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ITTO Tropical Forest UPDATE

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A newsletter from the International Tropical Timber Organization to promote the conservation and sustainable development of tropical forests

Measures that add value

An important aspect of sustainable forest management is ensuring that forest products and services generate sufficient financial returns to pay for the upkeep of the forest. Many tropical timber-producing countries seek to add value to their raw products as a way of increasing export revenues and generating employment and a skilled workforce. This edition of the *TFU* takes a look at work being done to encourage value adding in the tropical forest sector.

Ibrahim Favada and Markku Simula kick off with an article summarizing their analysis of the intra-African timber trade arising from an ITTO project. The analysis found that although total regional imports of timber and timber products in Africa were worth US$7.4 billion in 2014, only US$400 million

Inside: Boosting intra-African tropical timber trade; improving Brazil's woodflooring production chain; "gateway" to international timber trade; market information in Guyana; empowering women in Ghana; more

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Images: Cover image: Marking a log during its in-forest milling in the Brazilian state of Pará as part of an ITTO project to boost the country's woodflooring sector. *Photo: I. Jankowsky*

Above: A building built with high-value Guyanan timber. *Photo: P. Bholanath*

... Editorial continued

of that was intraregional. This represents a missed opportunity for suppliers in the region, argue the authors, who also found that, despite improvements, actions to boost intra-African trade in the last six years have fallen well short of what was planned and needed. Moreover, the "large-scale" illegal cross-border timber trade is promoting corruption, causing environmental degradation and resulting in lost economic benefits. Nevertheless, markets are growing quickly in Africa—potentially worth US$1 billion to local exporters by 2020—and the authors call for better data on trade flows and the consequences of government policies to provide an enabling environment for legitimate African businesses to take advantage of these markets.

Tapani Erling and Markku Simula co-author a related article (page 7) on the steps needed to facilitate and regulate the intra-African trade. The timber sector in Africa has the potential, they say, to provide a good example for other sectors on how to increase horizontal connections between the markets of African countries by increasing the integration of high-value-added production chains spanning more than one African country. The sector, they say, has a strong resource base and satisfactory knowhow in production and processing technology, and there is major demand potential for timber products. They argue strongly for the reform of national trade regulations and the introduction of the "authorized economic operator" concept, which can help reduce transaction costs for exporters and importers and increase the competitiveness of their businesses.

In their article on page 11, Ivaldo Jankowsky and Ariel Andrade describe an ITTO project that has assisted the private sector in Brazil address the efficiency of the woodflooring production chain, from the forest to the final product. In addition to identifying new tropical species that are suitable as wooden flooring, the project helped develop quality standards and a certification programme for the industry—an important aspect of efforts to add value to final products.

In their short article, Andries Polinder and Christine Naaijen (page 15) introduce a new website, the "Gateway to international timber trade". Partly funded by ITTO, this website is designed to provide factual information on legal and transparent timber trade as a way of facilitating commerce, supporting importers in their illegality risk assessments, and helping create a level playing field for companies.

The provision of high-quality information on markets and trade is also the subject of an article by Pradeepa Bholanath (page 16), who describes an ITTO project designed to develop a market information system to increase market transparency and market access for Guyana's timber exports. It, and three related ITTO projects, has boosted the sector, says Bholanath, which is now better prepared to meet changing market requirements and take advantage of opportunities.

Other articles in this edition describe ITTO projects addressing the empowerment of women in Ghana, efforts to improve the management of ramin in Indonesia under the ITTO–CITES Programme, and an investigation into the role of Mexico's flooded forests in the provision of environmental services and the sustaining of local livelihoods.

Global recognition of the importance of tropical forests in sustainable development has probably never been greater. Tropical forests—natural and planted—are simultaneously vulnerable to overexploitation and potential agents for social change and economic growth. They have crucial roles to play in ecosystem health, from the local to global scale. It may seem counterintuitive to some, but forest production and adding value to the economic products derived from forests increases the likelihood of sustainable forest management because it boosts returns to owners, including communities and smallholders, making them more likely to invest in the long-term future of their forests.

Selling tropical timber in Africa

The small volume of intra-African trade in tropical timber is a missed opportunity for the region's suppliers

by Ibrahim Favada[1] and Markku Simula[2]

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Trade prospect: Sawnwood sits in a warehouse in Côte d'Ivoire, ready for export. *Photo: T. Yanuariadi*

Africa's imports of timber and timber products amounted to about US$7.4 billion in 2014, of which less than US$0.4 billion (about 5%) came from within the region. The market share of ITTO suppliers in Africa has fluctuated despite ambitious plans to reverse the trend. There is a large-scale cross-border trade, but this is mostly illegal or informal and is not included in statistics. This illegal or informal trade is driving forest degradation, fuelling corruption and undermining the competitiveness of compliant suppliers, and it is often linked to organized criminality. The situation must change to ensure that tropical timber products in the region come from sustainable and legal sources and that there is a level playing field for responsible suppliers.

The introductory paragraph above presents the conclusions of the study, *Intra-African Trade in Tropical Timber and Timber Products and Options for Trade Facilitation*, which was conducted as part of ITTO project PD 700/13 Rev.2 (I): "Development of intra-African trade and further processing in tropical timber and timber products—Phase 1 Stage 1". The aim of the project is to promote the socioeconomic development and sustainable management of African forests by adding value to tropical timber and expanding the intra-African trade.

The study updated ITTO's review of the regional trade of tropical timber and timber products (TTPs) carried out in 2009 (ITTO 2010). An international conference held in Accra, Ghana, also in 2009, adopted the ITTO Accra Action Plan for the Development of Intra-African Trade in Tropical Timber and Timber Products, which included recommendations for action by governments, the private sector and ITTO and other international and regional organizations. A key finding of the study was that, although the import trade of TTPs in Africa in 2005–2007 was worth US$11 billion, less than 10% of this originated in the region. Six years after the Accra conference, our new review of the situation shows that, despite a number of improvements, actions have fallen dramatically short of what was planned.

Imports

Annual African TTP imports increased over the period 2008–2013, but the proportion of intra-African imports declined (Figure 1). In 2013, total regional imports were worth US$6.5 billion, of which US$526 million was intraregional. Preliminary data for 2014 suggest accelerating market growth.

African ITTO member countries accounted for about 81% (US$424 million) of intra-African imports in 2013, showing that their own markets are already significant and that they offer substantial business opportunities, including for cross-border trade.

Primary products still dominate imports

Primary products accounted for 56% of total African imports in 2013, at US$3.7 billion, and secondary processed wood products (SPWPs) accounted for 44%, at US$2.9 million (Figure 2). Log imports amounted to US$445 million in 2013, with a slow negative trend. Sawnwood is the major component of total imports, with the trade in this product growing to US$2 billion in 2013. The trend in the intraregional sawnwood trade (US$138 million) is declining, however, due largely to the increased penetration of softwood lumber in Africa and growing imports from Asia.

Veneer imports peaked in 2011, at about US$180 million, and dropped to the pre-global financial crisis level of

Figure 1: Imports of timber and timber products in Africa, 2008–2014

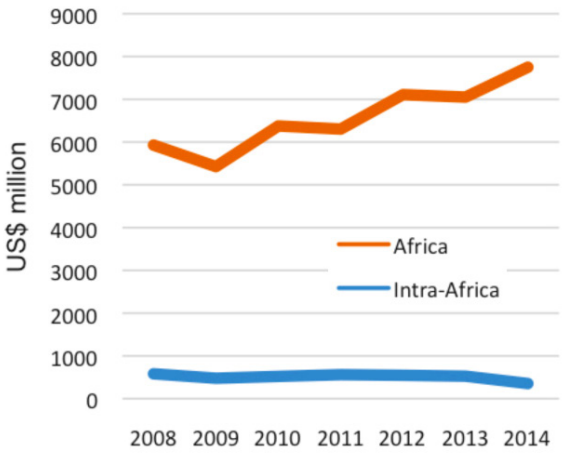


Figure 2: African and intra-African imports of primary products, 2013

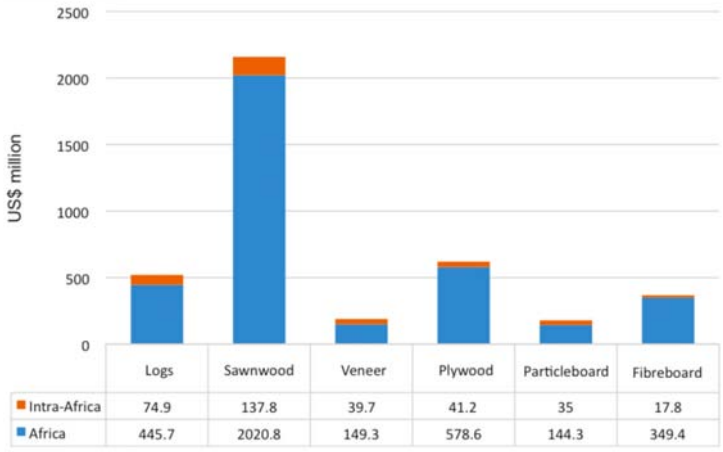
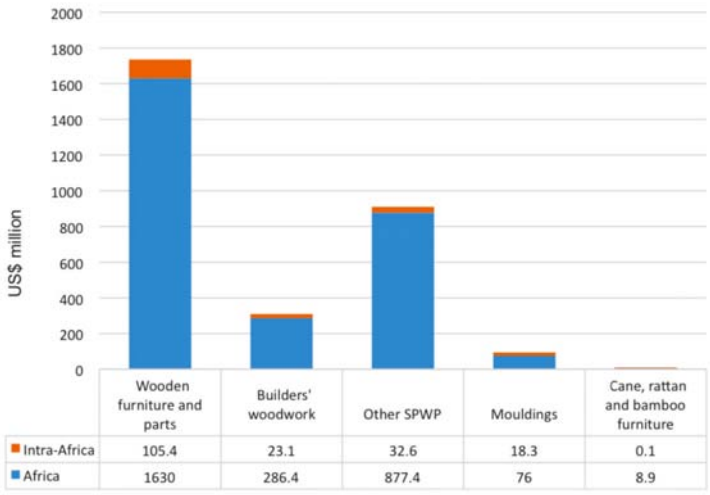


Figure 3: African and intra-African imports of SPWPs, 2013



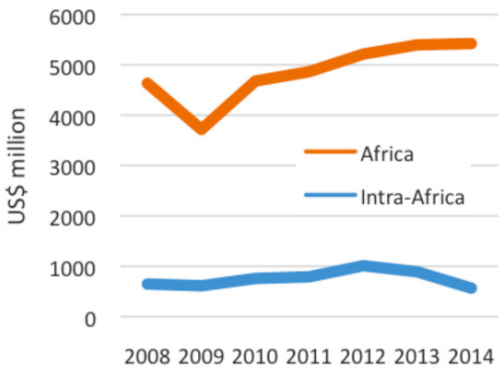
about US$150 million in 2013, one-quarter of which was intraregional. Plywood import markets are very strong in Africa, with a growth rate of more than 10% and reaching about US$580 million in 2013. African suppliers have been unable to benefit from this growth, however, with the intraregional share of the total remaining stable, with a value of about US$41 million in 2013.

Total imports of SPWPs in Africa have been growing at 5.4% per year, with a value of US$2.9 billion in 2013 (Figure 3), but the share coming from within the region accounted for only 6.2% of this (about US$180 million). Wooden furniture and parts is the largest import item, followed by builders' woodwork, mouldings and other products.

Exports

The value of African and intra-African exports of TTPs increased at an annual rate of 2.4% and 6.2%, respectively (Figure 4), between 2009 (the nominal end of the global financial crisis) and 2013. Total regional exports were worth about US$4.5 billion in 2013, but only 20% of those exports went to markets in other African countries; such intra-African trade flows grew until 2012 but declined in 2013 and 2014.

Figure 4: Exports of timber and timber products in Africa, 2008–2014



ITTO African producer countries generated 58% of total regional exports (US$2.6 billion) in 2013, but they have been unable to fully tap the significant export potential offered by intraregional markets, with their market share dropping from 44% in 2008 to 33% in 2013, at a value of US$290 million.

Three-quarters of Africa's TTP exports were primary products in 2013 and one-quarter was SPWPs. There has been only marginal recent growth (0.9% per year) in the export of primary products, but SPWP exports have grown at an average annual rate of 6.9%. These trends are explained largely by supply constraints in logs and primary processed products in major exporting countries and by the qualified success of national policies in promoting the further processing of tropical timber and thereby increasing the competitiveness of African industries in the region as a whole.

Logs and sawnwood still comprise more than half total regional exports. The value of the log trade was about US$1 billion in 2013 and that of sawnwood was about US$1.4 billion, with a slow growth trend (Figure 5). The intra-African markets accounted for about 8% of total trade in logs and sawnwood.

The value of African veneer exports was almost US$549 million in 2013, with an annual growth of 3.3%. Intraregional exports have been expanding rapidly, reaching a value of US$157 million in 2013 (29% of the total trade). Although international plywood markets were dynamic over the study period, African exports did not show significant growth, amounting to about US$262 million in 2013, suggesting that a significant part of production was targeted at domestic markets. The value of intra-African exports has been about US$100 million per year in recent years. The value added of plywood logs is not maximized in the region, with the volume of veneer exports more than twice that of plywood in 2013.

African exports of wooden furniture increased rapidly in the period 2008–2013 (by 9.9% per year), reaching US$760 million, thanks mainly to Egypt (Figure 6). About 30% of this export trade was directed to regional markets, which grew faster than total exports. The same vigour was observed in the intra-African trade of builders' woodwork, mouldings and other SPWPs, although the value of this trade was relatively low, at US$139 million in 2013.

Net trade

The net African trade in TTPs was persistently negative during the study period (2008–2013). Africa's timber trade deficit worsened by almost US$100 million per year over the period, to US$1.9 billion in 2013. Yet the region has the potential to be a net exporter.

Potential target markets for ITTO producers

The largest import markets for logs in the region are in North Africa, but the needs of that subregion are largely satisfied from beyond the region. Namibia, Ghana, Nigeria, Mozambique and Zambia are emerging log markets; other major importers are Mauritania, Rwanda, South Africa and Tanzania. In view of the tightening supply of export logs in the region, it is likely that primary-processing industries in the major importing countries will soon be obliged to search for alternative supplies from outside the region in the short run and from their own plantations in the longer term.

Egypt is the largest African importer of sawnwood, but only US$2 million of that trade derived from other African countries in 2013. Other North African countries taking significant volumes of sawnwood were Morocco (US$325 million), Tunisia (US$125 million). and Libya (US$104 million). The largest intra-African importer of sawnwood in 2013, however, was South Africa (US$45 million), followed by Senegal (US$31 million), Namibia (US$11 million), Niger (US$7 million), Mozambique (US$6 million) and Mauritius (US$6 million). Ethiopia and Sudan are large sawnwood importers, too, but they meet most of their requirements from outside the region due to logistical constraints.

