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EUROPE'S CHANGING TROPICAL TIMBER TRADE

Baseline report of the Independent Market Monitoring initiative

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INTERNATIONAL TROPICAL TIMBER ORGANIZATION

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ITTO TECHNICAL SERIES #45

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Europe's changing tropical timber trade: baseline report of the Independent Market Monitoring initiative

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International Tropical Timber Organization

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The International Tropical Timber Organization (ITTO) is an intergovernmental organization promoting the conservation and sustainable management, use and trade of tropical forest resources. Its members represent the bulk of the world's tropical forests and of the global tropical timber trade. ITTO develops internationally agreed policy documents to promote sustainable forest management and forest conservation and assists tropical member countries to adapt such policies to local circumstances and to implement them in the field through projects. In addition, ITTO collects, analyzes and disseminates data on the production and trade of tropical timber and funds projects and other actions aimed at developing industries at both the community and industrial scales. Since it became operational in 1987, ITTO has funded more than 1000 projects, pre-projects and activities valued at more than US$400 million. All projects are funded by voluntary contributions, the major donors being the governments of Japan, Switzerland, the United States of America, Norway and the European Union.

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Front cover: Scanning logs in Guyana.
Photo: Pradeepa Bholanath, GFC.

Back cover: Packaged plywood in the Philippines.
Photo: D. Eusebio

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Acronyms, abbreviations and symbols

□	euro(s)
CEMAC	*Communaute Economique et Monetaire de l'Afrique Centrale*
CIS	Commonwealth of Independent States
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CN	Combined Nomenclature [relates to EU trade product codes]
COMEXT	Eurostat External Trade database
CoC	chain of custody
CPR	Construction Products Regulation
CSR	corporate social responsibility
DRC	Democratic Republic of the Congo
EU	European Union
EUTR	European Union Timber Regulation
FAO	Food and Agriculture Organization of the United Nations
FEP	European Parquet Flooring Federation
FLEGT	Forest Law Enforcement, Governance and Trade
FOB	free on board [relates to shipping]
FSC	Forest Stewardship Council
GFC	global financial crisis
GSP	Generalized System of Preferences
ha	hectare(s)
HS	Harmonized Commodity Description and Coding System [relates to trade product codes]
IMM	Independent Market Monitoring [developed under an ITTO project]
ITTO	International Tropical Timber Organization
Lao PDR	Lao People's Democratic Republic
LVL	laminated veneer lumber
m^2	square metre(s)
m^3	cubic metre(s)
MDF	medium-density fibreboard
MLH	mixed light hardwood [applied to plywood]
NGO	non-governmental organization
OSB	oriented strandboard
PEFC	Programme for the Endorsement of Forest Certification
S4S	surfaced four sides
Taiwan POC	Taiwan Province of China
UNCTAD	United Nations Conference on Trade and Development
UNECE	United Nations Economic Commission for Europe
USA	United States of America
US$	United States dollar(s)
VPA	voluntary partnership agreement

Foreword

The FLEGT Independent Market Monitoring initiative (IMM) is a multi-year project supervised by ITTO and financed by the European Union (EU) to support implementation of bilateral Voluntary Partnership Agreements (VPA) between the EU and timber supplying countries. VPAs are a key element of the EU's Forest Law Enforcement Governance and Trade (FLEGT) Action Plan which defines the EU's policy to promote legal logging and trade in legally licensed timber. Once agreed, the VPAs include commitments and action from both parties to develop a Legality Assurance System (LAS) which licenses timber for export to the EU.

There are strong VPA country expectations that FLEGT-licensed timber is positively received and increases market share in the EU, particularly since it is exempt from further due diligence under the EU Timber Regulation. Analysis of the reception of FLEGT licensed timber by the EU market is enshrined as part of VPAs agreed to date. Such analysis is important for monitoring the impacts of the FLEGT VPAs and for guiding the implementation of the FLEGT Action Plan. Demonstrating changes in trade of legally verified timber will maintain momentum in VPA countries which will then accelerate implementation of forest sector reforms to meet market expectations.

The ITTO is well placed to implement the IMM. Independent assessment of the market impacts of FLEGT licensing is entirely in line with ITTO's mandate to bring transparency to the international tropical timber trade. All but one of the 17 tropical countries now involved in the VPA process are producer members of the ITTO. As this report shows, VPA countries accounted for 81% of the value of global trade in tropical wood products in 2013. The VPAs align with ITTO's work to promote sustainable forest management and forest conservation in tropical countries. IMM is also building on ITTO's long experience of monitoring and reporting on international markets for tropical wood products and strengthening its networks amongst timber traders, policy makers and researchers in producing and consuming countries.

VPA countries are currently building their licensing systems and progress has been made introducing legal reforms, clarifying legal requirements, developing timber verification and traceability systems, improving communication and transparency, involving stakeholders in national decision making processes, and in knowledge sharing amongst stakeholders. The first shipments of FLEGT licensed timber are expected on the EU market in 2016.

This report establishes the baseline for long term monitoring of market impacts, describing the market position of timber from VPA partner countries in the EU in 2013. The report quantifies VPA countries' shares in relevant sections of the EU timber market including logs, sawnwood, decking, mouldings, veneer, plywood, joinery products, furniture, pulp and paper. It identifies and weights the wide range of factors impacting on the availability of tropical timber from VPA countries and the demand for these products in the EU. It establishes the position of the FLEGT licensing process within the wider context of social, economic and environmental developments influencing the international tropical timber trade.

On behalf of ITTO, I express my gratitude to lead IMM consultant Rupert Oliver for preparing, and Alastair Sarre for editing, this study which will provide a firm foundation for determining the market impact of FLEGT licenses as they become widespread in the years ahead.

Emmanuel Ze Meka,
Executive Director
International Tropical Timber Organization (ITTO)
Yokohama, October, 2015

Summary

The Independent Market Monitoring (IMM) mechanism was established under a project of the International Tropical Timber Organization (ITTO) to support the implementation of bilateral voluntary partnership agreements (VPAs) between the European Union (EU) and timber-supplying countries. VPAs are a key element of the EU's Forest Law Enforcement, Governance and Trade (FLEGT) Action Plan, which defines the EU's policy for promoting legal logging and the trade of legally licensed timber. A VPA specifies commitments and actions by both signatory parties with the aim of developing a legality assurance system to license timber and timber products for export to the EU.

This baseline report was prepared during the IMM inception phase to determine the position in the EU market of wood products exported by VPA partner countries prior to the issuance of FLEGT licences. Recognizing that market trends in the EU and VPA partner countries are highly dependent on trade with other regions of the world, the report also puts trade flows between the EU and VPA partner countries in their global context.

The report covers all products within the scope of existing or potential future VPAs and includes the following chapters (and parts thereof) of the international Harmonized Commodity Description and Coding System: all products in Chapter 44 (Wood); products identified as containing wood in Chapter 94 (Furniture); virgin wood-based pulp products in Chapter 47 (Pulp); and all products in Chapter 48 (Paper). Collectively, wood and wood furniture are referred to here as wood products and dealt with separately from pulp and paper.

The report focuses on the trade between the 28 EU member states and the following 17 tropical timber-supplying countries at various stages of the VPA process:

- VPA-implementing countries: Cameroon, the Central African Republic, the Congo, Ghana, Indonesia and Liberia.
- VPA-negotiating countries: Côte d'Ivoire, the Democratic Republic of the Congo (DRC), Gabon, Guyana, Honduras, the Lao People's Democratic Republic (Lao PDR), Malaysia, Thailand and Viet Nam.
- VPA-preparing countries: Cambodia and Myanmar.

Collectively, these countries are referred to here as VPA partner countries. The report contains country-specific production and trade data for the six VPA-implementing countries. Data are analyzed at decadal timescales so that potentially significant long-term trends affecting the trade in wood products from VPA partner countries can be identified. The report describes the data sources used.

VPA partner countries' share of global wood-product supply

VPA partner countries had a total forest area of 486 million hectares in 2010, comprising 169 million hectares in VPA-implementing countries, 276 million hectares in VPA-negotiating countries, and 42 million hectares in VPA-preparing countries. The forest area in VPA partner countries was about 26% of the total forest area in the tropics and 12% of the global forest area.

VPA partner countries had a total growing stock of 82 billion m^3 in 2010, nearly all of which was hardwood. VPA partner countries accounted for 17% of the total global growing stock and 24% of global hardwood growing stock in 2010. Growing stock was 27 billion m^3 in VPA-implementing countries, 53 billion m^3 in VPA-negotiating countries, and 2 billion m^3 in VPA-preparing countries.

In VPA partner countries, industrial hardwood log production increased from 102 million m^3 in 2004 to 131 million m^3 in 2013, when it accounted for 18% of global production and 42% of tropical production. In 2013, industrial hardwood log production was 71 million m^3 in VPA-implementing countries, 55 million m^3 in VPA-negotiating countries, and 6 million m^3 in VPA-preparing countries.

