 million), Malaysia (USD 114.2 million) and Cambodia (USD 100.6 million) (GVDC 2019).

It is estimated that, to achieve its goal of exporting processed wood products valued at USD 20 billion by 2025, Viet Nam will need an additional 4 million–5 million m^3 of raw materials per year. But the timber industry faces a serious supply shortfall due to the government's prohibition of logging in natural forests and log-export bans and strict forest governance policies, laws and regulations in Asian countries that previously were major suppliers. Higher prices for wood supplies in international markets are also threatening the competitiveness and productivity of Vietnamese timber-processing firms.

Makeover: A worker spray-paints components at a furniture factory in Da Nang, Viet Nam. *Photo: J-C. Claudon/ITTO*

Nevertheless, there are good signs, with plantation timber contributing up to 70% of the industry's raw materials (To Xuan Phuc et al. 2019).

Human resources

The labour force in Viet Nam is young, plentiful and cheap, but it lacks skill and technical specialization. Viet Nam's population was estimated at 97.7 million people in 2018, growing at 1.08% per year. The working-age population (aged 15–65 years) was nearly 70 million, growing at an annual rate of 0.6% (Central Intelligence Agency 2019).

Viet Nam's wood industry has benefited from this plentiful labour at a lower cost than that in neighbouring countries; Vietnamese workers are flexible and share a strong work ethic, which makes the development of businesses in the country both exciting and rewarding. Nevertheless, relatively few Vietnamese workers are well-trained in their jobs and able to work with a long-term perspective; moreover, the classification of labour quality is unclear because of weak management and supervision. Currently, Viet Nam's wood-processing industry has more than 300 000 workers, but only 10% of the permanent working force has at least primary-school education; 35–40% of the workforce is seasonally recruited as manual labour, and the remainder is trained in wood-processing production. Thus, the level of technical specialization is moderately low in Vietnamese wood-processing enterprises, especially SMEs. A lack of skilled workers is one reason why the average wage of workers in the wood-processing industry is lower in Viet Nam than in competitor countries in the region and worldwide: it amounts to 50% of the average wage in the Philippines, 40% of that in China and about 20% of that in Europe (Nguyen Ton Quyen 2016).

To increase the comparative advantage of Viet Nam's wood-processing industry, the country needs to take into consideration the lack of professional and specialized workers capable of sophisticated tasks such as product design, marketing and promotion. Moreover, knowledge of globalization, cross-border trade, international business and human-resource management is required in this era of innovation to ensure the ongoing performance and sustainable development of Viet Nam's wood-processing industry.

Focused: Workers at a factory producing wooden chair parts in Da Nang, Viet Nam. *Photo: Iana Arkhipova/FAO*

Firm strategies, structures and rivalry

Before entering the era of market economics, Viet Nam had a feudal economy, and this culture still affects the ways in which people organize their work and businesses. For example, in addition to its many industrializing modern enterprises with updated technologies and production lines, the timber industry continues to feature timber villages such as Dongky, Van Diem and Van Ha, where most tasks are performed manually. Because of the small size of the businesses and the modest technology applied, the products in such villages are relatively unsophisticated and mostly suitable only as tourist souvenirs. On the positive side, these villages have reduced rural unemployment and helped maintain aspects of traditional culture, and they are less focused on competing with domestic and foreign rivals in the timber industry.

A major reason for some companies to focus on the domestic market is that they do not follow trends in modern furniture styles. Most handicraft villages and Vietnamese corporations design bulky wooden interiors, with elaborate decorations related to religious beliefs. In this market segment, Vietnamese producers have powerful rivals both domestically and in foreign markets, especially in China, China, Hong Kong SAR, Malaysia, Myanmar and Taiwan Province of China, which have a wide range of products and competitive prices. The existence of those competitors motivates firms to take notice of each other's actions and to adopt strategies to remain competitive.

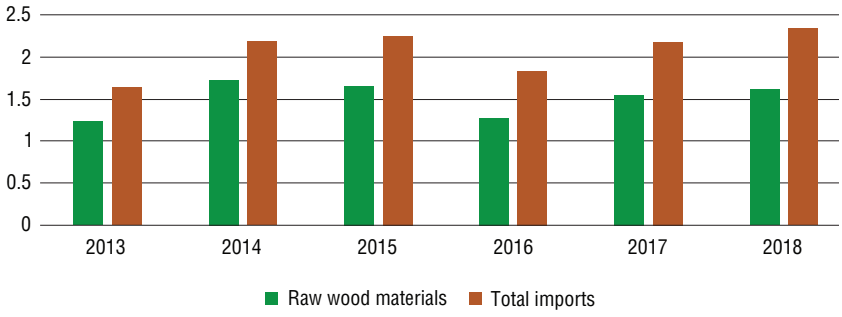
Nationally, SMEs comprise nearly 90% (by number) of the wood-processing industry, but most are subcontractors in the production of wood products sold in international markets because they lack capital, technologies, production lines and marketing knowledge. The remaining 10% of the sector comprises companies benefiting from foreign direct investment (FDI); although relatively few, FDI enterprises accounted for USD 3.93 billion in national wood-product exports in 2018, which was 62% of the total (GDVC 2019).

Thus, the Vietnamese timber industry possesses various advantages in terms of the quantity of local workers and its active participation in international trade agreements, which can help Vietnamese corporations in attracting attention from foreign investors and creating opportunities to expand markets. A range of issues needs to be tackled, however, including the lack of well-trained skilled employees, the modernization of assembly lines and the need for policy improvements.

Demand conditions

Vietnamese timber-processing enterprises tend to focus on foreign markets, adapting their operations to meet the objectives of potential international customers. On the other hand, up to 80% of the domestic market is served by foreign rivals. A "Made in Viet Nam" approach in the domestic market could represent up to USD 2 billion in annual revenue for the local industry.

Figure 2: Viet Nam's imports of raw wood materials (USD billion)



Source: To Xuan Phuc et al. (2019).

Significantly, nearly 70% of Viet Nam's total imports of wood and wood products (by value) is wood inputs for export-contracted processing production (Figure 2). This may be of concern for the long-term development of Vietnamese wood-processing enterprises: it is difficult to achieve economies of scale and demand without harmonizing international and domestic markets because of supply-chain and other challenges (e.g. those posed by nontariff and technical barriers, legal competence, intellectual property and financing). If companies continue to lose domestic market share, they face a future of merges and acquisitions, subcontracting and potentially bankruptcy and collapse due to a lack of production scale and economic returns. Increasing domestic demand, improving the standing of local wood products in the domestic market, expanding productivity and connecting to foreign markets is vital for the sector's sustainable development. Viet Nam's Ministry of Industry and Trade and VIFOREST have ongoing campaigns to promote Vietnamese products domestically, including annual fairs of wood products, home décor, handicrafts and furniture in central regions and cities.

Related and supporting industries

Spare parts, hardware and chemicals are major inputs in timber processing, but the sector in Viet Nam lacks the capacity to self-provide these to the required standards, quality and specifications. Thus, companies must import these materials, along with machinery, tools and other equipment. It is estimated that nearly 90% of wood-processing tools and equipment are imported (the remainder is locally sourced). This could be a hindrance to value adding. According to Mr Dinh Ngoc Minh in Viet Nam's Ministry of Planning and Investment, "The very substantive problem of the country is its inability to be self-sufficient and to develop the needed supporting industries for all manufacturing sectors in general and the timber-processing industry in particular. Without synchronized and efficient development schemes and orientation, Viet Nam's timber industry is still labour-intensive and has limited added-value in the global market" (Information Center for Agriculture and Rural Development 2014).

Role of the Vietnamese government

The EU–Viet Nam Voluntary Partnership Agreement (VPA) will shortly come into effect, and it will bring many export opportunities for the wood-processing industry. The challenge, however, is the supply of wood inputs, because Viet Nam still depends on large volumes of imported wood. Of the top 15 wood-supplying countries to Viet Nam, seven may be regarded as having a high risk of illegality, and these currently account for nearly two-thirds of Viet Nam's timber imports (GDVC and VIFOREST 2019). There is particular concern about high-value precious woods imported for the domestic market from countries with weak forest management and law enforcement.