Figure 5: African and intra-African exports of primary products, 2013

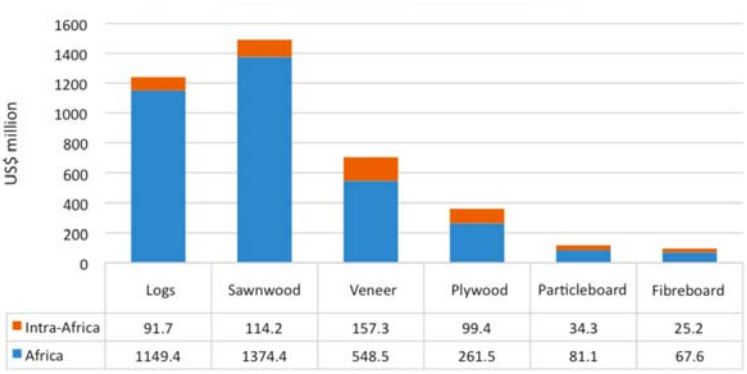
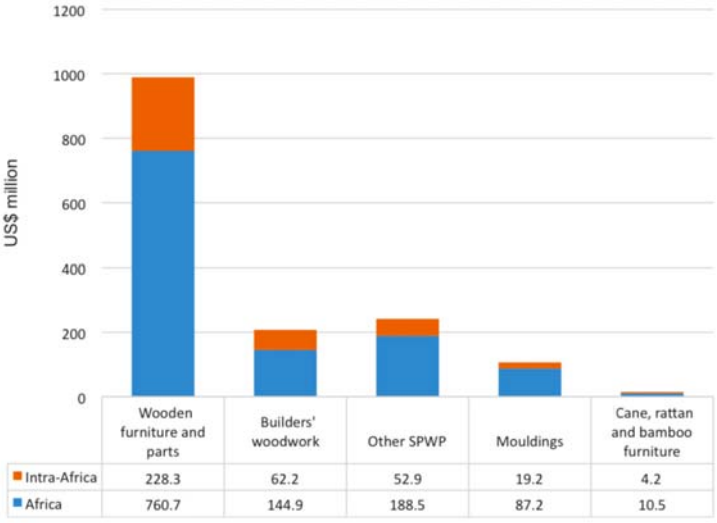


Figure 6: African and intra-African exports of SPWPs, 2013



The veneer trade is confined to a small number of importing countries. The largest intra-African import market in 2013 was Morocco (US$22 million), followed by South Africa and Tunisia (about US$3 million each).

Egypt is by far the largest African import market for plywood (US$233 million in 2013), but almost everything it imports is from outside the region (as for sawnwood and veneer). Other significant plywood importers are Algeria, Angola, Ethiopia, Libya, Mauritius, Morocco, Niger, Nigeria, Senegal, South Africa and Tanzania. Apart from Morocco, all North African countries obtain their imports from outside the region. The total value of plywood imports from Economic Community of West African States (ECOWAS) countries in 2013 was US$84 million, suggesting a significant opportunity for trade development through facilitation measures (see next article).

Intra-African trade plays almost no role in the trade of wooden furniture in West and Central Africa. The main subregional importers in West Africa are Burkina Faso, Côte d'Ivoire, Ghana and Senegal; data are unavailable for Nigeria, which can nonetheless be assumed to be a significant market for imported furniture, even if not all trade is recorded. In Central Africa, the biggest importers of wooden furniture are reported to be Cameroon, the Congo, the Democratic Republic of the Congo, Equatorial Guinea and Gabon. Other potential markets for ITTO producers are Angola, Botswana, Mozambique, Namibia, South Africa and Zambia.

The main importers of builders' woodwork in West and Central Africa are Equatorial Guinea, Gabon, Ghana and Nigeria; intra-African imports are marginal in all these countries except Ghana and Senegal. Other potential markets for ITTO producers are Angola, Morocco, Namibia and South Africa.

Considerable market potential for African producers

There is huge market potential in the region for African ITTO member countries to sell their TTPs: it is estimated at US$700 million–800 million in the short term (2.5 times the current level), growing to US$1 billion by 2020. The industry and investors have largely overlooked this opportunity, however, and blunt measures by regional organizations and governments are needed to create enabling conditions for future investments and intra-African trade.

Undocumented and illegal trade

There is large-scale unreported trade in sawnwood, and official trade statistics—particularly for overland trade—are grossly unreliable in West and Central Africa. In eastern Democratic Republic of the Congo, for example, a lack of effective governance instigated by political conflict has enabled a significant unreported export trade of logs and sawnwood—influenced by Chinese demand—to Burundi, Rwanda and Uganda; the Chinese market is also driving illegal trade from the southeast of the country through Mozambique and Zambia. Other significant illegal and undocumented cross-border trade flows have been detected from Cameroon to Nigeria and Chad, from Ghana to Burkina Faso and Mali, and from Côte d'Ivoire to Mali and Senegal, as well as elsewhere.

Because most of this illegal timber is milled with chainsaws, the cross-border trade has been a major driver of illegal logging for decades. Such "free trade" rewards illegal logging and chainsawn lumber and promotes corruption among border-control and other enforcement staff. Waste is huge, too, resulting in environmental degradation and the loss of economic benefits.

TTPs are bulky and have long and complex supply chains, and many wood products are manufactured from a range of species, which can be difficult to identify without technical training and equipment. Such factors pose challenges for customs staff in controlling the trade.

Most forest degradation and follow-up deforestation appears to take place in community forests and other non-reserved forests. Most commonly its cause is illegal logging for domestic markets and cross-border trade, including exports to China through East African countries (although not exports to the European Union, Japan or North America). The volumes are much higher than suggested in earlier studies; the trade has been exploding in response to the rapid growth in demand for timber products in Africa. The informal sector, which probably supplies most of the illegal timber, needs to be formalized, but enabling conditions should be provided rather than focusing solely on enforcing forest laws.

Need for better information and support for trade development

Seeking business opportunities is the task of individual companies, and it is the duty of governments, ITTO and other international organizations to provide adequate statistical information on trade flows and the consequences of government actions to enable companies to analyze their business environments and invest with confidence. Adequate communication measures should be taken to ensure that relevant market information reaches potential users, including small and medium-sized enterprises.

The private sector is enthusiastic about the recent initiative to publish the bilingual African Market Information Service as part of ITTO project PD 700/13 Rev.2 (I), and this service should be continued.

ITTO and governments should work together to support the private sector in African member countries in their efforts to promote intra-African TTP exports. ITTO's parallel work to develop capacity to implement CITES requirements in African range countries is important and should be continued and expanded.

The outputs of ITTO project PD 700/13 Rev.2 (I) are available via ITTO's project search function at www.itto.int/project_search.

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Boosting the intra-African tropical timber trade

The trade in timber products among African countries needs facilitation and regulation

by Tapani Erling[1] and Markku Simula[2]

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Horizontal integration: Increasing intra-African market connections will require a determined effort. *Photo: T. Yanuariadi, ITTO*

Trade in timber and timber products (TTPs) is particularly challenging to develop in Africa due to long and complicated supply chains, the diversity and bulkiness of products, a lack of common product standards, and weak logistics associated with high transaction costs due to administrative procedures. High tariffs, emerging requirements on legality and sustainability (representing non-tariff barriers), and limited transparency due to the prevalence of informal and illegal practices all pose additional challenges. Moreover, companies have not prioritized regional markets, and—as Favada and Simula show in their article on page 3—the potential of those markets has not been recognized or exploited.

Trade facilitation is an important tool for promoting mutual trade; it could lead to increased investments in production, marketing and logistics, thereby generating badly needed income and employment in the region. This article, which argues for greater facilitation, is based on the study "Intra-African trade in tropical timber and timber products and options for trade facilitation" carried out under ITTO project PD 700/13 Rev.2 (I): "Development of intra-African trade and further processing in tropical timber and timber products—Phase I Stage 1".

Commercial relationships between African countries and the industrialized world are vertically integrated, which partly explains weak horizontal logistics. Increasing intra-African market connections and horizontal connections more generally among the markets of the developing world has proved difficult. Changing this will require a determined practical effort.

The key driver of increased horizontal connections between the markets of African countries is the establishment of high-value-added production chains that span more than one African country. The TTP sector in Africa has the potential to provide a good example of how this could be done in other sectors. It has a strong resource base and satisfactory knowhow in production and processing technology, and there is major demand potential for TTPs. In principle at least, many of the preconditions exist for major business expansion.

Barriers to trade in timber products

Overall, tariffs on TTPs are high in Africa and often prohibitive: they are up to 10% for logs; up to 40% for sawnwood and wood-based panels; and up to 50% for secondary processed wood products. There is no economic reason to apply high tariffs to logs, sawnwood and panels because to do so limits the local development of further wood processing.

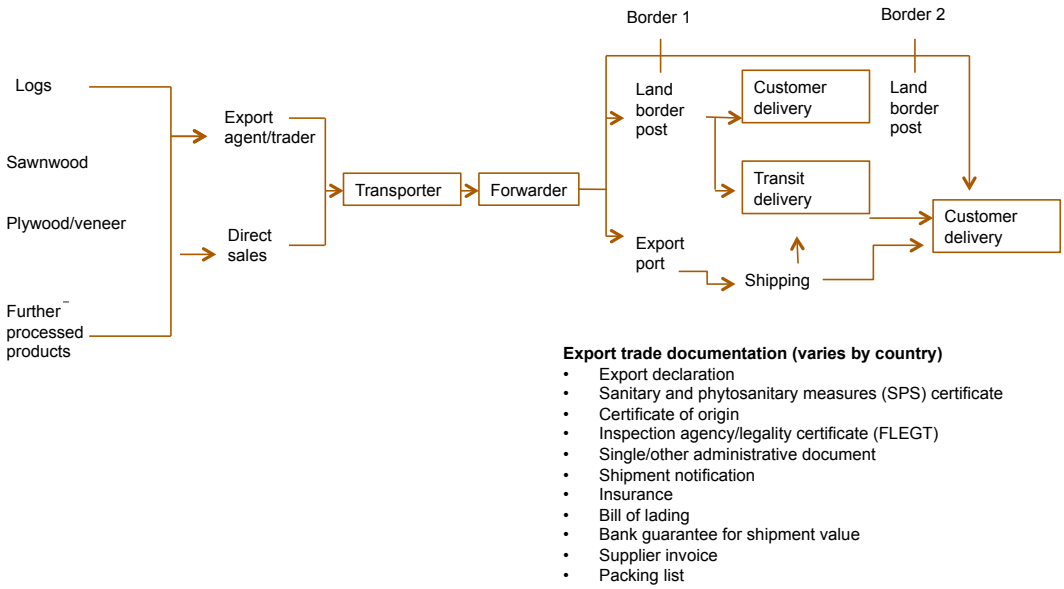
In the West and Central African free trade areas (ECOWAS and ECCAS, respectively), member countries continue to apply varying tariffs to TTPs, both within the free-trade areas themselves and to trade flows from outside. The tariff barriers do not promote competitiveness, which would benefit from deeper economic integration and build on the potential of the forest resource, labour mobility, and economies of scale stemming from larger business volumes. The slow progress in establishing effective free trade under ECOWAS and ECCAS is a cause for concern.

High transaction costs

Non-tariff measures represent an increasing proportion of transaction costs for TTPs traded internationally. They are pervasive and often impose unnecessary costs on producers that limit trade, unduly raise consumer prices, undermine the predictability of the trade regime, and increase investment risks. Recently introduced legality and sustainability requirements for TTP trade have not yet had a direct impact on intra-African trade but will do so in the future.

The magnitude of the transaction costs involved in TTP trade depend on the efficiency of border control authorities, including customs; infrastructure; international shipments; the quality of logistics services; tracking and tracing; and timeliness. In general, African ITTO producer countries rank very poorly in the global scale of logistics services and the cost of trading across

Figure 1: Tropical timber trade flows in producer countries



borders. Another constraint is the limited connectivity of liner shipping between countries in the region; a considerable part of trade, therefore, occurs overland between neighbouring countries, which has proved to be particularly prone to illegal practices.

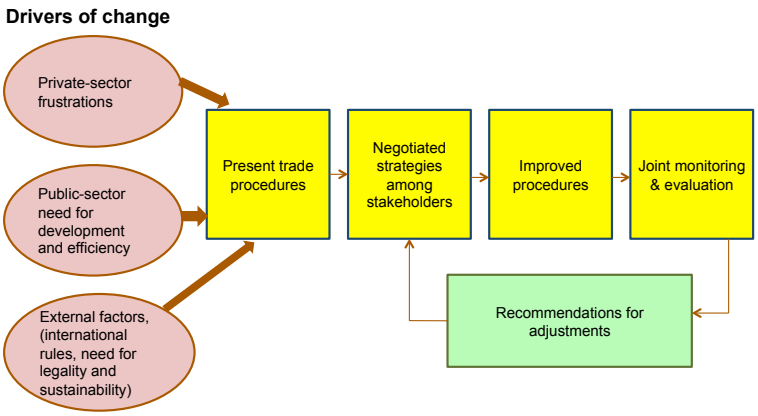
The heavy bureaucratic burden imposed on regional trade flows (Figure 1) ties up regulatory and customs resources, limiting their capacity to serve the needs of trade actors and to provide effective border management to ensure security. The trade-distorting impact of unnecessary transaction costs can amount to 20–50% of TTP sales prices.

In practice, informal and illegal trade in TTPs, driven by strong market incentives, results in heavy losses in state revenues and undermines economic development as a whole. This has opened up a thriving industry for intermediaries, who take care of "oiling" government procedures. In some cases, an unwillingness of legitimate companies to participate in corruption acts as an effective barrier to their market access. In the prevailing environment, therefore, the competitiveness of legitimate suppliers is seriously undermined.

Trade facilitation for legitimate operators

Three main factors drive governments to implement trade facilitation: 1) a private-sector need to reduce transaction costs; 2) pressure to reduce enforcement costs and improve effectiveness; and 3) external factors, such as international trade rules and market requirements for timber legality and sustainability. The reform of national trade regulations should take place through participatory processes involving all actor groups, and there should be joint monitoring and evaluation of results. Industry associations have a key role to play in ensuring feasible outcomes in such a process (Figure 2).

Figure 2: TTP trade procedure reform cycle



Complicated and overlapping administrative processes are a major concern for companies whose businesses involve foreign trade. For example, companies can incur major costs if several authorities conduct physical examinations of the same consignments, or if cargoes are compelled to wait for physical examinations or the processing of regulatory documents. Moving from paper-based procedures to the electronic clearance of cargoes could greatly streamline the process and make it more efficient. Complicated processes tend to be deeply rooted, however, and can serve as a source of corruption, and therefore there is often resistance to reform. The key precondition for trade facilitation is the political will to bring it about.

An integrated strategy that combines carrot-and-stick measures is needed that both strengthens enforcement and introduces trade facilitation measures. Such a strategy would be a powerful response to illegal trade and corruption while also enhancing the overall development of the TTP sector.

An entire menu of tools can be used to address the constraints and thereby offer incentives for trade development to legitimate operators. The menu comprises the following: reducing tariff and non-tariff barriers; public–private partnerships; risk analysis; the authorized economic operator (AEO) concept; streamlined customs procedures; "single windows" for trade participants; the strengthening of enforcement; and coordinated border management.