In the 17 VPA partner countries:

- Hardwood sawnwood production increased from 18.6 million m^3 in 2004 to 21.9 million m^3 in 2013, which was 18% of global production and 42% of tropical production. VPA-implementing countries accounted for 6.1 million m^3 of production in 2013, VPA-negotiating countries for 14.2 million m^3 and VPA-preparing countries for 1.6 million m^3.
- Hardwood veneer production increased from 1.8 million m^3 in 2004 to 3.0 million m^3 in

2013, which was 24% of global production and 60% of tropical production. VPA-implementing countries accounted for 1.2 million m^3 of production in 2013, VPA-negotiating countries for 1.7 million m^3 and VPA-preparing countries for 0.1 million m^3.

- Hardwood plywood production decreased from 10.8 million m^3 in 2004 to 9.6 million m^3 in 2013, which was 11% of global production and 59% of tropical production. VPA-implementing countries accounted for 5.5 million m^3 of production in 2013, VPA-negotiating countries for 4.0 million m^3 and VPA preparing countries for 0.1 million m^3.

Relative international competitiveness of VPA countries

Some VPA partner countries are exploiting competitive advantages to develop markets for further-processed wood products in Europe. A review of various international competitiveness indices for VPA partner countries found the following:

- Malaysia is one of the world's most competitive countries and is also one of the most "connected" countries to international trade networks.
- Thailand scores highly for the ease of doing business and global competitiveness but is relatively less connected than Malaysia to international trade networks.
- Indonesia scores highly for global competitiveness but is less connected than Malaysia and is not rated highly for the ease of doing business.
- Viet Nam is generally middle-ranked for international competitiveness.
- VPA partner countries in Africa are all low in competitiveness indices, although Ghana is relatively more connected and competitive than other African countries.
- Some African VPA partner countries, especially Cameroon and DRC, are very poorly connected to international trade routes.
- Honduras and Guyana are both higher-ranked than the Congo Basin countries (but are ranked well below Ghana) for the ease of doing business and global competitiveness. Their connectivity is extremely low.

Those VPA partner countries ranked highly in international competitiveness indices—Indonesia, Malaysia, Thailand and Viet Nam—also have the most developed wood-processing sectors and are significant exporters of value-added wood products to the EU. VPA partner countries that are poorly connected to international trade routes and are rated as challenging places in which to do business are more focused on the export of primary wood products.

Forest certification share

The total area of forest certified worldwide by the Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification (PEFC) was 440.45 million hectares in November 2014, which was 11.1% of the global forest estate. About 24.75 million hectares (5.6% of the world's certified forest) was in tropical countries, and VPA partner countries had a combined area of 11.22 million hectares of certified forests. Of the VPA-implementing countries, only Cameroon, the Congo and Indonesia had more than negligible areas of forest certified under either the FSC or the PEFC.

VPA partner share of global tropical wood-product trade

The value of global trade in tropical wood products increased by 15% in the decade to 2013, to US$31 billion. Combined, the 17 VPA partner countries accounted for 81% of the value of global trade in tropical wood products in 2013, down from 84% in 2004. The six VPA-implementing countries accounted for 22% of that trade in 2013, down from 32% in 2004, while the nine VPA-negotiating countries accounted for 53%, up from 49% in 2004. These changes in relative share were due primarily to increased exports from Thailand and Viet Nam (both VPA-negotiating countries).

Product mix of tropical wood-product trade

Much of the decline in the value of global trade in tropical wood products due to the global financial crisis (GFC) was concentrated in logs, sawnwood, plywood and veneer, while the value of the global trade of wood furniture and other value-added wood products (such as flooring, doors, windows and laminated veneer lumber—LVL) was more stable.

There was a significant shift in the relative proportion of trade in primary and secondary processed products in the decade to 2013. Demand in China and India, which grew strongly from 2009, focused on sawlogs and veneer logs, and the share of logs in the global trade of tropical wood products increased from

14% in 2004 to 19% to 2013. There was also strong growth in demand in China and Japan for biomass for energy production, particularly from Thailand and Viet Nam.

The share of sawnwood in the global trade of tropical wood products fell from 18% in 2004 to 15% in 2013 as China and India became more important relative to western markets, which traditionally prefer sawnwood. The share of plywood in the global trade of tropical wood products also fell during the period, from 20% to 12%.

Regional supply of tropical wood products

The main trend in the regional supply of tropical wood products in the decade to 2013 was the rapid rise in exports from countries in the Mekong subregion—Cambodia, Lao PDR, Myanmar, Thailand and Viet Nam. Although the relative share of Indonesia and Malaysia in the global trade in tropical wood products declined over the period, those two countries still accounted for 17% and 21% of the global trade, respectively, in 2013. The share of Congo Basin countries fell from 8% in 2004 to 6% in 2013, with particularly large falls in 2008 and 2009.

Changes in regional demand for tropical wood products

The GFC precipitated a dramatic fall in tropical wood-product imports by the EU, Japan, North America and the Republic of Korea. There was also a dip in tropical wood-product exports to China in response to declining demand among Chinese manufacturers engaged in re-exports to western markets.

The main consumer markets for tropical wood products followed different trajectories in the aftermath of the GFC. The value of EU tropical wood-product imports fell from a peak of US$7.37 billion in 2007 to US$3.66 billion in 2013. The EU's share of global imports of tropical wood products halved between 2004 and 2013, to 12%, but there was a robust rebound in North American and Northeast Asian imports. Nevertheless, emerging markets are taking a rapidly increasing share of tropical wood products in international trade. There has been massive growth in tropical wood-product exports to China, with the value more than doubling from less than US$4 billion in 2009 to close to US$9 billion in 2013. India's imports of tropical wood products, almost exclusively logs, have also risen rapidly since 2006.

The total value of EU imports of wood products was €13.98 billion in 2013, down from a peak of €21.7 billion in 2007. Imports generally lost market share to domestic wood products and a range of non-wood materials, and imports of tropical wood products also lost share relative to wood-product imports from other regions, notably China.

EU imports from the six VPA-implementing countries fell from €2.26 billion in 2004 to €0.99 billion in 2013, when they accounted for 32% of the total value of tropical wood-product imports. Imports from VPA-negotiating countries fell from €2.28 billion in 2004 to €1.46 billion in 2013.

The decline in EU imports of tropical wood products was particularly pronounced for logs, sawnwood and plywood, while the value of imports of wood furniture and other tertiary processed products was relatively stable. As a result, the value of tertiary processed tropical wood products imported by the EU increased from 47% of total import value in 2004 to nearly 60% in 2013.

VPA partners in EU log supply

The supply of sawlogs and veneer logs in the EU averaged 185 million m^3 per year in the wake of the GFC (i.e. from 2008), down from around 220 million m^3 per year before the GFC, with the share of imports constituting less than 2% of supply in 2013. VPA-implementing countries supplied 105 000 m^3 of sawlogs and veneer logs to the EU in 2013, down from 482 000 m^3 in 2004, and VPA-negotiating countries supplied 60 000 m^3, down from 664 000 m^3.

VPA partners in EU sawnwood supply

The supply of sawnwood in the EU peaked at 129 million m^3 in 2007 and was 110 million m^3 in 2013, when about 85% of sawnwood consumption was domestic softwood, 9% was domestic hardwood, and imports made up 6% (down from 11% in 2004). The share of tropical hardwoods in EU sawnwood import volume declined from 19% in 2004 to 14% in 2013. VPA-implementing countries supplied 415 000 m^3 of sawnwood to the EU in 2013, down from 901 000 m^3 in 2004, and VPA-negotiating countries supplied 370 000 m^3, down from 891 000 m^3.

VPA partners in EU mouldings and decking supply

EU imports of moulding and decking increased in the construction boom in the mid-2000s, from 519 000 m^3 in 2004 to 747 000 m^3 in 2007, but fell to a low of 300 000 m^3 in 2013. Tropical hardwoods dominate EU imports of this commodity group; VPA-implementing countries accounted for 36% of imports in 2013 and VPA-negotiating countries for a further 11%.

VPA partners in EU veneer supply

The supply of veneer to the EU fell by 33% from 2007 to 2013, to 1.57 million m^3, due to the combined effects of the GFC, declining domestic plywood manufacturing capacity, and competition from substitute wood and non-wood materials. EU veneer imports fell more steeply than production, causing a sharp loss of market share. Tropical hardwood veneer import volume in 2013 was 266 000 m^3, of which 21% was derived from VPA-implementing countries and 72% from VPA-negotiating countries.

VPA partners in EU plywood supply

The supply of plywood in the EU declined from 7.8 million m^3 in 2004 to 7.2 million m^3 in 2013; imports contributed 45-55% of the EU's annual plywood supply in the decade to 2013. EU imports of tropical hardwood plywood declined from 1.3 million m^3 in 2004 to 411 000 m^3 in 2013.

The overall share of tropical hardwoods in EU plywood imports fell from 37% in 2004 to 12% in 2013, due mainly to a sharp increase in imports of Chinese "mixed light hardwoods" and competition from Russian birch plywood and alternative panel products such as oriented strandboard (OSB). VPA-implementing countries supplied 98 000 m^3 of plywood to the EU in 2013, down from 482 000 m^3 in 2004, and VPA-negotiating countries supplied 191 000 m^3, down from 264 000 m^3.