The Vietnamese government has strongly committed to implementing the VPA with the aim of excluding illegal timber from wood-processing chains, and the process is underway (Table 1). In addition, the Forestry Law, which the National Assembly approved in 2017, shows awareness of the important role that the forest industry plays in the economic, social and environmental development of Viet Nam. In 2018, the Ministry of Agriculture and Rural Development showed its determination (as well as its capacity to coordinate effectively with relevant industries, ministries and localities) by publishing four decrees and seven circulars guiding implementation of the Forestry Law. The Forestry Law and associated decrees and circulars came into force on 1 January 2019.

Viet Nam's business opportunities across the globe

The ongoing trade dispute between China and the US could bring more opportunities for Vietnamese wood-product exports due to high tariff barriers applied to similar products made in China. There have been recent increases in orders from the US. There is also an investment wave from China to Viet Nam in the wood-processing industry, and the industry

Table 1: Viet Nam's VPA/FLEGT implementation roadmap (Decision No. 4852/QĐ-BNN-TCLN dated December 10, 2018)

Activity	2019	2020
1. Approval/ratification of the VPA	April 2019	
2. Development of legislative documents and technical guidelines	→	→
3. Establishment of technical infrastructure for Viet Nam Timber Legality Assurance System operation	→	→
4. Capacity building for relevant stakeholders	→	→
5. Communication and public disclosure of information	→	→
6. The VPA implementation, monitoring and evaluation	→	→
7. Connecting activities and supporting the VPA implementation regionally and internationally	→	→

Source: Vietnam Forestry Administration (2019).

is likely to attract more foreign investment in the near future, thanks to:

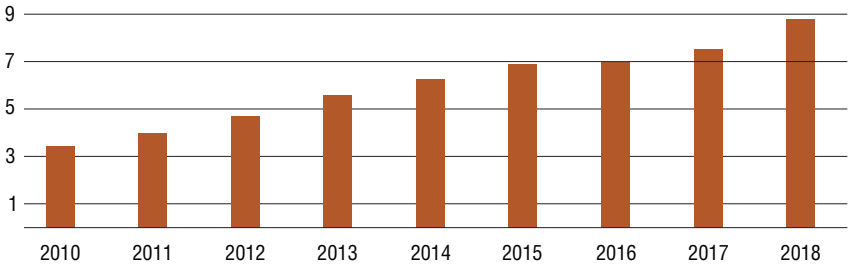
- its production costs, which are much lower than those of competitors due to abundant cheap labour and relatively good technical capacity to meet the requirements of overseas buyers and partners;
- the capacity to source raw materials from plantations for processing and exports;
- a favourable geographical location, which reduces the cost and time of cross-border trade with major trade partners, especially China and the Republic of Korea; and
- low import tariffs in many large markets—well below those on products originating in Brazil, China and Myanmar because Viet Nam has signed various free-trade agreements to this effect (Phan Thi Thu Hien 2018).

Viet Nam is seizing opportunities in international markets

Viet Nam's forest industry and wood-processing output have been booming since 2000, with growth in the number of factories, production capacity, manufacturing output and market share in local and international markets. Wood products have become the country's major export commodity, with average annual growth of 15% in the period 2011–2018 and an increase in total value from USD 3.43 billion in 2010 to USD 8.9 billion in 2018 (Figure 3) (GDVC 2019).

In 2018, Viet Nam's top five export markets for wood products were (in descending order, by value) the US, Japan, China, the EU (28 countries) and the Republic of Korea (Table 2).

Figure 3: Viet Nam's export value of wood and wood products, 2010–2018 (USD billion)



Source: GDVC (2019).

The US has been the biggest importer of Vietnamese wood products since 2015, at a value of USD 3.6 billion in 2018, which was 43% of Viet Nam's total wood product exports in that year (To Xuan Phuc et al. 2019).

Viet Nam's wood-product exports are mainly in two chapters of the Harmonized System: Chapter 44 (wood and articles of wood; wood charcoal) and Chapter 94 (wooden indoor and outdoor furniture). In 2018, wood-processed products represented 60% of the total export value (nearly USD 5.3 billion).

Viet Nam is a major exporter of woodchips (HS code of 440122), which involves a less-complex manufacturing process than most value-added products, and this is one of the main reasons for the local shortage of raw materials. Woodchips have been exported from the early days of Viet Nam's wood-processing industry: its export volume of 325 000 tonnes in 2002 was worth USD 22 million; by 2018, the export volume had reached 10 million tonnes (from 20.5 million m^3 of logs) at a value of USD 1.3 billion. China is the largest importer of Vietnamese woodchips, followed by Japan and the Republic of Korea (To Xuan Phuc et al. 2019).

Table 2: Value of major export markets of wood and wooden products, Viet Nam, 2015–2018

Export market	2015	2016	2017	2018
	(USD million)			
US	2 580	2 710	3 080	3 610
Japan	1 020	961	989	1 120
China	986	1,030	1 0890	1 080
EU	754	742	762	785
Republic of Korea	496	579	673	939
Australia	152	161	154	174
Canada	149	131	153	156
China, Hong Kong SAR	115	33.1	16.9	6.99
India	98.8	49.5	60.2	46.1
Taiwan Province of China	70.4	64.3	58.3	60.6
Malaysia	48.0	44.5	54.0	101
Others	324	295	317	398

Source: GDVC (2019).

Bare chair: A worker puts final touches on chair parts at a furniture factory in Da Nang, Viet Nam. *Photo: J.-C. Claudon/ITTO*

Conclusion

Based on the Porter Diamond theoretical framework, the Vietnamese wood-processing industry's competitive advantage lies in its favourable position for investment and exports. In the future, Viet Nam needs to improve its competitiveness by developing domestic demand and supporting industries and reducing its reliance on imports of raw materials. This study suggests a need to develop raw-wood-material zones; a highly skill labour force; a wood-processing support industry; and the legality capacity of wood-processing enterprises.

References

Central Intelligence Agency 2019. The world factbook [online]. Accessed 2 October 2019. https://www.cia.gov/library/publications/resources/the-world-factbook/geos/vm.html

GDVC 2019. 2018 *Customs handbook in international merchandise trade statistics of Vietnam*. General Department of Vietnam Customs (GDVC).

GDVC & VIFOREST 2019. Vietnam's exports and imports of wood and wood products in 2018. General Department of Vietnam Customs (GDVC) & Vietnam Timber and Forest Products Association (VIFOREST). GoViet No.108, 66–72 (available at http://goviet.org.vn/upload/aceweb/content/GoViet%20No.108_January_Feb.2019.pdf).

Information Center for Agriculture and Rural Development 2014. Vietnam Wood Industry Annual Report of 2013 and potentials in 2014.

Nguyen Ton Quyen 2016. Assessment on training requirements about human resource in the Vietnam forestry production industry from perspective of international business and integration. Paper presented at the Conference on Work Opportunity and Trends in the Vietnamese Forestry Industry. University of Forestry, Hanoi.

Phan Thi Thu Hien 2018. Market trends: Viet Nam's wood exports are booming, but the local industry is yet to realize its full commercial potential. *Tropical Forest Update* 27(2): 26–29.

Porter, M.E. 1990. The competitive advantage of nations. *Havard Business Review* March–April 1990.

To Xuan Phuc, Tran Le Huy, Cao Thi Cam, Nguyen Ton Quyen & Huynh Van Hanh 2019. Vietnam's trade in wood and wood products in 2018. *The 2018 annual report*. Vietnam Timber and Forest Products Association (available at http://goviet.org.vn/upload/aceweb/content/Bao%20cao%20thuong%20nien%20nganh%20go%202018_21.2.2019.pdf).