Risk analysis can be the first step in the facilitation process (Figure 3). It separates low-risk operators with good

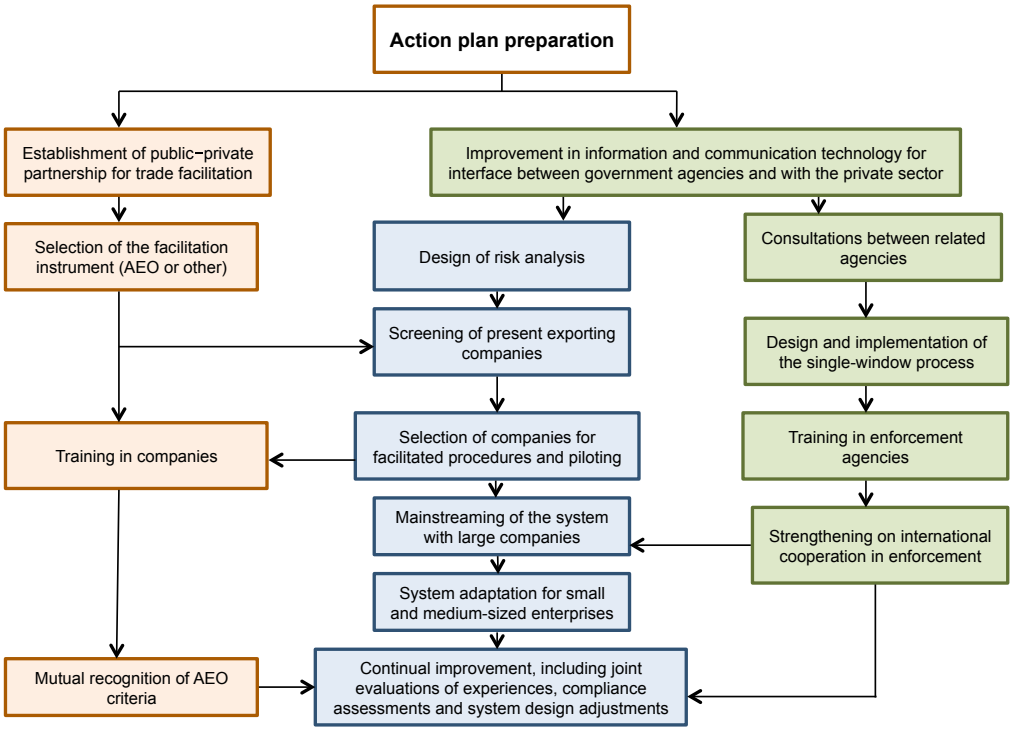
Figure 3: Operator segmentation through risk analysis for enhanced enforcement and trade facilitation measures

Risk	Service needs		
High	Monitoring targets	Targets for advisory service	Problem customers
Medium	Control targets	Potential key customers	Potential partners
Low	Self-assisted customers	Key customers	Partners
	Low	Medium	High

track records in compliance from high-risk operators, who should be the focus of enforcement efforts. The former group would have access to preferential simplified procedures, even to the extent of not needing physical examinations of cargoes. Companies in the former group could—after audits of their management systems and performance—qualify for AEO status, with additional benefits and lower transaction costs.

The AEO concept is used widely in developed countries. When two trading partners have adopted it and follow internationally recognized criteria in risk analysis and auditing, they can mutually agree to provide the facilitated procedure for exporters and importers in both countries, resulting in an increase in competitiveness.

Figure 4: General roadmap for trade facilitation and improved enforcement at the national level



The TTP trade in Africa is a suitable candidate for the AEO concept because several authorities are usually involved in the production and commercial process, and the trade barriers and transaction costs are high. Box 1 summarizes the phased implementation of the concept, starting in one country that can later engage other trading partners. Figure 4 illustrates a general roadmap for the implementation of the concept.

The AEO procedure can be brought into use gradually. Early on, the benefits will accrue largely to companies with extensive foreign trade. When the instrument has been tested and companies trained to benefit from it, however, it can be applied more broadly and extended to small and medium-sized companies. An attractive option for initiating the process is to create a pilot project in one or two ITTO member countries in Africa, after which the AEO concept could be expanded by sharing lessons learned with other countries and operators.

The role of government is crucial

The full menu of tools for trade facilitation should be adopted as a way of strengthening the competitiveness of TTP exporters in Africa. Trade facilitation will be unsuccessful, however, without political will and government commitment to reform trade regulations and strengthen enforcement. Determined actions are needed at the national and regional levels (Box 2).

The TTP sector is a good candidate for increasing efforts to facilitate intra-African trade, but it needs support at a high political level within free-trade areas such as ECOWAS and ECCAS. The facilitation process can be divided into phases, each contributing to the development of the TTP sector as a source of economic growth in individual countries and the entire region.

Box 1: Piloting the AEO procedure

1) Awareness-raising and engagement of stakeholders in the AEO approach
2) Establishment of the necessary legislative and contractual framework
3) Adjustment of foreign trade processes for AEO purposes
4) Selection of participating enterprises based on risk analysis
5) Development of an information and communication technology system to enable the operation of the AEO procedure among participant enterprises and involved authorities (e.g. customs, forestry, trade and finance)
6) Training for pilot companies and government staff
7) Engagement of trading partner countries and establishment of bilateral/subregional contractual arrangements
8) Mainstreaming of the AEO procedure, including to small and medium-sized companies.

Box 2: Recommendations for implementing trade facilitation

National level

- Improve information and communication technology systems to enable effective control and facilitated trade for legitimate actors
- Establish public–private partnerships for trade facilitation in TTPs and strengthen industry associations
- Implement the AEO procedure for TTP trade
- Improve the effectiveness and efficiency of border control and enforcement
- Strengthen cooperation between forestry, customs and other authorities.

Regional level

- Remove tariffs and other trade obstacles from the internal trade of economic unions
- Effectively harmonize external tariffs and reduce tariff escalation
- Strengthen cooperation between customs unions and their resources
- Gradually implement the regional AEO concept within the economic unions and between them; start bilaterally, if necessary
- Strengthen international and cross-border cooperation in law enforcement.

ITTO

- Play an active role in the facilitation of TTP trade in the region, such as by supporting pilot projects.

The outputs of ITTO project PD 700/13 Rev.2 (I) are available via ITTO's project search function at www.itto.int/project_search.

Improving Brazil's woodflooring production chain

An ITTO project has helped increase the sustainability of the woodflooring production chain in Brazil

by Ivaldo Jankowsky[1] and Ariel Andrade[2]

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Future floors: Tropical lumber should supply a production chain concerned about the economic, social and environmental impacts of its products. *Photo: I. Jankowsky*

Data on international markets in the 1990s showed that Brazilian secondary processed wood products (SPWPs), including solid tropical woodflooring, had lower prices compared with similar products exported from Southeast Asia. This may have been due to several factors, such as a lack of quality, or negative perceptions among buyers regarding Brazilian suppliers. In the same period there was increasing concern about the environmental impacts of logging, which also affected the trade. The nascent demand for the certification of good forest management (e.g. by the Forest Stewardship Council—FSC) and more restrictive laws on tropical forest exploitation had implications for costs in the production chain.

Such factors led a group of Brazilian companies to join forces and establish the National Hardwood Flooring Association (ANPM) in early 2001. Its mission is to promote the use of woodflooring, technological improvement in manufacturing processes, and the sustainability of forest resources.

To help in achieving its objectives, ANPM obtained support through ITTO project PD 433/06 Rev.3 (I): "Sustainable model for the Brazilian woodflooring production chain". The project, also known as PIMADS, commenced in 2011 and was completed in 2016; it was implemented by ANPM in close collaboration with universities and research centres. The project addressed the main segments of the woodflooring production chain, integrating the manufacture of value-added products (solid woodflooring), the valuation of sustainable forest management (SFM) (including an investigation of the use of lesser-used species), and marketing (for example, a quality assurance programme and assistance for consumers).

Although PIMADS was directed primarily at ANPM-affiliated companies, all results and products (such as manuals and training materials) are also available to other companies, as well as to government agencies, industry associations, universities, non-governmental organizations and other interested people and organizations.

Project objectives

The project's main objective was to contribute to the sustainable and efficient use of forest resources in the Brazilian Amazon, thereby increasing the economic, social and environmental sustainability of the woodflooring production chain, from the forest to the final product.

The project was designed to develop a model for improving the sustainability of forest resource use, incentivizing SFM and thereby helping avoid the conversion of forests to agricultural uses. The model should include alternatives for forest and industry management, integrated forest development, processing and manufacture, and the potential for added-value products, and it should improve conditions for employees and provide benefits for society in general.

The strategy for implementing the project and achieving the expected outputs (Box 1) had three integrated lines of action. It involved ANPM-affiliated flooring companies, in partnership with universities (the University of São Paulo, the University of Pará State and the University of Brasilia), research institutes (the Forest Products Laboratory and the Brazilian Forest Service), and the collaboration of company employees.

Box 1: Outputs of PIMADS	
Output 1:	A management model to integrate the harvesting and use of lumber from commercial and lesser-used species
Output 2:	A model for an efficient, integrated manufacturing process
Output 3:	A quality certification programme for woodflooring

Evaluating lesser-used species

The species evaluated in the project (listed in Table 1) were supplied by Jari Florestal and the wood was extracted from Monte Dourado in the state of Pará in northern Brazil. This area is managed according to SFM practices and is certified by the FSC. Species were selected mainly on their availability in the forest, as well as on data on specific gravity and shrinkage properties.

Testing the physical and mechanical proprieties of lesser-used species and improving surface properties should increase the number of species suitable for woodflooring production. Besides the traditional physical and mechanical tests, the species' machining characteristics, kiln-drying behaviour and finishing properties were evaluated. The final test was the pilot production of finished flooring.

Some of the evaluated species, such as sucupira preta and maparajuba, showed excellent potential for woodflooring production. Others, such as cupiúba and angelin da mata, had certain undesirable characteristics, but such species may be suitable for alternative uses, including as a substratum in the manufacturing of engineered flooring.

Table 1: Lesser-used species evaluated by PIMADS

Common name	Scientific name
Angelim da mata	*Hymenolobium excelsum* Ducke
Angelim vermelho	*Dinizia excelsa* Ducke
Castanha sapucaia	*Lecythis pisonis* Cambess
Cedrinho	*Erisma uncinatum* Warm.
Cupiúba	*Goupia glabra* Aubl.
Itaúba amarela	*Mezilaurus itauba* (Meisn.) Taub. ex Mez
Jarana amarela	*Lecythis poiteaui* O.Berg
Mandioqueira	*Qualea paraensis* Ducke
Maparajuba	*Manilkara bidentada* (A. DC.) A. Chev.
Pequiá	*Caryocar villosum* (Aubl.) Pers.
Sucupira preta	*Bowdichia nitida* Spruce ex Benth.
Tachi preto	*Tachigali myrmecophila* (Ducke) Ducke
Tanibuca	*Buchenavia parvifolia* Ducke
Timborana	*Piptadenia gonoacantha* (Mart.) J.F.Macbr.

A display was prepared featuring wood samples and a summary of the technological properties of the studied species to guide and encourage the use of lesser-used woods by architects, engineers, designers and other professionals. Detailed information on the species, as well as on species used traditionally in the manufacture of flooring, was published in a booklet called *Woodflooring: Brazilian Species Characteristics*. This publication, which presents the physical and mechanical properties of species as well as drying schedules, species groupings, and finishing and cutting characteristics, is intended for use by wood product companies, consumers, researchers, students and building professionals.

The project also published the book, *Guide to Woodflooring Installation*. Available only in Portuguese, this book, prepared in close collaboration with ANPM-affiliated companies, presents a step-by-step guide to the installation of woodflooring, including techniques for avoiding common problems.

A website (www.pimads.org) was created in English and Portuguese to make available all information and publications generated by the project.

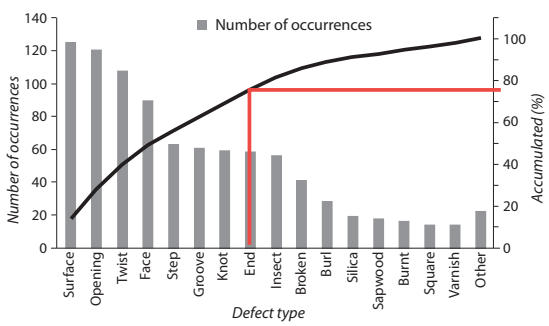
Improved manufacturing process

One of the biggest issues with solid woodflooring is the wide range of moisture content that can result if kiln-drying and moisture measurements are inadequate. Previous quality audits in ANPM-affiliated companies found that 70% of defects observed in solid woodflooring were related to inadequate lumber drying (Figure 1).

The first step in addressing this constraint was to prepare technical material on conventional kiln-drying, and the second step was to instigate training activities aimed at increasing the capacity of company employees to perform high-quality kiln-drying and to adequately measure lumber moisture content. Other complementary activities included the improvement of drying schedules; the development of a standard method for measuring lumber moisture content; and the development of a calibrator for checking the accuracy of moisture meters.

Improved lumber drying both increases product yields and reduces the production of residues. A study of the residues generated in the woodflooring manufacturing process enabled the identification of critical points in the process; this led to the establishment of a programme for managing residues and the development of options for processing residues into wood-based products, including potentially in community-based enterprises. Training materials were developed to assist workers in reducing residue production, including the following booklets: *Wood Drying*; *Residue Management in the Woodflooring*

Figure 1: Pareto diagram showing the relative importance of defects observed in solid woodflooring



Industries; and *Best Practices in Waste Management in the Woodflooring Industries*. More than 120 employees of wood product companies attended training courses on waste reduction.

Quality certification programme

Before the project there were no formal Brazilian Association of Technical Standards (ABNT) specifications for woodflooring and therefore no common reference for flooring quality. In most cases, companies would attempt to meet the requirements of their principal buyers; this inevitably led to differences in product specifications and considerable market confusion.

The project's strategy for eliminating this constraint involved the following three activities:

1) research into national and international specifications for lumber and solid woodflooring on which to base the preparation of a draft to update Brazilian specifications;
2) an audit of the woodflooring products of several companies to analyze quality and establish a quality profile; and
3) the convening of workshops to bring together producers and consumers (e.g. exporters, home-building companies and resellers) to discuss the proposed draft, including quality parameters for woodflooring.

The final drafts were submitted to ABNT for approval and the final result was a set of formal ABNT standards for lumber and solid woodflooring. The solid woodflooring specifications are in compliance with accepted international standards and in accordance with the needs of producers and consumers.

A similar strategy was followed in proposing a quality certification programme, which was submitted and formally recognized by the National Institute of Metrology, Quality and Technology (INMETRO).

When the formal (ABNT) specification for solid woodflooring quality was obtained, a major effort was directed towards executing the ANPM Quality Certification Programme. This involved a group of activities, starting with the qualification of internal and external auditors, followed by a sequence of audits of affiliated companies. The process concluded with the issuance of the Mark of Conformity to companies meeting the Programme's requirements.

