



TFU

Promoting the
conservation and
sustainable development
of tropical forests

ISSN 1022-5439

TROPICAL FOREST UPDATE

Volume 27 No. 2 2018



The buzz on green supply chains

There's plenty of talk these days about "sustainable" or "green" supply chains and how these could help save forests while benefiting producers and consumers. But what are they?

A **supply chain** comprises the organizations, activities and processes associated with all stages of the business processes involved in planning, sourcing, processing, manufacturing and delivering goods and services.¹

A **green** supply chain is one that aims to minimize negative environmental and social impacts, addressing issues such as water and energy use, pollution, the treatment of workers, biosecurity, marginalized people, biodiversity and land use.

In this edition of the TFU, ITTO Executive Director Gerhard Dieterle (page 3) writes that green tropical-timber supply chains "would

bring benefits to all stakeholders, from forest owners in the tropics to consumers of the final products—as well as to the global environment". Businesses might want to implement green supply chains because they are good corporate citizens, but, according to a recent workshop in China (reported in Dr Dieterle's article), the private sector also sees green supply chains as a means for reducing costs and increasing efficiency.

Dr Dieterle reports on an exciting recent development in which twelve of China's largest wood-product companies call on forest products businesses, industry associations, research institutions, governments and international organizations to work together to build "a stable and well-ordered Global Green Supply Chain of forest products". Given the purchasing power of these companies (collectively, they turn over about

Inside: *illegality in Cameroon · plywood in China · RIL in Malaysia · Gabon's veneer*

From the Executive Director 3
Global green supply chains will help ensure forest sustainability. *Dieterle*

Improving the governance of Cameroon’s timber trade 7
An ITTO project has strengthened national capacity to control illegal logging and associated trade in Cameroon. *Mahonghol and Chen*

China plies its trade 11
An ITTO study provides insight into China’s developing plywood industry. *Hu*

Reaching out on RIL 16
A training programme undertaken as part of an ITTO project has built capacity in reduced impact logging in the forests of Peninsular Malaysia. *Abu Samah, Abdul-Wahab, Mohammad-Ifratshim, Roslina*

Gabon’s growing veneer trade 20
Gabon could become a world leader in tropical veneer exports. *Cassagne*

Regular features

Fellowship report 23
Market trends 26
Tropical and topical 30
Recent editions 31
Meetings 32



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

The Tropical Forest Update is published quarterly in English, French and Spanish by the International Tropical Timber Organization (ITTO). Content does not necessarily reflect the views or policies of ITTO. Articles may be reprinted without charge provided the TFU and author are credited. The editor should be sent a copy of the publication.

Printed on PEFC mat coated paper. Printed using vegetable-based soya inks.

The TFU is distributed free of charge to over 15 000 individuals and organizations in more than 160 countries. To receive it, send your full address to the editor. Please notify us if you change address. The TFU is also available online at www.itto.int, as well as in Apple’s App Store and Google Play.

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

Cover image: A drone’s-eye view of a log depot near Douala, Cameroon—one of the links in the tropical timber supply chain. *Photo: A. Walmsley/TRAFFIC*

Above: Minato-mirai, Yokohama, Japan.
Photo: Yokohama Convention & Visitors Bureau



US\$12 billion annually), such a call has significant implications for the world’s timber sector.

The concept of green tropical-timber supply chains captures many of the elements of sustainability that ITTO has been promoting since its inception. At its most fundamental, it requires that timber is harvested and traded legally. The article by Denis Mahonghol and Chen Hin Keong (page 7) describes work done as part of an ITTO project to strengthen capacity in Cameroon to control illegal logging and trade. Among other things, the project documented routes by which timber is traded illegally, trained enforcement personnel in reducing the trafficking of illegal timber, and supported the development of the country’s timber traceability system.

China is the world’s biggest plywood producer, but there is a lack of reliable information on the industry there. In her article on page 11, Hu Yanjie reports on a survey of nearly 280 companies in the big plywood-producing provinces of Guangxi, Jiangsu and Shandong and elsewhere. She found, among other things, that the sector faces serious problems in terms of product quality and the low level of value added. In the article, Dr Hu looks ahead to possible developments in China’s plywood industry that, in effect, would nurture green supply chains. These include introducing a quality-based system for new entrants; increasing technical training and inputs from science-and-technology agencies; and placing greater emphasis on green products.

Green tropical-timber supply chains start in the forest, where a necessary ingredient of sustainability is low-impact harvesting. Abdul Khalim bin Abu Samah and co-authors report on a programme implemented in Peninsular Malaysia, with ITTO assistance, with the aim of increasing the uptake of sustainable harvesting practices. It trained more than 700 forest workers in various aspects

of reduced impact logging, such as dendrology; forest mensuration; forest boundary demarcation; tree marking; directional felling; the use of tracked and rubber-wheeled machines; road planning, construction and maintenance; and occupational safety and health. The programme also upskilled about 270 “trainers of trainers”, thereby equipping them to pass on their knowledge on reduced impact logging to forest workers.

In his article on page 20, Bernard Cassagne presents data on Gabon’s veneer sector. The country is already the world’s sixth-largest producer of tropical veneer but, according to Dr Cassagne, it has a sufficient sustainable supply of raw materials to become the second-largest (behind Viet Nam). Gabon’s harvest of veneer logs is expected to increase in coming years due to the combined impact of the government’s industrialization policy, the emergence of new markets, and expected reductions in logical costs. Gabon’s veneer sector, therefore, has the opportunity to play an important role in global green supply chains. This will require efforts to minimize negative social and environmental impacts in all aspects of its development while ensuring efficient processes.

It might seem that “green supply chain” is just another buzz term, but there’s no doubt the concept is here to stay. The tropical forest sector has immense potential to contribute to the sustainable global supply of goods and services. ITTO’s mandate is to promote the expansion and diversification of international trade in tropical timber from sustainably managed and legally harvested forests. It will, therefore, continue championing sustainability—the crucial ingredient in the long-term health and vitality of the tropical forest sector.

1 World Bank undated. Guidance notes on tools for pollution management. http://siteresources.worldbank.org/INTRANETENVIRONMENT/Resources/244351-1279901011064/Sustainability-in-SupplyChain_111031.pdf

From the Executive Director

Consumer demand for legal and sustainable timber and timber products can be a driver of sustainable forest management in the tropics

Global green supply chains will help ensure forest sustainability



by **Gerhard Dieterle**
ITTO Executive Director
oed@itto.int



Committed: Representatives of some of China's leading timber enterprises pose for a photograph with ITTO Executive Director Dr Gerhard Dieterle (second from left) and Chinese government officials after pledging their commitment to the establishment of global green timber-supply chains.
Photo: R. Carrillo/ITTO

In recent years, major markets for tropical timber and timber products have sent strong signals to importers on the need to demonstrate that forest products are not sourced at the expense of tropical forests. For example, the Lacey Act in the USA, the European Union Timber Regulation, Australia's Illegal Logging Prohibition Act and the Japan Clean Wood Act all require evidence of the legality of imported timber. Such initiatives, however, can be confusing for importers, who may be unclear on the documentation they need and the standards to which they must comply; such confusion can diminish market opportunities for tropical timber producers.

Moreover, research is showing that tropical forest degradation is advancing much faster than previously thought and might now be a bigger concern than deforestation because it reduces the capacity of tropical forests to produce timber, non-timber forest products and environmental services.

An approach that can both reduce market confusion and encourage sustainable forest management (SFM) is the development of global green supply chains. Such supply chains would ensure efficiency, best practices and transparency at every "link" in the chain—in the forest, on the log truck, in the mill, on the ship and in the showroom.

Global green timber supply chains would enable major purchasing powers in domestic and international markets to become drivers of SFM and legal compliance in tropical timber-producing countries by increasing demand for legal and sustainable forest products among end-consumers, thereby creating a virtuous cycle.

Global green supply chains can ensure the production, processing, storage, distribution and consumption of legal and sustainable timber and forest products, including tropical timber. This would bring benefits to all stakeholders, from forest owners in the tropics to consumers of the final products—as well as to the global environment.

China's push for green supply chains

In late June this year, ITTO co-convened the International Workshop on Global Green Supply Chain of Forest Products and Dialogue with Chinese Leading Forest Products Enterprises. This event, which involved stakeholders in the Chinese public and private sectors,¹ concluded with a call by twelve leading Chinese forest products enterprises with a combined annual turnover of RMB 80 billion (about US\$12 billion) for a global green

¹ For more information see www.itto.int/news_releases/id=5622

Box 1: Chinese companies call for global green supply-chain initiative

“An Initiative on Jointly Building the Global Green Supply Chain (GGSC) of Forest Products

“We are fully aware that forest is the main carrier of the terrestrial ecosystem and the shield for human survival and development, whichever growth closely related to human civilization; we share the common responsibilities to conserve forest resources, safeguard ecological security and promote green development.

“We believe wood is an important reproducible and recyclable material with extraordinary carbon sequestration capabilities. Forest industry is a sunrise sector that adapts to and mitigates climate change, and spearheads green and low-carbon development.

“We understand that the forest resources worldwide have been decreasing and degrading, which seriously hampers social and economic sustainable development. As a result, the forest industry is facing severe challenges. Promoting the sustainable use of forest resources has become the common consensus of the international community.

“We recognize that the green and sustainable development of forest industry requires joint efforts by governments, universities, research institutions and the industry, as well as in-depth cooperation across sectors, regions, and borders.

“Therefore, we are here calling for forest products businesses, industry associations, research institutions, governments and international organizations to work together, as to: jointly build a stable and well-ordered “Global Green Supply Chain” of forest products; effectively bridge up the upper-, mid- and downstream across the industry chain; develop a green and sustainable system, covering: production, distribution and consumption of forest products; enhance the green transformation and upgrade of the industry, increase the utilization efficiency and effectiveness of forest resources, and eventually provide more and better forest products for consumers both at home and abroad.

“We believe, by practicing the green development concept, and embracing the principle of joint contribution, shared benefits, and a win-win business environment in a fair, just, credible, prudential, progressive and well-organized manner the industry will greet a brighter future, and make greater contribution to the sustainable development and human well-being.”

This text was agreed by consensus by representatives of twelve leading Chinese companies—China Forest Products Co, Ltd; Power Dekor Group Co, Ltd; Dare Wood-Based Panels Group Co, Ltd; Zhejiang Shiyou Timber Co, Ltd; Treesun Flooring Co; Guangxi Fenglin Wood Industry Group Co, Ltd; Shenzhen Sampo Furniture Co, Ltd; Guangxi Sunway Forest Products Industry Co, Ltd; Shanghai Anxin Floors Co, Ltd; China Jilin Forest Industry Group Co, Ltd; Shanghai Lingge Wood Co, Ltd; and Starforest Art Flooring (Zhejiang) Co, Ltd—at the International Workshop on Global Green Supply Chain of Forest Products and Dialogue with Chinese Leading Forest Products Enterprises, held in Beijing, China, on 21–22 June 2018.

supply-chain initiative (Box 1), with ITTO as a key partner and facilitator.

Participants at the workshop and dialogue believe that the development of green supply chains would help create a level playing field for good businesses and close emerging supply gaps for tropical forest products while conserving biodiversity, mitigating climate change and ensuring environmental health. Improved legality and traceability would contribute to the transparency of the entire value chain, from forest production to the processing, distribution and consumption of timber and other forest products.

ITTO’s mandate to promote the expansion of international tropical timber trade from legal and sustainable sources fits perfectly with the development of global green supply chains. The Organization could play a key role by:

- building capacities among operators and stakeholders across supply chains through knowledge-sharing, technical expertise, the transfer of technology, and access to information and networking;
- facilitating public–private partnerships and designing incentives to establish the needed infrastructure and investment; and
- raising consumer awareness of the benefits of using sustainably produced wood because it is more environmentally friendly and renewable than other materials.

The aim of the global green supply-chain initiative, which is to be implemented in phases, is to bridge the upstream, midstream and downstream sectors to ensure forest

sustainability and the supply of more and better forest products to consumers, thus contributing to sustainable development and the well-being of humankind.

Box 2 presents some of the key messages arising from the workshop and dialogue. ITTO stands ready to work with the Chinese public and private sectors, and with all ITTO members and partners, to support and facilitate the implementation of global green timber-supply chains through SFM.

Other international developments relevant to green supply chains

Meanwhile, other international initiatives involving ITTO are also addressing various aspects of green supply chains. Some of these are described briefly below.

- The “Sustainable Wood for a Sustainable World” conference² is an initiative of the Collaborative Partnership on Forests, of which ITTO is an active member. Held in late 2017, this conference explored the interlinkages between forest management, landscapes, value chains, livelihoods, markets, investments and financing mechanisms.
- The international conference “Working Across Sectors to Halt Deforestation and Increase Forest Area—From Aspiration To Action”, which took place in February 2018, provided inputs to the United Nations Strategic Plan on Forests 2017–2030. Among other things, the UN Strategic Plan calls for the reversal of forest loss and a 3% increase in forest area worldwide by 2030. This topic

² For more information see www.fao.org/forestry/sustainable-wood

Box 2: Key messages from the China workshop

The workshop and dialogue on global green supply chains in China produced a number of key messages, including the following:

- Ensuring a stable and reliable supply of wood raw materials from legal and sustainable sources is essential for the development of a thriving forest products industry.
- There are several interpretations of green supply chains but, from the standpoint of the private sector, the aim is to reduce costs and increase efficiency.
- Building green supply chains involves various levels of actions and commitments across a wide spectrum of stakeholders, who need to interact in a coordinated manner to ensure the sustainable and legal production of timber and forest products.
- Green supply chains need to be practical. They need to define a common concept of legality, an accepted set of documentation, and clear and common rules of the game, and they must be mutually recognized by tropical timber producers and consumers to promote win-win approaches.

was debated at the 13th session of the United Nations Forum on Forests in May 2018 and ultimately fed into discussions at the 2018 High-Level Political Forum on Sustainable Development, in particular its review of progress in achieving Sustainable Development Goal (SDG) 15, “Life on Land”, particularly target 15.2, which is to halt deforestation by 2020.