Vietnam Forestry Administration 2019. National Workshop on Forest Products Statistics, Da Nang, Viet Nam, 10–12 April 2019.

VIFOREST 2019. *GoViet* No.109, January (available at http://goviet.org.vn/upload/aceweb/content/GoViet%20No.108_January_Feb.2019.pdf).

China's added value

ITTO's latest review of the world timber situation shows that China continues to dominate imports of tropical primary wood products and exports of finished products

by Fran Maplesden

Consultant
Rotorua, New Zealand
(fran.maplesden@gmail.com)

Stacked: Sawnwood from Sarawak, Malaysia. *Photo: J.-C. Claudon/ITTO*

China's imports of tropical sawnwood slowed in 2018 after rapid growth between 2014 and 2017, according to the *Biennial Review and Assessment of the World Timber Situation 2017–2018*, published recently by ITTO. The ITTO flagship publication provides insights into trends in the global timber sector and markets, including the production and trade of primary and secondary processed wood products.

Data from the *Review* are included in ITTO's online statistical database,[1] updated for the period 1990–2018; this database is a formidable tool for analyzing long-term trends in the trade of tropical timber and primary tropical timber products (industrial roundwood, sawnwood, veneer and plywood) and important shifts in timber production and further processing. The latest edition of the *Review* also features a comprehensive analysis of timber supply and demand in Japan, including current trends and future prospects for South Sea timber.

Key findings on primary wood products

World imports of tropical hardwood logs contracted slightly in 2018, to 17.9 million m^3, with the major directions of trade being to China from Papua New Guinea (PNG), the Solomon Islands, Equatorial Guinea and Mozambique; to India and Indonesia from Malaysia; and to Viet Nam from Cameroon. Most other significant Asian producers, including Cambodia, Indonesia, the Lao People's Democratic Republic, the Philippines and Thailand, have some form of log-export ban in place. Other major tropical log flows in 2018 were from Africa to China and Viet Nam.

China continued to dominate the import trade, accounting for an estimated 63% of world tropical log imports (11.1 million m^3) in 2018, valued at USD 3.456 billion. Of the major suppliers, imports increased significantly in 2018 from Cameroon, Equatorial Guinea and PNG but declined from the Congo, Ghana and Nigeria. Imports surged from lower-volume suppliers, such as Ecuador, Liberia, Sierra Leone and Suriname, indicating China's continued diversification of supply sources as traditional supplies become depleted and trade restrictions intensify.

Asia continues to dominate the global trade in tropical sawnwood. China and to a lesser extent Thailand and Viet Nam were the major importers in 2018, while Thailand, Malaysia, Gabon and Cameroon (in descending order, by volume) were the major exporters. Total imports of tropical sawnwood by ITTO member countries increased year-on-year from a low in 2012 to reach 11.3 million m^3 in 2017, but the volume declined in 2018, to 11.0 million m^3. China's imports of tropical sawnwood started to slow in 2018, following rapid growth between 2014 and 2017, with imports reaching a record 7.4 million m^3 in 2017. Thailand was the top-ranked exporter of tropical sawnwood in 2018, mostly of plantation rubberwood. Nevertheless, there was a slight decline, to 4.5 million m^3, reflecting slowing demand in China's secondary processed wood product (SPWP) industries, which absorbed over 99% of Thailand's exports.

Overall, the global trade of tropical plywood contracted in the last decade, but there have been fluctuations. The volume reached a low of 5.3 million m^3 in 2016, recovered in 2017 to 5.7 million m^3, and increased further in 2018 to 5.9 million m^3. A few major players dominate, with Japan (the major importer) accounting for 32% of ITTO imports. Tropical plywood exports from ITTO producer countries

1 www.itto.int/biennal_review

(predominantly Indonesia and Malaysia) increased year-on-year between 2015 and 2017, reaching 7.0 million m^3 in 2017; the volume declined in 2018, however, to 6.6 million m^3. Malaysia's exports dropped to 2.3 million m^3 in 2018 in response to chronic supply shortages of raw-material inputs (i.e. peeler logs) to plywood mills and rising export prices, while demand and prices remained depressed in Japan, the major market. Log shortages and increased manufacturing costs in Indonesia and Malaysia continued to put upward pressure on tropical plywood prices in 2018.

The value of world imports of SPWPs—nearly 63% of which was wooden furniture and parts—totalled USD 110.7 billion in 2018, about the same as in 2017. Most of the trade was between consumer countries, which also accounted for most (81%) of the export value. The bulk of import demand has been in the advanced economies—predominantly the European Union, Japan and the United States of America (US)—with Australia, China, Hong Kong SAR and the Republic of Korea also important import markets. US imports amounted to USD 30.1 billion in 2018, 6% higher than in 2017, accounting for one-third of ITTO consumer imports and 32% of ITTO total imports.

China has been the world's largest exporter of SPWPs since 2013, with exports valued at USD 32.3 billion in 2018, which was 32% of all exports by ITTO consumers. ITTO producers accounted for 19% of ITTO's SPWP exports in 2018, with exports increasing year-on-year over the last decade to reach USD 19.6 billion in 2018. Viet Nam accounted for 39% of ITTO producers' exports in 2018, expanding its exports by 5% to USD 7.6 billion. A notable trend has been the relocation of some manufacturers, particularly foreign-owned enterprises operating in China, to Viet Nam in response to a decline in the competitiveness of China's SPWP exports.

Trade table: The value of world imports of secondary processed wood products—such as this acacia furniture made in Viet Nam—totalled USD 110.7 billion in 2018. *Photo: J.-C. Claudon/ITTO*

What are the big markets up to?

The trade in primary forest products exhibited interesting trends in 2019

by Mike Adams

Compiled from the *ITTO Tropical Timber Market Report*

Business activity worldwide is being hurt by the effects of the trade dispute between the United States of America (US) and China, climate change and environmental challenges. With such uncertainties, looking for economic trends, even in the medium term, is fraught with difficulty—you are just as likely to get things right using a crystal ball.

The global timber trade has not been immune to the disruptive effects of the US–China trade dispute. US log and sawnwood exports to China have fallen, hurting US producers, and China's wood-product exports to the US have been decimated by the tariffs imposed on imports. As a result, Chinese companies have cut back on tropical timber imports used for export production.

The trade dispute has also led to changes in distribution channels. To circumvent US tariffs and take advantage of the preferential trade arrangements enjoyed by some countries, entrepreneurs (particularly Chinese businesses) have relocated offshore to Cambodia, Malaysia and Viet Nam. Recently, too, Indonesia has been promoting itself as a base for Chinese furniture manufacturers. At the same time, countries competing with China in the US market are aiming to grab larger market shares.

Big changes in China

Although China's economy is facing a level of uncertainty not seen since the 2008 global financial crisis, it maintained solid growth of more than 6% in the first half of 2019. There is a significant risk of a slowdown: because of rising land and labour costs and a heavy dependence on exports, it could be that China's wealthier coastal regions will be more exposed than others to supply-chain disruptions. China's industrial north is already showing signs of economic pain. In bad news for the country and its trading partners, China's exports rose by just 0.1% in the first six months of 2019.

On the domestic front, an estimated 70% of wood-processing mills have been ordered to either close or relocate and retool to meet new environmental regulations. This has drastically altered distribution channels and disrupted the efficient production clusters of manufacturers and the industry's service providers.

According to media reports, the focus of environmental regulators has turned recently to cabinets and panel factories in 34 provinces, municipalities and autonomous regions. Nearly 3000 panel factories in Langfang City, Hebei Province, have been told to cease operations, which will seriously affect both domestic and export panel markets. Local experts have confirmed that a large number of small and medium-sized panel factories in Jiangsu and Zhejiang provinces have shut because they could not afford to relocate or retool.