Interactions with institutional buyers and users at fairs, workshops and training enabled the building of awareness about the ANPM Quality Certification Programme, as well as guidelines for installing and maintain solid woodflooring—which are important because correct instructions for users will help avoid losses of product (and also credibility) due to inadequate storage, mistakes in installation, and a lack of appropriate care in use.

Scientific contribution

The close collaboration between universities and ANPM-affiliated companies achieved through the project resulted in at least 30 didactic and scientific publications—including five theses, three books, five booklets, three technical articles, four abstracts and ten posters presented at national and international conferences.

Conclusions

ITTO project PD 433/06 Rev.3 (I) generated considerable information on the woodflooring production chain, promoted collaboration between universities and the private sector, and generated several economic, social and environmental benefits. The following conclusions (among others) can be drawn:

- The project objectives were achieved, and unforeseen additional activities were conducted that may also contribute to improving the production of a range of wood products.
- The project aimed to contribute to the sustainable and efficient use of forest resources in the Brazilian Amazon. Several of the products generated by the project have the potential to help achieve this goal—such as the wider use of lesser-used timber species, the better use of residues, and the improvement of product quality. These actions encourage value adding in the sector, thereby contributing to the economic viability of SFM and avoiding the conversion of forest to other uses.

Flat to the floor: Lumber of lesser-used species prepared for conventional kiln-drying produced in an industrial pilot operation. *Photo: I. Jankowsky*

- By itself, the project does not guarantee the sustainability of forest management. Nevertheless, it is expected that the project and its results will contribute to this goal, and it provides a worthy example of value adding to wood products of tropical origin.
- The project helped improve the research infrastructure of collaborating institutions, with the addition of equipment that will be useful in developing new areas of research and thereby generating future benefits.

Making the grade: An expert audits the quality of solid woodflooring according to ABNT specifications. *Photo: A. Andrade*

- More work is required by the executing agency to fully disseminate project outcomes. Strategies should be developed so that the greatest number of beneficiaries is reached.
- New projects can be developed from the information and activities generated by PIMADS, and the potential to further improve the performance of the sector is considerable. Strategies can be developed for many stages of the production chain—in the forest, factory and consumer market.

The publications and other products arising from this project are available via ITTO's project search at www.itto.int/project_search, as well as on the project's dedicated website at pimads.org/en. A video of the project is available on ITTO's YouTube channel at www.youtube.com/user/ittosfm.

TFU goes mobile

ITTO has released a free app that makes the TFU instantly available on smartphones and tablets. The app, which can be downloaded at Apple's App Store and Google Play, enables users to:

- receive alerts when new editions of the *TFU* are published;
- download issues and save them to their smartphone libraries;
- create bookmarks and share them via other applications;
- view thumbnails in full screen;
- view the *TFU* in one- or two-page modes;
- access editions dating from 2014 in English, French and Spanish; and
- navigate to ITTO's website.

More information: www.itto.int/tfu

ANDROID APP ON Google play

Available on the App Store

Gateway to international timber trade

A recently launched website serves as a one-stop information platform supporting legal timber trade

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Squared off: Squared poles of basralocus (*Dicorynia guianensis*) in Suriname, one of the countries for which a profile has been published on the Gateway to International Timber Trade. *Photo: Form international*

With support from ITTO as part of its Biennial Work Programme and the European Sustainable Tropical Timber Coalition, the European Timber Trade Federation recently launched a website to promote well-informed and legal timber trade. The "Gateway to International Timber Trade" at www.timbertradeportal.com is a "one-stop" information point providing international timber traders and other users with information on the forest industries and legality requirements in timber-producing countries. This is the first time that information on the tropical timber trade has been organized and centralized at such a large scale, and the expectation is that it will result in more transparency in the timber supply chain. Form international, a forest management and services company, is in charge of coordinating and implementing the project.

Facilitating trade

One of the biggest hurdles facing prospective buyers in new and emerging markets is obtaining reliable information with which to assess and create trading opportunities. Few producer countries have dedicated timber promotion agencies that can provide one-stop sites for information on all aspects of forest production, sustainable forest management, legality, certification, forest products and trade contacts.

Moreover, timber importers face new and challenging terms of trade in certain markets, in particular due to the need to verify the legality of their wood products under the European Union Timber Regulation (EUTR), the United States' Lacey Act amendments, and the Australian Illegal Logging Prohibition Act, among others. To satisfy the due-diligence requirements of these regulations, importers must obtain documentary evidence to demonstrate that the risk is low that their suppliers are not operating in accordance with national laws and regulations. The first step in obtaining such evidence is accurate information on the source of the timber and applicable laws and regulations, and how legislation is translated into operational procedures and documents.

The Gateway

With its two pillars of industry and legality profiles, the Gateway to International Timber Trade fulfils the need for factual information on legal and transparent timber trade. The goals are to facilitate trade, support importers in their illegality risk assessments and due-diligence and due-care procedures under the new rules applying in some importer countries, and help create a level playing field among small and large companies. The website is also a versatile business tool, including up-to-date industry data, contacts for relevant businesses, industry associations and government agencies, and links to further information.

Under the EUTR, timber licensed under the European Union's Forest Law Enforcement, Governance and Trade (FLEGT) initiative and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) are considered "green lanes" (i.e. fast-track systems for delivering timber legality assurance without additional administrative burdens); country profiles, therefore, pay special attention to FLEGT and CITES requirements. To date, no FLEGT-licensed timber has been shipped to the European Union, but the CITES-permitting of listed timber species is an ongoing process. Therefore, information on the CITES listings of timber species is an important component of the country profiles.

A trader's point of view

"The web portal … is a welcome tool for importers/operators in the wood sector. It will make life easier for timber producers and importers/operators as well as for monitoring organizations, since the requirements in terms of due diligence on legal timbers are clearly defined, which benefits all parties. … This web portal provides a good tool in exercising due diligence."

Mr Wim Hup, Wijma

The website contains full profiles of the following countries: Brazil, Cameroon, China, the Congo, Gabon, Ghana, Guyana, Indonesia, Malaysia, Myanmar, Suriname, Ukraine and Viet Nam. Basic profiles are available for the Central African Republic, Côte d'Ivoire, Ecuador, Honduras, Liberia, Papua New Guinea and Peru. The profiles of other countries will be added over time.

Thousands of visitors worldwide have used the website since its launch in January 2016. Local experts reviewed the profiles before publication, and a network of experts, sources and traders will ensure that the information stays up to date and increases over time. The website and the network behind it are growing. Readers are invited to join the network and to contribute to it by using the review button on the country profiles or by contacting the authors of this article directly.

Visit the Gateway to International Timber Trade at www.timbertradeportal.com.

Information: a key to competitiveness

A market information system developed in an ITTO project has given Guyana's forest sector a boost

by Pradeepa Bholanath

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Soft sell: Forest-sector stakeholders receive training on aspects of forest marketing in a seminar convened under an ITTO project. *Photo: P. Bholanath*

Guyana earns US$40 million–60 million per year from forest exports, mostly comprising logs, sawnwood, plywood, piles, shingles (split wood), doors and window frames. The main markets for these products are the European Union, Asia, the Caribbean, the Middle East and South and North America. Tropical timber markets have been undergoing major structural changes, however, and are highly competitive; strong efforts are needed, therefore, to maintain access to them.

Challenges identified in Guyana's timber sector include a lack of an effective market information system and limited capacity to promote trade in high-end markets. There is a lack of market research by producer enterprises, who mostly operate on a "produce to sell" basis, with no contractual arrangements, commitments or networking to ensure they obtain the best prices or provide reliable supplies.

ITTO project TMT-PD 006/11 Rev.3 (M): "Strengthening market information systems to enhance trade and market intelligence in the forest sector of Guyana" was conceptualized as a way of addressing these challenges. Its development objective was to promote trade in tropical timber and timber products from Guyana, and its specific objective was to develop and integrate a market information system to enhance market transparency and market access. The project was executed in 2012 and 2013 within the specified budget and timeframe.

Project results and benefits

The project had three main outputs:

1) improved collection and dissemination of market data—with information now available to stakeholders (at fpdmcguy.org) on prices, market demand, products and species, and the identification of requirements in potential new markets;
2) a forest-sector market information system in place and operational—consisting of improved collection and analysis of data on trade and markets, and greater access to information by stakeholders; and
3) increased market access and competitiveness of Guyana timber.

Closer alignment

The forest sector now has a marketing information system operated by competent staff that provides timely information on, for example, production volumes of various forest products, export volumes and value, shipping and transport costs, local and international prices, potential new markets and products, and import and export requirements and processes.

Another major outcome is the closer alignment that has been achieved between local exporters and international buyers, due largely to the increased availability, coherence and user-friendliness of information that meets the requirements of both exporters and buyers. A list of buyers is available online[1], with the result that there are now more effective linkages between buyers and sellers, with consequent benefits for the trade and the industry that supplies it. Information on pricing and market demand is updated frequently, meaning that it is available almost in real time, and it is more reliable than previously; the net result is better-informed decision-making by government and in the private sector on markets and trade. If available information products do not provide all the intelligence sought, users can request additional insights directly from

1 fpdmcguy.org/marketingdb/buyer/list

the Guyana Forestry Commission or the Forest Product Development and Marketing Council.

Data united

The Guyana Forestry Commission submits data on the trade and industry to national planning agencies such as the Ministry of Finance and the Bureau of Statistics, including those in charge of reporting on economic indicators such as gross domestic product, and it publishes a semi-annual publication called the Forest Sector Information Report. These reporting channels are benefiting from the provision of more accurate information collated via structured processes and by personnel trained under the project. Data on exports, including prices, markets and products, which previously were disaggregated, are now available in one database. The data are subject to several layers of verification; for example, the database format allows easier cross-checking through the generation of various types of automatic reports. Previously, most checks were done manually and were not aided by reporting structures.

Having all data in a single database also makes it possible to obtain a more comprehensive, holistic view of the performance of the sector, and this creates a platform for more complete and regular reviews of forest-sector exports and markets. The improved market information system has produced changes in the following main areas: more detailed reporting capabilities on prices, market demand, export trends, and quality requirements for different regions; enhanced forecasting capabilities in prices and demand; and more integrated reporting on the wood product supply chain. The availability of trade and market information means that the sector can adopt a more thorough and rational approach to trade issues and marketing based on improved knowledge and capacity. Exporters, producers and buyers are better able to conduct their businesses, resulting in a stronger business and financial position and enhanced planning capability. Forest-sector stakeholders were closely involved in all stages of project implementation; consequently they acquired a sense of ownership of the outcomes and are very receptive to them.

There is now better planning and allocation of state forest resources; more strategic marketing efforts in pursuit of an expansion of key markets for value-added products; macroeconomic benefits through improved planning and strategic decision-making in relation to employment; and increased export earnings. Several strategic areas of the sector—marketing, forest management and planning, and resource allocation—are benefiting from the improved information.

Improved intersectoral linkages

The synergies created between this project and three other ITTO-funded projects—on kiln-drying, lesser-used species, and wood processing—are providing considerable benefits to the national economy and to sustainable forest management in Guyana. The project design enabled the full integration of the various functional components of the forest sector, addressing operating procedures; the competency/skills of personnel; the deployment of easy-to-use and accessible technologies; management policies; and market/trade requirements.

Improving intersectoral linkages was an important aspect of the project's strategy, and there is now increased collaboration between members of forest producer associations (representing loggers and sawmill and lumberyard owners), people involved in value-added production, the members of the National Community Forest Council, exporters and shippers, and government agencies such as the Guyana Forestry Commission and the Forest Product Development and Marketing Council. There is a general understanding among these stakeholders that they need to work together to improve the quality of products if the sector is to be competitive and for it to make an optimal contribution to the country's development while ensuring that the forest resource is used efficiently and sustainably.

Conclusion

The Government of Guyana sees the forest sector as a major future player in Guyana's economic development, but this role could be jeopardized if insufficient attention is paid to the trade and marketing of tropical timber. The activities and outputs of the project were timely, and they have helped improve the competitiveness of the sector and its contribution to national development.

The synergistic effect of the four ITTO-funded projects has given the sector a boost, with benefits for the national economy. Guyana's forest sector is now better prepared to address a wide range of market-related issues and demands, such as legality verification, climate change, certification and substitute products.

One of the final project outputs was a marketing strategy for the sector, which sets out an overall direction and a number of activities for the marketing and trade of timber and timber products. As part of the strategy, three project proposals have been drafted and submitted for financing, and a new national log export policy has been developed. Further efforts to ensure that Guyana's forest products are sought-after in international markets will undoubtedly benefit from the improved information now available on the forest sector.

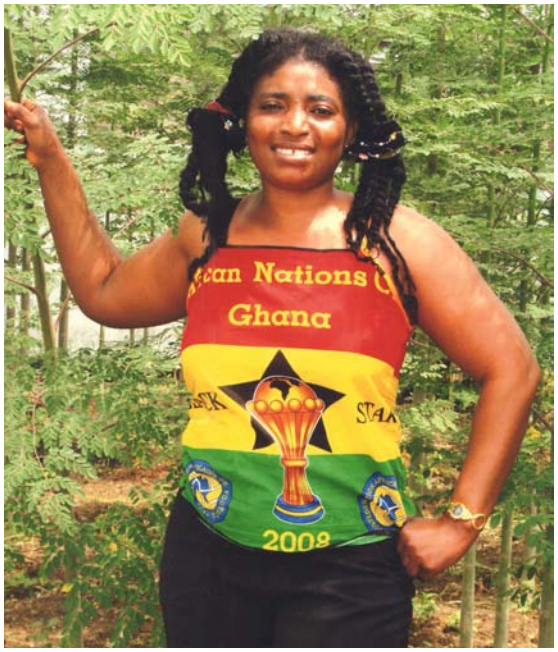
The publications and other products arising from this project are available via ITTO's project search at www.itto.int/project_search.

The power of women

An ITTO project promoting the empowerment of women has galvanized small-scale rural reforestation in a pilot area in Ghana

by Paul Pawar

Project coordinator and director of Pitris Consult (pitrisconsult@yahoo.com)



Growing enterprise: A woman stands in a young plantation of *Moringa oleifera*. Participation in enterprises to produce products from this species has added significantly to women's incomes in the project areas. *Photo: Pitris Consult*

Women constitute 51.7 per cent of the Ghanaian population. It stands to reason, therefore, that gender equity should be part of forest improvement and forest restoration efforts as well as natural and social justice. For a developing country like Ghana to establish a thriving environment for cost-effective small-scale private reforestation, the empowerment of women ought to be the strategy in the driving seat.

In using the term "women's empowerment" I refer to measures designed to increase the degree of autonomy and self-determination of women—particularly marginalized and disadvantaged rural women—in their communities, thereby enabling them to represent their interests in a responsible and self-determined manner; that is, to act on their own authority. Women's empowerment refers both to the process of self-empowerment and to the provision of professional support to other relevant societal stakeholders and, by so doing, enabling them to overcome their sense of powerlessness and lack of influence. In an empowerment scenario, currently voiceless poor rural women learn over time to be active and responsible participants in local forest resource allocation processes that affect their lives.