- The green supply-chain initiative received strong interest at 2018 World Forestry Week, held in July in conjunction with FAO’s 24th session of the Committee on Forestry, including in sessions exploring the

contributions of forests to the achievement of the SDGs, especially SDG 15.

- ITTO recently strengthened its cooperation with the International Network for Bamboo and Rattan (INBAR) in a memorandum of understanding (MOU) signed at the Global Bamboo Congress 2018 (BARC2018), held in late June this year. The MOU provides a framework for the implementation of joint activities and projects aimed at the conservation, sustainable management, use and trade of tropical bamboo and rattan in countries that are members of both ITTO and INBAR. The work will include the promotion of green supply chains and markets for tropical forest products, including bamboo and rattan.

AT BARC2018, ITTO participated in a high-level dialogue on bamboo and rattan for climate change and green growth and co-organized sessions on sustainable tropical forest management and policy facilitation for bamboo and rattan commodities. In these roles, ITTO stressed the message that tropical timber, bamboo and rattan complement each other as commodities, and the ecosystems of which they are part play important roles in climate-change mitigation and adaptation. Moreover, the tropical timber and bamboo and rattan sectors need to work together to meet increasing demand for forest products due to population growth, close the supply gap for sustainable building materials, and conserve tropical forests.



Tracked? Log trucks are stopped at a checkpoint in the eastern region of Cameroon. Green supply chains need, among other things, an accepted set of documentation and clear and common rules of the game. Photo: Jervais Nkoulou/ITTO–Traffic forest governance project



Link in the chain: Participants at the Asia regional meeting on the CITES Tree Species Programme in June 2018 inspect a processing facility for plantation-grown *Dalbergia* timber near Yogyakarta, Indonesia. Photo: CITES Managing Authority of Indonesia

- The importance of building sustainable supply chains is relevant to ITTO activities carried out as part of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Tree Species Programme (CTSP). In a regional meeting of the CTSP for Asia,³ held in Indonesia last June, participants recognized the need to increase national capacities for making non-detriment findings in line with CITES requirements to ensure the legal trade of CITES-listed species. Earlier, in Madagascar,⁴ ITTO provided technical assistance for the preparation of a business plan for securing and disposing of stockpiles of rosewoods and other precious woods, including

ebony—Madagascar’s populations of rosewood and ebony were listed in CITES Appendix II in 2013. An export ban is in place for these species due to the country’s difficulties in implementing the provisions of the CITES listings, including dealing with significant stockpiles that have accumulated mostly outside government control. The Government of Madagascar will submit the business plan for these stockpiles at the 70th meeting of the CITES Standing Committee in October.

³ For more information see www.itto.int/news_releases/id=5619

⁴ For more information see www.itto.int/news_releases/id=5615

Improving the governance of Cameroon's timber trade

An ITTO project has strengthened national capacity to control illegal logging and associated trade in Cameroon

by Denis Mahonghol¹ and Chen Hin Keong²

¹ TRAFFIC
Central Africa Regional Office
Yaoundé, Cameroon
(denis.mahonghol@traffic.org)

² TRAFFIC
Southeast Asia Office
Selangor, Malaysia



Governance challenge: Logging trucks wait to offload at Douala Port, Cameroon. *Photo: A. Walmsley/TRAFFIC*

Cameroon has a rich and diverse biodiversity, and forests are a key resource for its people. Timber and non-timber forest products provide forest communities, governments and the nation with numerous socioeconomic benefits, and forest ecosystems generate multiple environmental services (e.g. those related to water, carbon and soils) that benefit Cameroon and the world. The country, therefore, is committed to sustainably managing its forests.

Several organizational metamorphoses have shaped and reshaped the Ministry of Forestry and Wildlife (MINFOF)—the ministry in charge of forests in Cameroon—with the aim of strengthening capacities in sustainable forest management and encouraging the participation of civil society in forest and wildlife management (MINFOF 2005). To increase transparency, MINFOF has worked with two independent observers: Resource Extraction Monitoring (REM) in 2005–2009, and a consortium involving AGRECO (a certification company) and local non-governmental organization Cameroon Environmental Watch in 2010–2013. MINFOF also has a special brigade for checking the legality of logging in concessions and of the timber that moves through roadside checkpoints.

Cameroon is a key transit country for timber originating in neighbouring countries, especially Chad, the Congo and the Central African Republic. Cameroon's road network is relatively well developed, with more than 5000 km of paved roads, nearly 13 000 km of unpaved roads, and 60 000 km of tracks. The flow of timber from operational forest sites to the main exit port, Douala (open to the

Atlantic Ocean), is considerable. Timber consignments from the Central African Republic, northern Congo, northern Gabon and northern Democratic Republic of the Congo (via the Central African Republic) pass exclusively through Cameroon (Lewis 2011), although reliable data on these timber flows are unavailable.

Despite considerable efforts to improve forest law enforcement, governance and trade, illegality still occurs throughout the timber supply chain, due partly to the lack of: staff capacity; coordination with other enforcement agencies, such as Customs; and information on the main areas of illegality in the supply chain. There are also problems in ensuring the equitable sharing of benefits with local communities and in minimizing the negative impacts of logging on the availability of commercial plant and animal products.

Illegal logging and its associated trade can be seen as a failure of forest governance; it undermines economic growth, equitable development and environmental conservation (Kishor and Oksanen 2006). The World Bank has acknowledged that illegal logging and the lack of appropriate forest governance are major obstacles to alleviating poverty, developing natural resources, and protecting environmental values and services (World Bank 2008).

ITTO project responds to clear need

ITTO project TFL-PD 003/09 Rev. 2 (M): “Strengthening the national process for controlling illegal logging and associated trade in Cameroon” arose from

recommendations made by a previous ITTO project. It was also a response to the pressing need to better regulate, monitor and coordinate the activities of the timber sector and to assist it in reconciling the interests of the growing logging industry and those dependent on forest resources. The project covered all Cameroon's forests but focused especially on the South, East and Centre regions.

The project commenced in October 2011 and was declared complete at the 52nd session of the International Tropical Timber Council in November 2016. The project was executed by TRAFFIC in close collaboration with MINFOF, which played a key facilitation role. The project technical committee comprised the MINFOF Secretary General and representatives of ITTO, TRAFFIC, the International Union for Conservation of Nature and the World Wide Fund for Nature.

Increasing knowledge of the existing situation

Five studies were conducted under the project to:

- 1) provide an overview of the timber trade routes in Cameroon;
- 2) develop a roadmap for an interagency national coordination committee on forest law enforcement;
- 3) assess the implementation of the forestry law and a proposed code of conduct and professional ethics;
- 4) provide an update on the development of Cameroon's timber traceability system (*Système Informatique de Gestion de l'Information Forestière*—SIGIF); and
- 5) assess MINFOF's data management system and its capacity to improve transparency through public communication.¹

The project identified gaps and issues in the system of forest law enforcement, monitoring and control and action that the relevant authorities could take. Among the gaps were: the issuance of harvesting certificates based on fictitious or unaudited inventories and annual operation permits without proper management plans; a lack of correlation between the quantity of timber sold by operators in the context of supply contracts and the forest areas allocated; a lack of clear links between SIGIF and waybills for transportation; insufficient motivation among forest and timber controllers; the uncontrolled harvesting of tree species listed in the appendices of the Convention on International Trade in Endangered Species of Wild Fauna and Flora; disrespect for the minimum exploitable diameter; and unlawful timber transportation.

The project generated maps of the country's timber trade and identified illegal timber trade routes along which no

checkpoints had been established (Figure 1). This was a crucial piece of information for MINFOF in its efforts to crack down on illegal timber activities.

Training, collaboration and transparency

The project's three key outputs were:

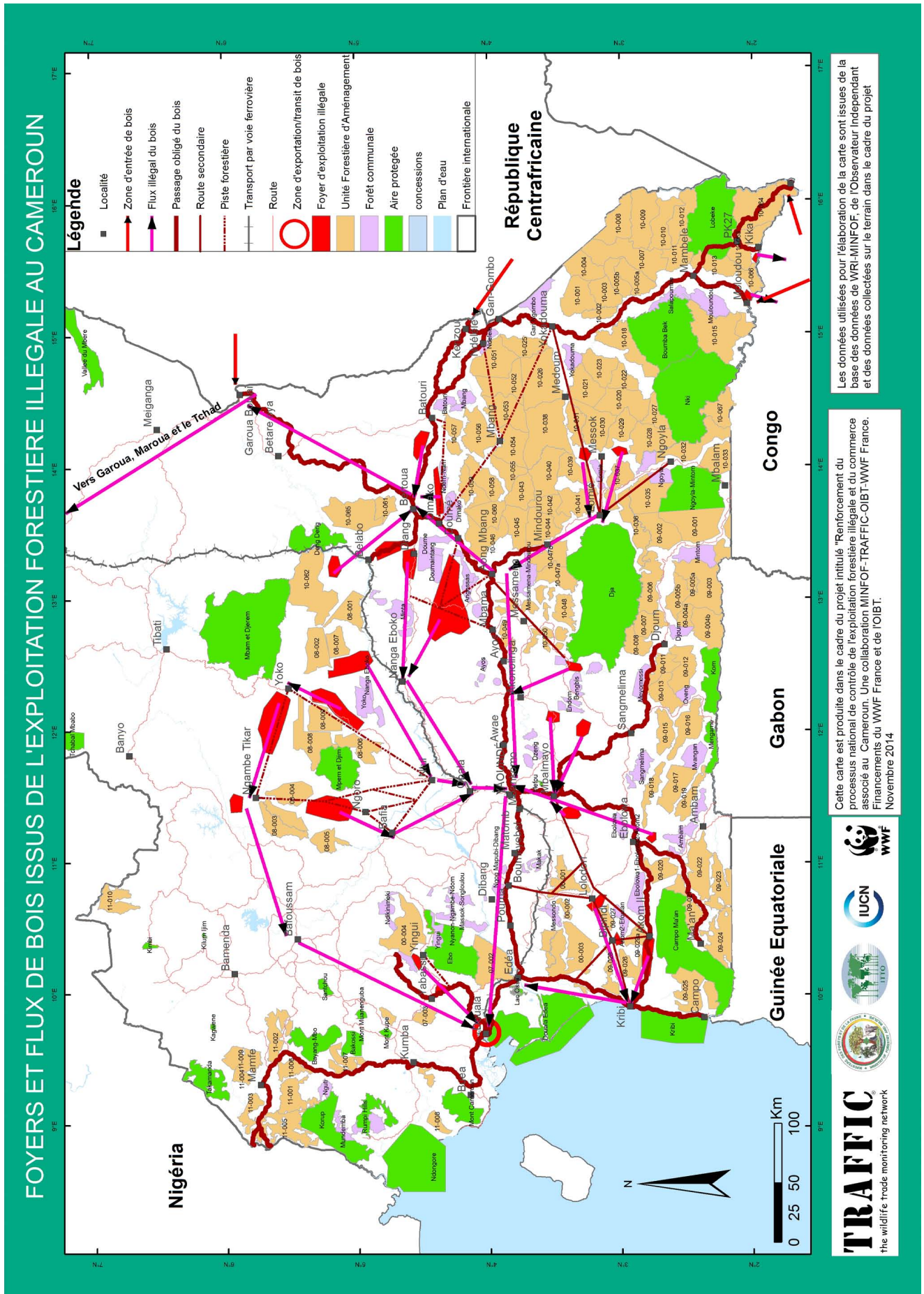
- 1) **The enhancement of enforcement efforts by building the capacity of law enforcement officers and logging companies.** The project produced training materials on forest legislation and control aimed at combating illegal logging in Cameroon, and it trained 22 MINFOF officials and 43 law enforcement officials from customs, the tax office, police, the gendarmerie and the judicial system. The project also convened a workshop for timber operators to build their awareness of—and willingness to respect—national and international laws. Timber operators were key informants in the collection of field data, providing useful information in face-to-face meetings and via a questionnaire.
- 2) **The strengthening of collaboration among law enforcement officers through the establishment and operationalization of an interagency coordination committee on forest law enforcement.** Among other things, the project created a database of stakeholders involved in forest law enforcement in Cameroon, which was used as an initial mechanism for interagency collaboration.
- 3) **Increased transparency in Cameroon's timber legality system.** For example, the project generated maps on the country's timber trade routes, documented gaps and threats to the timber trade, developed simple tools for monitoring forest law enforcement and the forest products trade, and supported the further development of the traceability system, SIGIF. The project also initiated the development of a publicly accessible online timber trade information management system to provide greater transparency and communication with stakeholders and the wider public. This was a new development aimed at increasing public involvement in the fight against illegal timber trade and encouraging information sharing.

The training manual

The project organized four training workshops for trainers and a technical meeting to validate and disseminate a training manual on forest laws and control produced by the project. These workshops strengthened the forest law enforcement capacity of more than 60 government officials. The training manual has five modules:

¹ All these deliverables can be found at www.traffic.org/home/2017/11/24/traffic-publishes-studies-on-cameroon-timber-trade-governanc.html

Figure 1: The occurrence and flow of timber from illegal logging in Cameroon



Source: Mahonghol et al. 2016.



Crosscutting: Officers from customs, the tax office, MINFOF and other agencies participate in a working session at a training workshop in Kribi, Cameroon, held as part of the ITTO project. Photo: S. Djokam/TRAFFIC

- 1) forestry rules and regulations in the timber sector;
- 2) monitoring forest operations and forest control systems;
- 3) the role of the ministry in charge of finance in the forest sector;
- 4) the role of the armed forces (police and gendarmerie) in the application of the forest law; and
- 5) the role of the judiciary in the application of the forest law.