Decline in log imports

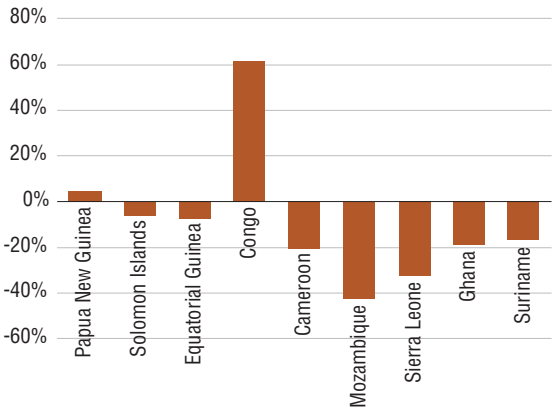
China's log imports in the first half of 2019[1] totalled 29.6 million m^3 valued at USD 5 billion, representing a year-on-year decline of 2% by volume and 14% by value.

Of total log imports, softwood log imports rose by 5%, to 21.1 million m^3, accounting for 71% of the national total (1% more than in the same period in 2018).

Hardwood log imports fell by 16%, to 8.50 million m^3, in the first six months of 2019, accounting for 29% of the national total (down by 1%, year-on-year). Tropical log imports amounted to 3.84 million m^3 to June 2019, a decline of 12%, year-on-year; this was 13% of all hardwood log imports (a year-on-year decrease of 6%). The value of tropical log imports in the first half of 2019 was USD 1.27 billion, down by 25%, year-on-year.

Tropical log imports from the Gambia and the Congo surged in the first half of 2019. Countries from which tropical log imports declined significantly included Mozambique (-42%), Sierra Leone (-32%), Cameroon (-21%), Ghana (-19%) and Suriname (-16%) (Figure 1).

Figure 1: Year-on-year change in China's tropical log import volume, by country, January–June 2019



Source: China Customs.

Decline in China's tropical sawnwood imports

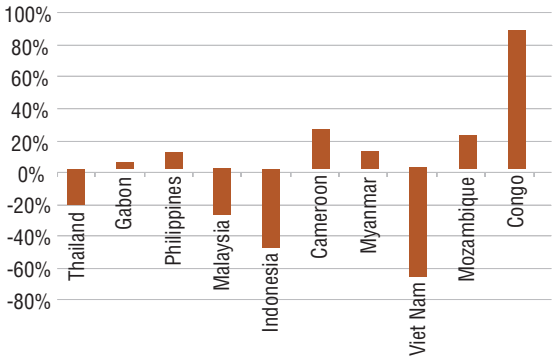
China's first-half sawnwood imports totalled 18.8 million m^3, valued at USD 4.43 billion, a year-on-year increase in volume of 4% but a drop in value of 8%. Sawn softwood imports rose by 17%, to 14.1 million m^3, which was 75% of all sawnwood imports, and sawn hardwood imports fell by 22%, to 4.71 million m^3.

China imported 2.74 million m^3 of tropical sawnwood in the six months to June 2019, at a value of USD 1.0 billion; this was down by 22% in volume, year-on-year, and by 28% in value. Tropical sawnwood imports accounted for 15% of all sawnwood imports in the period.

China imported 1.78 million m^3 of tropical sawnwood from Thailand in the first six months of 2019, a drop of 24%, year-on-year; this was worth USD 528 million, down by 31%. The country's tropical sawnwood imports from the Congo rose by 87% in volume and by 71% in value in the same period. On the other hand, China's tropical sawnwood imports fell sharply from Viet Nam (down by 69% by volume), Indonesia (-51%) and Malaysia (-30%) (Figure 2).

1 This article presents the most recent available data for the timber sector—to end June 2019.

Figure 2: Year-on-year change in China's tropical sawnwood import volume, by country, January–June 2019



Source: China Customs.

Mixed picture in the EU

Building construction contracted in the European Union (EU) in the first half of 2019, according to the latest Eurostat data. The sharpest decreases in construction output were in Romania, down by 7.6%, Finland (-3.1%) and Sweden (-2.9%). The best performers were Slovenia, up by 4.1%, France (+1.9%) and the Netherlands (+1.4%).

According to trade media, the EU timber sector benefited from robust domestic consumption in the first half of the year, which was largely unaffected by cautious economic forecasts. For example, a leading continental-Europe-based international hardwood trader said it had experienced a robust first half, with business underpinned by construction-sector consumption.

The EU's trade in tropical wood products was more buoyant in the first half of this year compared with the same period in 2018. Total imports of all wood products (classified in Chapter 44 of the Harmonized System) from tropical countries in the first half of 2019 amounted to 1.24 million metric tonnes, 16% more than in the same period in 2018; value increased by 15%, to EUR 1.26 billion. This growth is surprising given that the wider economic situation in the EU continued to deteriorate over the period.

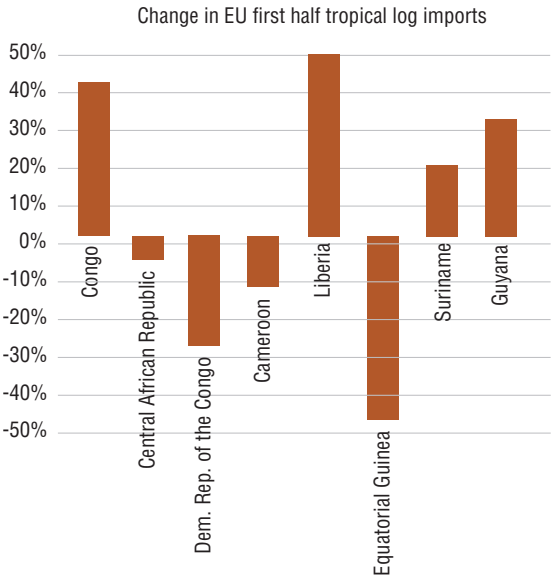
To some extent, the rise in EU tropical wood imports in the first half of 2019 shows how poor the market was in 2018, when imports for several commodities barely exceeded the record lows of the global and European financial crises in 2008 and 2009.

Congo the focus of EU log imports

After recovering a little ground in 2018, EU imports of tropical logs were steady, year-on-year, in the first six months of 2019. The volume was up slightly (at 54 400 tonnes) but the value declined by about 3% due to a drop in unit price.

EU imports of tropical logs increased by 41% from the leading supplier, the Congo (to 17 400 tonnes), and by 48% from Liberia (to 5300 tonnes), but these gains were offset by declines from the Central African Republic (-7%, to 9500 tonnes), the Democratic Republic of the Congo (-29%, to 7100 tonnes), Cameroon (-14%, to 7000 tonnes), Equatorial Guinea (-49%, to 2900 tonnes), and Suriname (-19%, to 1000 tonnes) (Figure 3).

Figure 3: Year-on-year change in tropical log import volume to the EU, by country, January–June 2019



Source: ITTO/Independent Market Monitor analysis of Eurostat.

After a slow start in the first quarter of 2019, tropical log imports picked up in France and Belgium in the second quarter. By the end of the first half of the year, France had imported 22 800 tonnes of tropical logs, up by 3% over the same period in 2018, and imports into Belgium were up by 9%, to 14 600 tonnes. On the other hand, imports fell in the first six months of 2019 in Portugal (down by 15%, to 6800 tonnes), Italy (-12%, to 4800 tonnes) and the Netherlands (-78%, to 1700 tonnes).

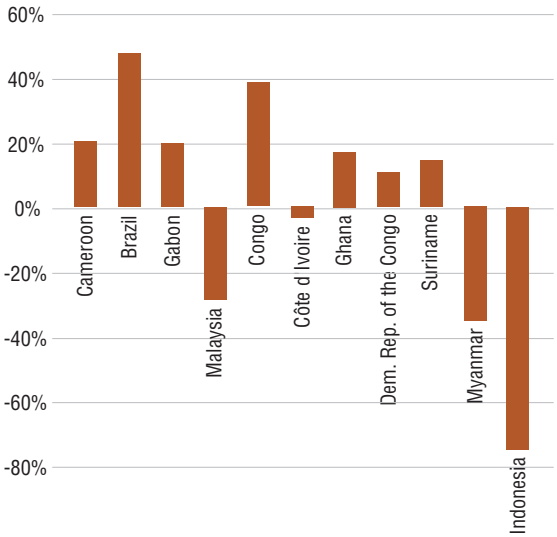
Rise in EU imports of tropical sawnwood

EU imports of tropical sawnwood increased by 12%, year-on-year, in the six months to June 2019, to 405 600 tonnes; the value increased by 7%. This aligns with market commentary earlier in 2019, in which sawn-hardwood importers reported generally steady—and, in some cases strong—trading, including in tropical timber, despite a slowdown in overall economic activity and increased downside concerns about the medium-term outlook.