VPA partners in EU composite-panel supply

The EU's composite-panel market is significant in VPA countries mainly for the role it plays in the supply of competing products. Total European manufacturing capacity of particleboard, OSB and fibreboard exceeds 50 million m^3 per year, while imports are only around 1 million m^3 per year and include negligible volumes from VPA countries.

VPA partners in EU wooden-window supply

The supply of wooden windows in the EU was valued at €5.96 billion in 2013, down from €8.77 billion in 2007. Imports of wooden windows from VPA-implementing and VPA-negotiating countries were worth €530 000 in 2013, down from €5.45 million in 2006. The EU wooden-window market is more important to VPA partner countries for its role as an end-user of imported sawnwood and LVL. Some Indonesian and Malaysian manufacturers are supplying LVL products to exploit the trend towards engineered wood in this sector.

VPA partners in EU wooden-door supply

The total supply of wooden doors in the EU was worth €6.06 billion in 2013, down from €9.94 billion in 2007. Imports fell from a peak of €407 million in 2007 to €275 million in 2013, which was 4.5% of total supply.

The EU wooden-door sector has been important for VPA partner countries mainly as a driver of imports of wood raw materials, but recent trends have been negative. Wooden doors manufactured in Europe today are made mostly from veneered panels and finger-jointed timbers.

VPA partners in EU real-wood flooring supply

The production of real-wood flooring in the EU declined from 105 million m^2 in 2007 to 76 million m^2 in 2013, while imports fell from 53 million m^2 to 28 million m^2.

There is a trend in this sector away from tropical suppliers in favour of products from China and non-EU temperate countries. VPA partner countries were relatively minor suppliers of wood flooring to the EU in the decade to 2013 and lost share over the period.

VPA partners in EU wood-furniture supply

The share of imports in total EU wood-furniture supply peaked at 14% in 2010 before declining to 12% in 2013.

VPA partner countries have a low and declining share in the EU wood-furniture market. Combined, the six VPA-implementing countries supplied wood furniture worth €273 million to the EU in 2013, down from €721 million in 2005. The nine VPA-negotiating countries supplied wood furniture worth €739 million in 2013, down from €1.188 billion in 2007.

VPA partners in pulp supply

Woodpulp supply in the EU averaged close to 50 million tonnes per year in the five years to 2008 before falling to about 45 million tonnes per year in 2009–2013. Imports—mainly from North and South America—contributed around 20% of total annual EU woodpulp supply in the period 2004–2013. Indonesia and Thailand were the only VPA partner countries that supplied non-negligible volumes of pulp to the EU in the decade to 2013: EU pulp imports from Indonesia fell from more than 300 000 tonnes in 2004 to only 19 000 tonnes in 2013, and imports from Thailand were negligible until 2013, when they increased sharply to 33 000 tonnes.

VPA partners in paper supply

The value of the global trade in paper products (excluding internal EU trade) grew from US$85.1 billion in 2004 to US$98.8 billion in 2013. Paper product exports from tropical countries increased from US$10.5 billion in 2004 to a peak of $15.4 billion in 2011 before declining to US$13.7 billion in 2013. Exports from VPA-implementing countries—mainly Indonesia—increased from US$2.7 billion in 2004 to US$4.5 billion in 2011 and weakened to US$3.76 billion in 2013. VPA-negotiating countries exported paper products worth US$2.8 billion in 2013.

EU domestic paper production reached a high of 102 million tonnes in 2006 but had fallen to 92 million tonnes by 2013. EU paper-product imports peaked at 9.7 million tonnes in 2007 (8% of EU supply) before falling to 6.3 million tonnes in 2013 (6.4% of EU supply). Less than 5% of paper-product imports into the EU derive from tropical countries; Indonesia accounted for 167 000 tonnes of the 311 000 tonnes of paper imported from tropical countries by the EU in 2013. Of other VPA partner countries, only Thailand is a significant paper supplier to the EU, contributing 38 000 tonnes in 2013.

Review of EU market impact factors

The baseline report identifies and scores the relative significance of 30 factors affecting the EU market for timber from VPA-implementing and VPA-negotiating countries in the decade to 2013; it also indicates the projected impact of those factors from 2014 to 2023. The analysis shows that many factors outside the scope of the FLEGT VPA process have the potential to restrain the supply of, and demand for, timber from VPA partner countries in the next decade or more. Prominent among these factors are: the continuing weakness of the EU recovery from the GFC; the shift in global economic activity to emerging markets; continuous product innovation to extend applications for temperate woods and non-wood substitutes; the strong commitment of competitors to market development; the potential for the increased production of hardwoods in Europe and other temperate countries; and the relative lack of freight infrastructure in most VPA partner countries.

The implication of the baseline report is that FLEGT licensing, even when combined with the EU Timber Regulation, cannot be regarded as a "magic bullet" that, on its own, will transform the EU market for timber produced in VPA partner countries. On the other hand, the VPA process has strong potential as a means for overcoming some of the most significant obstacles to market development in the EU (and beyond) for timber products from VPA partner countries. It also has the potential to increase the long-term security of timber supply from VPA partner countries, a factor that is especially relevant given growing pressure on financial and physical resources.

By strongly emphasizing good governance—which aligns with lower commercial risk—the FLEGT VPA process can help remove barriers to inward investment in sustainable tropical timber industries. It can also help overcome market prejudice against tropical timber in the EU and to turn around environmental campaigns to the point where they support the industry as socially and environmentally sustainable.

Several factors could provide new opportunities for timber from VPA partner countries in the next decade, as long as the VPA process is combined with strong communication efforts and active market development programmes in the EU and other export markets. These opportunities stem from emerging design trends; increased interest in hardwoods for structural applications; concern for climate change and carbon footprints; rising commitment to sustainability; and improving knowledge and expertise in marketing.

1. Introduction

1.1 Background

The Independent Market Monitoring (IMM) mechanism was established under an ITTO project to support the implementation of bilateral voluntary partnership agreements (VPAs) between the European Union (EU) and timber-supplying countries. VPAs are a key element of the EU's Forest Law Enforcement Governance and Trade (FLEGT) Action Plan, which defines the EU's policy for promoting legal logging and trade in legally licensed timber. Once agreed, a VPA includes commitments and actions by both signatory parties with the aim of developing a legality assurance system to license timber and timber products for export to the EU.

The IMM provides independent assessments of changes in the EU timber market and monitors the extent to which the market recognizes and appreciates FLEGT-licensed timber. The IMM responds to requests for independent timber market monitoring from VPA partner countries and to commitments made in VPAs to assess their impacts.

This baseline report was prepared during the IMM inception phase to determine the position in the EU market of timber and timber products exported by VPA partner countries prior to the issuance of FLEGT licences by VPA partner countries. Recognizing that market trends in the EU and VPA partner countries are highly dependent on trade with other regions of the world, the report also puts trade flows between the EU and VPA partner countries in their global context.

1.2 Study scope

Product coverage

The definition of "timber" used in this report is broad to ensure that all products within the scope of existing VPAs, or that could potentially be included in future agreements, are covered.[1] This definition is based on the international Harmonized Commodity Description and Coding System (also known as the Harmonized System—HS) for the classification of traded goods and includes all products covered by the EU Timber Regulation (EUTR) and some products that are not covered (e.g. charcoal, tools, and wooden seating). The definition includes:

- All products from HS Chapter 44 (wood products), including: 4401 (fuelwood), 4402 (charcoal), 4403 (logs), 4406 (sleepers), 4407 (lumber), 4408 (veneer), 4409 (mouldings and strips), 4410 (particleboard), 4411 (fibreboard), 4412 (plywood), 4413 (densified wood), 4414 (frames for pictures and the like), 4415 (packing cases and pallets), 4416 (casks and barrels), 4417 (tools), 4418 (joinery products), 4419 (kitchenware) and 4420 (marquetry, ornaments and "other").
- All products in HS Chapter 94 (furniture) explicitly identified as composed of wood under the headings 9401 (seating), 9403 (other furniture categories) and 9406 (prefabricated buildings).
- All virgin wood-based pulp products in HS Chapter 47, both mechanical and chemical, composed of softwood, hardwood and mixed wood species.
- All products in HS Chapter 48 (paper).

The following products are excluded from the definition of timber for the purposes of this report:

- Furniture in HS Chapter 94 not explicitly identified as composed primarily of wood.
- All pulp types in HS Chapter 47 derived from fibres other than virgin wood fibre (such as recycled paper, cotton or bamboo) and all recovered paper.
- All "printed paper" products in HS Chapter 49, such as books, newspapers and magazines.

Because paper products are not classified separately according to pulp-fibre type, it was not possible to exclude any paper products in HS Chapter 48 from the analysis, even though, in most countries, an increasing proportion of paper is manufactured from recycled rather than virgin wood-based fibre.

1 The scope of material subject to FLEGT licensing is specific to individual VPA partner countries. Timber and timber products included are commonly defined using HS codes, with the exact lists included in annexes of individual VPA documents. Information specific to species is currently only included in the Cameroon VPA and is defined by CEMAC [*Communaute Economique et Monetaire de l'Afrique Centrale*] codes. It may also be the case that a VPA explicitly outlines what is not subject to the agreement; this is the case, for example, in the Ghanaian VPA. Both the products and species covered by VPAs may be modified as markets develop, without the need to amend the VPA.