This article uses ITTO project PD 534/08 Rev.1 (F) as a practical example to illustrate the potential of women's empowerment. In the context of the project, the dominant culture in terms of forest resource allocation and land use is heavily male-biased and male-dominated, the manifestation of deep-seated structural factors. The advent of Western education, political independence (with its proliferation of gender-conscious national laws) and globalization are gradually swinging the pendulum in favour of women, but it is a tough and slippery struggle that is yet to be fully won. The project's locally nurtured subtle mantra to poor rural women was that women could and probably should use empowerment to acquire more legitimate and advantageous power. In sub-Saharan Africa, and with specific reference to marginal and degraded land, there is an urgent need to make an explicit state–private commitment to both forest restoration and the reduction of poverty among rural women. Healthy forest ecosystems provide important benefits that enrich the quality of human life, especially in forest-dependent rural communities.

Three dimensions of poverty

ITTO project PD 534/08 Rev.1 (F) (see box for details) was conducted in the communities of Adansi, Asankare, Enyiresi and New Jejeti in the Ashanti and Eastern regions of Ghana. It considered three basic dimensions of poverty among poor forest-fringe rural women in these communities: 1) powerlessness; 2) a lack of assets and opportunities, including effective exclusion from access to local forest resources; and 3) vulnerability. These dimensions indicated a number of possible entry points for economic, social and environmental interventions that would effectively address both forest restoration and poverty reduction among rural forest-fringe women. The three dimensions of poverty gave impetus for the multiple entry points of the project, as discussed and agreed on by the primary beneficiaries.

Multiple project entry points

With respect to the "powerlessness" dimension among local women, possible interventions included women's empowerment strategies and creative and negotiated access to local forest resources. The project formulators—the majority of whom were poor but thoughtful local women—realized that male power was relative, not absolute. This meant that women could discuss and negotiate with their parents, husbands, family heads, clan heads, chiefs, queen mothers and traditional landowners for a share of land ownership, land use, and land-allocation power and rights on a progressive win–win basis. The wider community would benefit, too, because social justice makes societies resilient, peaceful and democratically enduring. Women's empowerment has multiple dimensions—awareness-raising; discussion; group education and enlightenment; and negotiated emancipation—all backed judiciously by the rule of law.

With respect to the lack of assets and social exclusion, a possible approach was the provision of opportunities and the building and restoration of relevant assets. Rural poor women could take heart from the fact that the forest governance practices, techniques, processes and forest procedures that determine who benefits from forest assets are historical constructs, predominantly developed by male culture to serve male aspirations.

Details on ITTO project PD 534/08 Rev. 1(F)

Title: "Small-scale private mixed plantations development plus nutrition promotion: the case of six rural community women's groups in the Eastern and Ashanti regions of Ghana: Phase 2"

Project period: 2011–2015

Project objectives

1. To significantly increase the availability of highly regenerative cultivable inputs of precious fast-growing forest timber species like wawa (*Triplochiton scleroxylon*), ofram (*Terminalia superba*), emire (*Terminalia ivorensis*) and West African mahogany (*Khaya* spp.) in mixed stands, and monoculture teak through the efforts of six self-motivated community women's groups.
2. To develop proficiency—through hands-on-training—among 180 disadvantaged community women in the making, household use, and sale (for profit) of demand-driven, self-chosen women's livelihood products derived from the locally available nutritive forest plant, *Moringa oleifera.*

With respect to the vulnerability dimension of poverty among rural women, a possible project approach was to assist such women to diversify (and enhance) the means by which they obtain their livelihoods and to ensure that such means are resilient to perturbations, such as those that might arise under climate change.

Climate change is adding to other economic, social and environmental pressures, including those created by unsustainable agricultural practices and the overexploitation of local forests. Reforestation on marginal and heavily degraded land, and the sustainable management of the resultant restored forests, is urgently required, but it must be inclusive, especially of rural women. The "Draft Ghana Forest Plantation Strategy 2015–2040" addresses this complex problem and envisages the effective involvement of women and civil society as well as richer private investors in reforestation, forest rehabilitation and forest conservation efforts. Significant domestic and international assistance will be required to make this a successful participatory programme.

Project implementation strategy

The project's strategy targeted women's empowerment, by which project formulators and stakeholders meant the creation of an environment in which women could make project decisions that would provide personal and group benefits, as well as societal advantages. To ensure the effective and participatory implementation of the project, the project formulators and other relevant stakeholders discussed and adopted a strategy with many interrelated dimensions, aimed at achieving optimal results. Collective efforts were made to achieve a relevant and practical mosaic of active participation that was as comprehensive and effective as possible. Crucially, the land involved in the project was legally allocated to women's groups by their respective clan heads.

Project outputs and outcomes

Individual mixed plantations of popular indigenous and commercial trees of wawa, ofram, emire and West African mahogany were established in an area totalling 63 hectares; plantations of commercial teak (in single-species stands) totalling 67 hectares were also created. Both kinds of plantations are owned and managed by women in the various villages as part of a thriving local network that ensures sustainability. Moreover, small-scale enterprises were established and are being run by rural women. They produce a range of products from *Moringa oleifera*, such as soft drinks, condiments, bread and nutrient-rich biscuits, hair food pomade (to promote the fast growth of natural hair), and body soaps and lotions. Participation in such enterprises has added significantly to average annual incomes in the project areas.

A notable intangible project outcome was the improved community image of (project-established) community women's reforestation groups, which, as local agents of forest improvement, now solidly complement the reforestation efforts of other stakeholders. One hundred and eighty individuals or women's groups received specific legal land titles as a result of the project; moreover, the women involved in the reforestation are legally entitled to 90% of the proceeds when the planted trees are harvested.

Conclusions and impact

ITTO project PD 534/08 Rev.1 (F) empowered six rural women's groups to transform degraded land into mixed plantations of commercial indigenous species, and teak plantations, helping them increase their incomes and serving as an eye-opener for policymakers in Ghana about the potential of rural reforestation.

The project's planned outputs and outcomes were fully realized. Success was due partly to the solid inputs of the project's major players: the executing agency (Pitris Consult), ITTO's monitoring teams, and the project's advisory bodies, especially the Ghana Forestry Research Institute and the Ghana Forestry Commission. The small-scale private reforestation endeavours of local women's groups are becoming common in the project areas. Moreover, other self-motivated forest-fringe rural women groups in Ghana's Eastern Region have approached project stakeholders for guidance on replicating the project in their localities.

Despite the success, problems remain, and ongoing ecological, silvicultural and socioeconomic monitoring is needed. Nevertheless, the project has demonstrated that poor rural women in degraded forest-fringe areas can successfully establish and manage local, indigenous tropical tree species in small-scale mixed plantations (as well as teak plantations), with short-term benefits and the prospect of considerable longer-term gains. Marginalized women need to be encouraged to make democratic contributions to project planning, decision-making and execution, and project benefits must be seen to be attractive, useful, fair and just.

The publications and other products arising from this project are available via ITTO's project search at www.itto.int/project_search.

Improving ramin resource management

The ITTO–CITES Programme has tackled the policy and practice of ramin management in Indonesia

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Ramin rising: Five-year-old ramin in a field trial in Ogan Komering Ilir, South Sumatra. *Photo: Tajudin, EK*

Indonesia has at least 4000 native tree species, of which more than 260 produce commercially valuable timber or have the potential to do so. One such species is *Gonystylus bancanus*, commonly known as ramin. Ramin occurs naturally in peat swamp forests in Sumatra and Kalimantan, and it has been logged commercially nationwide since at least the early 1980s.

Logging has caused population depletion as well as habitat degradation. The recovery of peat swamp forests after logging takes considerable time—much longer than most of Indonesia's dryland forests. The Government of Indonesia issued a temporary national logging moratorium for ramin in 2001 with a view to halting the decline of ramin populations and the degradation of the species' habitat.[1] The *Gonystylus* genus was uplisted from Appendix III to Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in 2004 amid concern that the international ramin trade posed a threaten to the genus.

The barriers to effective ramin management and conservation include unsustainable harvesting, repeated annual forest fires in ramin habitats, poor natural regeneration, and demand for the conversion of peat swamp forests to other uses. The implementation of regulations—including CITES requirements—is weak due to factors such as a lack of reliable biological, ecological and trade data and monitoring; a lack of awareness and support among stakeholders; a lack of suitable technology for reforestation; and weak enforcement, especially of laws on sustainable forest management and conservation.

Activities implemented under the ITTO–CITES Programme have made important contributions to improving the overall management and conservation of ramin. This article briefly reviews those contributions.

Distribution and silviculture

Outputs of the activity "Improving inventory design to estimate growing stock of ramin" included the development of a method for conducting ramin inventories involving a combination of satellite imagery and terrestrial surveys. Testing the method at several sites in Sumatra and Kalimantan generated new information on ramin distribution and standing stock. The inventory method has also been explored for other species and other types of forest.

Another important contribution was made by the ITTO–CITES Programme activity, "Assessing silvicultural system on ramin: a review of the current practice and re-vitalization of existing permanent sample plots". The Selective Cutting System with Diameter Limits has been the silvicultural prescription in Indonesian forests since the early 1980s; a modified version known as Selective Cutting with Enrichment Planting involves mandatory enrichment planting in areas where regeneration potential is limited. Logging in peat swamp forest uses Selective Cutting with Enrichment Planting, with several adjustments. The activity evaluated the practice and provided recommendations for improving it, especially for ramin, which is one of the most highly extracted species from peat swamp forest. The evaluation (published as *A Review on Silvicultural System on Ramin and Peat Swamp Forest*) formed a major input to a review of Ministry of Forestry Regulation No. 11 (2009) on the silvicultural system used in production forests. A series of workshops and discussions conducted as part of the ITTO–CITES Programme activity made a valuable contribution to the revision of the regulation; for example, it recommended that the diameter limit for ramin be maintained at greater than 40 cm at breast height.

According to the literature, more than ten *Gonystylus* species occur naturally in the Indonesian archipelago, and they are categorized as vulnerable in the IUCN Red List of Threatened Species (Lim et al. 2004). The ITTO–CITES Programme activity "Exploratory assessment on the population distribution and potential uses of non-*Gonystylus bancanus* ramin species" conducted an assessment of the population and distribution of *Gonystylus* species. The assessment, published as *State-of-the-art Review on non*-Gonystylus bancanus *Species*, confirmed the vulnerability and rarity of *Gonystylus* species in nature due to various factors. Only one

1 One company operating in Riau Province is permitted to harvest ramin, having obtained a sustainable forest management certificate from Lembaga Ekolabel Indonesia, the national certification company, and a chain-of-custody certificate from the Forest Stewardship Council.

species other than *G. bancanus*, *G. brunnescens*, has a relatively wide distribution; all other species in the genus are very rare.

Ramin roadmap

Several activities conducted as part of the ITTO–CITES Programme, such as a national workshop on the identification of information gaps in the sustainable management of ramin and other timber species threatened by international trade, have helped in preparing policy interventions. A roadmap for the long-term management and conservation of ramin was formulated as part of an ITTO–CITES Programme activity titled "Capacity building on propagation technique and awareness raising on CITES implementation and ramin roadmap". The activity included the development and use of technologies to improve the production of planting materials for use in the field.

Policy intervention on logging moratorium

The sustainable harvesting of ramin requires reliable data on distribution, populations and standing stock, but recently collected and pre-existing data are insufficient to convince decision-makers. On the other hand, data arising from preharvest cruising by forest companies could be assessed and presented to higher-level officials. In this regard, the Forestry Research, Development and Innovation Agency (FORDIA) has undertaken intensive communication with stakeholders in the Ministry of Environment and Forestry, especially the Directorate General of Forest Protection and Nature Conservation and the Directorate General of Production Forest Management. As part of the ongoing ITTO–CITES Programme activity, "Development of a ramin conservation concept (*Gonystylus* spp.) for plantation forest concessions", the Directorate of Biodiversity Conservation (the CITES Management Authority) has been holding meetings to review Ministry of Forestry Decree No. 127/KPTS-V/2002 on the temporary moratorium on ramin logging and trade.

Applied technology for rooted cuttings

The availability of ramin seed sources is decreasing for several reasons, such as illegal logging and forest fire. Planting materials have become scarce, therefore, especially for assisted natural regeneration and plantations. An alternative source of planting materials is vegetative propagation, such as rooted cuttings.

Rooted cutting technology for ramin has been developed and tested under the ITTO–CITES Programme activity, "Assessing plantation requirements and the establishment of ramin conservation gardens". The technology and a manual to instruct on its application have been disseminated widely and applied by both government institutions and private companies.

A limiting factor for increasing mass propagation is the availability of cutting sources. FORDIA has promoted the use of planting stock derived from cuttings in various forms of planting design and with diverse sources of genetic materials. In Perawang, Riau, the company Asia Pulp and Paper has modified the technology using local resources and established ramin planting stock in its nursery complex. Field plantation trials have been conducted at various scales using rooted cuttings. Trials in South Sumatra have demonstrated a relatively high early survival rate of cuttings.

Conservation of genetic resources

There have been various initiatives under the ITTO–CITES Programme to collect and conserve ramin genetic materials, as well as those of other *Gonystylus* species. In cooperation with FORDIA, the National Park of Sebangau, Central Kalimantan, has started to plant out these materials as a means of conserving them under the activity "Assessing plantation requirements and the establishment of ramin conservation gardens". Institutions within FORDIA as well as private companies have initiated similar activities in Sumatra and Kalimantan. For example, efforts are being made to establish ramin conservation gardens in concessions as part of the above-mentioned ITTO–CITES Programme activity, "Development of a ramin conservation concept (*Gonystylus* spp.) for plantation forest concessions".

Future actions

It is strongly recommended that activities initiated under the ITTO–CITES Programme be continued and expanded directly by government agencies, associations and private companies, under the direct supervision of the Ministry of Environment and Forestry. The roadmap for the sustainable management and conservation of ramin, which was formulated based on existing data and should constitute a primary reference source, will require updating over time. The FORDIA Directorate General should continue its role in the development of appropriate technologies for ramin restoration and rehabilitation. As various parties recognize, there is a continuing need to increase understanding and awareness across sectors of the importance of ramin management and conservation. Therefore, the involvement of other agencies should be strengthened.

Conclusion

The ITTO–CITES Programme has made valuable contributions to improving ramin conservation and management in Indonesia, but much more needs to be done and the support of the Programme is still required. Notwithstanding this, consistent efforts and commitment from stakeholders are required to ensure the long-term recovery of ramin and to improve the management of remnant populations. The roadmap contains a detailed strategy and action plan, and it constitutes a valuable guide for all stakeholders in coordinating ramin conservation and sustainable management. Through it, the ultimate objective of sustainably managing and conserving ramin can still be achieved.

More information on the activities carried out under the ITTO–CITES Programme in Indonesia and other countries in the tropics is available at: www.itto.int/country_activities. A video on ramin prepared under the ITTO–CITES Programme is available on ITTO's YouTube channel at www.youtube.com/user/ittosfm.