EU businesses reported issues with supply, but overall consumption was holding up. Sawn hardwood prices were steady to firm, with demand underpinned by construction-sector consumption.

Sawnwood imports from Cameroon, which were particularly slow in the first half of 2018, increased by 20% (to 141 000 tonnes) in the first six months of 2019. Imports from several other countries also increased sharply, including Brazil (up by 47%, to 77 600 tonnes), Gabon (+20%, to 58 600 tonnes), the Congo (+38%, to 30 200 tonnes), Ghana (+17%, to 8800 tonnes) and the Democratic Republic of the Congo (+32%, to 7300 tonnes). These gains offset declines from Malaysia (-29%, to 40 900 tonnes) and Côte d'Ivoire (-4%, to 14 200 tonnes) (Figure 4).

Figure 4: Year-on-year change in tropical sawnwood import volume to the EU, by country, January–June 2019



Source: ITTO/Independent Market Monitor analysis of Eurostat.

The trend towards an increased concentration of tropical sawnwood imports to the EU via Belgium continued in 2019. Imports into Belgium increased by 21%, year-on-year, in the six months to June 2019, to 145 900 tonnes. Imports also increased to France (up by 9%, to 48 200 tonnes), the UK (+21%, to 29 800 tonnes), Spain (+67%, to 27 570 tonnes) and Portugal (+53%, to 15 200 tonnes). In contrast, imports fell by 14% in the Netherlands (to 67 100 tonnes), 8% in Italy (to 32 500 tonnes) and 7% in Germany (to 12 600 tonnes).

Some importers attributed the decline in EU imports from Malaysia in the first half of 2019 to a decline in the availability of product certified by the Programme for the Endorsement of Forest Certification (PEFC). This followed the suspension of certification under the Malaysian Timber Certification System (a PEFC-endorsed scheme) in Johor and Kedah states, which reduced the total certified area in Malaysia by around 25%. Subsequently, there was a 40% fall in imports of Malaysian sawn hardwood by the Netherlands (the leading EU destination for Malaysian timber), where there is a particularly strong emphasis on sourcing certified product.

EU imports of tropical plywood made in China continue to increase

The EU imported 174 200 tonnes of tropical plywood products in the first half of 2019, up by 8% over the same period in 2018; import value increased by 14%.

A large and growing proportion of the tropical-hardwood-faced plywood imported into the EU is manufactured in China. The EU imported 76 100 tonnes of this product from China in the first half of 2019, up by 39% compared with the same period in 2018. Plywood imports also increased from Gabon (+9%, to 7400 tonnes), Viet Nam (+3%, to 6100 tonnes), and Brazil (+9%, to 6000 tonnes). These gains offset a 4% fall in plywood imports from Indonesia over the period, to 46 300 tonnes, and a 32% drop from Malaysia, to 19 700 tonnes.

EU imports of tropical hardwood plywood in 2019 are being influenced strongly by market issues elsewhere. Most notably, the US–China trade dispute has led to a dramatic decline in Chinese hardwood plywood exports to the US and the diversion of increasing volumes of Chinese product to the EU. These are going mainly to the UK, where imports increased by 17% in the six months to June 2019, to 95 400 tonnes, despite widespread reports of overstocking and declining plywood consumption there. UK imports of tropical hardwood plywood increased by 81% from China (to 55 000 tonnes) in the first six months of 2019 but decreased from Malaysia by 32% (to 16 800 tonnes) and from Indonesia by 14% (to 17 800 tonnes).

Tropical plywood imports into other EU countries were less volatile in the first half of 2019. Moderate declines in imports by Belgium (down by 8%, to 19 100 tonnes), Germany (-3%, to 13 000 tonnes), France (-3%, to 10 100 tonnes) and Italy (-2%, to 8800 tonnes) were somewhat offset by an 8% rise in imports by the Netherlands, to 18 500 tonnes.

Plywood market faces multiple pressures

The European plywood sector became increasingly depressed as 2019 progressed. That, at least, was the consensus among a number of leading importers and distributors. In the words of one company, the market faced a "perfect storm of negative factors". End-user and consumer confidence has been steadily draining away. Buying became increasingly piecemeal as a result, with forward-ordering evaporating and prices falling across the board—by up to 40% for some products.

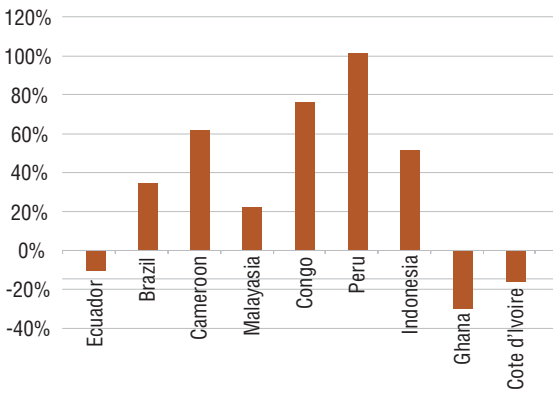
Housing to rise in the US?

US consumer sentiment firmed in the first half of 2019, rising from a very low level in January to more than 90 in the University of Michigan's consumer confidence index—thus defying the looming risks posed by the US–China trade dispute. The consumer confidence index provides an indication of future household consumption. A value above 100 signals a boost in consumer confidence towards the future economic situation, as a consequence of which consumers are less prone to saving and more inclined to spend money on major purchases.

Housing is a significant driver of timber consumption in every major market, and it is sensitive to interest rates. The US housing market came to life in the first half of 2019, responding—finally—to lower mortgage rates. The sector, which accounts for about 3% of the economy, is constrained by land and labour shortages; however, a survey showed that confidence among homebuilders had improved to an 18-month high, even though they were concerned about an economic slowdown.

Economic activity in the US manufacturing sector expanded in the first half of 2019, but a manufacturing index released at the beginning of the third quarter reported contraction in both imports and new export orders.

Figure 5: Year-on-year change in tropical sawnwood import volume to the US, by country, January–June 2019



Source: US Census Bureau, Foreign Trade Statistics.

US sawn tropical hardwood imports

US tropical sawnwood import volumes were up by some 25% in the first half of 2019, year-on-year. Imports from Brazil were particularly strong—to the extent that that country replaced Ecuador as the top supplier of tropical sawnwood to the US. Imports from Ecuador, on the other hand, declined in the six months to June (Figure 5).

US imports of jatoba more than doubled in the first half of 2019 compared with the same period in 2018. Jatoba has surpassed balsa as the top tropical hardwood (by volume) imported into the US.

Hardwood plywood import prices weaken

The volume of US imports of hardwood plywood was down by 26%, year-on-year, in the first half of 2019, with declines from all trading partners except Viet Nam. Imports from China were down by more than 50%, year-on-year, and there were also significant declines from Indonesia (down by 43%), Malaysia (-22%), Cambodia (-38%) and Ecuador (-23%). Viet Nam became the new top supplier of hardwood plywood to the US in the first half of the year.