Collectively, all products within the scope of the VPAs and the EUTR are referred to as "timber" in this report. Wood and wood furniture are referred to as "wood products"[2] and dealt with separately from pulp and paper.

Country coverage

The main focus of the report is the trade in timber between the 28 member states[3] of the EU and the 17 timber-supplying countries formally accepted as VPA candidates at the time of drafting (November 2014).[4] As of November 2014, six countries had ratified VPAs (collectively referred to here as VPA-implementing countries): Cameroon, the Central African Republic, the Congo, Ghana, Indonesia and Liberia. An additional nine countries (collectively referred to here as VPA-negotiating countries) were negotiating VPAs with the EU: Côte d'Ivoire, the Democratic Republic of the Congo (DRC), Gabon, Guyana, Honduras, the Lao People's Democratic Republic (Lao PDR), Malaysia, Thailand and Viet Nam. Cambodia and Myanmar (collectively referred to here as VPA-preparing) were in a preparatory phase. Combined, the VPA-implementing, VPA-negotiating and VPA-preparing countries are called "VPA partner countries" in this report.

The report provides country-specific data on production and trade for the six VPA-implementing countries. Data are aggregated for VPA-negotiating and VPA-preparing countries.

Timescale

Data are analyzed at decadal timescales so that potentially significant long-term trends affecting the trade in timber from VPA partner countries can be identified. Production and trade data are assessed for the period 2004–2013.

2 In this report, wood products may be further subdivided into "primary", "secondary" and "tertiary" products. Primary wood products include both logs and small-dimension extracted wood (such as firewood) together with the products of primary conversion, including chips, pellets, charcoal, sleepers, sawnwood, veneer, particleboard and OSB, fibreboard, and plywood. Secondary wood products are made from primary products and include mouldings and decking, frames, packing cases, pallets, casks, barrels, tools, glulam beams, LVL, I-beams, and furniture parts. Tertiary products are made from secondary products and include finished furniture, joinery products and timber frame systems.

3 The 28 EU member states as of November 2014 were: Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom.

4 A number of other countries have expressed interest in a dialogue on FLEGT and VPAs or have started projects related to FLEGT, including Bolivia, Colombia, Ecuador, Guatemala, Madagascar, Mozambique, Peru, the Philippines, Papua New Guinea, Sierra Leone and the Solomon Islands. For the purposes of this report, however, these additional countries are defined as "non-VPA" because they are not expected to proceed to formal VPA negotiations.

1.3 Data sources

The majority of data in this report are derived and summarized from publicly available databases. Primary wood products production data in VPA partner countries and other tropical countries are derived from ITTO's Annual Review Statistics Database.[5] European production data are derived from the Eurostat PRODCOM database, which provides volume and value-of-production data for material extraction and manufacturing using the Statistical Classification of Economy Activity in the European Union.[6]

Trade-flow data are compiled from three sources:

- EU import data are derived ultimately from the Eurostat External Trade database, COMEXT, the Eurostat reference database for external trade. The IMM has processed, analyzed and summarized these data, which Eurostat provides in their raw form on a monthly basis.[7]
- Data for exports from VPA partner countries are derived from the Global Trade Atlas produced by Global Trade Information Services. This is an online subscription-based trade data system that allows users to view world trade flows for products categorized according to the HS using the latest import and export data from the official sources of more than 80 countries.
- The United Nations Commodity Trade Statistics Database, known as Comtrade, which contains annual import and export data built on the HS product codes and reported by national statistical authorities.

Data on forest area and growing stock in VPA partner countries are derived mainly from FAO (2010). This is the most recent update of a series of FAO assessments undertaken periodically in an attempt to provide a consistent approach to describing the world's forests and how they are changing. The 2010 Global Forest Resources Assessment, which indicates changes over the period 1990–2010,was based on two primary sources of data: country reports prepared by national correspondents, and remote sensing conducted by FAO, national focal points and regional partners.

Data quality issues associated with all these sources are discussed in Annex 2.

5 ITTO's Annual Review Statistics Database is available at: www.itto.int/annual_review_output.

6 The Eurostat PRODCOM database is accessible at: http://ec.europa.eu/eurostat/web/prodcom.

7 Monthly COMEXT data are accessible for bulk download at: http://ec.europa.eu/eurostat/estat-navtree-portlet-prod/BulkDownloadListing?sort=1&dir=comext.

1.4 Structure of the report

Chapter 2 of this report analyzes the relative global competitiveness and share of the timber supply produced in VPA partner countries. It summarizes those countries' shares of global forest and plantation area, growing stock, certified forest area, log supply and primary wood processing. It also considers competitiveness factors that influence and constrain applications and markets for the timber of VPA partner countries in the EU.

Chapter 3 analyzes the share of the global tropical timber trade held by VPA partner countries with a view to considering trade flows between VPA partner countries and the EU in their appropriate global context. The chapter explores the relative contribution of VPA partner countries in the total global trade of tropical wood products, the changing composition of products in the tropical trade, the changing regional supply and demand, and the emerging role of VPA partner countries in the global pulp-and-paper sector.

Chapter 4 focuses on the role of VPA partner countries in EU timber supply. It examines the various timber market segments separately and identifies key competitors and market trends.

Chapter 5 reviews the factors that affect the supply of wood products from VPA countries to the EU and the consumption of these products in the EU. The chapter includes a systematic assessment of the relative significance of each factor in 2004–2013 and their potential impacts in 2014–2023.

The report is supported by several annexes:

- **Annex 1** provides additional details of the system used to analyze Eurostat COMEXT data for the preparation of this report.
- **Annex 2** includes a discussion of data-quality issues associated with the various databases used to compile this report.
- **Annex 3** shows the rankings of VPA partner countries in various global competitiveness indices.

Additional supporting information, including details of the various market impact factors reviewed in Chapter 5 and country-specific data on timber production and trade for the VPA partner countries, is available at www.itto.int/imm.

2. Relative competitiveness and share of supply

This chapter analyzes the relative global competitiveness and share of timber supply of VPA partner countries. It summarizes the share held by those countries of global forest and plantation area, growing stock, certified forest area, log supply and primary wood processing. It also identifies competitiveness factors that influence and constrain applications and markets in the EU for timber produced in VPA partner countries.

2.1 Forest area and log production

The 17 VPA partner countries had a total forest area of 486 million hectares in 2010, which was about 12% of world forest area and 26% of the total forest area in the tropics.[8] The six VPA-implementing countries had a combined forest area of 169 million hectares in 2010. The nine VPA-negotiating countries had a combined forest area of 276 million hectares (Table 1).

Although the VPA partner countries have a relatively small share of the global forest estate, they have a significant volume of growing stock and log production. The 17 VPA partner countries had a total forest growing stock of 82 billion m^3 in 2010, the vast majority of which was hardwood. The VPA partner countries accounted for 24% of global hardwood growing stock in 2010. The six VPA-implementing countries had a total forest growing stock of 27 billion m^3 and the nine VPA-negotiating countries had an additional 53 billion m^3 of growing stock in 2010 (Table 2).

The 17 VPA partner countries harvested 131 million m^3 of hardwood logs in 2013 and accounted for 18% of global production and 42% of tropical production (Table 3). The six VPA-implementing countries harvested 71 million m^3 of hardwood logs and accounted for 10% of global hardwood production and 22% of tropical hardwood production, and the nine VPA-negotiating countries harvested 55 million m^3 of hardwood logs, accounting for 8% of global hardwood production and 17% of tropical hardwood production.

8 It is not possible to accurately differentiate tropical from non-tropical forest area because FAO (2010) did not consistently categorize forest area by ecological zone. Data in FAO (2010) were compiled on a national basis, and forests in some larger countries—notably Australia, Brazil, China, India and Mexico—range across a wide variety of ecological zones, including tropical, subtropical, montane and temperate zones. For the purposes of this analysis, "tropical" forests are defined as those located within countries where the majority of land mass lies between the Tropic of Cancer and the Tropic of Capricorn. On this basis, forests in Brazil, India and Mexico are all classified here as "tropical", whereas forests in China are all classified as "temperate/boreal".

Table 1: Forest area, 1990–2010

Region	Area (million ha)				% change		% world, 2010
	1990	2000	2005	2010	1990–2010	2000–2010	
World	4 168	4 085	4 061	4 033	-3	-1	100
Temperate/boreal	2 080	2 108	2 126	2 141	3	2	53
of which EU	146	153	156	159	9	3	4
Tropical	2 088	1 977	1 935	1 892	-9	-4	47
Total engaged in VPA process	538	504	496	486	-10	-4	12
Of which							
VPA-implementing	201	178	174	169	-16	-5	4
Cameroon	24	22	21	20	-18	-10	0
Central African Republic	23	23	23	23	-3	-1	1
Congo	23	23	22	22	-1	-1	1
Ghana	7	6	6	5	-34	-19	0
Indonesia	119	99	98	94	-20	-5	2
Liberia	5	5	4	4	-12	-6	0
VPA-negotiating	285	280	278	276	-3	-1	7
VPA-preparing	52	46	44	42	-20	-10	1

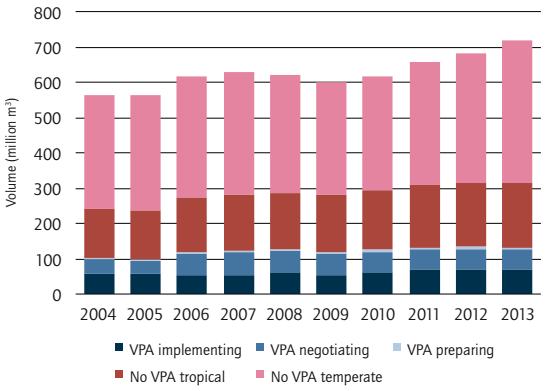
Source: IMM analysis of data in FAO (2010).