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Saving freshwater flooded forests in Mexico

An ITTO project finds that these under-threat ecosystems play crucial economic roles and should be protected and restored

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Searching for sites: Researchers look for appropriate sites for setting up sampling equipment in a flooded forest of *Pachira aquatica* (apompal), known locally as zapote reventador or apompo. *Photo: G. Sánchez Vigil*

Of the various types of forests and flooded forests growing along coasts and tropical coastal plains, the best known are mangroves, comprising tree species tolerant of flooding and salinity. Mangrove species diversity is richer in Asia than in America and Africa, but on every continent these ecosystems play very important roles. Villagers everywhere recognize their importance because they provide timber and woodfuel, fibre, wildlife and honey, among other resources. Local people also recognize the importance of mangroves as refuges, breeding grounds and nurseries for fish and crustaceans and the role they play, therefore, in local and commercial fisheries. Recently, mangroves have been recognized for the protection they afford to coastal areas, shielding settlements and the productive activities carried out on coastal plains (Das & Vincent 2009).

Mangroves border coastal lagoons, river mouths and estuaries and sometimes occur in the littoral zone because they can tolerate salinity and flooding. Landward, there is a gradient over which freshwater flooding also occurs. Groundwater emerges in low areas on the floodplains of the coastal zone to form marshes and swamps. These freshwater flooded forests are poorly known scientifically, and local farmers often do not value them highly (Ewel 2010). Hydrologically, freshwater flooded forests are linked closely to the inland margins of mangrove systems, and they constitute important resources for regional economies, in addition to providing environmental services of benefit to local people.

Freshwater flooded forests are species-rich, with buttressed trees of various shapes and sizes, as well as palms. One or two species may be dominant, or there may be numerous co-dominant species. In the Americas, freshwater flooded forests are distributed from the southeastern United States of America to Brazil. They dominate eastern coastlines where there are wide floodplains, and the most extensive freshwater flooded forests are in the Amazon.

Moreno-Casasola et al. (2012) described the tree communities of the freshwater flooded forests of Mexico and Central America. The most widely distributed of these forests in Mexico are dominated by *Pachira aquatica*; in Central America they are dominated by *Pterocarpus officinalis*; both these species are salt-tolerant and mingle with mangroves. Other representative species of this kind of forest in central and southeast Mexico are *Annona glabra, Ficus pertusa, F. insipida* subsp. *insipida, F. maxima, Chrysobalanus icaco, Calophyllum brasiliense, Bravaisia integerrima, Manilkara zapota, Bucida buceras, Haematoxylon campechianum, Metopium brownei* and *Pentaclethra macroloba.*

Flooded palm groves are formed by one or more palm species occurring in patches or mixed with other species. Among the main palm species are *Attalea butyraceae, Roystonea dunlapiana, Acoelorrhaphe wrightii, Sabal mexicana* and, towards the south of Mexico and in Central America, *Bactris balanoidea, Sabal morrisiana, S. mauritiiformis, S. yapa, Raphia taedigera, Asterogyne martiana, Manicaria saccifera, Astrocaryum alatum* and *Euterpe oleracea* (Ellison 2004).

The value of environmental services

ITTO project RED-PD 045/11 Rev.2 (M): "Environmental assessment and economic valuation of environmental services provided by coastal forests (mangroves, flooded forests, tropical forests and thickets on dunes) and their

agro-replacement systems in the central coastal plains of Veracruz, Mexico", a three-year project beginning in 2012 and implemented by Instituto de Ecología A.C., set out to assess the provision and regulation of environmental services by various forms of coastal forests in five areas. The expression of the value of environmental services in monetary terms can be an important tool for communicating the importance of ecosystems and biodiversity to those responsible for environmental policies; it can also help in identifying and evaluating the tradeoffs that might be involved in clearing forests between the commercial value of the sites and the environmental services provided by the forests. Moreover, the valuation of environmental services can help in calculating the compensation that should be paid for the loss of environmental services brought about by land clearing, and it can help in determining the best and most economically efficient land uses.

The socioeconomic benefits of freshwater flooded forests in Veracruz

Diverse plant use

A survey of the residents of the municipality of Jamapa in central Veracruz, where there is a patch of freshwater flooded forest known as *El Apompal*, found that they use 68 species of trees. Twenty-two tree uses were reported, in the following categories: timber use (requiring the entire trunk and causing the elimination of the tree); extractive use (using some parts of the tree, allowing it to regenerate); and non-extractive use (in which benefits are gained from live trees). The type of use involving the most tree species was food (26 species), followed by shade (20 species), living fences (19 species) and wood (16 species). Timber accounted for 18% of all uses and extractive and non-extractive uses for 46% and 36%, respectively. The most frequently mentioned and most common species in El Apompal were *Pachira aquatica, Attalea butyracea, Tabebuia rosea* and *Ficus* spp., and those mentioned in secondary forests and flooded pastures were *Bursera simaruba, Gliricidia sepium, Cedrela odorata* and *Maclura tinctoria* (Lazos Ruíz 2014).

Corozo palm

Various components of the corozo palm (*Attalea butyraceae*) are widely used; its leaves, for example, are still used for thatching roofs, resulting in cooler houses (González-Marín et al. 2012a). Use as thatch is declining, however, even though the cost of constructing a house with palm materials is lower than the cost of houses constructed with bricks and cement (González-Marín et al. 2012b). The survey collected recipes that use the fruit of the corozo palm to make thin pancakes and a thick, sweet drink called atole (both proved tasty).

Wildlife

Wildlife in the region's freshwater flooded forests serves as food for people living nearby or (in the case of the Papaloapan wetlands) within them. Wildlife is also captured and sold as pets, providing an additional source of income (González-Marín 2013); some species, such as iguanas, turtles and crocodiles, can be bred on farms to help ensure the food supply (although wild populations remain important as genetic stock). The use of wildlife as food and pets is part of the local tradition, but this is being lost because of declines in wildlife populations due to overexploitation and habitat reduction as well as the presence of stores and the proximity of communities to urban areas (where processed foods are available). High food prices and increased poverty in rural areas is making it necessary to return to local sources of food, fibre and forest medicines, however, and food security and quality of life in rural areas are once again becoming dependent on environmental services.

Increased risk to settlements

Freshwater flooded forests are often located on the floodplains of rivers and sometimes in depressions that hold water for much of the year. Villages have been established in many such areas, making use of the land, water and wetlands. In many places, settlements are expanding increasingly into wetlands; as they do they are becoming more vulnerable due to their increased exposure to flooded areas during tropical storms and hurricanes, with climate change causing an increase in the occurrence and magnitude of such events. People and their assets, therefore, are increasingly vulnerable to flooding.

Flood regulation

The soil characteristics of freshwater flooded forests and marshes were compared at various sites in the central area of the coastal plain of Veracruz on the Gulf of Mexico. All sites had a layer (of differing thickness) of decomposing organic soil, which gives the soil unique characteristics, including high porosity, low apparent density, and a high capacity to retain water. Water storage capacity was calculated to a depth of one metre. The soils of freshwater flooded forests and herbaceous wetlands stored seven to eight times their own weight in water, with the highest values recorded for wetlands with the thickest organic layers. These soils, therefore, have considerable capacity to retain water during storms and release it slowly, helping to reduce flood peaks. In a literature review of 439 papers, Bullock and Acreman (2003) found that the environmental service of flood regulation in wetlands varies between types but that wetlands on floodplains are among the most efficient ecosystems for providing this service.

Carbon storage

Wetland soils store carbon, helping mitigate the effects of climate change. On average, the freshwater flooded forests in the survey area store 52 kg of carbon per m^2

Wet and wild: A flooded forest of *Anona glabra* (corchal), known locally as anona and more generally as corcho. *Photo: G. Sánchez Vigil*

and herbaceous wetlands store 31 kg per m² (Campos et al. 2011). These values are within the range reported in the literature for tropical wetlands; they are higher than the value of 25 kg of carbon per m² reported for China (Zhong & Qiguo 2001) and the 9.7 kg per m² reported for a flooded palm forest in Costa Rica (Bernal & Mitsch 2008), but they are lower than those of mangrove swamps at Tabasco (also on the Gulf of Mexico), where values between 47 and 82 kg carbon per m² have been measured (Moreno-Cáliz et al. 2002).

The organic soil layer of freshwater flooded forests makes them productive and, because they are not flooded all year round and are not saline, they are easily and commonly converted to agricultural uses; many, for example, have been transformed into pastures for livestock (Moreno-Casasola et al. 2012). Very little freshwater flooded forest remains on the Gulf of Mexico—only a few remnants are found along the gradients around mangroves. Figure 1 shows the distribution of freshwater flooded forests around mangroves for two areas in the state of Veracruz.

Economic benefits of environmental services are higher than the commercial benefits of conversion

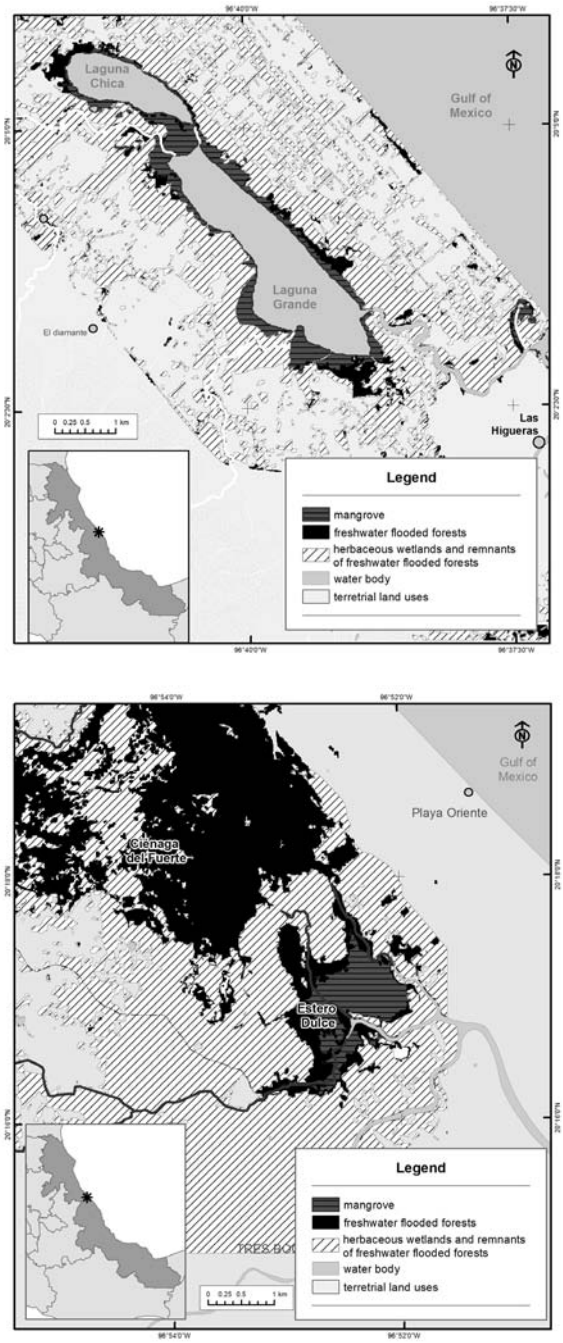
The economic and social benefits of retaining freshwater flooded forests are clear. Vázquez-González et al. (2015) showed that, for each hectare of such forest that is lost, there is a decrease of US$5066 per year in the commercial potential of coastal fisheries due to the contributions of the "habitat" environmental service of flooded forests. Moreover, freshwater flooded forests store large quantities of carbon and perform other environmental services (as described above). Overall, Vázquez-González et al. (in press) estimated the value of the environmental services provided by freshwater flooded forests at US$8369 per hectare per year, assuming a time horizon of 30 years. This is the total economic benefit that would be lost if the ecosystem was converted to farming or cattle ranching, and it is higher than the benefit arising from either of these uses. Therefore, the conservation of freshwater flooded forests provides a net economic benefit compared with alternative land uses.

Laying the groundwork for policy change

Thanks to the project and its relationship with local institutions, decision-makers have recognized the importance of freshwater flooded forest ecosystems and are laying the groundwork for incorporating the environmental services of these ecosystems into policies on climate change. At the same time, the project assisted local people to understand the indirect benefits they receive from freshwater flooded forests—flood protection being the most important.

The project showed that freshwater flooded forest provide important provisioning, flood containment and carbon storage services in coastal areas of the Gulf of Mexico. On the other hand, their degraded state means that policies are needed urgently to restore these important ecosystems and to protect what remains. Our assessment showed that freshwater flooded forests have important economic value for society. The quantity of carbon they store suggests that they should be the subject of REDD+ schemes. Mexico has a policy of ecosystem-based adaptation to climate change, requiring the maintenance of environmental services. The quantity of freshwater stored in the soils of freshwater flooded forests—thereby helping reduce flooding peaks and prevent salinization—are essential for mitigating the impacts of climate change. Their conservation should be part of climate-change adaptation policies.

Figure 1: Distribution of freshwater floodplain forest in two areas in Veracruz, Mexico—a) Laguna Chica and Grande, municipality of Vega Alatorre; and b) Ciénaga del Fuerte State Reserve, municipality of Tecolutla



Maps drawn by Roberto Monroy

Publications produced by the project can be found via the ITTO project search function at www.itto.int/project_search (using the project number, given in the article). Three videos showing aspects of the project are available (in Spanish) on the ITTO YouTube channel at www.youtube.com/user/ittosfm.

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Fellowship report

Non-timber forest products offer opportunities for micro-scale industries that uplift the livelihoods of hills people in India

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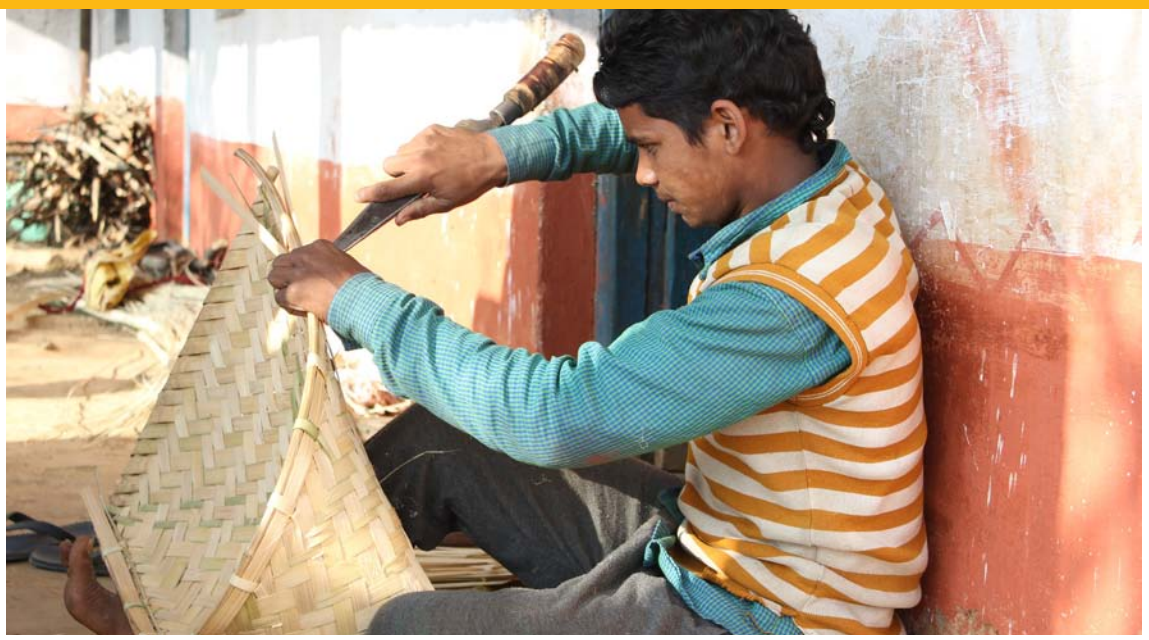


Handy craft: A boy makes a winnower using bamboo harvested in local hill forests, Lohaghat, Uttarakhand, India. *Photo: D. Verma*

Forests are full of resources, both timber and non-timber. While the uses and contributions of the former are well known and documented, information on the latter is scattered and lacks a strong presence in the public domain.