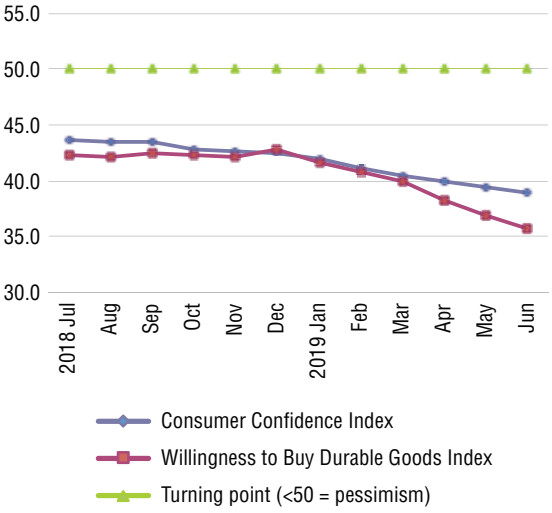
Plywood demand has been facing constraints as the packaging industry finds other materials, such as metals, plastics and cardboard. Moreover, the availability of oriented strandboard and other alternatives is negatively affecting overall market growth.

Will Japan spend more?

The Japanese economy is arguably healthier today than it has been for more than a decade, with gross domestic product growing at an average of 1.3% per year since 2012. The economy was surprisingly strong in the first half of 2019; nevertheless, the country continues to face serious economic challenges.

The economy grew at an annualized rate of 1.8% in the first half of 2019, exceeding expectations. The bad news was that Japanese export volume fell every month in the first half of the year and was down by 7% by June, year-on-year, mainly because of falling demand in China. The US–China trade dispute and slowing global growth are further undermining the government's efforts to drag the country out of its deflationary cycle.

Figure 6: Japan Consumer Confidence indices, July 2018–June 2019



Source: Cabinet Office, Japan.

Falling exports, along with falling factory output, are undermining capital expenditure. Policymakers are pinning their hopes on a rise in domestic consumption, but this seems overly optimistic against the backdrop of the consumption tax hike that occurred in October 2019.

Growth in the Japanese economy depends heavily on domestic spending, which was resilient in the first half of 2019 despite the effects of weak global demand and rising oil prices. Hopes were raised by the Bank of Japan that sustained private consumption would offer support for an economy facing growing external pressure. Official pronouncements of household spend, however, were completely at odds with the results of official consumer confidence surveys, which showed sentiment dropping for six consecutive months (Figure 6). With households less inclined to spend, the discretionary purchases of household furniture (for example) are most likely to suffer.

Import trends

The US is Japan's top supplier of both logs and sawnwood. Japan's log imports from the US were almost 10% higher in the six months to June 2019, year-on-year, but sawnwood imports dipped slightly.

Log imports of the three main species (whitewood, red pine and larch) from the Russian Federation have fallen steadily in recent years due to a high export tax. Nevertheless, Russian log imports were almost 14% higher in the first half of 2019 compared with the same period in 2018.

Japan's imports of Russian sawnwood rose by more than 30% in the first half of 2019, year-on-year, to 390 000 m^3, and the volume of tropical sawnwood imports grew by 22%.

Japan's tropical log imports have been declining: the volume in 2018 was only one-third that in 2013. Nevertheless, the tropical log import volume steadied in the first half of 2019 and was unchanged from the same period in 2018 (Table 1).

Table 1: Volume of Japan's log and sawnwood imports, US, Russian Federation and tropical, 2018 and 2019, January–June

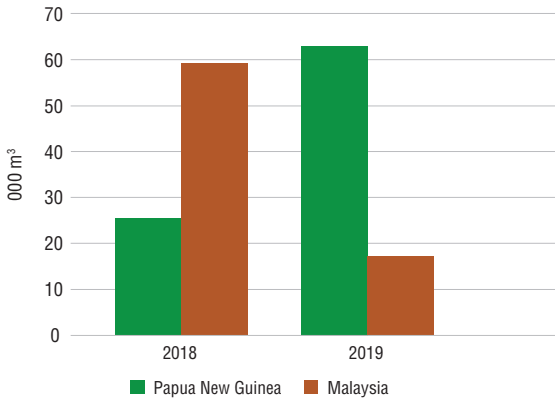
Year (January–June)	US		Russian Federation		Tropical	
	(m^3)					
	Logs	Sawnwood	Logs	Sawnwood	Logs	Sawnwood
2018	1 360 000	1 070 000	64 200	294 000	80 000	81 000
2019	1 490 000	1 020 000	73 000	390 000	80 000	99 000

Source: Japan Lumber Report, various issues.

Major shift in tropical log source

Malaysia was a major supplier of tropical hardwood logs to Japan in 2018; shipments declined in the first half of 2019, however, after the Sarawak government reduced the harvest volume. The shortfall in log supplies from Malaysia were compensated by a rise in imports from Papua New Guinea (Figure 7).

Figure 7: Japan's tropical log import volume, first half 2018, 2019



Source: Japan Lumber Report, various issues.

Domestic log production and export

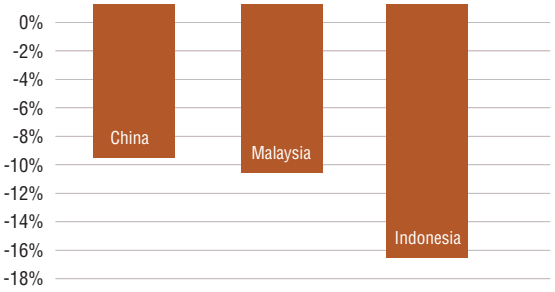
Japan's vast plantation forests produced 6.72 million m^3 of sawlogs in the first six months of the year, an increase of 6.2% over the same period of 2018. The volume of plywood logs was 2.28 million m^3, up by a little more than 9%, year-on-year. These volumes appear impressive but are still well below the sustainable supply; domestic harvesting is often unprofitable because much of the stock is of low quality and the prices offered by domestic mills may not cover harvesting and transport costs.

Falling plywood imports

Japan's plywood imports dropped by 15% in the first half 2019, year-on-year (Figure 8). Import volumes declined from the main suppliers of China, Indonesia and Malaysia, with Malaysia and Indonesia posting the largest reductions.

Japan's plywood sector continues to evolve. Domestic plywood mills are using more local logs for plywood production, and these products are beginning to be accepted as alternatives to imported plywood. For example, the percentage of domestic softwood plywood used as base material for composite

Figure 8: Change in Japan's plywood import volume, January–June 2019 compared with the same period in 2018, China, Indonesia and Malaysia



Source: Ministry of Finance, Japan.

flooring is now more than 30%; five years ago it was less than 10%. In May 2019, for the first time, the production of composite flooring with domestic softwood plywood and medium-density fibreboard exceeded production using imported hardwood plywood. A survey of flooring manufacturers in Japan respondents indicated that the use of domestic softwood plywood would increase.

Losers and winners

The US–China trade dispute is good for neither side, and the incentives for a deal have never been greater. China's trade and manufacturing sectors continue to suffer greatly from the impacts of US tariffs. Despite policy changes by the Chinese government to help support the economy, the prospects for continued economic growth above 6% look dim should the conflict continue into 2020. The US economy is also suffering from the dispute. A slowdown in manufacturing is apparent, and there are signs that consumer sentiment has been shaken.

But there have also been winners. Exporters in Asia have secured a larger share of the US market, filling the void left by China. The Asian Development Bank sees more gains for some countries in the coming year.

Exports from developing Asian countries to the US rose by 10% in the first half of 2019, with Vietnamese exports jumping by more than 30%. The reshaping of supply chains through new business-to-business links will probably survive any new trade deal between the world's top two trading nations.

Tropical and topical

Compiled by Ken Sato

Indonesian court stops dam plans

Mongabay has reported that a court in Indonesia's Aceh Province has annulled a permit for a planned hydroelectric project in the Leuser ecosystem, a large area of rainforest on the island of Sumatra. The project aimed to build a 443-megawatt plant on 4407 hectares spanning the districts of Gayo Lues, Aceh Tamiang and East Aceh. It would have flooded and fragmented a highly diverse forest that is home to critically endangered species such as tiger, rhinoceros, orangutan and elephant. The project would also have forced villagers in the region to relocate to make way for the reservoir, which would have dammed the river on which they depend.