Table 2: Forest growing stock, 2010

Region	Volume (billion m³)			% world total		
	Total	Hardwood	Softwood	Total	Hardwood	Softwood
World	493	339	154	100	100	100
EU	24	10	14	5	3	9
Total engaged in VPA process	82	82	0	17	24	0
Of which						
VPA-implementing	27	27	0	5	8	0
Cameroon	6	6	0	1	2	0
Central African Republic	4	4	0	1	1	0
Congo	5	5	0	1	1	0
Ghana	0	0	0	0	0	0
Indonesia	11	11	0	2	3	0
Liberia	1	1	0	0	0	0
VPA-negotiating	53	52	0	11	15	0
VPA-preparing	2	2	0	0	1	0

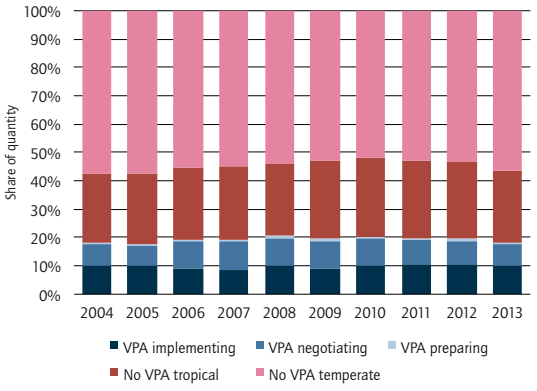
Source: IMM analysis of data in FAO (2010).

Figure 1: Global industrial hardwood log production, by VPA status, 2004–2013



Source: ITTO Annual Review Statistics Database.

Figure 2: Share of global industrial hardwood log production, by VPA status, 2004–2013



Source: ITTO Annual Review Statistics Database.

Table 3: Global industrial hardwood log production, by VPA status, 2004–2013

VPA status	Volume (million m³)									
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Implementing	57.0	55.5	55.3	55.1	62.1	55.0	61.5	68.6	70.5	70.5
Cameroon	1.8	2.3	2.8	2.3	2.3	2.3	2.5	2.7	2.7	2.7
Central African Republic	0.5	0.4	0.8	0.8	0.8	0.7	0.6	0.7	0.7	0.7
Congo	1.4	1.4	2.3	2.4	2.4	2.0	2.0	2.2	2.1	2.1
Ghana	1.4	1.2	1.7	1.9	2.1	2.0	1.9	2.0	2.1	2.1
Indonesia	51.6	49.9	47.2	47.2	54.1	47.6	53.9	60.5	62.4	62.4
Liberia	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5
Negotiating	41.1	40.4	58.6	61.6	59.8	58.1	58.9	57.1	56.9	54.9
Preparing	4.0	4.2	5.4	5.2	5.0	4.9	5.3	5.6	5.9	5.9
No VPA tropical	138.3	137.7	156.0	160.0	157.5	164.1	170.2	178.7	183.0	183.0
Total tropical	240.5	237.8	275.2	281.8	284.5	282.0	295.9	309.9	316.3	314.3
World	562.6	561.5	616.4	628.1	618.6	600.4	617.5	658.9	680.6	718.4

Source: IMM analysis of ITTO Annual Review Database.

Total hardwood log production rose in VPA partner countries in the ten years to 2013 (Figure 1) as a result of increasing demand for timber (particularly in domestic and emerging export markets) and forest conversion, mainly for commercial cash crops.[9] Nevertheless, the share of total global hardwood production held by those countries fell from 2010 to 2013 (Figure 2). This was due primarily to a significant increase in hardwood log production in the United States (as it emerged from recession) and China (where harvests rose as a result of the country's expansion of poplar and eucalypt plantations over recent decades).

Brazil accounts for a large part of the global tropical forest area (around 500 million hectares) and a significant proportion of tropical hardwood production not covered by VPA partner countries. Brazil's hardwood harvest is estimated to have exceeded 100 million m^3 in 2012, of which around 30% was derived from natural tropical forests and the remainder from plantations (both tropical and non-tropical).

India accounts for a significant proportion of the remaining tropical hardwood production not covered by VPA partner countries. India has a forest area of around 68 million hectares, and the country's tropical hardwood harvest is estimated at between 20 million $m^{3(10)}$ and 40 million $m^{3(11)}$ per year, mainly from plantations.

Although the tropical hardwood harvests in Brazil and India are significant, the majority of hardwood harvested in both countries is destined for domestic rather than export markets. India consumes nearly 100% of the wood it harvests, while around 80% of tropical hardwood production in Brazil is sold domestically.

2.2 Natural competitiveness of tropical hardwoods[12]

The fact that all VPA partner countries are tropical imposes natural conditions on wood production, quality and applications and is a critical determinant of their competitive position in the EU market.

Natural tropical forests have inherent advantages when it comes to the production of high-quality wood—trees tend to have straight, tall boles, few natural defects and large diameters. As a result, tropical hardwoods from natural forests generally support relatively high processing yields per tree.

Tropical hardwoods also tend to have high natural strength and durability. They are durable not only in the narrow sense widely understood in the timber industry (that is, the ability to withstand biodegradation) but also in the wider sense applied by the contemporary design community, which takes into account the concept of adaptability, the extent to which a material can cope with changes in lifestyle and fashion, and the ability of materials to maintain social integration and aesthetic values.

Set against these positive factors, a wide range of other factors limits the competitiveness of tropical hardwood in many applications. For example, natural tropical forests tend to yield lower volumes of saleable wood per hectare per year (typically 1–5 m^3 per hectare per year) compared with semi-natural and plantation forests in the temperate zone (e.g. 4.75 m^3 per hectare per year for oak, 7 m^3 per hectare per year for beech, and considerably higher volumes for semi-natural softwood forests and plantation forests). In addition to the low overall yield of natural tropical forests, there is a gap between the species that natural tropical forests are capable of producing in commercial volumes and the market demand for particular wood types.

External pressures on tropical forest resources compound the inherent limits imposed by forest productivity. An analysis of global forest resource data shows that tropical forest area is declining. Anecdotal market reports also suggest that both the availability and quality of large-diameter tropical hardwood logs of primary wood species are declining and that this trend is set to continue. According to FAO (2010), the total area of forest in the tropics declined by 9% between 1990 and 2010 and by 4% between 2000 and 2010, and there was a 16% decline in forest area in the six VPA-implementing countries between 1990 and 2010 (Table 1). This contrasts with forest area in the temperate zone, which is generally stable or increasing. Temperate forests are also attracting more investment than the tropics aimed at increasing productivity and plantation area.

9 European Commission (2013).
10 FAOSTAT.
11 www.downtoearth.org.in/content/missing-timber-wood.
12 This section draws on Oliver and Donkor (2010).

For wood markets, these resource trends mean that prices for hardwood logs are significantly higher—in most cases several orders of magnitude higher—than those for softwood logs. In some cases, the higher prices may be compensated by the higher yields that can be achieved from high-quality hardwood logs, but generally they mean that tropical hardwoods are most competitive in higher-value niche markets. Tropical hardwoods are very rarely competitive in Europe's large-volume, low-value commodity markets, in which softwoods and local hardwood species predominate.

To a significant extent, the suitability of individual tropical hardwood species for particular end-uses depends on the combination of their natural durability, density and aesthetics. Based on this combination of factors, tropical hardwoods may be divided into three broad (not necessarily mutually exclusive) groups:

- High-density woods used mainly in construction—for example keruing (*Dipterocarpus* species), greenheart (*Chlorocardium rodiei*), ekki (*Lophira alata*) and iroko (*Milicia chlorophora*).
- Low-to-medium-density utility woods used mainly for external joinery, shop-fitting, and mid-priced furniture—for example ayous/wawa (*Triplochiton scleroxylon*), dark red meranti (*Shorea* species), framire/idigbo (*Terminalia ivorensis*), limba/frake (*Terminalia superba*), niangon (*Heritiera utilis*), sapele (*Entandrophragma cylindricum*), and rubberwood (*Hevea brasiliensis*).
- Decorative woods used for quality furniture, interior joinery and flooring—for example teak (*Tectona grandis*), African mahogany (*Khaya* species), rosewood (*Dalbergia* species), anigre (*Aningeria* species), makore (*Tieghemella hecklelii*), sapele, walnut (*Lovoa trichilioides*), iroko, sipo/utile (*Entandrophragma utile*), merbau (*Intsia bijuga*), jatoba (*Hymenaea courbaril*) and wenge (*Millettia laurentii*).