Importantly, the training manual can be adapted for use by training institutions in Cameroon and elsewhere in Central Africa (e.g. the Central African Republic, the Congo, the Democratic Republic of the Congo and Gabon) to increase the knowledge and capacity of officers in key agencies, including at the local level.

Sustainability after project completion

The prospects for sustaining project activities are good because of the following factors:

- The main beneficiary of the project, MINFOF, was closely involved in project implementation, requested many of the project activities, and is fully supportive and ready to continue.
- Project activities—such as capacity building targeted at law enforcement practitioners on the relevant laws and legal frameworks—were directly relevant to other ongoing initiatives aimed at improving forest law enforcement.
- TRAFFIC will lobby for the mainstreaming of the training manual in the curricula of forestry schools and relevant enforcement agencies.

Conclusion

Despite certain difficulties in project implementation, the situation after project completion is considerably improved. Stakeholders have been trained, informed and sensitized about the forest law and the fight against illegal logging and associated trade. Officers in the various government agencies now know the roles and responsibilities of each agency and how, where and when they should collaborate according to their mandates and legal frameworks. An enabling environment has been created for stronger cooperation among government stakeholders intervening in the timber supply chain.

References

- Kishor, N. & Oksanen, T. 2006. Combating illegal logging and corruption in the forestry sector. Strengthening forest law enforcement and governance. In: *Environment matters at the World Bank: 2006 annual review*, pp. 12–15. World Bank, Washington DC.
- Lewis, J.-M. 2011. *Etude sur les règles, procédures et dispositifs institutionnels de terrain nécessaires au suivi du bois en transit en Afrique Centrale*. Provisional report, 6 December 2011. Africa, Caribbean and Pacific Group of States/Forest Law Enforcement, Governance and Trade Project. FAO, Rome.
- Mahonghol, D., Ringuet, S., Nkoulou, J., Amougou, O.G. & Chen, H.K. 2016. *Les flux et les circuits de commercialisation du bois: le cas du Cameroun*. TRAFFIC. Yaoundé and Cambridge, UK.
- MINFOF. 2005. *Document de stratégie nationale de contrôle forestier et faunique*. Ministry of Forestry and Wildlife, Yaoundé.
- World Bank 2008. *Forests sourcebook: practical guidance for sustaining forests in development cooperation*. Washington, DC.

Publications produced by the project can be found by inserting the project code TFL-PD 003/09 Rev. 2 (M) into the ITTO project search function at: www.itto.int/project_search

China plies its trade

An ITTO study provides insight into China's developing plywood industry

by Hu Yanjie

Research Institute of Forestry Policy and Information, Chinese Academy of Forestry, China
(yanjie@caf.ac.cn)



Airing: Plywood produced by a small enterprise on Hainan Island, China, dries in the sun. China's plywood sector features large numbers of small and medium-sized enterprises, one of the factors in an overall lack of reliable data on the sector. *Photo: J. Claudon/ITTO*

China's forest industry has developed rapidly in the last decade, and the country is now the global centre for the manufacture of wood products. The industry not only plays an important role in local economic growth, it is a vital source of employment and provides local people with business opportunities.

China is ranked first in the world for plywood production, but—partly because the country's plywood sector features many small and medium-sized enterprises—there is a lack of reliable information on plywood production, consumption and distribution. There is also a lack of clarity on the sources of raw materials and the production and distribution of plywood products. For this reason, ITTO conducted a study¹ to improve understanding of the acquisition of wood raw materials, wood use, and product distribution by plywood manufacturers in China. The main objectives of the study were to:

- identify the sources of wood raw materials for major plywood, veneer and blockboard mills in China;
- estimate the recovery rates of logs in the manufacture of plywood products; and
- identify final products and byproducts and their distribution channels.

The overall aim was to assist China's statistical department to improve forest industry statistics. The study was also designed to benefit forestry authorities by providing them with reliable information on which to formulate policies and plans for the sustainable development of the forest industry.

¹ The study also benefited from funding from the Food and Agriculture Organization of the United Nations.

Methodology

The study involved the following:

- A literature search was conducted and information collected to provide insight into the development of, and changes in, the plywood industry in China.
- Questionnaires were disseminated through provincial forest bureaus to 350 companies in 21 provinces (mainly Zhejiang, Guangxi, Shandong, Jiangsu and Guangdong), according to suggestions provided by the State Forestry Administration. Effective responses were received from 278 companies. The focus was on Guangxi, Jiangsu and Shandong, which together account for about half of China's annual plywood production. Many studies suggest that each of these provinces has more than 1500 plywood-producing enterprises.
- On-site visits were made to selected plywood-product mills to obtain first-hand information. Ten enterprises were visited in each of three provinces (Guangxi, Jiangsu and Shandong), including plywood, blockboard and veneer enterprises, for a total of 30 companies. These companies were chosen according to production capacity, number of employees, and product type (plywood, blockboard or veneer).
- A seminar was held for representatives in charge of forestry statistics in all provinces as a means of disseminating the study's results and promoting the use of the outcomes in their work.
- Stakeholders were consulted: the project liaised with government agencies and civil-society organizations to

solicit contributions to the study. These included the Forest Products Statistics Division of the State Forestry Administration, the National Statistics Bureau, the National Forest Industry Association, the National Timber Distribution Association and certain wood manufacturers.

Main findings

The history of plywood production in China

The historical development of China's plywood industry can be divided into five periods:

- 1) 1920–1949: China's plywood industry was in its infancy.
- 2) 1950–1980: most plywood was produced in forested regions.
- 3) 1981–1990: the plywood industry grew rapidly in Guangdong, Hebei and Shandong provinces.
- 4) 1991–2000: a large number of private plywood production enterprises emerged, forming clusters of plywood industries in Zhejiang and Jiangsu provinces.
- 5) 2001–present: the plywood industry has grown exponentially. China became the world's largest producer of plywood in 2003, and a new cluster of plywood industries has developed in Guangxi Province.

Thus, the industry went through three main transitions:

- 1) from an industry formed in forested regions to one centred in economically developed regions;
- 2) from state-

owned enterprises to private enterprises; and 3) from the use of natural forests as the source of raw material to the use of plantation-grown wood.

Main plywood-producing regions and type of company

China's main plywood production regions are in the eastern and southern coastal provinces. There, mills specialize in processing veneer, plywood or overlaid plywood. Mills form large plywood clusters to provide continuous plywood production lines. The clusters have helped in obtaining financial investment and achieving wood-use and operational efficiency. In addition, interrelated enterprises form large networks, producing economies of scale and attracting investments in infrastructure. All these factors have helped reduce production costs and market risks, further strengthening the competitive advantages of those enterprises in clusters. Figure 1 shows the locations of the main plywood clusters in China.

China's plywood enterprises can be divided into three categories, by size:

- 1) **Large enterprises:** these are distributed in the coastal cities of Guangdong, Jiangsu and Shanghai provinces. Most are "foreign funded" or "shareholding" enterprises established in recent decades, with annual productivity of 50 000–200 000 m³. The raw materials are mainly imported logs and veneers. These mills have advanced technologies and stable product quality,

Figure 1: Distribution of plywood clusters in China



and they represent the most advanced level of China's plywood production.

- 2) **Medium-sized enterprises:** these are mainly in Shandong, Zhejiang and other inland provinces. Face veneers are mainly imported and core veneers are produced domestically. Product quality is somewhere between that achieved by small and large enterprises. Average annual production capacity of medium-sized enterprises is 10 000–50 000 m³.
- 3) **Small enterprises:** these are mainly in Fujian, Hebei, Jiangsu and Shandong provinces. The scale of investment is low and product quality is poor; the plywood is used mainly in concrete formwork (in construction) and the manufacture of low-quality furniture and interiors. Most small enterprises are “original equipment manufacturers” for foreign trade companies, and production is highly sensitive to changes in external markets. The average annual production capacity of small enterprises is 5 000–10 000 m³.

Plywood processing procedures

In China, dry heat is used to dry peeled veneers to a moisture content (dry basis) of 8–12%. The veneers are glued and assembled (layup), and then thermo-compressed into plywood in presses. More specifically, the process has four main parts:

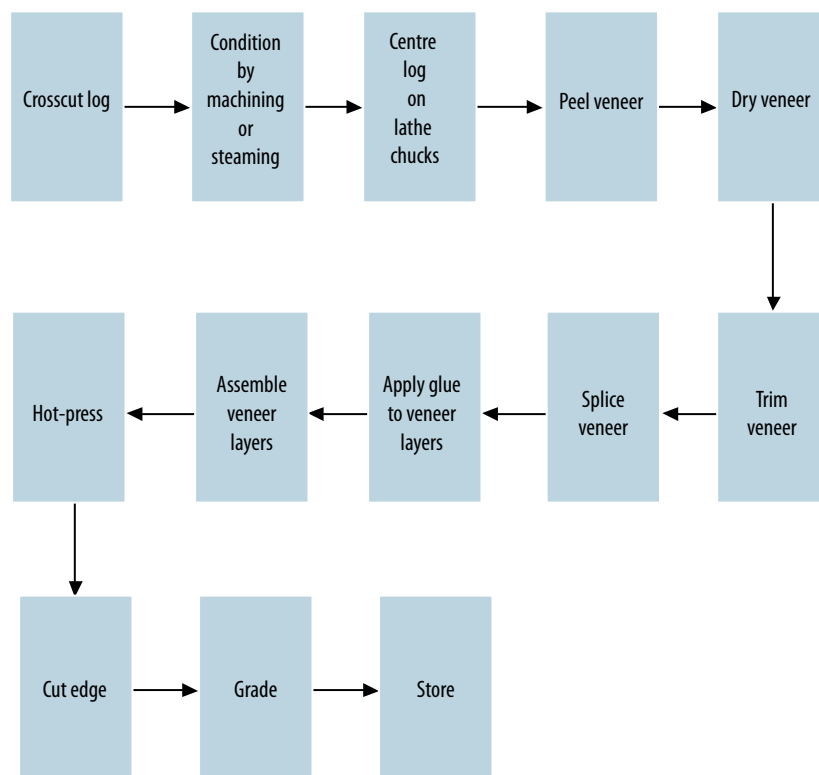
- 1) **Log preparation:** logs are debarked and cut into designated lengths according to the required sizes of plywood products and to maximize log use and veneer quality.
- 2) **Veneering:** the wood sections are peeled with a lathe to obtain veneers. Peeling is the technique used to produce more than 95% of veneer in China (thus, less than 5% is manufactured by slicing).
- 3) **Plywood gluing:** glue is spread uniformly on the surface of the veneers, with two or more veneer layers glued together to produce the required number of plies and the desired panel thickness. The panels are then thermo-compressed.
- 4) **Plywood finishing process:** this component has three main parts—trimming, sanding and quality control.

Most plywood mills follow these procedures for plywood production (Figure 2 sets out the plywood process in China in more detail).

Sources of raw materials for China's plywood production

Wood produced in fast-growing plantations is widely used in China's plywood sector. According to expert estimates, about 70% of China's plywood production is from plantation-grown trees, comprising poplar (about 50%) and eucalypt (20%).

Figure 2: The plywood production process in China





Small enterprise: A worker assembles plywood sheets, Hainan Province, China. Photo J.-C. Claudon/ITTO

Domestically grown species used in plywood manufacture are mainly poplar, eucalypt, Manchurian ash, basswood, *Alniphyllum fortunei*, paulownia, rubberwood, Chinese cherry, sweet gum, maples, elms, oaks, birches, masson pine, Yunnan pine, larch and spruce. Imported species used in plywood manufacture in China are mainly *Eucalyptus saligna*, mahogany and radiata pine.

Large, broadleaved trees are used for the face veneers of plywood and blockboard, with the core veneer and the base board mostly comprising poplar and eucalypt from fast-grown plantations. Face veneers are usually 0.1–0.6 mm thick (the mean is 0.3 mm), compared with the total average thickness of plywood panels of 9 mm. The volume used for face veneer accounts for about 3.3% of the total plywood volume, core veneer for 93.3% and base veneer (backs) for 3.3%.

Table 1 presents the results of the questionnaires on the use of raw materials by the surveyed companies.

Wood conversion rate of plywood production in China

Of the surveyed companies, 14 indicated that they converted logs (mainly poplars and eucalypts) to plywood. Tables 2–4 show the wood conversion rates for poplar

Table 1: Usage of raw materials in surveyed companies

Raw materials	No. of companies	Percentage (%)
Coniferous timber	11	3.9
Non-coniferous timber	115	41.4
<i>Of which tropical timber</i>	27	9.7
Mixed timber (coniferous and non-coniferous)	152	54.7
Total	278	100

and eucalypt reported by those 14 companies in the manufacture of plywood, veneer and blockboard.

Plywood manufacturers reported using small amounts of other species in addition to poplar and eucalypt, but it was difficult to determine the conversion rates for those. Given that the sample size was only 14 companies, the data presented in tables 2–4 should be treated with caution.