In India, non-timber forest products (NTFPs) are categorized into two broad categories—institutionalized and non-institutionalized—based on their market demand. Institutionalized NTFPs occupy a significant position in the market. They are traded on a large scale, and government has a well-oiled mechanism for their processing, from harvest to market.

Many non-institutionalized NTFPs have considerable potential, but a lack of documentation and technical knowhow means they are underused. States in India's hilly region are rich in NTFPs, but the local people generally have been unable to make sustainable commercial use of them. Tough terrain and challenging climatic and environmental conditions restrict the potential for large-scale industries and development, and a lack of employment opportunities has led to the mass out-migration of people in search of a higher quality of life. The establishment of small-scale industries based on NTFPs, on the other hand, could provide an economic boon for the hills region.

A case study was undertaken in the hilly states of Uttarakhand and Himachal Pradesh, with support from an ITTO fellowship. The aims were to:

- identify the core NTFPs in the region;
- document the micro-scale industries that could be set up using these NTFPs as raw materials, along with the necessary technical details and a cost–benefit analysis; and
- identify the potential markets for end-products.

A technical document was prepared using primary information collected in visits to the micro-industries of hills villages, and secondary information was obtained from the literature, the web, and other sources. The following NTFP-based micro-industries were identified:

- the use of pine needles in the manufacture of briquettes, baskets and other decorative items and the small-scale production of electricity;
- the extraction of natural dyes from available NTFPs;
- the manufacture of items such as shawls, stoles, mufflers and fabrics from fibre-yielding plants;
- the preparation of juices from wild trees and herbs;
- pickles made from wild ferns; and
- the manufacture of items from bamboo and dwarf bamboo, which are widely available in the hills.

Pine needles

Pine needles—which otherwise are considered forest waste—are a major cause of forest fire in the hills. The establishment of industries based on pine needles doesn't require a large amount of capital and can therefore be a significant source of livelihood improvement for hills people. Pine-needle briquettes are cheap to produce, and they are light on the pockets of end-users. They have the potential to replace woodfuel, which is still a significant source of energy in the hills and other difficult-to-access areas where the reach of liquid petroleum gas is restricted. Pine needles provide a rich source of biomass and can be used in the development of biomass gasification technologies; they have considerable potential in decentralized power generation. Pine needles are also used successfully in the manufacture of craft items.

Natural dyes

Natural dyes can be obtained from various plant parts, such as seeds, leaves, roots and flowers, and also —to a lesser extent—from lichens, animals and minerals. Natural dyes have been used for decades in the hills region, where

Table 1: Cost–benefit analysis of NTFP-based cottage industries

Industry	Non-timber forest product		Input cost	Output cost	Net benefit
			Indian rupees		
Energy	Pine needle briquettes (per kg)		12.50	20 (wholesale) 30 (retail)	7.5 (wholesale) 17.5 (retail)
	Electricity generation using pine needles		Unavailable	Unavailable	Unavailable
Food industry	Rhododendron juice (per litre)		37	70 (wholesale) 90 (retail)	33 (wholesale) 53 (retail)
	Rhododendron jam (per kg)		38	150 (wholesale) 300 (retail)	112 (wholesale) 262 (retail)
	Brahmi juice (per litre)		90	120	30
	Linguda pickle (per kg)		90	120	30
Textile industry	Himalayan nettle fibre	Muffler (per piece)	180–200	700–800	520–600
		Shawl (per piece)	500–600	2000–2500	1500–1900
	Oak tussar	Muffler (per piece)	294–314	500	186–206
		Shawl (per piece)	698–776	1800	1024–1102
		Stole (per piece)	487–519	1200	681–713
		Fabric (per metre)	358–388	450	62–92
	Natural dyes	Woollen stole (per piece)	1090	1700	610
		Silk stole (per piece)	1480	2100	620
Handicrafts	Crafts of bamboo and dwarf bamboo (ringal)—winnower (per piece)		25	100	75

weaving is the main occupation of tribals (Nautiyal et al. 2003). Enterprises in the small-scale fibre industry can be set up easily, with minimum expenditure.

Hill forests also have a rich variety of fibre-yielding plants. Some, like *Grevia optiva* (bheemal), *Girardinia diversifolia* (bichhu grass) and *Agave* spp. (rambans), are used by villagers in their day-to-day lives in the form of ropes and nets for carrying fuelwood, fodder and other items. Fibre from forest plants is used for making shawls, slippers, bags, file folders and other products.

Rhododendron and brahmi

Local people collect the flowers of *Rhododendron arboreum* from high-altitude forests in March–April, either selling the flowers directly or extracting juice from them; they consume rhododendron juice themselves or sell it to retailers and in local markets. People also extract juice from the wild herb *Centella asiatica* (known by locals as brahmi and more widely as mandukaparni). Brahmi juice is very refreshing and possesses therapeutic properties.

Wild fern

The collection and local sale of young fronds of the wild fern *Diplazium esculentum* (known as linguda) in forests is a common activity of villagers during the monsoon season. The fronds are consumed in salads or pickled for later use. Fresh fronds are a very popular food item in the hills during the monsoon, and the pickle (which is delicious) can be consumed throughout the year.

Bamboo and dwarf bamboo

Bamboo and ringals (dwarf bamboo) are another common source of income for hills people, who use it as fodder and for making thatches, baskets, winnowers, brooms and other items. Winnowers, baskets and brooms are sold in local markets. Table 1 presents a cost–benefit analysis of items of identified NTFPs.

Conclusion and recommendations

The hills are full of resources, but many are still unidentified and few are well known; this lack of knowledge means that many NTFPs in the region are underused. Micro-scale or cottage industries based on NTFPs have vast potential for providing livelihood opportunities and alleviating poverty in the hilly areas of India. Such industries can be set up with little investment, and they can generate employment and help rural economies to grow. The main impediment to exploring and using the potential of NTFPs in the hills is a lack of information on the resource and the technicalities of setting up micro-scale industries. Although references are available, they are largely scientific and often unavailable to the general public. The surveys conducted and the document prepared under this ITTO fellowship are small steps in gathering and spreading knowledge on NTFPs in hilly areas.

What is required now is for financial institutions to step in to support the initiatives of self-help groups in the region and to capitalize on the cost–benefit analysis and the increasing availability of technical knowhow and markets. Organizations like ITTO, as well as the corporate sector through corporate social responsibility programmes, can help realize the economic benefits of NTFPs for local people while also ensuring the sustainability of resource use.

Reference

Nautiyal, S.,Maikhuri, R.K., Rao, K.S. & Saxena, K.G. 2003.Ethno botany of the Tolchhabhotiya tribe of the buffer zone villages in Nanda Devi Biosphere Reserve, India. *Journal of Economic Taxonomic Botany* 27: 119–141.

Market trends

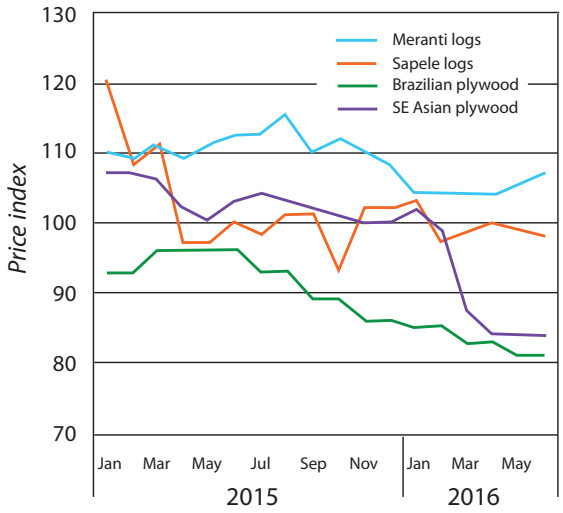
The tropical timber trade sat in the eye of a storm in the first half of 2016

Compiled by Michael Adams from reports of ITTO's Market Information Service

Looking back on market developments in the first half of 2016, it was like being in the eye of a storm. The common adjectives floating around tropical timber trade circles to describe trends included "quiet", "subdued" and "steady". When it came to prices, the descriptors were equally uninspiring—such as "weakening", "flat" and "lacking direction". Then came Brexit (the UK's decision to leave the European Union—EU—in a referendum held on 23 June), after which a single word, "uncertainty", dominated discussions in the trade.

Figure 1 illustrates movements in US dollar price indices for meranti and sapele logs and Brazilian and Malaysian plywood. There was a general downward trend in prices in 2015; from January 2016, however, the slide eased and the trend-line flattened (except for Southeast Asian plywood, which was affected by falling demand in Japan). The crunch will come when second-half price data become available; by then, the impact of Brexit on timber markets will be apparent.

Figure 1: Price trends, various tropical wood products, 2015 and first-half 2016



Data source: ITTO

The UK's decision to leave the EU was felt immediately in currency markets and stock exchanges worldwide. The short-term economic effect was seen within a few days, manifesting as a slowdown in growth. This was especially marked in the UK, which might even dip back into recession, but it was also seen in the wider EU economy.

Feedback from UK timber importers in the aftermath of the Brexit vote indicated that their most immediate concern was the exchange rate. The value of the British pound, which increased from 1.41 to 1.50 against the US dollar in the days leading up to the referendum—on the expectation that "remain" would win—fell sharply to a 30-year low of US$1.29 on 6 July. By 22 July it had recovered only slightly to US$1.31.

The euro, already low against the US dollar after a dramatic fall in late 2014 and early 2015, also weakened following the referendum, from €1.14 on 22 June to €1.10 on 22 July.

The UK is the largest importer of tropical timber in the EU, with around 25% of the total value imported into the EU from tropical countries. Uncertainty and a slowing of economic growth in the UK and the EU are likely to have immediate impacts on imports of timber products from tropical countries. In the longer term, the prospects for tropical timber products in the UK and the EU will depend on how quickly those markets recover from this shock.

First-half 2016 import trends

EU leads the way

What is remarkable about the numbers in Table 1 is that—except for the slight up-tick in US furniture imports—all the gains in the first half of 2016 were in the EU market. Keep in mind, however, that the data reflect pre-Brexit times; the story is likely to be very different in the second half of the year.

Table 1: Year-on-year change in imports of various wood products, first half of 2016, by importing country or region

Imports of	By	Change compared with first-half 2015 (%)
Tropical logs	Japan	-20
	EU	32
	China	N/A
Hardwood plywood	Japan	-6
	EU	1
	US	-6
Hardwood flooring	Japan	-5
	EU	5
	US	-2
Tropical sawnwood	EU	12
	Japan	-2
Hardwood sawnwood	US	-19
Wooden furniture	Japan	3
	EU	N/A
	US	3

West African exporters have been quick to say that the post-Brexit decline in the exchange rate of the British pound versus the US dollar and the euro is likely to have a significant impact on exports. The pound has recovered slightly from its lows in the immediate wake of the referendum, but producers are well aware that there is a risk that the pound will remain weak for some time.

Prices for West and Central African exports to EU markets are in euros, and so far there has been no pressure from buyers in either the EU or the UK to reduce prices, and nor has there been pressure from buyers outside Europe for a price adjustment.

Apart from direct imports from African and other producer countries, UK importers also buy significant volumes of tropical timber from continental importers/

stockists. If the pound remains at current levels, the landed costs of tropical timber in the UK will inevitably rise.

Importers in China saw the landed cost of tropical logs increase by 5–8% in June, driven up by a weakening of the yuan and rising international freight costs. A similar rise was recorded in India with an increase in the volatility of the rupee/US dollar exchange rate. Analysts in China were quick to say that the likely impact of Brexit on global economic prospects was behind the weakening yuan.

Imports drop and real estate investments slow in China

It appears that China will struggle to attain the goal of a 6.5–7% increase in gross domestic product (GDP) in 2016. First-half growth topped 6.7%, but the prospects for further expansion have dimmed. The likely direction of GDP can be gauged from trends in trade and the domestic housing market. China's foreign trade declined by about 4%, year-on-year, in the first half of 2016, with imports falling much faster than exports.

Real estate investment rose in China in the first half of the year but at a much slower rate than in the same period in 2015. The consensus among analysts is that industrial production and investment is set to slow further in the second half of the year unless the government delivers more stimulus measures.

China's log imports increase …

Despite the general decline in overall imports, China's log imports increased by 3% in volume terms in the first half of 2016, year-on-year, to 23.9 million m³; nevertheless, the value of log imports declined by 10% compared with the same period in 2015, to US$3.97 billion. Softwood log imports in the first six months of 2016 amounted to 16.1 million m³, or 67% of all log imports, a year-on-year increase of 4%; hardwood log imports accounted for the balance, at 7.79 million m³. Tropical log imports rose by 8%, to about 4.77 million m³, accounting for 20% of all log imports and 61% of all hardwood log imports. Table 2 shows the top ten countries supplying China with tropical logs in the first half of 2016, and year-on-year change.

Table 2: Top ten countries supplying China's tropical log imports, January–June 2016

Country	Hardwood log imports (million m³)	% change, year-on-year
PNG	1.77	20
Solomon Islands	1.09	-7
Equatorial Guinea	0.54	85
Congo	0.25	5
Cameroon	0.24	-21
Nigeria	0.21	-18
Lao PDR	0.13	2
Ghana	0.09	192
Liberia	0.08	33
Malaysia	0.06	-51

Source: China Customs

… but sawnwood imports decline

Although log imports were up (in volume terms), China's first-half sawnwood imports reflected the overall trade, falling by 17% in value terms, year-on-year. Tropical sawnwood imports rose by 8%, however, to about 4.77 million m³, accounting for 17% of all sawnwood imports and 40% of all sawn hardwood imports. Table 3 shows the top ten countries supplying China with tropical sawnwood in the first half of 2016, and year-on-year change.