Because of the relative abundance of temperate and boreal wood species suitable for structural and joinery applications and which are benefiting from innovation to extend their range of end-uses, the use of tropical hardwoods in Europe has focused increasingly on either decorative or high-exposure applications.

2.3 Plantations in VPA partner countries

Tropical countries are not necessarily dependent on natural forests for their wood supply, and some have ambitious programmes for expanding their plantation estates. Their high yields and (therefore) relatively rapid economic returns suggest that plantations have the potential to offset declining wood supplies from natural tropical forests. Annual wood increment in tropical plantations is generally in the range of 10–30 m^3 per hectare per year, compared with 1–5 m^3 (of saleable timber) per hectare per year in natural tropical forests.[13] Eucalypts are particularly high-yielding, capable of achieving increments of 45–100 m^3 per hectare per year.[14]

However, it is often extremely challenging to develop plantations in the tropics, and they are not always the optimal forest management solution. In some VPA partner countries, there is evidence that plantations offer inferior commercial production potential compared with managed natural tropical forests. For example, a SWOT ["strengths, weaknesses, opportunities and threats"] analysis of plantations in Ghana showed that, while performing well in drier savanna areas, plantations may perform poorly in the wet and moist evergreen zones due to difficult soils, the need for intensive weeding, and a very restricted base of suitable species.[15]

Similarly, a study of silvicultural options in Cameroon's rainforest zone concluded that experience with systems involving complete site clearance followed by replanting has "not been very promising"[16], due to a combination of factors related to site (e.g. a lack of nutrients retained in tropical soils), pests (e.g. cleared sites were invaded frequently by the shrubby weed *Chromolaena odorata*), and management (e.g. a lack of planning and supervision often led to the application of inappropriate techniques). The study concluded that the optimal silvicultural regime in Cameroon's rainforest zone was "carefully managed polycyclic felling [of natural forest] with a long return cycle of perhaps 40 years".

Another challenge for plantations is that the wood they supply is not directly comparable with that supplied by natural forests. The further

13 Evans and Turnbull (2004).
14 Brown (1999).
15 Hardcastle, P., personal communication, November 2009.
16 Hardcastle et al. (1998).

Table 4: Plantation area, 1990–2010

Region	Area (million ha)				% change		% world, 2010
	1990	2000	2005	2010	1990–2010	2000–2010	
World	178	215	243	264	48	23	100
Temperate/boreal	149	180	202	218	46	21	82
of which EU	38	41	42	43	13	4	16
Tropical	29	35	41	46	61	32	18
VPA partner countries	9	12	13	15	58	26	6
Of which							
VPA-implementing	3	4	4	4	25	3	2
Cameroon	0	0	0	0	0	0	0
Central African Republic	0	0	0	0	0	0	0
Congo	0	0	0	0	47	47	0
Ghana	0	0	0	0	420	333	0
Indonesia	3	4	4	4	18	-3	1
Liberia	0	0	0	0	0	0	0
VPA-negotiating	6	7	8	10	71	37	4
VPA-preparing	0	1	1	1	129	36	0

Source: IMM analysis of data from FAO (2010).

development of plantations in the tropics requires, therefore, a significant reorientation of national wood industries to enable the harvesting and processing of larger volumes of small-dimension and low-density material.

The tropics have fallen behind other regions in plantation development (Table 4), with most new plantations established in temperate regions in the 1990s and in China since 2000. According to FAO (2010), only 46 million hectares (17%) of the world's plantation estate are in countries in the tropics.

Only around 4 million hectares of forest plantations are in VPA-implementing countries, mostly Indonesia. A further 10 million hectares of forest plantations are in VPA-negotiating countries, mainly Malaysia, Thailand and Viet Nam, and 1 million hectares are in VPA-preparing countries.

2.4 Private forest certification in VPA partner countries

The ability to deliver timber certified to internationally recognized forestry standards is an increasingly important competitiveness factor, particularly in the paper industry and for wood products supplied to large retailers and government authorities in Belgium, France, Germany, the Netherlands, Switzerland and the United Kingdom. An increasing proportion of trading companies have committed to chain-of-custody (CoC) standards that encourage a preference for timber derived from forests certified by the Forest Stewardship Council (FSC) or the Programme for the Endorsement of Forest Certification (PEFC).

Despite considerable efforts to encourage progress towards forest certification in tropical countries, certification is still much higher in industrialized nations (Table 5). Forest certification is challenging to achieve in areas where there is poor governance and where key infrastructure (such as standards institutes and certification bodies), qualified technicians, and industry associations are lacking. In industrialized nations, too, many of the standards established for tenure rights, forest protection and social welfare are effectively met through well-established state institutions. This is not the case in many developing countries, and the full responsibility for (and costs of) compliance falls on the private sector. Where a large proportion of timber is destined for domestic and other emerging markets (where demand for certification is low), the drivers for certification tend to be weak.

The total combined area of FSC-certified and PEFC-certified forest worldwide was 440.45 million hectares in November 2014, up from 300 million hectares in 2007. Certified forests account for only 11.1% of the global forest area but are relatively important in terms of their commercial timber production. Industrial roundwood production from certified forests was estimated to have been 524 million m^3 in 2013, which was around 30%

Table 5: Global coverage of FSC and PEFC certification, by forest region and VPA status, November 2014

	FSC			PEFC		Total		
	Area (million ha)	No. of forestry certificates	No. of CoC certificates	Area (million ha)	No. of CoC certificates	Area* (million ha)	% forest area	No. of CoC certificates
World	183.10	1 302	28 150	264.85	10 374	440.45	11.1	38 524
Temperate/boreal	165.27	966	24 823	190.51	9 920	348.27	16.6	34 743
of which EU	33.50	355	13 431	67.43	8 511	100.92	63.6	21 942
Tropical	17.84	336	3 327	6.92	454	24.75	1.3	3 781
Total engaged in VPA process	6.57	69	845	4.65	326	11.22	2.3	1 171
Of which								
VPA-implementing	3.59	36	216	0.00	0	3.59	2.1	216
Cameroon	1.01	5	12	0.00	0	1.01	5.1	12
Central African Republic	0.00	0	0	0.00	0	0.00	0.0	0
Congo	0.57	1	1	0.00	0	0.57	2.5	1
Ghana	0.00	1	10	0.00	0	0.00	0.0	10
Indonesia	2.00	29	193	0.00	17	2.00	2.1	210
Liberia	0.00	0	0	0.00	0	0.00	0.0	0
VPA-negotiating	2.97	32	627	4.65	309	7.62	2.8	936
VPA-preparing	0.01	1	2	0.00	0	0.01	0.0	2

** The total area is slightly less than the sum of the FSC and PEFC areas because about 7.5 million hectares, mainly in Europe and North America, are certified under both certification systems. Source: IMM analysis of FSC and PEFC databases, UNECE (2014) and FAO (2010).*

of total global production. In 2012 and 2013, production in certified forests increased by 20 million–30 million m^3 per year, due partly to the economic recovery in industrialized countries (where certification demand predominates) and partly to an expansion in certified area.[17]

About 6% of the world's certified forests—24.75 million hectares—are in tropical countries (including about 5 million hectares of softwood and eucalypt plantations outside the tropics in Brazil). Only 1.3% of the forest area in tropical countries is certified.

VPA partner countries had a combined area of 11.22 million hectares of certified forests in November 2014, 45% of the certified forest area in tropical countries and 2.5% of the certified forest area worldwide.

Of the six VPA-implementing countries, only Cameroon, the Congo and Indonesia have more than a negligible area of forest certified within an international framework (in those countries, the FSC). Twenty-nine FSC forest management certificates have been issued for a total of 2 million hectares of forest in Indonesia (as of November 2014), five certificates covering a total of 1 million hectares have been issued in Cameroon, and the one FSC certificate issued in the Congo covers 570 000 hectares.

None of the VPA-implementing countries has PEFC-certified forests. This may change soon, however, given that the PEFC endorsed the Indonesian Forestry Certification Cooperation system in December 2014. This system has been developed to align with and build on the verification procedures established for Indonesia's mandatory timber legality verification system (known as the SVLK).

VPA-negotiating countries have a total of 7.62 million hectares of forest certified under either the FSC or PEFC systems (as of November 2014). Of this, 4.65 million hectares is certified under the Malaysian Timber Certification System (a national certification framework endorsed by the PEFC), and Malaysia is also host to 0.5 million hectares of FSC-certified forest. Four FSC forest management certificates have been issued for a total of 2 million hectares in Gabon. The Lao PDR and Viet Nam both have about 150 000 hectares of FSC-certified forest, and Honduras and Thailand also have small areas of FSC-certified forest.

A total of 38 524 FSC and PEFC CoC certificates have been issued globally (as of November 2014), an increase of almost 20% since 2012. Only 10% of all FSC and PEFC CoC certificates have been issued in tropical countries, of which 216 have been issued in VPA-implementing countries (193 of which are FSC CoC certificates in Indonesia).

17 UNECE (2014).

A total of 936 FSC and PEFC CoC certificates have been issued in VPA-negotiating countries, including 627 FSC certificates (mainly in Malaysia and Viet Nam) and 309 PEFC certificates (almost all in Malaysia).