Table 2: Wood conversion rate for poplar and eucalypt plywood

Type	Tree species	Volume of wood raw materials (m ³) used to produce 1 m ³ of plywood	Conversion rate
Temperate hardwood	Poplar	1.5	0.67
Tropical hardwood	Eucalypt	1.48	0.68

Table 3: Wood conversion rate for poplar and eucalypt veneer

Type	Tree species	Volume of wood raw materials (m ³) used to produce 1 m ³ of veneer	Conversion rate
Temperate hardwood	Poplar	1.49	0.67
Tropical hardwood	Eucalypt	1.72	0.58
Average			0.63

Table 4: Wood conversion rate of poplar and eucalypt blockboard

Type	Tree species	Volume of wood raw materials (m ³) used to produce 1 m ³ of blockboard	Conversion rate
Tropical hardwood	Eucalypt	1.17	0.85

End uses of plywood and its byproducts

In the 1980s, about 70% of plywood was used for furniture manufacture, 15–20% for construction and doors and windows, 2–3% for vehicles and ships, and 7–13% for “other” (e.g. packing). Plywood consumption patterns in China have changed, however, with an increase in use for flooring, decoration, construction and packaging and a decrease in use for furniture. The survey indicated the following end uses for plywood today: furniture manufacturing (36%), internal panelling (23%), flooring (16%), packaging (15%) and other (10%).



Flat pack: Plywood panels are pressed in a factory in Hainan Province, China. Photo: J.-C. Claudon/ITTO

According to the survey, more than 65% of byproducts and residues was used for particleboard and fibreboard, about 20% was used for fuel, and 15% was used for “other”.

Distribution channels of plywood in China

Wood furniture and interior decoration panels are the most important downstream sectors for plywood. The survey indicated that there are four main flows of panels and veneer: 1) sales to local markets for further processing (2% of total sales); 2) export sales (18%); 3) sales to local markets for end use (19%); and 4) sales to other provinces (60%).

Byproducts and residues are either used by the companies that produce them or sold locally; only small amounts are sold to other regions.

Challenges in data collection

The main challenges in data collection are described below.

- There is no information-sharing mechanism on the plywood industry among stakeholders, making it difficult to obtain detailed information on the sector.
- There is no coordination mechanism among the key government sectors. Data on the same variables obtained from different sectors differed, which was confusing for researchers because it was unclear which source was more reliable.
- There is a lack of capacity among forestry statisticians, with some knowing little about plywood production. Some basic plywood concepts in the questionnaire were misunderstood, resulting in invalid questionnaires.

- It was difficult to obtain first-hand data from manufacturers. Worried about exposing their business information to the public, some were reluctant to fill in the questionnaire and others provided incorrect data.
- There are only weak links between forest industry associations and manufacturers. Because it is difficult to obtain information on manufacturers from secondary information sources, the project team had to do the baseline survey on its own, reducing the sample size.

Future development trends

China’s plywood sector faces serious problems in terms of quality and low value added. The future development of the sector requires that the government, science-and-technology agencies, and industrial associations strengthen subsectors within industry clusters by providing guidance and planning. Future developments in the plywood sector will include the following:

- The plywood sector will establish a quality-based system for new entrants, rather than one based merely on production, making full use of associations and quality-control agencies. It will also encourage technical training, the increased participation of science-and-technology agencies, the provision of financial assistance, the establishment of credit and quality control, and the provision of guidance to existing enterprises to encourage their upgrading.
- The impacts of industrial clustering will become more significant and the regional economic advantage will become more prominent.
- More assistance will be made available for the development of leading enterprises. The plywood sector in China will be improved over time. The leading enterprises will encompass small and medium-sized enterprises through mergers and acquisitions, enabling further upgrading, increased exports, improved product quality and more emphasis on “green” products.
- China will increase its use of plywood. Demand for plywood for structural uses will grow as the country’s construction industry develops. Plywood for concrete formwork will also develop rapidly. The use of wood in modern houses is popular in many countries, and this has drawn increasing interest in Beijing, Nanjing, Shanghai and Suzhou.

The full case study is available at www.itto.int/annual_review

Reaching out on RIL

A training programme undertaken as part of an ITTO project has built capacity in reduced impact logging in the forests of Peninsular Malaysia

by Abdul Khalim bin Abu Samah,¹ D. Abdul-Wahab,² M.S. Mohammad-Ifratshim² and Nordin Roslina²

¹ Forestry Department Peninsular Malaysia
(abkhalim@forestry.gov.my)

² Forestry Department Peninsular Malaysia and Terengganu Forestry Training Centre



Long reach: A “logfisher” machine extracts a log to a landing in hill forest in Peninsular Malaysia as part of a demonstration of reduced impact logging.
Photo: A. Khalim/Forestry Department Peninsular Malaysia

Malaysia has been managing its permanent reserved forests as renewable resources under the Selective Management System since 1978. This system is based on a 30-year cutting cycle, and it has evolved over time in an effort to minimize forest degradation, promote regeneration and prevent the depletion of forest resources. Despite considerable progress in some aspects of forest management in Malaysia, it is clear that implementation on the ground must be further improved to reduce the impacts of forest operations such as timber felling, the use of heavy logging machinery, forest road construction, and long-cable extraction. Surveillance visits to forest management units have revealed that there remains a certain level of non-compliance in forest harvesting, such as the poor construction of cross drains and silt traps, excessive earthworks, and poor drain maintenance. In most cases, the identification of tree species, diameter at breast height and number of logs are not accurately or consistently recorded in pre-felling and post-felling inventories.

Most of these issues arise because forest workers lack proper training and knowledge on the basic concepts and implementation of reduced impact logging (RIL) on the ground.

Recognizing the importance of forests and wood harvesting to the nation’s socioeconomic development, the Forestry Department Peninsular Malaysia has taken various steps to improve forest-harvesting practices. Under the Tenth Malaysia Plan (2011–2015), the department implemented training programmes on forestry, including RIL, for departmental personnel as well

as workers in the private sector throughout Peninsular Malaysia. This effort was boosted by ITTO project PD 722/13 Rev.1 (F): “Capacity building on reduced impact logging (RIL) in dry inland forest in the permanent forest reserve of Peninsular Malaysia”, which was funded jointly by ITTO and the Government of Malaysia. The project implemented various training modules at the Forestry Training Division in Kepong, and other modules were conducted at the Terengganu Forestry Training Centre in Kuala Berang, Terengganu. All modules were presented by well-trained Forestry Department Peninsular Malaysia lecturers, instructors and senior officers in relevant fields.

The first course on RIL began in April 2015 and the last was conducted in August 2016. In total, the project convened 13 courses for trainers and 27 courses for forest workers, covering topics such as dendrology (of dipterocarp and non-dipterocarp families); forest mensuration; survey and demarcation of forest boundaries; tree marking; directional tree felling; use of heavy machinery (tracked and rubber-wheeled); basic maintenance of heavy machinery; chainsaw handling and maintenance; planning, construction and maintenance of forest roads; log identification; use of geographic information systems in RIL; occupational safety and health; and forest harvesting using the “logfisher” system.¹

¹ The logfisher is an excavator with an extended boom and a powerful winching system developed for extracting logs from Malaysia peat swamp and hill dipterocarp forests. It operates like a mobile highlead yarding system; because of its extended boom it can lift one end of logs off the ground and winch them over significant distances, reducing the need for skid trails and the extent of damage to forest soils and ground vegetation compared with typical tractor systems; an early example of this machine is described in TFU 11/2 (page 19).



Haulage: Workers attach a choker to a log as part of the extraction process. *Photo: A. Khalim/Forestry Department Peninsular Malaysia*

Attendance

During the planning phase, it was estimated that the courses would train 110 trainers and 360 forest workers. These targets were greatly exceeded, however, with the project training 270 trainers and 726 forest workers—partly because funding enabled the provision of 17 additional courses but also because of the high level of interest among the target groups.

Course for trainers

Training-of-trainers courses—designed to provide attendees with skills for passing on their knowledge to forest workers—was attended by forest conservators, forest rangers and foresters.

Figure 1 shows the total number of participants in training-of-trainer courses, by age class. More than one-third of participants were in the 41–50 year-old cohort;

Figure 1: Number of participants in “training of trainers” courses, by age class

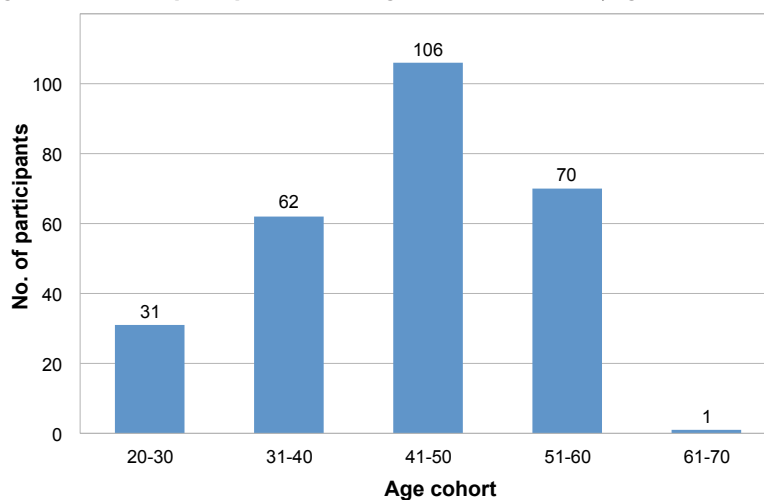


Figure 2: Number of participants in “training of trainers” courses, by state of origin

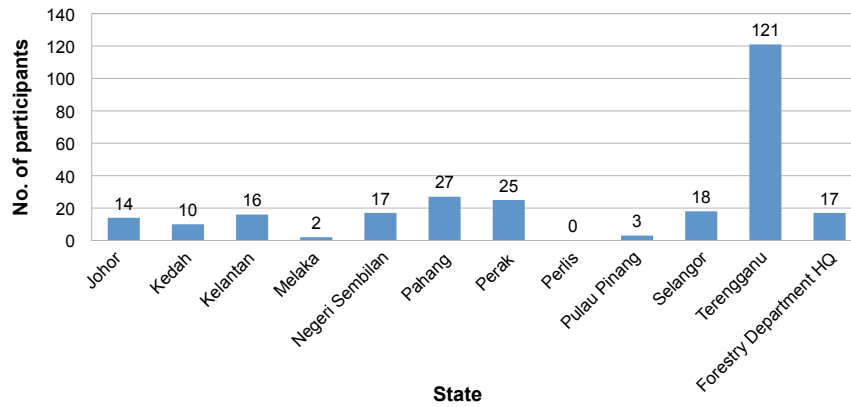


Figure 3: Number of participants in RIL courses for forest workers, by age class

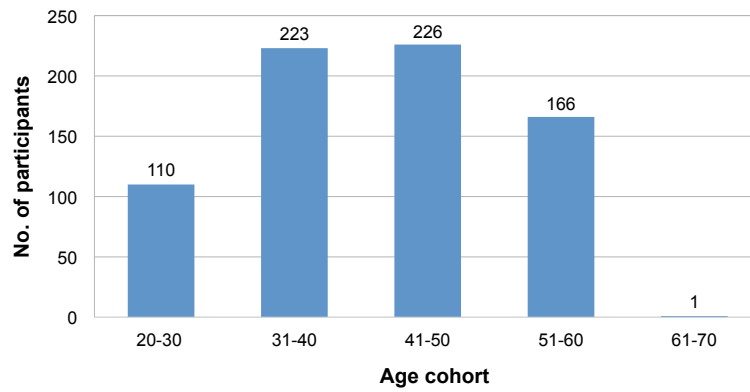
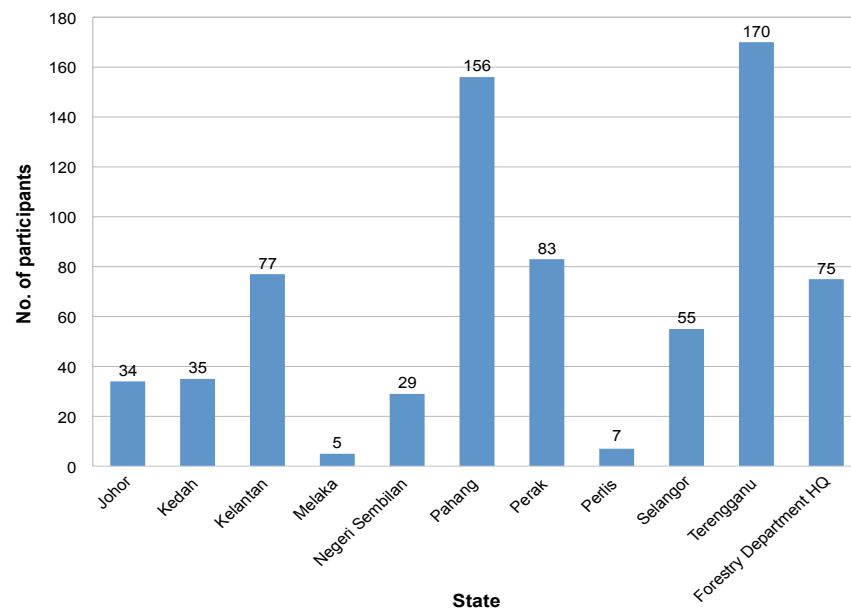


Figure 4: Number of participants in RIL courses for forest workers, by state of origin





Making the cut: A trainee takes part in a directional felling exercise in hill dipterocarp forest, Peninsular Malaysia.

Photo: A. Khalim/Forestry Department Peninsular Malaysia

about two-thirds of participants were aged 41 or older. Of the participating states, Terengganu had the highest number of participants, with 121 (Figure 2).

Courses for forest workers

Courses for workers were designed to provide attendees with the field skills needed to perform RIL on a daily basis. Figure 3 shows the distribution of participants by age class: nearly two-thirds of participants were aged between 31 and 50 years. The states of Terengganu and Pahang were most represented among participants (Figure 4).

Project achievements

In total, 151 course participants gained licences for handling wheeled heavy machines and 144 obtained licences for handling tracked heavy machines.

In executing the project, the Forestry Department Peninsular Malaysia extended its network by collaborating with key players in the training sector, including the Malaysian Construction Academy, the National Institute of Safety and Health and the Terengganu Timber Management Group. This networking presents opportunities for future collaboration with such institutions and the potential for ongoing RIL training.