Table 3: Top ten countries supplying China's tropical sawnwood imports, January–June 2016

Country	Tropical sawnwood imports (million m³)	% change, year-on-year
Thailand	1.89	31
Gabon	0.142	-16
Indonesia	0.131	9
Philippines	0.13	-16
Malaysia	0.113	-15
Lao PDR	0.055	-17
Cameroon	0.042	-33
Ecuador	0.031	38
Peru	0.026	0
Cambodia	0.018	8

Source: China Customs

Japan preoccupied with exchange rates

Trade circles in Japan have been preoccupied with the yen/US dollar exchange rate for more than a year. This preoccupation stems from the impact of the exchange rate on the performance of Japanese exports and the knock-on effect on the stock market, business sentiment, wage negotiations and consumer confidence, especially the willingness to purchase durable goods such as furniture.

The consensus among observers is that exports excel when the yen is weaker than 105 to the dollar. If the yen strengthens—as it did in the first six months of 2016—then confidence evaporates, company investments stall, and thousands of small subcontractors suffer.

The Bank of Japan's policy aimed at weakening the yen and its decline against the US dollar gave a tremendous boost to the corporate profits of exporters from late 2012 through mid-2015. On the flip side, however, inflationary pressures were created as the price of imports rose. The Bank of Japan's policy appeared to be working, but it failed to firmly establish a cycle of higher wages and consumption—the foundation of inflation. As a result, Japan's economy has swung between modest expansions and contractions in recent quarters. This uncertainty has resulted in businesses scaling back investment and consumers losing confidence—and holding their wallets firmly shut. The coming months of uncertainty will weigh heavily on the Japanese economy, with only importers enjoying a buying spree while the yen stays strong.

Logs and plywood

Japan's tropical log imports are only half what they were five years ago; at just 20 000 m³ per a month, demand in Japan has little impact on international price trends, which are now more influenced by purchases for the Indian and Chinese markets. Tropical logs account for an increasingly small proportion of Japan's overall log imports. On the other hand, Japan still obtains most of its plywood imports from Malaysia and Indonesia.

US imports of tropical sawnwood disappoint

Housing starts in the US have recovered halfway to the levels seen before the collapse of the housing market in 2009, to about 1.5 million units annually. This has boosted wood product demand and is reflected in import volumes.

US hardwood plywood imports fell by 5% (year-on-year), however, in the first half of 2016. The data in Table 4 for hardwood plywood imports into the US are an aggregate of temperate and tropical plywood; other data indicate that imports from the two main tropical plywood suppliers, Indonesia and Malaysia, fell in the first half of 2016.

The value of US hardwood moulding imports is one-tenth that of plywood. China is the largest supplier, accounting for 29% of all hardwood moulding imports in the first half of 2016. Brazil is the second-ranked supplier, at 25% of all imports, but hardwood mouldings shipped from Malaysia account for only 8%. US imports of hardwood mouldings rose by just 1% in the first half of 2016, year-on-year.

Table 4: US imports of various wood products (temperate and tropical combined), January–June 2016

Product	2015 (January–June)	2016 (January–June)	% change
	US$ million		
Hardwood plywood	756.3	715.0	-5
Hardwood moulding	76.1	76.8	1
Assembled flooring	53.9	54.3	1
Wooden furniture	6260	6585	5

Source: US Department of Commerce, US Census Bureau, Foreign Trade Statistics

While there has been a hint of improvement in imports of mouldings and flooring, US sawnwood imports have been disappointing. Tropical sawnwood imports fell for all the main suppliers except Ecuador, which saw a modest rise in demand.

Growth in US wooden furniture imports

US imports of wooden furniture grew by 5% (to US$6.5 billion) in the first five months of 2016. There was a sharp dip in overall wooden furniture imports in March, but import values had grown significantly by the end of June. China maintained its dominant position as the main supplier of wooden furniture to the US, at a value of US$3 billion in the five months to May, followed by Viet Nam, Canada, Malaysia, Mexico, Indonesia and India.

Projections and drivers of demand

Given the global economic uncertainty, which is driving down personal consumption in most developed economies, it is unlikely there will be any major change in production and trade trends in the second half of 2016. This, and the efforts of the Government of China to move from export-led growth to an economy supported by domestic consumption, will slow GDP growth in the medium term.

The slowing of economic growth in China reflects the decline of investment in the "old" industrial economy—mainly inefficient and unproductive state enterprises. Going forward, growth will be more dependent on private-sector investment and household spending.

At the end of April, Japan's Forestry Agency provided projections of demand for wood products for the first three quarters of 2016. It forecast an increase in demand for logs, plywood and laminated lumber compared with 2015 but anticipated that the volume of imported sawnwood would decline towards the end of the year. Expectations for imports of North American logs, European sawnwood, radiata pine and sawnwood from New Zealand and Chile were revised down. The Forestry Agency projected a decline in imported plywood in 2016, which would especially affect shippers in Indonesia and Malaysia, and it also expected the consumption of domestic logs to increase. The government has stepped up its efforts to encourage manufacturers to use domestic timber species and is pushing for local timbers such as cedar and larch to be at the core of the construction of venues for the 2020 Tokyo Olympics.

The fallout of the Brexit vote, combined with challenging economic conditions in other parts of the Europe, particularly Italy, is likely to lead to a downturn in European imports in the second half of 2016.

It remains to be seen if the apparent calm in the "eye of the storm" continues. Will Brexit smash the timber trade hard, or will the storm weaken as plans for exit negotiations emerge?

The ITTO Market Information Service, which produces the Tropical Timber Market Report, is available at www.itto.int/market_information_service.

Topical and tropical

Compiled by Ken Sato

EU opens to Indonesian verified legal timber exports

The European Commission announced in late August 2016 that it would recognize Indonesia's licensing scheme for exports of verified legal timber to the European Union (EU) after amending the EU Forest Law Enforcement, Governance and Trade (FLEGT) Regulation. The delegated regulation will apply from 15 November, making this the earliest date that Indonesia could begin to issue FLEGT licences. The FLEGT Voluntary Partnership Agreement between Indonesia and the EU has strengthened forest governance in Indonesia by increasing transparency, accountability and stakeholder participation in decisions on forests. In 2002, just 20% of Indonesia's timber was estimated to be legal; today, over 90% of Indonesia's timber exports are from independently audited factories and forests.

Read more at: http://europa.eu/rapid/press-release_MEX-16-2843_en.htm

New system for protecting biodiversity in the Philippines

LAWIN is a forest and biodiversity protection system piloted by the USAID-funded "Biodiversity and Watersheds Improved for Stronger Economy and Ecosystem Resilience" (B+WISER) programme in seven protected areas in the Philippines. In place since early 2015, the system empowers local communities and authorities to address forest degradation and achieve conservation objectives. It employs science to formulate measurable conservation targets, automates data encoding, monitors patrol efforts, produces geo-referenced data, and enhances coordination between monitoring and law enforcement. The B+WISER programme used the knowledge gained from piloting LAWIN in the seven areas to improve the system and advocate its application at the national level. As a result, the Philippine Government adopted LAWIN on 10 March 2016 as the national strategy for forest and biodiversity protection.

Read more at: https://goo.gl/WM7nUv

REDD+ shows promise in Kenya

The *New York Times* has reported that Kenya is seeing positive changes from a REDD+ project implemented by the company Wildlife Works. REDD+ is an international system designed to help combat climate change by compensating forest communities for protecting, restoring or expanding their forests. The project in Kenya has earned millions of dollars through carbon credits sold through Wildlife Works, thereby benefiting the company, landowners, investors and the local community. The project has brought wildlife back to the area, decreased illegal logging and poaching and increased water availability; it has also provided funds for schools and generated employment opportunities.

Read more at: https://goo.gl/EjmTTv

Myanmar launches website on REDD+

Myanmar's REDD+ programme has launched a website for those interested in learning and understanding more about the country's REDD+ processes and activities. Supported financially and technically by the UN-REDD Programme, the website is structured to provide user-friendly access and to serve as a source of information, documents and publications on REDD+ processes and activities being implemented in Myanmar. Myanmar's REDD+ programme is governed and implemented by the Government of Myanmar with financial and technical support from various initiatives.

Visit the site at: www.myanmar-redd.org

Tropical dry forests overlooked and under threat

The BBC has reported on a paper published recently in the journal *Science*, which finds that neotropical dry forests are among the most threatened habitats on the planet. The study team from the Latin America and Caribbean Seasonally Dry Tropical Forest Floristic Network (DryFlor), based at the Royal Botanic Garden Edinburgh in Scotland, defined dry forest as having a closed canopy, "distinguishing it from more open, grass-rich savanna". Using data from more than 1600 inventories, the team estimated that neotropical seasonally dry forests in Latin America and the Caribbean contain a "remarkable 6958 species of woody plants", many of which are not found elsewhere. Seasonally dry forests in the region—spanning from Mexico to Argentina, and throughout the Caribbean—cover just 10% of their historical range, having been replaced largely by cash crops. Few of the remaining forests are protected, the study found.

Read more at: www.bbc.com/news/science-environment-37440485

Scientists say beef-buyers are failing to protect South American forests

A scorecard released in September by the Union of Concerned Scientists (UCS) has indicated that the beef-purchasing practices of 13 global fast-food, retail and food manufacturing companies leave tropical forests in South America at risk of being converted to pasture for cattle. The report, "Cattle, Cleared Forests, and Climate: Scoring Global Brands on Their Links to Deforestation-Risk Beef," found that even the top-scoring companies—McDonald's, Walmart and Mars—aren't doing enough to ensure they are not purchasing beef linked to tropical deforestation. The latest science suggests that beef production is responsible for more than twice as much deforestation as the other top drivers of tropical deforestation (such as soy, palm oil and wood products) combined, according to a UCS analyst.

Read more at: https://goo.gl/kaQq38

Meetings

6–9 November 2016
First International Agrobiodiversity Congress 2016
New Delhi, India
Contact: www.iac2016.in

7–12 November 2016
52nd Session of the International Tropical Timber Council and Associated Sessions of the Committees
Yokohama, Japan
Contact: www.itto.int; itto@itto.int

7–18 November 2016
22nd Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC COP22)
Marrakesh, Morocco
Contact: secretariat@unfccc.int

8–9 November 2016
International Conference on Heart of Borneo
Kota Kinabalu, Sabah, Malaysia
Contact: hobconference2016@gmail.com

14–18 November 2016
Third Meeting of Parties to the CMS Gorillas Agreement
Jakarta, Indonesia
Contact: cms.secretariat@cms.int

14–18 November 2016
ForestSAT 2016
Santiago, Chile
Contact: http://forestsat2016.com

14–18 November 2016
PEFC Forest Certification Week
Bali, Indonesia
Contact: http://pefc.org/pefc-week-2016/home

15–18 November 2016
Eurobois 2016
Lyon, France
Contact: www.eurobois.net/en

17 November 2016
ITTO–Forestry and Forest Products Research Institute Side-event at UNFCCC COP 22: "Enabling results-based payments for REDD+ in tropical forests"
Marrakesh, Morocco
Contact: ma@itto.int

21–26 November 2016
16th Meeting of the Parties of the Congo Basin Forest Partnership
Kigali, Rwanda
Contact: dany.pokem@pfbc.cbfp.org

24–25 November 2016
Streamlining the Next Round of Forest Sector Outlook Studies
Moscow, Russian Federation
Contact: www.unece.org/index.php?id=43170#

4–17 December 2016
13th Meeting of the Conference of the Parties to the Convention on Biological Diversity
Cancun, Mexico
Contact: secretariat@cbd.int; www.cbd.int/meetings

16–20 January 2017
United Nations Forum on Forests Working Group and Special Session
New York, USA
Contact: unff@un.org

1–2 February 2017
Lignofuels 2017
Helsinki, Finland
Contact: www.wplgroup.com/aci/event/lignocellulosic-fuel-conference-europe

13–15 February 2017
International Woodfiber Resource and Trade Conference
Furama Resort, Da Nang, Viet Nam
Contact: http://events.risiinfo.com/wood-fiber

13–14 February 2017
2nd Biomass Trade & Power Europe
Copenhagen, Denmark
Contact: www.cmtevents.com/aboutevent.aspx?ev=170202&

22–23 February 2017
8th Carbon Dioxide Utilization Summit
San Antonio, Texas, USA
Contact: www.wplgroup.com/aci/event/co2-us

27 February–1 March 2017
3rd Biomass & BioEnergy Asia
Jakarta, Indonesia
Contact: www.cmtevents.com/register.aspx?ev=170303a&

1–3 March 2017
2017 Timberland Investment Conference
Amelia Island, Florida, USA
Contact: www.ugacfb.com/timberlandasset

1–4 March 2017
DelhiWood
Greater Noida, India
Contact: www.delhi-wood.com

4–6 March 2017
Forum ATIBT
Dubai, United Arab Emirates
Contact: info@atibt.org

7–9 March 2017
Dubai Wood Show
Dubai World Trade Center, Dubai, UAE
Contact: www.dubaiwoodshow.com

3–7 April 2017
19th Commonwealth Forestry Conference
Dehradun, India
Contact: www.cfc2017.in

4–5 May 2017
RISI's Forest Investment Conference
London, UK
Contact: http://events.risiinfo.com/investment-conference

15–18 May 2017
8th Biomass Pellets Trade & Power
Tokyo, Japan
Contact: www.cmtevents.com/aboutevent.aspx?ev=170501&

29 May–2 June 2017
XVI World Water Congress
Cancun, Mexico
Contact: www.worldwatercongress.com

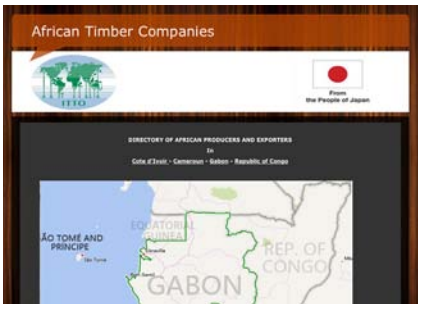
14–16 June 2017
2017 IUFRO Division 5 (Forest Products) Conference
Vancouver, BC, Canada
Contact: www.iufro2017.ca

2–6 October 2017
3rd International Conference on Scaling-up Global Efforts to Secure Community Land and Resource Rights
Stockholm, Sweden
Contact: conference@rightsandresources.org

8–13 October 2017
Forest Stewardship Council General Assembly
Vancouver, Canada
Contact: https://ic.fsc.org/en

Directory of timber companies in Africa

The timber trade in Africa is volatile, and over many years there has been considerable consolidation in the industry as larger, well-established groups have purchased, merged and made trading agreements with other companies. Some of this consolidation has been driven by the acquisition of logging concessions; in addition, smaller companies tend to spring up when markets are good and close when trading conditions are less favourable.



With a view to increasing transparency in the industry and facilitating trade, ITTO has developed a website—**africantimbercompaniesdirectory.com**—to host a comprehensive, active directory of timber companies in Cameroon, the Congo, Côte d'Ivoire and Gabon. The website, which was launched in April 2016 and is available in English, enables traders to more readily make contact with suppliers and producers to facilitate trading, both within countries and among countries in the region. The directory contains contact details of companies, as well as the main products and species they trade. The website was developed as part of ITTO project PD700/13 Rev.2 (I): "Development of intra-African trade and further processing in tropical timber and timber products—Phase 1 Stage 1", funded by the Government of Japan.