The relatively low rate of forest certification in the tropics contrasts sharply with domestic forests in the EU, where nearly two-thirds of the forest estate is certified and nearly 22 000 FSC and PEFC CoC certificates have been issued. A high proportion (at least 50%) of forest products produced and traded between most EU countries is from FSC-certified or PEFC-certified forests.[18]

2.5 VPA partner share of global wood processing

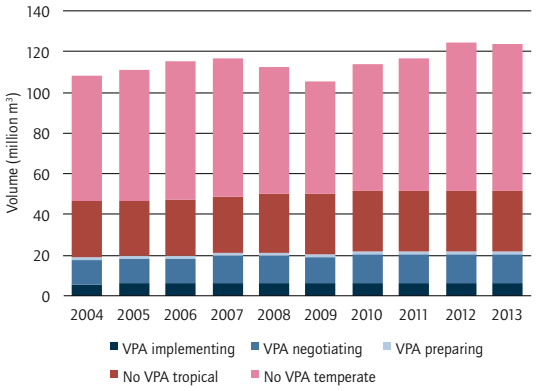
The VPA partner countries collectively hold a relatively small share of global hardwood sawnwood, veneer and plywood production but a relatively high share of international trade in these products.

Hardwood sawnwood

Global hardwood sawnwood production dipped between 2007 and 2009 as a result of the 2007–2008 global financial crisis (GFC), but the general trend in the decade to 2013 was upward (Figure 3 and Table 6), with production at 123 million m^3 in 2013, up from 108 million m^3 in 2004. Of total production in 2013, 52 million m^3 (42%) was in ITTO producer and other tropical countries.

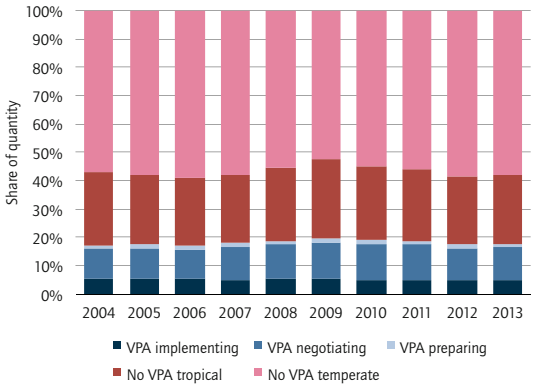
18 Timber Trade Action Plan (2013).

Figure 3: Global hardwood sawnwood production, by VPA status, 2004–2013



Source: ITTO Annual Review Statistics Database.

Figure 4: Share of global hardwood sawnwood production, by VPA status, 2004–2013



Source: ITTO Annual Review Statistics Database.

Table 6: Global hardwood sawnwood production, by VPA status, 2004–2013

VPA status	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
	'000 m^3									
Implementing	5 829	6 189	6 258	5 991	6 046	5 944	5 888	6 029	6 093	6 118
Cameroon	702	1 000	1 000	773	860	912	912	993	993	993
Central African Republic	67	69	82	95	74	62	45	54	54	54
Congo	200	220	259	213	350	199	178	228	288	320
Ghana	480	520	527	520	513	522	503	505	509	502
Indonesia	4330	4 330	4 330	4 330	4 169	4 169	4 169	4 169	4 169	4 169
Liberia	50	50	60	60	80	80	80	80	80	80
Negotiating	11 742	12 032	11 991	13 489	13 570	12 969	14 391	14 460	14 303	14 155
Preparing	1 059	1 541	1 721	1 690	1 640	1 630	1 630	1 630	1 630	1 630
No VPA tropical	27 910	26 949	27 552	27 663	28 957	29 254	29 440	29 592	29 682	29 829
Total tropical	46 540	46 711	47 523	48 833	50 213	49 797	51 349	51 711	51 708	51 732
World	108 420	111 115	115 210	116 568	112 484	105 046	113 657	116 919	124 720	123 406

Source: IMM analysis of ITTO Annual Review Statistics Database.

The six VPA-implementing countries produced 6 million m^3 of hardwood sawnwood in 2013, which was 5% of global hardwood sawnwood production in that year and 12% of tropical hardwood sawnwood production. The nine VPA-negotiating countries produced 14 million m^3 of hardwood sawnwood, which was 11% of global hardwood sawnwood production and 27% of tropical hardwood sawnwood production (Figure 4).

The largest producers of tropical hardwood sawnwood not engaged in the VPA process are Brazil and India, which were responsible for 31% and 9% of world tropical hardwood sawnwood production, respectively, in 2013. A relatively high proportion of production in India is based on imported logs. In both countries, most of the production is destined for domestic markets rather than international trade.

China and the United States are the world's largest producers of temperate hardwood sawnwood, producing 47% and 23% of global temperate hardwood sawnwood supply, respectively, in 2013. China's production rose very sharply in the five years to 2013; the additional sawnwood presumably comprises primarily low-grade lumber from fast-growing domestic poplar and eucalypt plantations and is not widely exported as sawnwood (but may be used for other products and packaging).

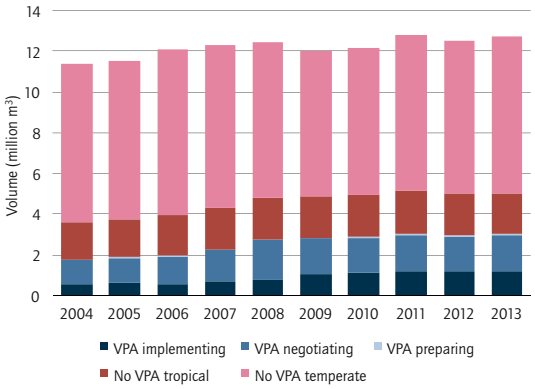
In contrast, the United States produces a wide variety of temperate species, a rising proportion of which is being exported as domestic wood manufacturing declines. The United States is actively engaged in hardwood marketing activities worldwide, focusing particularly on supplying sawnwood to the joinery, furniture and flooring sectors in Asia, Europe and the Middle East.

Exports of US hardwood sawnwood to countries outside North America amounted to 2.85 million m^3 in 2013, 14% higher than in 2012 and the highest volume ever recorded. Exports to China (including Hong Kong) were 1.5 million m^3 in 2013, 24% up on the previous year. Exports to Southeast Asia—mainly to VPA partner countries such as Indonesia, Malaysia, Thailand and Viet Nam—increased by 9%, to 492 000 m^3, in 2013, another record.[19] After declining by 13% from 2011 to 2012, United States' exports to European countries were level at 350 000 m^3 in 2012 and 2013.[20]

19 Imports of temperate hardwoods to VPA partner countries in Asia are often re-exported in value-added products. This complicates the market analysis because VPA products can be a mix of species and may not be primarily tropical wood originating in these countries.

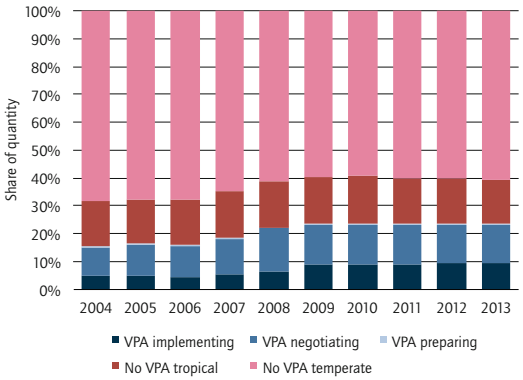
20 Estimate derived from analysis of the United States Department of Agriculture Global Agricultural Trade System, available at: http://apps.fas.usda.gov/gats/default.aspx.

Figure 5: Global hardwood veneer production, by VPA status, 2004–2013



Source: ITTO Annual Review Statistics Database.

Figure 6: Share of global hardwood veneer production, by VPA status, 2004–2013



Source: ITTO Annual Review Statistics Database.

Hardwood veneer

Similarly to hardwood sawnwood, the general trend in global hardwood veneer production was up in the decade to 2013 (Figure 5 and Table 7). Worldwide production was 12.7 million m^3 in 2013, up from 11.4 million m^3 in 2004. Of total production in 2013, 5 million m^3 (39%) was in ITTO producer and other tropical countries. The six VPA-implementing countries produced 1.2 million m^3 of hardwood veneer in 2013, which was 9% of global hardwood veneer production and 24% of tropical hardwood veneer production. In the same year, the nine VPA-negotiating countries produced 1.7 million m^3 of hardwood veneer, which was 14% of global hardwood veneer production and 35% of tropical hardwood veneer production (Figure 5 and Figure 6).