The project produced a cohort of trainers with the technical capacity to demonstrate and transfer their skills in RIL. More than 700 forest workers from both the government and the private sector were trained in RIL, and the project also increase understanding among company managers and owners of the benefits of RIL for their businesses.

Recommendation

Feedback received from participants and fellow trainers directly involved in the project indicated that the duration of courses for trainers was inadequate to fully turn trainees into RIL trainers. It is proposed, therefore, to establish a “subject-matter expert” programme in which candidates selected from recent RIL trainer courses are seconded to field operations for an appropriate period to obtain additional RIL-related knowledge and skills.

Conclusion

The project achieved its objective of building human capacity in RIL through the training of trainers and forest workers. To sustain and improve RIL knowledge and skills, however, the training needs to continue over time; moreover, it should be expanded to enable the development of a core of subject-matter experts within the Forestry Department Peninsular Malaysia.

Publications produced by the project can be found by inserting the project code PD 722/13 Rev.1 (F) into the ITTO project search function at: www.itto.int/project_search

Gabon's growing veneer trade

Gabon could become a world leader in tropical veneer exports

by **Bernard Cassagne**

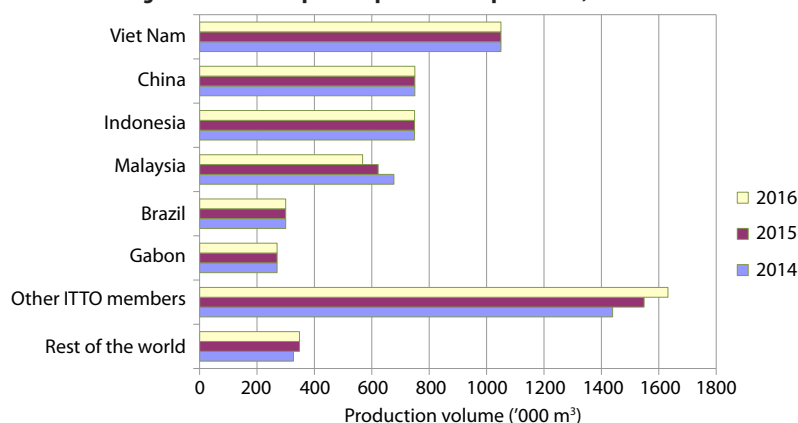
Chief Executive Officer, FRM Group
(frm@frm-france.com)



A-peeling: Logs are peeled to produce veneer in a mill in ZES Nkok, Gabon. Photo: B. Cassagne/FRM Group

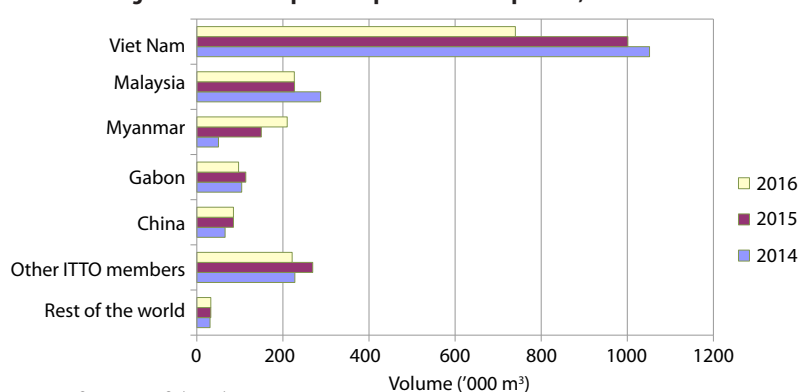
Gabon is the world's sixth-largest producer of tropical veneer, but it could climb the ranks. Its production of 270 000 m³ of veneer in 2016 constituted 6% of world tropical veneer production, behind Viet Nam (19%), China and Indonesia (both 13%) and Malaysia (10%) (ITTO 2016) (Figure 1).

Figure 1: World's top six tropical veneer producers, 2014–2016



Source: ITTO (2016).

Figure 2: World's top five tropical veneer exporters, 2014–2016



Source: ITTO (2016).

Tropical veneer exports are dominated by Viet Nam (46% of world exports in 2016), Malaysia (14%) and Myanmar (13%) (ITTO 2016). Gabon was the fourth-largest exporter of tropical veneer in 2016, with 6% of world exports (Figure 2).

The three major markets for tropical veneer in 2016 (comprising 44% of total tropical veneer imports) were China, India and the USA (ITTO 2016). The volume of tropical veneer imports decreased from 2014 to 2016 in the USA and increased in India.

Africa

Table 1 shows estimated tropical veneer production and export volumes for the main forest-rich countries in Africa in 2015 and 2016. Gabon was the top producer and exporter of tropical veneer in Africa in both years.

According to TBE (2016), Gabon's high veneer production is due largely to the country's relatively high availability of okoumé (*Aucoumea klaineana*), the main tropical veneer species in Africa. Gabon's veneer production increased substantially between 2014 and 2016 (TBE 2016)¹ as the supply of logs for in-country processing increased after the institution of the log export ban in 2010 and the establishment of new processing units (log exports declined from 57 000 m³ in 2012 to 6 000 m³ in 2016; ITTO 2016). Exports to Europe (mainly France) account for about 60% of the veneer produced in Central Africa, although there is increasing interest in Asian markets for okoumé veneer.

¹ ITTO data show no increase in this period, but TBE (2016) indicated an increase of 28%.

Table 1: Production and exports of tropical veneer, ITTO African member countries and some other forest-rich African countries, 2015 and 2016

Country	Production ('000 m ³)		Export ('000 m ³)	
	2015	2016	2015	2016
Gabon	270	270	114	97
Côte d'Ivoire	222	222	81	38
Ghana	262	262	29	21
Congo	59	70	12	11
Cameroon	29	31	28	29
Madagascar	9	31	0	3
South Africa*	14	13	4	1
Equatorial Guinea*	11	11	4	4
Zimbabwe*	5	5	2	2
Democratic Republic of the Congo	3	3	3	3
Mozambique	2	2	0	0
Benin	1	1	0	0
Central African Republic	1	1	0	0
Liberia	0	0	0	0

* Non-ITTO country.

Sources: FAO (2016) for Equatorial Guinea, South Africa and Zimbabwe; ITTO (2016) for all other countries.

Table 2: Estimated current veneer log production, Gabon

Species suitable for veneer production	Annual log volume (m ³ /year)	
	"Low" scenario	"High" scenario
Okoumé (<i>Aucoumea klaineana</i>)	1 000 000	1 200 000
Ilomba (<i>Pycnanthus angolensis</i>)	290 000	360 000
Ozigo (<i>Dacryodes buettneri</i>)	260 000	330 000
Andoung, andoung le testu, andoung pellegrin (<i>Monopetalanthus</i> spp.)	120 000	150 000
Ekoune (<i>Coelocaryon preussii</i>)	120 000	140 000
Aiélé (<i>Canarium schweinfurthii</i>)	50 000	65 000
Faro grande feuille, faro petite feuille (<i>Daniellia</i> spp.)	45 000	55 000
Total	1 885 000	2 300 000

Source: Derived from inventory data compiled by FRM Group.

Table 3: Estimated future veneer log production, Gabon

Species suitable for veneer production	Annual log volume (m ³ /year)	
	"Low" scenario	"High" scenario
Okoumé (<i>Aucoumea klaineana</i>)	1 150 000	1 500 000
Ilomba (<i>Pycnanthus angolensis</i>)	330 000	440 000
Ozigo (<i>Dacryodes buettneri</i>)	310 000	400 000
Andoung, andoung le testu, andoung pellegrin (<i>Monopetalanthus</i> spp.)	140 000	180 000
Ekoune (<i>Coelocaryon preussii</i>)	130 000	180 000
Aiele (<i>Canarium schweinfurthii</i>)	60 000	80 000
Faro grande feuille, faro petite feuille (<i>Daniellia</i> spp.)	50 000	65 000
Total	2 170 000	2 845 000

Source: Derived by FRM Group from management plans validated by the Government of Gabon.



Peeled: Workers sort okoumé veneer sheets in a mill in ZES Nkok, Gabon. Photo: B. Cassagne/FRM Group

Gabon's veneer production potential

Gabon has the potential to produce and export much more veneer. Current veneer production potential in the country's Zone Economique Speciale de Nkok (ZES Nkok)² is estimated at 300 000 m³ of logs and 150 000 m³ of final product per year.³ When veneer production units still under construction come on line, veneer production potential in the ZES Nkok will be 350 000 m³ (from 700 000 m³ of logs) per year.

Gabon produces about 150 000 m³ of veneer outside the ZES Nkok. With the planned increase in industrial capacity in ZES Nkok, Gabon should soon be capable of producing around 500 000 m³ of veneer per year—almost double its current production. If so, Gabon could become the world second-largest tropical veneer exporter after Viet Nam.

Log availability under sustainable forest management

About 1 million m³ of logs would be needed to produce 500 000 m³ of veneer per year. Gabon's resource stocks of the main veneer species are sufficient to sustainably meet this demand. There is, however, a lack of reliable data on log production in some parts of Gabon. The low and high scenarios presented in Table 2 represent possible lower and upper bounds of industrial log production. Nevertheless, even the "low" scenario for the current

supply of veneer species is about 1 880 000 m³ of logs per year.

Gabon's harvest of veneer logs is expected to increase due to the combined impact of Gabon's industrialization policy, the emergence of new markets, and expected reductions in logistical costs. Harvesting in accordance with sustainable management standards could produce an annual harvest of veneer logs of nearly 3 million m³ (Table 3).

References

FAO 2016. FAOSTAT database. Available at: <http://faostat.fao.org>

ITTO 2016. *Biennial review and assessment of the world timber situation 2015–2016*. Yokohama, Japan.

TBE 2016. *Tableau de Bord de L'economie: situation 2016, perspectives 2017–2018*. Tableau de Bord de L'economie (TBE), Government of Gabon, Libreville.

² ZES Nkok is a 1126-hectare economic zone in Nkok, Gabon. Located 20 km from the capital, Libreville, ZES Nkok was established in 2010 after the imposition of a log export ban, with the aim, among other things, of facilitating secondary and tertiary wood processing.

³ Processing yield varies between 40% and 55%.

Fellowship report

An ITTO Fellow and his colleagues have developed site index curves for teak plantations in northern Guatemala

by Manuel Sabino Mollinedo García,¹ Miguel Ángel Herrera Machuca² and Fernando Muñoz Sáez³

¹ PhD student and ITTO Fellow, University of Córdoba, Spain, Forest Engineering Department, La Verapaz Campus, San Pedro Claver S.J., Rafael Landívar University (URL), Km 218.5, San Juan Chamelco, Alta Verapaz, Guatemala (north.consultants@gmail.com)

² Department of Forest Engineering, University of Córdoba, Leonardo da Vinci Building, Rabanales Campus, 14071, Córdoba, Spain

³ Faculty of Forestry, Universidad de Concepción, Victoria 631, Concepción, Chile



Assessment time: The late Benedicto Gutierrez, formerly a graduate student at Rafael Landívar University, inspects a 12-year-old teak tree grown on a high-quality site in Chahal, Alta Verapaz, Guatemala.

Photo: M. Mollinedo

The aim of this study was to assess the growth and productivity of young teak plantations (*Tectona grandis*) and to develop the first site index curves for the northern region of Guatemala. According to data from the National Forest Institute (*Instituto Nacional de Bosques*—INAB), Guatemala had a little more than 33 000 hectares of teak plantations in 2015, 80% of which was located in the study area. Ávila (2003) and Vaides (2004) identified sites in Guatemala that had achieved poor, good, medium and excellent growth rates. Ávila (2003) reported that 20% of sites had low growth rates, and Vaides (2004) indicated that such sites accounted for 38% of the total.

Study area

The study area covered forest regions II and VIII, according to INAB's classification (Figure 1), comprising the departments of Alta Verapaz and Baja Verapaz (Region II) and El Petén (Region VIII).

The northern region has a varied topography, including floodplains and alluvial terraces at 100–600 m above sea level in Region VIII and hilly terrain at 200–1400 m above sea level in Region II (URL 2006).

Information sources

Data for the study were obtained from a network of 248 permanent sample plots established in teak plantations in line with INAB's guidelines for this species and in accordance with the methodology established in the MIRASILV [Tree and Silvicultural Information



Harvest time: A forest worker fells a nine-year-old teak tree grown on a high-quality site in Cahabón, Alta Verapaz, Guatemala.