Read more: https://news.mongabay.com/2019/09/indonesian-court-cancels-dam-project-in-last-stronghold-of-tigers-rhinos

Ecosystem stability improves with forest diversity

According to an article in *Science Daily*, a study published recently (5 September 2019) in *Global Change Biology* has found that planted forests are more productive and more resilient if they are more species-diverse. The University of Freiburg-based research team used data from a field trial in Panama comprising 22 plots planted with one, two, three and five native tree species. The team found that productivity was (on average) 25–30% higher in plantations with two or three tree species compared with monocultures and 50% higher in plantations with five species. The differences were most pronounced during a severe dry period caused by the climate phenomenon El Niño, indicating that planted forests with a greater diversity of tree species are both more productive and more resilient to drought.

Read more: www.sciencedaily.com/releases/2019/09/190905094056.htm

Carbon time bomb

Greenhouse-gas emissions caused by damage to tropical rainforests worldwide are being underestimated by a factor of six, according to a new study by Maxwell et al. published in *Science Advances* (Volume 5, No. 10). The researchers found that emissions from selective logging, deforestation, fire, edge effects and defaunation in tropical rainforests, combined with "foregone sequestration" (because removed or degraded forests sequester less carbon than they would have if they had remained intact), was underestimated by 6.53 billion tonnes of carbon dioxide between 2000 and 2013.

According to the authors, "The climate mitigation potential of retaining intact forests is significant, but without proactive conservation action by national governments, supported by the global community, this potential will continue to dwindle". As reported by Graham Readfearn in *The Guardian*, study co-author James Watson said, "This is a carbon time bomb and policymakers have to get to grips with this".

Read more: https://advances.sciencemag.org/content/5/10/eaax2546.full; www.theguardian.com/environment/2019/oct/31/climate-emissions-from-tropical-forest-damage-underestimated-by-a-factor-of-six

Workshop explores contributions of Mekong teak forests to sustainable development

The sustainable management of teak (*Tectona grandis*) forests in the Mekong Basin will create jobs for young people, generate income for smallholders and help in achieving the Sustainable Development Goals, according to participants in a regional workshop on teak forests held on 24–27 September 2019 in Yangon, Myanmar. The Regional Workshop on Sustaining Teak Forests in the Mekong Basin, which was convened by ITTO in cooperation with the Asian Forest Cooperation Organization and the Forest Department of Myanmar, made six key recommendations for the sustainable development of the teak forest sector.

Read more: www.itto.int/news/workshop_explores_contributions_of_mekong_teak_forests_to_sdgs

Indigenous peoples are essential for sustainable development

An article by Jeff Campbell makes the case for the role of indigenous peoples in land management and maintaining diverse, sustainable food systems. Although indigenous peoples make up less than 5% of the world's population, they manage more than one-quarter of the world's land surface. But their important contributions in the fight against deforestation, land degradation and climate change have largely been overlooked or denied. This is changing, says Campbell, due to global advocacy by indigenous peoples and their organizations, but not fast enough. Indigenous peoples continue to suffer disproportionately high levels of land insecurity, social dislocation, violence while defending their traditional lands, and the ongoing loss of traditional knowledge. Campbell writes that urgent policy changes and community-based action are required to ensure the greater recognition of indigenous land rights.

Read more: https://sdg.iisd.org/commentary/guest-articles/no-sustainable-development-without-indigenous-peoples

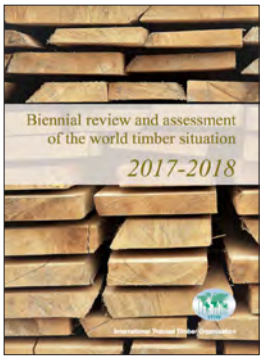
Reforestation needed urgently to save Amazon

Continued deforestation in the Amazon could push the biome to a tipping point at which large swathes of rainforest convert to savannah, according to an editorial by renowned Amazon scientists Thomas Lovejoy and Carlos Nobre published in *Science Advances* on 20 December 2019. Such a conversion would have dire consequences for, among other things, biodiversity and the hydrological cycle upon which much of southern Brazil's agriculture relies. "The increasing frequency of unprecedented droughts in 2005, 2010, and 2015/16 is signaling that the tipping point is at hand," write Lovejoy and Nobre. They propose "immediate, active, and ambitious reforestation" in Amazon, especially on abandoned cattle ranches and croplands. Such an effort could assist Brazil in implementing its commitments under the Paris Agreement on climate change and attract support under the new California Tropical Forest Standard. "The peoples and leaders of the Amazon countries together have the power, the science, and the tools to avoid a continental-scale, indeed, a global environmental disaster," write Lovejoy and Nobre.

Read more: https://advances.sciencemag.org/content/5/12/eaba2949.full

Recent editions

Compiled by Ken Sato



ITTO 2019. *Biennial review and assessment of the world timber situation 2017–2018*. Yokohama, Japan.

ISBN 978-4-86507-049-1

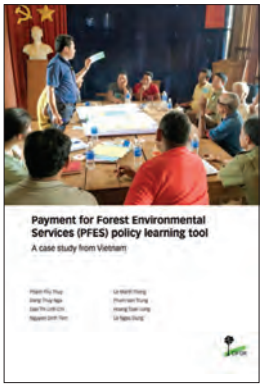
Available at www.itto.int/annual_review

ITTO's *Biennial Review and Assessment of the World Timber Situation* compiles the most up-to-date and reliable international statistics available on the global production and trade of timber, with an emphasis on the tropics. It also provides information on trends in forest area, forest management and the economies of ITTO member countries. The document is based on information submitted by ITTO member countries through the Joint Forest Sector Questionnaire, supplemented by other sources as necessary.

This edition of the *Review* reports on developments in the global timber sector and wood markets in 2017 and 2018, with a focus on tropical timber. It contains data on production and trade for 2014–2018, using 2017 (the latest year for which reasonably reliable data were available for most countries at the time of preparation) as the basis for all global comparisons and ITTO summary totals.

This edition includes data appendices on total timber production volumes and trade volumes and values for all ITTO members, in addition to trade values for secondary processed wood products (SPWPs) for all ITTO members and price indices for selected products and species. These data are included to assist in placing tropical timber in a global context, as called for in the International Tropical Timber Agreement 2006.

The report has four main chapters. The first summarizes developments in major markets for tropical timber, including current and projected economic conditions in ITTO regions. The second provides an analysis of the production, consumption and trade of primary tropical timber (tropical logs, sawnwood, veneer and plywood). The third describes trade in SPWPs, with a focus on major tropical exporting countries. Chapter 4 comprises an ITTO-funded case study on timber demand and supply in Japan, which was conducted by the Japan Wood Products Information and Research Center and prepared by Dr Tachibana Satoshi.



Pham, T.T., Dang, T.N., Nguyen, D.T., Le, M.T., Pham, V.T., Hoang, T.L. & Le, D.N. 2019. *Payment for forest environmental services (PFES) policy learning tool: a case study from Vietnam*. Center for International Forestry Research, Bogor, Indonesia.

ISBN 978-602-387-124-7

Available at www.cifor.org/library/7412

This policy learning tool is designed primarily for policymakers and government officers who need to carry out monitoring and evaluation and to report on the progress and impacts of payment schemes for forest environmental services. It may also be useful to analysts, programme sponsors and managers, researchers and professional evaluators for understanding and identifying areas for improvement in such payment schemes.

Putzel, L., Jaung, W., Forrest, B., Finke, A., Liu, W. & Peng, P. 2019. *Fragmentation of forest governance in the Asia-Pacific Region: expert perceptions from China, Malaysia, Indonesia, Nepal and Vietnam*. Asia-Pacific Network for Sustainable Forest Management and Rehabilitation, Beijing.