Photo: M. Mollinedo

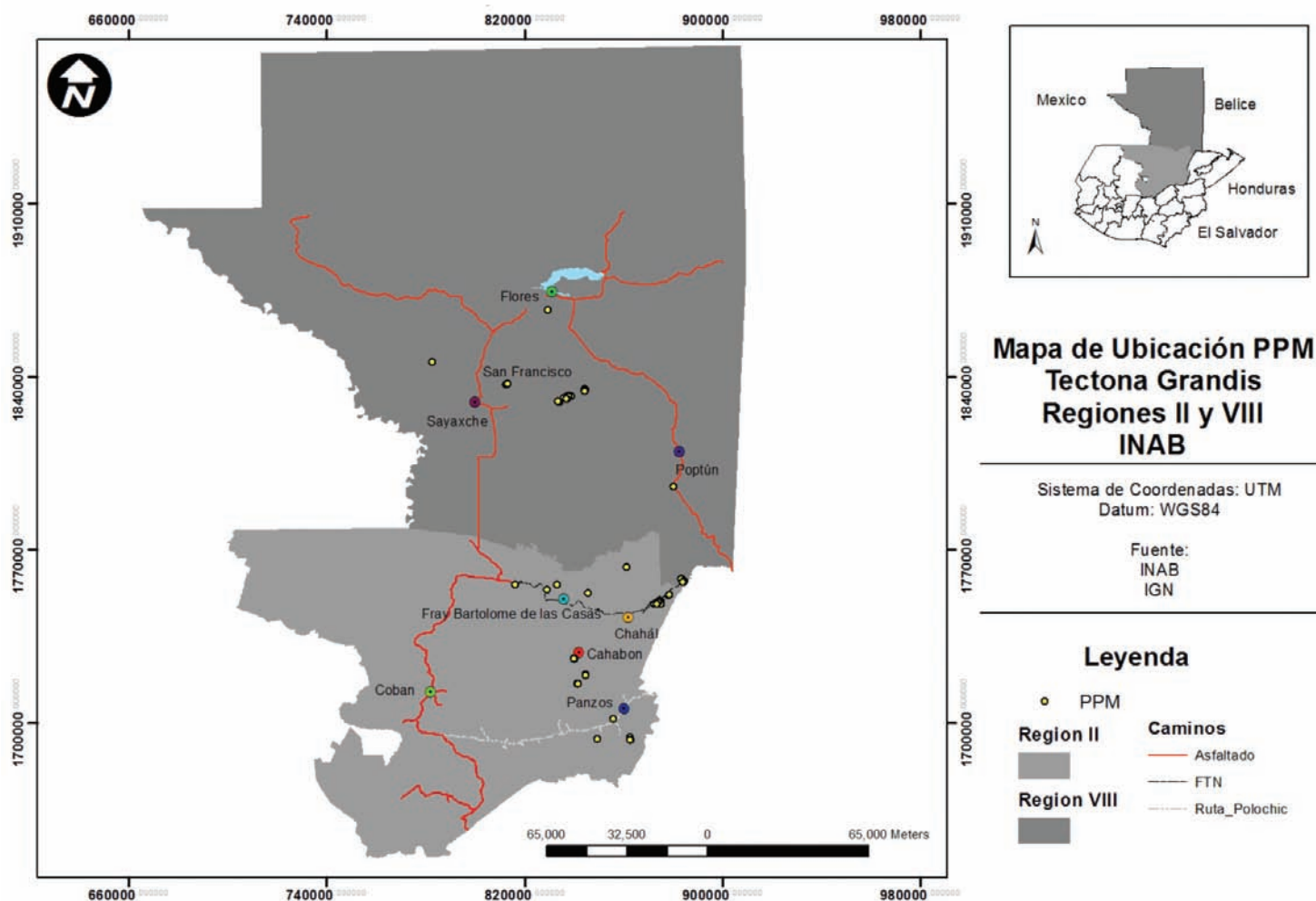
Management] software program developed by Ugalde (2002) for Costa Rica. MIRASILV uses equations generated by Vallejos and Ugalde (1998) to calculate site index at a base age of ten years, as well as equations for calculating indirect silvicultural variables and volumes. Guatemala's teak plantations were established at an initial spacing of 3 × 3 m. The database (exported to Excel) mainly comprises direct and indirect silvicultural variables for plantations established in 1998, 1999, 2000 and 2001, with annual measurements taken in 2003, 2005, 2006, 2007, 2008 and 2009. Statistical analyses and charts were prepared using INFOSTAT V12 software.

The methodology developed by Vásquez and Ugalde (1995) divides sites into three site classes. "High" comprises plantations with higher-than-average growth rates and economic potential; "middle" includes plantations on sites regarded as good or about average, which, with adequate forest management, would have a good chance of being profitable; and "low" comprises plantations on below-average (or marginal) sites, on which profitability would be hard to achieve.

Results

Table 1 presents the basic parameters for the three teak-plantation growth classes, as calculated using data from the 248 sample plots. Using the methodology of Vásquez and Ugalde (1995), we estimate that low-growth sites account for 16.3% of the total area, medium-growth sites for 70.7% and high-growth sites for 13.0%.

Figure 1: Location of forest regions II and VIII, northern Guatemala



Note: The yellow circles correspond to permanent measurement plots established by INAB.
Source: Carlos Daetz.

Table 1: Summary of the mean values of indirect silvicultural variables by growth class, teak plantations in Guatemala's northern region

Growth class	Site index (m)	Mean annual increment (dbh) (cm/year)	Mean annual increment (total height) (m/year)	Mean annual increment (basal area) (m ² /year)	Mean annual increment (volume) (m ³ /year)
Low	12.9	1.65	1.34	0.62	2.55
Medium	19.1	2.23	1.98	1.55	9.89
High	25.3	2.82	2.62	2.48	17.2

Source: Prepared by the authors based on an analysis of data derived from 248 permanent sample plots provided by INAB. All values showed statistically significant differences ($p = 0.005$).

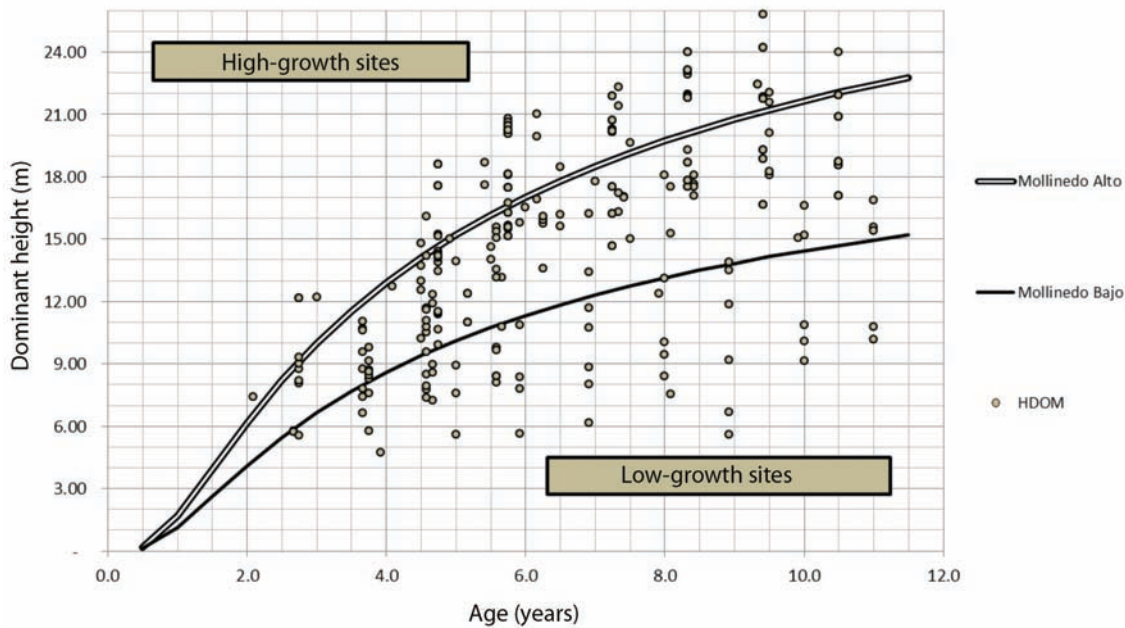
Table 2: Summary of mean values, by site class, for the site index analysis at a base age of ten years, and dominant height

Site index at age ten years	Dominant height (m)	Site class	Site quality	No. of sample plots
06.98–14.38	< 14.44	Low	III	49
14.39–21.54	14.44–21.60	Medium	II	126
21.55–28.94	>21.60	High	I	73

Figure 2 shows site index curves for high- and low-growth sites based on the dominant height of assessed stands. Table 2 shows the corresponding values for each site

class at a base age of ten years. Table 2 can be used to characterize other teak plantation sites at a plantation age of ten years.

Figure 2. Site index curves for teak plantations in Guatemala



Acknowledgements

We thank ITTO, the universities of Cordoba and Concepcion, Estuardo Vaidez, and INAB for their support for this research.

A full presentation of the results of this study is available in Mollinedo et al. (2016).

References

Ávila, R.I. 2003. Evaluación del estado y crecimiento inicial de cuatro especies prioritarias (*Pinus maximinoi* H.E. Moore, *Pinus caribaea* Morelet, *Pinus oocarpa* Schiede y *Tectona grandis* L.f.) del programa de incentivos forestales en la región 2, en los departamentos de Alta y Baja Verapaz, Guatemala. Thesis. Centro Agronómico Tropical de Investigación y Enseñanza (CATIE), Turrialba, Costa Rica.

Mollinedo G.M.S., Herrera M.M.Á. & Muñoz S.F. 2016. Caracterización del crecimiento de plantaciones jóvenes de teca (*Tectona grandis* Linn f.) y estimación de curvas de índice de sitio, en el área septentrional de la República de Guatemala. *Madera y Bosques* 22(2): 89–103.

Ugalde, A. 2002. Metodología para la instalación de Parcelas Permanentes de Monitoreo y manejo del programa Manejo de Información de Recursos Arbóreos y Silvícolas – MIRASILV. Centro Agronómico Tropical de Investigación y Enseñanza (CATIE), Turrialba, Costa Rica.

URL 2006. *Estado del uso de la tierra y ordenamiento territorial de Guatemala*. Facultad de Ciencias Ambientales y Agrícolas, Instituto de Agricultura, Recursos Naturales y Ambiente, Universidad Rafael Landívar (URL). Guatemala.

Vaides L.E.E. 2004. Características de sitio que determinan el crecimiento y productividad de teca (*Tectona grandis* L. f.) en plantaciones forestales de diferentes regiones en Guatemala. MSc thesis. Centro Agronómico Tropical de Investigación y Enseñanza (CATIE), Turrialba, Costa Rica.

Vallejos, B.O. & Ugalde, A.L. 1998. Índice de sitio dasométrico y ambiental para *Tectona grandis*, L.f., *Bombacopsis quinatum* (Jacq) Dugand y *Gmelina arborea* Roxb. Creciendo en Costa Rica. In: Primer Congreso Latinoamericano – El manejo Sustentable de los Recursos Forestales: Desafío del Siglo XX. Valdivia, Chile, 22–28 November.

Vásquez W. & Ugalde, L. 1995. *Rendimiento y calidad de sitio para Gmelina arborea, Tectona grandis, Bombacopsis quinatum y Pinus caribaea en Guanacaste Costa Rica*. Technical Series No. 256. Convenio de Cooperación, Proyecto Forestal Choroteqa. Proyecto Madeleña-3.

Viet Nam's wood exports are booming, but the local industry is yet to realize its full commercial potential

by Phan Thi Thu Hien

Lecturer of Faculty of Economics and International Business, Viet Nam Foreign Trade University (phanhien@ftu.edu.vn)



Powerhouse: A woodworking workshop in Tiendat Furniture Corporation, Quynh n, Viet Nam. Photo: Phan Thi Thu Hien

Viet Nam is one of the world's leading exporters of wood products. This article analyzes the national value-added of Viet Nam's wood product exports in global markets on the basis of Stan Shih's competitive advantage model (the "smiling curve"). It draws on field studies conducted by the author at production sites of top exporting companies (by turnover) in northern, central and southern Viet Nam and on comprehensive interviews with experts, researchers and government officials. It also encompasses information and data on the trade of wood and wood products in Viet Nam obtained from the official international merchandise trade statistics database of the General Department of Viet Nam Customs.

Overview of Viet Nam's trade in wood and wood products

Viet Nam has a number of comparative advantages that have contributed to the export growth and lucrative performance of its wood and wood products in global markets. These include the following:

- Production costs are much lower than those of competitors because of the availability of abundant cheap labour and the capacity to meet the technical industrial requirements of importing partners.
- Viet Nam has a large plantation resource that supplies low-cost input materials for wood processing and exports.
- Viet Nam is favourably located with respect to the markets of China, the Republic of Korea, the European Union and the USA. Its favourable location means relatively low transportation costs for both raw-material inputs and wood product exports.

- Viet Nam is signatory to several free-trade agreements (FTAs) that increase the competitiveness of Vietnamese wood products. For example, the import tariff on Vietnamese wood products is almost zero in many large markets, which is not the case for products originating in Brazil, China and Myanmar. A number of "mega" FTAs that could come into effect in coming years, including the Comprehensive Progressive Agreement for Trans-Pacific Partnership, the Regional Comprehensive Economic Partnership and the European Union–Viet Nam Free Trade Agreement—could further boost the export prospects of Vietnamese wood products.

Viet Nam's forest industry and wood-processing sector have been booming since 2000, with strong growth in the number of wood-processing factories, production capacity, manufacturing output, and market share in local and international markets. Viet Nam's wood and wood products were major export commodities in 2011–2017, with annual average growth of 15%; exports more than doubled in value between 2010 and 2017, from US\$3.43 billion to US\$7.66 billion (Figure 1; General Department of Viet Nam Customs 2017).

Viet Nam's exports of wood and wood products mainly belong to chapters 44 (wood and articles of wood; wood charcoal) and 94 (wooden indoor and outdoor furniture) of the Harmonized System,¹ but artificial boards, particleboard, medium-density fibreboard and wood pellets are also major exports from Viet Nam (Figure 2).

¹ The Harmonized Commodity Description and Coding System, generally referred to as the Harmonized System, is a multipurpose international product nomenclature developed by the World Customs Organization.

The smiling curve of value adding

Stan Shih’s “smiling curve” has three main segments: downstream (including manufacturing), which gives the lowest added value; middle stream (including design, distribution, branding and marketing), which generates higher added value; and upstream (including concept, research and development—R&D, and sales/after-sales service), which creates the greatest added value (Figure 3).

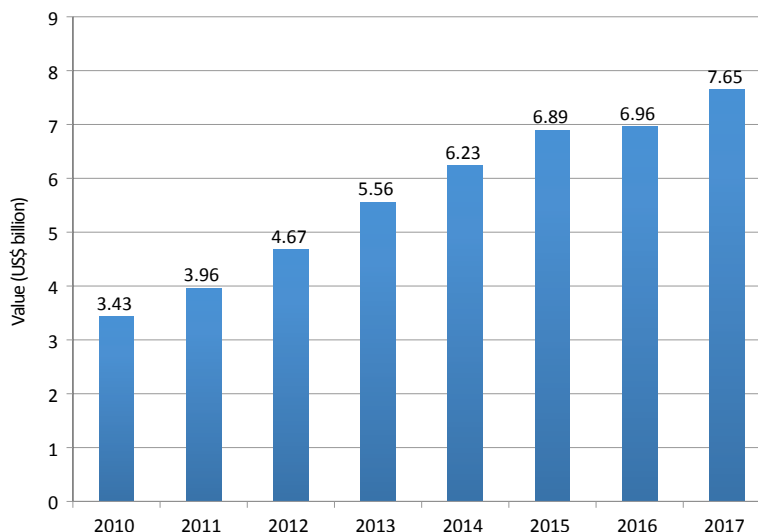
Downstream

According to the Viet Nam Administration of Forestry (2016), Viet Nam had more than 4200 enterprises in the timber industry in 2016, 75% of which specialized in manufacturing; only 25% focused on wholly commercial transactions.

Wood-processing firms. Vietnamese small and medium-sized enterprises (SMEs)² comprise nearly 90% of the wood-processing sector. These lack sufficient capital, advanced technologies, modern production lines and cross-border trade skills to be globally competitive; therefore, they are mostly subcontractors and outsourcing producers for wood-product exporters. The remaining 10% comprise “foreign direct investment” (FDI) enterprises (that is, non-Vietnamese companies that have invested in production facilities within Viet Nam), which are responsible for more than half Viet Nam’s wood-product exports, and large companies that are wholly Vietnamese owned. Viet Nam’s export turnover of wood and wood products by FDI enterprises was nearly US\$4.4 billion in 2016, which was 57.4% of the country’s total exports of wood and wood products (GDVC 2017).

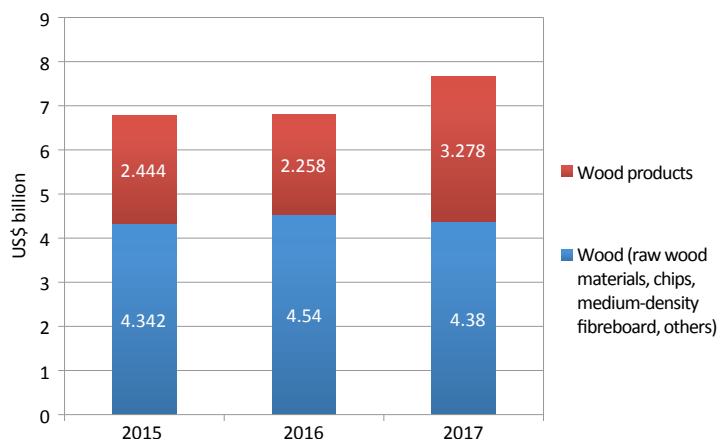
² In Viet Nam, SMEs meet the following criteria: 1) have fewer than 200 employees (on average) contributing to social insurance; and 2) have either total capital resources of less than VND 100 billion (US\$4.4 million) or total revenue of no more than VND 300 billion (US\$13 million). SMEs do not include ultra-small enterprises, which are enterprises employing fewer than ten people and with a registered capital of less than VND 1 billion.

Figure 1: Viet Nam’s exports of wood and wood products, by value, 2010–2017



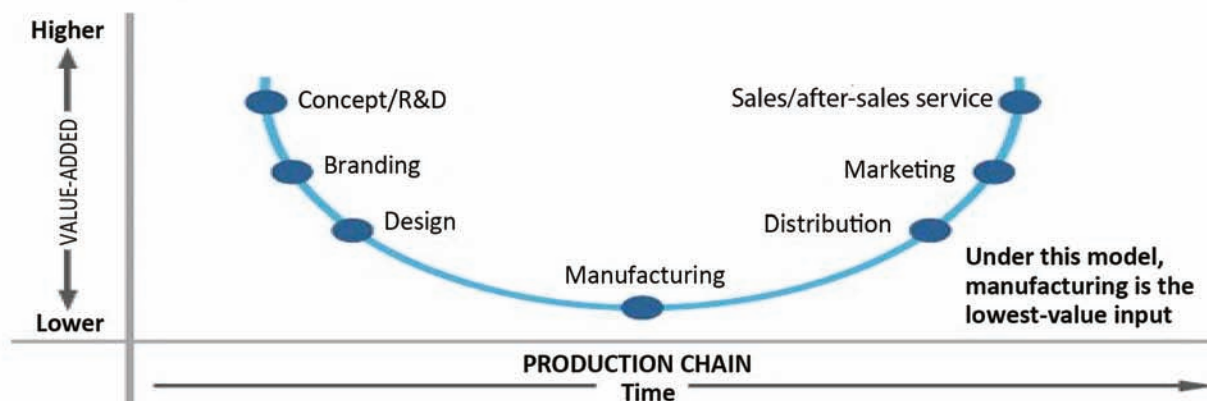
Source: General Department of Viet Nam Customs, 2017.

Figure 2: Viet Nam’s exports of wood and wood products, by value, 2015–2017



Source: General Department of Viet Nam Customs.

Figure 3: The smiling curve of value adding



Source: Shih (1992).



Benchmark: A garden-furniture pack, certified by the Forest Stewardship Council, is ready for dispatch to lucrative international markets.

Photo: Phan Thi Thu Hien

Raw wood materials. The Government of Viet Nam banned logging in national natural forests in 2014. Legally sourced timber materials are mostly derived, therefore, from the country's plantation estate.

This resource covers about 3.2 million hectares with a potential timber yield is 60 million m³ per year. The annual harvest volume today is nearly 5 million m³ of timber, mainly comprising acacia, two-leaf pine and eucalyptus. A major issue, however, is that not all plantations are highly productive, and harvesting often occurs at age 6–10 years, when the size and quality of the wood is insufficient to meet requirements or to comply with international standards such as European Union Regulation No. 995/2010 and those of the Forest Stewardship Council and the Programme for the Endorsement of Forest Certification.

Today, imported wood constitutes 35–40% of total inputs to Viet Nam's timber industry, mainly from Cambodia, China, Malaysia, Thailand and the USA. The import value of this wood amounts to nearly 30% of Viet Nam's total export turnover of end products. According to the Viet Nam Wood and Forest Product Association (VIFORES), raw wood consumption in Viet Nam was about 33 million m³ in 2017, generating an export turnover of nearly US\$8 billion. Wood consumption is set to rise to 40 million m³ by 2020 for an export turnover of US\$10 billion (VIFORES 2016).

Wood production labour force. Viet Nam's wood industry has a plentiful labour resource that is low-cost compared with neighbouring countries. Vietnamese workers are flexible and have a strong work ethic, which makes the development of businesses exciting and rewarding. However, certain problems still compromise the workforce, including the generally low level of skill. Viet Nam's wood-processing sector has more than 300 000 workers, but only 10% of the permanent working force has attained a primary-school level of education. An estimated 35–40% of the workforce is recruited seasonally and performs manual labour; the remainder is specifically



Factory floor: Manufacturing machines in a wood production line at the Tiendat Furniture Corporation, Quynhon, Viet Nam.

Photo: Phan Thi Thu Hien

trained in wood processing (Viet Nam Administration of Forestry 2016).

Technological improvements. Despite continuously improving technology to meet consumer demands, many Vietnamese companies, especially SMEs, still use old-fashioned production equipment, which is mostly imported from China or Taiwan Province of China or purchased second-hand from developed companies. This approach could make Viet Nam a “technological waste pile”, which is counter to the principles of sustainable development; low-quality equipment can generate excessive pollution and create hazardous conditions for workers.

Nevertheless, there are positive signs of increased investment in Viet Nam's timber industry designed to increase productivity. For example, companies are investing in improved drying technologies and the production of composite boards.

Middle stream

Of the four factors in the middle stream of the added-value chain, **design** is probably the Vietnamese industry's greatest strength. Over the years, “Made in Viet Nam” wood products have won the confidence of foreign customers, especially for their design and competitive prices. This is the result of day-to-day improvements and research and development in product design by Vietnamese enterprises, especially the exporters of industrial products in international markets.

On the other hand, **branding** is an enormous problem in exports of wood and wood products. This is partly because most Vietnamese wood-product companies are small and

medium-sized, with low or only average technological capacity, thus limiting branding potential to the bottom end of international value chains, with the net result that the Viet Nam “brand” carries little weight.

Because of the inability to trade final wood products with customers and end users in importing markets, Vietnamese wood-product companies rarely have a competitive advantage in **marketing** and **distribution** in international supply chains. Most small and medium-sized companies in the Viet Nam wood industry must sell their products through intermediaries in Taiwan Province of China, China (Hong Kong SAR) and northern Europe.

Other shortcomings in promotional capacity include the following:

- Most commercial publications are written only in English, which makes it difficult when targeting markets such as Portugal and Spain.
- The percentage of enterprises with their own websites is modest, even though this is the simplest way for foreign customers to obtain information about companies.
- Vietnamese wood-product companies are yet to make best use of packaging to boost the image and branding of products in the eyes of foreign customers.

In general, without involvement in the marketing and distribution stages of the timber value chains, and lacking “connection” with consumers and end users in importing destinations, Vietnamese timber manufacturers and exporters obtain only low prices for their wood products as a percentage of final retail prices in importing markets.

Upstream

Vietnamese timber manufacturers make minimal investments in R&D. The Vietnamese Chamber of Commerce and Industry reported that about 300 enterprises in the wood-processing industry, mostly in Ho Chi Minh City, Dong Nai, Binh Duong and Ba Ria-Vung Tau, are hiring foreign experts to work intensively on product designs and that 69% of companies in the wood industry are investing in R&D for new products (To Xuan Phuc et al. 2015). Although the proportion of company budgets allocated to R&D is still modest, and there is a general lack of research capacity (e.g. in information technology and mathematical and statistical tools), the willingness to invest in this area is an indicator of business direction (To Xuan Phuc et al. 2015).

Vietnamese wood-product exporters cannot provide after-sales service. Given that Vietnamese wood-product companies operate only in the processing and manufacturing stages, they lack the capacity to sell end products directly to consumers and thereby to gain added value from after-sales service. Nevertheless, many Vietnamese wood-product companies do guarantee their

export products in sales contracts and cooperate with foreign partners to resolve quality-related matters for customers.

Conclusion

Viet Nam’s wood and wood-product exports have a strong competitive advantage in the middle-stream (production) component of the production chain and in part of the upstream component (design). Viet Nam is the 15th-largest wood exporter worldwide, and its annual total export value continues to grow, but the sector is yet to fully capitalize on the potential value added. The big challenge now for the industry and government is to transform a billion-dollar-export-value commodity into a billion-dollar-**added**-value commodity.

References

- General Department of Viet Nam Customs 2017. *Customs handbook in international merchandise trade statistics of Viet Nam*. Hanoi.
- 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.
- Shih, S. 1992. *Empowering technology: making your life easier*. Acer’s Report. New Taipei, Taiwan Province of China.
- To Xuan Phuc, Tran Le Huy, Cao Thi Cam, Nguyen Ton Quyen & Huynh Van Hanh 2015. Trade in wood and wood products between Vietnam and the EU in 2012–2014. Paper presented at the Conference on EU-Vietnam Trade in Timber. December 2015, Hanoi.
- To Xuan Phuc, Tran Le Huy, Cao Thi Cam, Nguyen Ton Quyen & Huynh Van Hanh 2017. Viet Nam’s trade in wood and wood products in 2016 and first 8 months of 2017. Paper presented at the Conference on Vietnam’s Exports and Imports of Wood and Wood Products by 2017 and New Market Trends. September 2017, Hanoi.
- Viet Nam Administration of Forestry 2016. Reports on wood and wood products exports and imports, advantages, difficulties and recommendations on sustainable development in 2016 and upcoming years. Paper presented at the Conference on Vietnam’s Wood Processing Industry: Opportunity and Challenge. Hanoi.
- VIFORES 2016. *Thực trạng sử dụng nguyên liệu trong Chế biến Gỗ*. Hanoi.

Compiled by
Ken Sato

Improving self-governance in Indonesian forest communities

Community forestry is booming in Indonesia, with smallholder farmers responsible for an increasing proportion of the timber supply. Forest-growing has the potential to significantly boost incomes for these farmers, but bureaucratic procedures can be a major obstacle.

The Government of Indonesia, with assistance from ITTO project TFL-PD 033/13 Rev.2 (M), has streamlined the paperwork to make it easier for smallholders to legally harvest, transport and sell their timber, helping to stimulate the forest industry and increase the benefits for local communities and the environment. Local-level timber administration and governance has improved in eight Indonesian provinces—Central Sulawesi, East Kalimantan, Jambi, Java, Lampung, North Sumatra, Nusa Tenggara, and West Sumatra—as a result of the project.

Watch this video for more information: www.youtube.com/watch?v=QNV8TfNUHao&feature=youtu.be

New York Declaration of Forests launches community-of-practice forum

The Global Platform for the New York Declaration on Forests has launched an online “community of practice” to help in achieving the Declaration’s ten goals. The community-of-practice forum, which is accessible in several languages, will help users in identifying challenges, sharing best practices, and keeping informed. People interested in participating can register at <https://nydfglobalplatform.org/register>

ITTO strengthens cooperation with INBAR

ITTO and the International Network for Bamboo and Rattan (INBAR) have agreed to increase collaboration on the sustainable management, use and trade of tropical bamboo and rattan resources and enabling South–South cooperation. ITTO Executive Director Gerhard Dieterle and INBAR Director General Hans Friederich signed a

memorandum of understanding (MOU) to this effect in Beijing, China, in June 2018. The MOU provides a framework for the implementation of joint activities and projects aimed at the conservation, sustainable management, use and trade of tropical bamboo and rattan in countries that are members of the two organizations. Work is expected to encompass a wide range of aspects relevant to the sustainable management of bamboo and rattan resources in tropical forests.