Available at www.apfnet.cn/en/uploads/soft/20190515/1557895235.pdf

This study traces the emergence of theories of governance fragmentation, which have run in parallel with major processes of sociopolitical restructuring since the 1970s. Such restructuring has often been in response to economic movements emanating from dominant economies and the institutions formed after the Second World War to promote the global coordination of finance, trade, economic development and, ultimately, broad social and environmental interests. The theories of fragmentation relate to forest governance fragmentation as they pertain to the allocation of duties and powers across spatial delineations, sectoral jurisdictions, political or administrative scales, governance functions, governance systems, higher-level norms and institutions and regimes. Based on a survey of perceptions of forestry experts and researchers in five Asian economies (China, Indonesia, Malaysia, Nepal and Viet Nam), this work attempts to better define the issues of forest governance fragmentation as they relate to real-world outcomes and concerns.

FAO 2019. *Assessing the governance of tenure for improving forests and livelihoods: a tool to support the implementation of the Voluntary Guidelines on the Responsible Governance of Tenure*. Forestry Working Paper No. 13. Food and Agriculture Organization of the United Nations (FAO), Rome.

ISBN 978-92-5-131553-8

Available at www.fao.org/3/ca5039en/CA5039EN.pdf

Governments around the world have been attempting for many years to strengthen and give formal recognition to customary tenure. In addition, forestry departments have introduced various types of participatory arrangements recognizing certain resource-use rights of local communities with the purpose of improving forest governance and reducing poverty.

This assessment tool was developed to better understand the strengths and limitations of such forest-tenure reforms. It uses the internationally endorsed Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests as its basis. Although the tool enables the assessment of all forms of tenure arrangements, it can be particularly helpful for assessing those forms that recognize customary tenure in forestry through participatory forestry initiatives such as collaborative forestry, community forestry and smallholder forestry. The tool also enables the identification and assessment of customary-tenure systems not recognized in statutory law.

As experienced in several test countries, the findings and recommendations emerging from the assessment of tenure arrangements can provide valuable insights into the strengths and limitations of existing arrangements and reforms and help generate ideas for improving performance in forest governance, strengthening local livelihoods and contributing to the Sustainable Development Goals.

Meetings

ITTO meetings

19–20 February 2020
National Teak Forum: Sustainable Teak Value Chains for Sustainable Local Development
Vientiane & Luang Pha, Lao PDR
Contact: rfm@itto.int

Teak is a native species in the Lao People's Democratic Republic, with natural teak forest covering an estimated 68 500 hectares. Moreover, teak plantations established by the private sector and rural communities cover about 36 000 hectares, mainly in the provinces of Luang Prabang and Boeko.

This forum, supported by ITTO and Germany's Federal Ministry of Food and Agriculture, will review opportunities and challenges for sustainable teak value chains in Lao PDR, with a view to contributing to sustainable forest-based development among smallholders in the country's lower Mekong.

27–29 April 2020
International Conference on Forest Education
Rome, Italy
Contact: tetra@itto.int

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

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

24–27 August 2020
4th World Teak Conference 2020: Global Teak Market: Challenges and Opportunities for Emerging Markets and Developing Economies
Accra, Ghana
Contact: www.worldteakconference2020.com

The 4th World Teak Conference, which ITTO is co-organizing, will address the most crucial issues facing the global teak sector, including:

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

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

November 2020 (dates to be announced)
56th Session of the International Tropical Timber Council and Sessions of the Associated Committees
Yokohama, Japan
Contact: www.itto.int/events

The International Tropical Timber Council is ITTO's governing body. It meets once a year to discuss issues related to the legal trade of tropical timber and the sustainable management of tropical forests. Council sessions are open to official delegates and accredited observers.

Other meetings

27–31 January 2020
Genetics to the Rescue: Managing Forests Sustainably in a Changing World
Avignon, France
Contact: https://colloque.inra.fr/confgentree2020

4–6 February 2020
17th Meeting of APEC's Experts Group on Illegal Logging and Associated Trade
Putrajaya, Malaysia
Contact: https://www.apec.org/Groups/SOM-Steering-Committee-on-Economic-and-Technical-Cooperation/Working-Groups/Illegal-Logging-and-Associated-Trade

24–28 February 2020
9th International Wind and Trees Conference
Rotorua, New Zealand
Contact: https://windandtrees2020.com

26–28 February 2020
Governing and Managing Forests for Multiple Ecosystem Services across the Globe
Bonn, Germany
Contact: www.slu.se/fes.governance-2020

16–18 March 2020
Dubai Wood Show
Dubai, UAE
Contact: www.woodshowglobal.com/dubai

21 March 2020
International Day of Forests—Forests and Biodiversity

24–25 March 2020
42nd Session of the Joint ECE/FAO Working Party on Forest Statistics, Economics and Management
Geneva, Switzerland
Contact: florian.steierer@un.org

25–27 March 2020
Mixed Species Forests: Risks, Resilience and Management
Lund, Sweden
Contact: www.mixedforest2020.se

14–16 April 2020
10th Forum International Bois Construction
Paris, France
Contact: www.forum-boisconstruction.com

15–17 April 2020
3rd International Forest Policy Meeting
Copenhagen, Denmark
Contact: https://ifro.ku.dk/english/events/ifpm3

20–22 April 2020
International Woodfiber Resource and Trade Conference
Lisbon, Portugal
Contact: https://events.risiinfo.com/wood-fiber

27–30 April 2020
6th International Climate Change Adaptation Conference—Adaptation Futures 2020
New Delhi, India
Contact: http://adaptationfutures2020.in

4–8 May 2020
15th Session of United Nations Forum on Forests
New York City, USA
Contact: www.un.org/esa/forests/index.html

6–9 May 2020
International Scientific Conference: Forestry—Bridge to the Future
Sofia, Bulgaria
Contact: https://conf2020.forestry-ideas.info

18–20 May 2020
5th European Agroforestry Conference
Nuoro, Sardinia, Italy
Contact: www.euraf2020.eu

25–27 May 2020
Forests in Women's Hands: International Conference on Women in Forestry 2020
Traunkirchen, Austria
Contact: www.forstfrauen.at/en/conference-2020

26 May 2020
ATIBT Ordinary General Assembly
Nantes, France
Contact: www.atibt.org/en/diary

27–29 May 2020
Carrefour International du Bois
Nantes, France
Contact: www.timbershow.com

6–8 June 2020
International Forest Business Conference 2020
Kistowo, Poland
Contact: http://fba-events.com/index.php/2017/09/03/international-forest-business-conference-2018

11–19 June 2020
IUCN World Conservation Congress
Marseille, France
Contact: Goska.Bonnaveira@iucn.org

22–24 June 2020
IUFRO Small-Scale Forestry Conference
Kilkenny, Ireland
Contact: https://iufrossf.ucd.ie

22–26 June 2020
25th Session of the FAO Committee on Forestry, and World Forestry Week
Rome, Italy
Contact: COFO-2020@fao.org

25–27 June 2020
Gabon Wood Show
Libreville, Gabon
Contact: www.woodshowglobal.com

24–27 August 2020
World Conference on Timber Engineering 2020
Santiago, Chile
Contact: https://wcte2020.com

14–18 September 2020
Biological Invasions in Forests: Trade, Ecology and Management
Prague, Czech Republic
Contact: https://iufro.v2.czu.cz

14–19 September 2020
8th World Sustainability Forum
Geneva, Switzerland
Contact: https://wsf-8.sciforum.net

22–24 September 2020
3rd IUFRO Acacia Conference 2020: Embracing Transformation for Sustainable Management of Industrial Forest Plantations
Bintulu, Sarawak, Malaysia

5–10 October 2020
15th Meeting of the Conference of the Parties to the Convention on Biological Diversity
Kunming, China
Contact: www.cbd.int/cop

4–7 November 2020
AUSTIMBER 2020
Victoria, Australia
Contact: www.afca.asn.au/www-austimber-org-au

9–20 November 2020
2020 UN Climate Change Conference (COP 26)
Glasgow, Scotland, UK
Contact: UNFCCC Secretariat; secretariat@unfccc.int; https://unfccc.int/calendar