More information: www.itto.int/news_releases/id=5613

An alternative to “fortress” conservation

A recent report by Victoria Tauli-Corpuz (the UN Special Rapporteur on the Rights of Indigenous Peoples) and two co-authors presents evidence that, in the last 14 years, there has been only limited improvement in the recognition of human rights for the millions of Indigenous Peoples and local communities living in or near protected areas, including in tropical forests. This is despite commitments by governments and conservation organizations and “compelling evidence” of the positive and cost-effective conservation role of communities. The authors propose four measures aimed at shifting from centrally governed protected-area conservation toward approaches that “embody reconciliation, respect, and collaboration between local peoples and national societies”. The four measures are: 1) creating an independent, transparent, global conservation monitoring and grievance mechanism; 2) creating national accountability and reparation mechanisms for conservation measures; 3) ensuring that the UN Declaration on the Rights of Indigenous Peoples is centrally placed in all measures on biodiversity conservation and climate change; and 4) strengthening and promoting rights-based approaches and conservation models.

More information: https://rightsandresources.org/wp-content/uploads/2018/06/Cornered-by-PAs-Brief_RRI_June-2018.pdf

“Deforestation-free” palm oil not so simple

Science Daily reports on a study published in the journal *Global Environmental Change* examining some of the challenges faced by companies in guaranteeing that palm-oil products labelled as “deforestation-free” have indeed been produced without causing deforestation. The major barriers to success, according to the study, are highly complex supply chains, insufficient support from governments, a lack of consensus over what counts as deforestation, and growing markets in China and India that prefer low-cost to sustainably produced goods.

More information: www.sciencedaily.com/releases/2018/05/180525123209.htm

Obituary: Satoshi Akahori



It is with profound sadness that ITTO announces the sudden passing of Mr Satoshi Akahori, ITTO Assistant Director of Forest Management, in Japan, his home country, on 25 June 2018, aged 55.

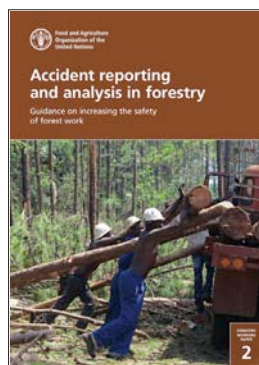
Satoshi, as he preferred to be called, joined ITTO on 1 April 2018 after a successful career in Japan’s Forestry Agency, where he held a number of posts, including Director General of the Forest Training Institute; Director of the Forest Utilization and Conservation Division; and Director of International Forestry Cooperation. He also worked on international

forestry issues before joining ITTO, including in a secondment to FAO in 1990–1992.

Despite serving at ITTO for only a few months, Satoshi contributed valuable expertise to the Secretariat on various aspects of sustainable forest management, forest governance, timber legality and international cooperation, among others. All who knew him will remember him for his bright personality, great sense of humour, and willingness to help everyone who crossed his path. He will sorely be missed by his family, his colleagues in the ITTO Secretariat and the Forestry Agency, and many others.

Recent editions

Compiled by
Ken Sato



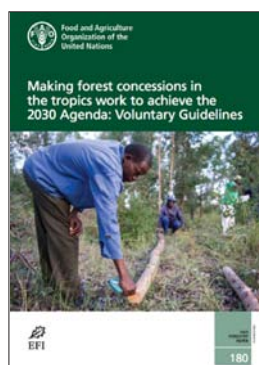
Garland, J.J. 2018. *Accident reporting and analysis in forestry: guidance on increasing the safety of forest work*. Forestry Working Paper No. 2. Food and Agriculture Organization of the United Nations, Rome.

SBN 978-92-5-130503-4

Available at: www.fao.org/3/i9180en/i9180EN.pdf

An accident is an unplanned event that causes death, damage or

disruption to people, objects and operating systems. Accidents are an effect of hazards and exposure to those hazards. Hazards can be created by either unsafe conditions or unsafe behaviour, or a combination of these. This report discusses forestry accidents and illnesses, makes international comparisons, examines the use of accident reporting forms, and provides sample forms. It presents examples of successful safety and health improvements arising from accident reporting and analysis and discusses various legal and regulatory approaches for improving worker safety and health. The report's target audience comprises decision-makers, producer organizations, trade unions and forest companies, and the objective is to provide support and essential knowledge to organizations wanting to improve occupational safety and health in forestry. The report concerns accident management in professional and industrial forestry, but many of its findings and processes are applicable to other forms of forestry, including small-scale forestry and agroforestry.



Tegegne, Y.T., Van Brusselen, J., Cramm, M., Linhares-Juvenal, T., Pacheco, P., Sabogal, C. & Tuomasjukka, D. 2018. *Making forest concessions in the tropics work to achieve the 2030 Agenda: voluntary guidelines*. FAO Forestry Paper No. 180. FAO, Rome.

ISBN: 978-92-5-130547-8

Available at: www.fao.org/3/i9487EN/i9487en.pdf

This report provides guidance on making forest concessions effective instruments to deliver sustainable forest management and reliable sources of sustainably harvested tropical forest products. The publication, which is the result of collaboration between FAO and the European Forest Institute, was developed under the guidance of the Forest Concessions Initiative involving FAO, the Center for International Forestry Research, French Agricultural Research for Development, ITTO, the World Bank and the Brazilian Forest Service. More than 300 representatives of governments, the private sector, civil society and local communities in Africa, Asia and the Pacific and Latin America and the Caribbean were consulted on the guidelines, which are intended for use in the review and implementation of concession regimes.

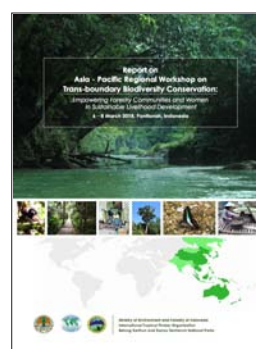


Macqueen, D. & Bolin, A., eds. 2018. *Forest business incubation: towards sustainable forest and farm producer organisation (FFPO) businesses that ensure climate resilient landscapes*. FAO, Rome and International Institute for Environment and Development, London.

ISBN: 978-967-5880-06-3

Available at: <http://pubs.iied.org/pdfs/13595IIED.pdf>

This publication shows how to overcome business incubation challenges in remote forest landscapes, such as low densities of educated entrepreneurs, high logistical costs, scarce infrastructure, distant markets, and few capable business mentors. The report includes an introduction to the forest business incubation service delivery model; detailed case studies of efforts to deliver business incubation services in forest landscapes; an analysis of the data presented in the case studies; and observations and conclusions about how best to develop forest business incubation in the service of both forests and people.



Report on Asia-Pacific regional workshop on trans-boundary biodiversity conservation: empowering forestry communities and women in sustainable livelihood development. ITTO, Yokohama, Japan.

Available at: www.itto.int/files/itto_project_db_input/3057/Technical/TBCA-PontianakReport-ver2%20-%2020210518%20-%20COMBINE.pdf

This publication is an output of a regional workshop on transboundary conservation areas in Asia and the Pacific, which involved primary stakeholders and was organized by the Ministry of Environment and Forestry of Indonesia in cooperation with ITTO.

The workshop, "Asia Pacific Regional Workshop on Trans-Boundary Biodiversity Conservation: Empowering Forestry Communities and Women in Sustainable Livelihood Development", took place in Pontianak, Indonesia, on 6–8 March 2018 as an activity under ITTO project PD 617/11 Rev.4 (F). Workshop participants shared the lessons learned from the implementation of ITTO projects on transboundary conservation, including the impacts of, and constraints to, the management of transboundary conservation areas in Asia and the Pacific.

Meetings

ITTO meetings

17–21 September 2018

CITES Tree Species Programme Regional Meeting for Central and South America and the Caribbean
Buenos Aires, Argentina

Contact: johnson@itto.int; milena.schmidt@un.org

This regional meeting, convened under the CITES Trees Programme for representatives of participating Parties (by invitation only), will share experiences on managing CITES-listed tree species and will discuss, among other things, paragraph (f) of CITES Decision 16.162 (Rev. CoP17) on *Bulnesia sarmientoi* and *Aniba rosaeodora*.

5–9 November 2018

54th Session of the International Tropical Timber Council and Sessions of the Associated Committees

Yokohama, Japan
Contact: www.itto.int

2–7 December 2019

55th Session of the International Tropical Timber Council and Sessions of the Associated Committees

Lomé, Togo
Contact: www.itto.int

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.

17–21 September 2018

Managing Eucalypt Plantations under Global Changes

Montpellier, France
Contact: <https://eucalyptus2018.cirad.fr>

19–20 September 2018

Roundtable Meeting on a Legally Binding Agreement on Forests in Europe

Bratislava, Slovak Republic
Contact: <http://foresteurope.org/event/13675>

24–27 September 2018

African Forest-related Policy and Politics

Yaoundé, Cameroon
Contact: http://pifbc-cbfp.org/events_en/events/forest-related-politics.html

25–28 September 2018

New Frontiers in Forecasting Forests 2018

Stellenbosch, South Africa
Contact: <http://conferences.sun.ac.za/ff2018/NFFF2018>

1–5 October 2018

70th Meeting of the CITES Standing Committee

Sochi, Russian Federation
Contact: www.cites.org/eng/news/calendar.php

1–5 October 2018

Adaptive Management for Forested Landscapes in Transformation

Posadas, Argentina
Contact: <https://iufro2018posadas.com>

11–13 October 2018

Expo Forestal 2018 + Biodiversidad + Tecnología + Productividad

Guadalajara, Mexico
Contact: www.expoforestal.gob.mx/portal

21–29 October 2018

13th Meeting of the Conference of the Contracting Parties to the Ramsar Convention on Wetlands

Dubai, United Arab Emirates
Contact: www.ramsar.org/event/13th-meeting-of-the-conference-of-the-parties

23–27 October 2018

4th International Congress on Planted Forests

Beijing, China
Contact: <http://icpf2018.com>

25 October 2018

European Sustainable Tropical Timber Coalition: Using Data to Drive Market Share

Paris, France
Contact: www.europeansttc.com/25-october-2018-conference-sustainably-sourced-tropical-timber

5–9 November 2018

Era of Sustainable World: Tradition and Innovation for Wood Science and Technology

Nagoya, Japan
www.swst.org/wp/meeting/2018-swstjwrs-international-convention

5–9 November 2018

5th International Conference on Forests and Water in a Changing Environment: Joint Conference on Forests and Water 2018

Valdivia, Chile
Contact: <http://forestsandwater2018.cl>

5–9 November 2018

76th Session of the ECE Committee on Forests and the Forest Industry

Vancouver, Canada
Contact: www.unece.org/index.php?id=47708

7–8 November 2018

8th European Biomass to Power

Stockholm, Sweden
Contact: www.wplgroup.com/aci/event/european-biomass-to-power

17–29 November 2018

14th Conference of the Parties to the Convention on Biological Diversity

Sharm El-Sheikh, Egypt
www.cbd.int/conferences/2018

28 November–1 December 2018

1st World Forum on Urban Forests

Mantova, Italy
Contact: www.wfuf2018.com

29–31 November 2018

14th Pacific Rim Bio-based Composite Symposium

Makassar, Indonesia
Contact: <http://biocomp2018.id>

3–14 December 2018

24th Conference of the Parties to the UN Framework Convention on Climate Change

Katowice, Poland
<http://cop24.gov.pl>

8–11 May 2019

World Conference on Forests for Public Health

Athens, Greece
Contact: <https://fph2019.org>

20–23 May 2019

A Century of National Forest Inventories: Informing Past, Present and Future Decisions

Oslo, Norway
Contact: <https://nibio.pamelidingsystem.no/nfi100years>

23 May–3 June 2019

18th Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora

Colombo, Sri Lanka
Contact: www.cites.org

24–27 September 2019

21st International Nondestructive Testing and Evaluation of Wood Symposium

Freiburg, Germany
Contact: www.iufro.org/science/divisions/division-5/50000/50100/50109/activities

29 September–5 October 2019

XXV IUFRO World Congress

Curitiba, Brazil
Contact: www.iufro2019.com

11–19 June 2020

IUCN World Conservation Congress

Marseille, France
Contact: Goska.Bonnaiveira@iucn.org

Other meetings

14–18 August 2018

11th World Bamboo Congress

Xalapa, Mexico
Contact: <http://worldbamboocongress.org>

20–23 August 2018

World Conference on Timber Engineering 2018

Seoul, Republic of Korea
Contact: <http://wcte2018.kr/home>

29–30 August 2018

Aerial Firefighting Asia Pacific 2018

Wollongong, Australia
Contact: www.aerial-firefighting-asia-pacific.com

29 August–1 September 2018

International Wood Fair

Klagenfurt, Austria
Contact: www.kaerntnermessen.at/en/fairst/international-wood-fair.html

4–6 September 2018

12th World Congress on Biofuels and Bioenergy

Zurich, Switzerland
Contact: <https://biofuels-bioenergy.conferenceseries.com/europe>

4–9 September 2018

Bangkok Climate Change Conference

Bangkok, Thailand
Contact: <https://unfccc.int/process-and-meetings/conferences/bangkok-climate-change-conference-september-2018>

17–19 September 2018

Woodfiber Resource and Trade Conference

Durban, South Africa
Contact: <https://events.risiinfo.com/wood-fiber>

17–19 September 2018

Landscape Management: From Data to Decision

Prague, Czech Republic
Contact: www.praguelandman2018.org