Table 7: Global hardwood veneer production, by VPA status, 2004–2013

VPA status	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
	'000 m^3									
Implementing	580	597	551	668	786	1 056	1 100	1 179	1 191	1 193
Cameroon	43	53	76	85	79	62	53	55	55	55
Central African Republic	1	1	1	1	1	1	1	1	1	1
Congo	8	14	5	46	32	33	35	34	45	49
Ghana	301	301	213	237	247	275	274	273	274	272
Indonesia	227	227	256	299	427	685	737	816	816	816
Liberia	0	0	0	0	0	0	0	0	0	0
Negotiating	1 149	1 243	1 352	1 562	1 938	1 735	1 736	1 787	1 720	1 744
Preparing	46	42	43	54	54	54	54	57	57	57
No VPA tropical	1 852	1 845	1 968	2 040	2 028	2 021	2 067	2 095	2 030	2 029
Total tropical	3 627	3 727	3 915	4 324	4 806	4 866	4 957	5 118	4 998	5 023
Total	**11 413**	**11 506**	**12 096**	**12 313**	**12 444**	**12 001**	**12 172**	**12 814**	**12 514**	**12 736**

Source: IMM analysis of ITTO Annual Review Statistics Database.

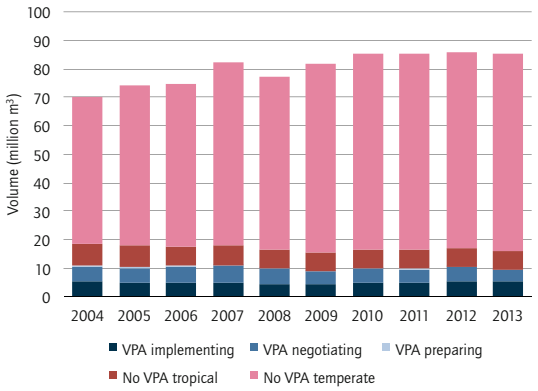
China is by far the largest global producer of hardwood veneer not engaged in the VPA process. Recent data on Chinese veneer production volume are unavailable, but ITTO estimates indicate that production has been at least 3 million m^3 per year over the last decade. Widespread anecdotal reports of increasing capacity in China suggest that the actual figure is much higher.[21] Much veneer production in China now comprises eucalypt and poplar species destined for domestic plywood, panel, flooring and furniture plants, and only a very small proportion is exported in its raw form.

Canada and the United States are large producers of hardwood veneer for export, and several European countries— France, Germany, Italy, Poland, Romania and Spain—are moderately large producers. Overall EU production volume has fallen steeply in recent years, however, due to substitution by a range of non-wood alternatives and the decline in European production of wooden doors, furniture and flooring in the wake of the GFC.

2.5.3 Hardwood plywood

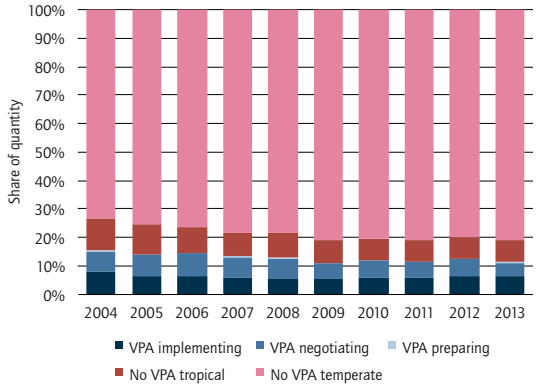
The global plywood manufacturing sector was transformed in the decade to 2013 by the rapid emergence of China as a major producer and exporter. China's hardwood plywood production more than doubled from 21 million m^3 in 2004 to 45 million m^3 in 2009 and has remained steady at that high level since. China now accounts for over

Figure 7: Global hardwood plywood production, by VPA status, 2004–2013



Source: ITTO Annual Review Statistics Database.

Figure 8: Global hardwood plywood production, by VPA status, 2004–2013



Source: ITTO Annual Review Statistics Database.

21 Arnold et al. (2013), for example, noted the proliferation in China of small-scale eucalypt veneer mills processing young (≤ 5 years) small-diameter logs (mostly ≤ 12 cm small-end diameter). By 2011 there were over 5000 such mills in China, with a collective capacity to process well over 15 million m^3 of logs per year.

Table 8: Global hardwood plywood production, by VPA status, 2004–2013

VPA status	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
	'000 m^3									
Implementing	5 498	4 710	4 698	4 751	4 396	4 387	5 066	5 064	5 490	5 500
Cameroon	36	36	27	32	24	23	27	23	23	23
Central African Republic	1	0	1	1	0	1	1	1	1	1
Congo	4	6	7	10	9	22	25	19	25	35
Ghana	140	133	128	173	213	191	163	171	173	173
Indonesia	5 317	4 534	4 534	4 534	4 150	4 150	4 850	4 850	5 268	5 268
Liberia	0	0	0	0	0	0	0	0	0	0
Negotiating	5 214	5 531	6 000	6 138	5 467	4 449	4 962	4 626	5 096	3 966
Preparing	129	122	124	128	128	128	128	128	128	128
No VPA tropical	7 757	7 956	6 888	6 919	6 649	6 453	6 557	6 576	6 545	6 654
Total tropical	18 598	18 319	17 709	17 935	16 640	15 417	16 712	16 393	17 258	16 247
Total	**70 197**	**73 961**	**74 698**	**82 450**	**77 369**	**81 559**	**85 103**	**85 137**	**85 872**	**85 176**

Source: IMM analysis of ITTO Annual Review Statistics Database.

half of global hardwood plywood production, based mainly on wood from domestic eucalypt and poplar plantations for core veneers and imported logs for face veneers.

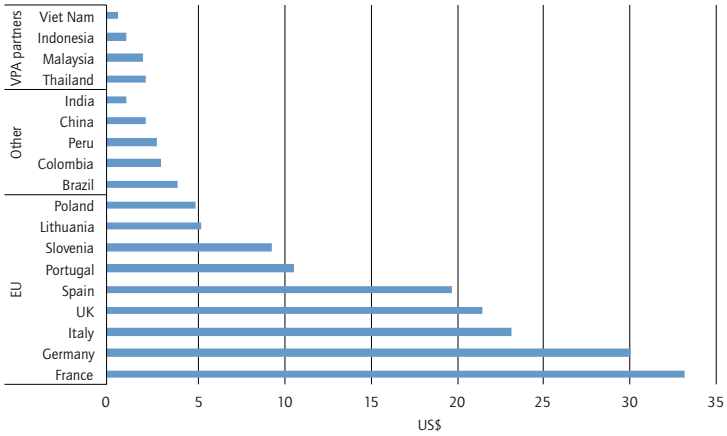
The six VPA-implementing countries collectively produced 5.5 million m^3 of hardwood plywood in 2013, which was 6% of global hardwood plywood production and 34% of tropical hardwood plywood production (Figure 7, Figure 8 and Table 8). The large majority of this production was in Indonesia; of the other VPA-implementing countries, only Ghana currently produces more than negligible levels of plywood. Production in Indonesia fell between 2004 and 2009 but rose thereafter due to improved demand in Japan and the United States.

The VPA-negotiating countries collectively produced 4.0 million m^3 of hardwood plywood in 2013, which was 5% of global production and 24% of tropical production. Of these nine countries, Malaysia remained by far the single-largest supplier, despite a significant decline in production since 2007. Production in Viet Nam increased by 300% between 2009 and 2013, but from a small base.

2.6 Competitiveness of VPA partner countries in value-added wood products

Some VPA partners are successfully exploiting competitive advantages as they seek to develop markets for value-added products in Europe.

Figure 9: Hourly labour costs in the primary textile industry, selected countries, 2011



Low labour rates are an important determinant of competitiveness in some wood-manufacturing sectors, notably furniture, where wages can form the single-largest component of the cost of finished products. Figure 9 shows that hourly wages in those VPA partner countries for which data are available are significantly lower than in (selected) EU countries and competitive with some other major wood-processing nations.[22] Low labour rates can be a major factor in the competitiveness of some wood-processing sectors, but they are often not the most significant; international indices that encompass a range of competitiveness factors are a better predictor of success in the development of globally significant wood-manufacturing capacity.

22 Figure 9 presents data for the textile industry because of a lack of equivalent data for the forest products sector. Data are available for only some countries, derived from Werner International (2012).

The rankings of VPA partner countries in various international competitiveness indices are presented in Annex 3. The World Bank's Ease of Doing Business Index ranks countries according to a quantitative analysis of factors affecting the ease of doing business. The World Economic Forum's Global Competitiveness Index ranks countries using a wider range of more subjective measures, such as macroeconomic stability, health and education, labour market efficiency, and innovation. The United Nations Conference on Trade and Development (UNCTAD) publishes several indices assessing the degree and quality of countries' integration with international trade networks. UNCTAD's Liner Shipping Connectivity Index assesses the connectivity of 164 countries to international container routes by combining data on the number of container ships deployed, their total and per-capita carrying capacity, and the number of liner companies operating routes to each country.

A review of these indices for the VPA partner countries reveals that:

- Malaysia is one of the world's most "connected" and competitive countries.
- Thailand scores highly on the ease of doing business and on global competitiveness but is relatively less connected to international trade networks than Malaysia.
- Indonesia scores highly in its global competitiveness, having risen rapidly in the rankings over the last decade, but it is less well connected to international trade than Malaysia and is not rated highly for the ease of doing business.
- Viet Nam sits around the middle of international competitiveness rankings, benefiting from low wage rates and a reasonably high degree of connectivity but ranked quite lowly in the ease of doing business.
- All VPA partner countries in Africa are relatively low in all the international competitiveness indices, although Ghana is better connected and more competitive than the others.
- Some African VPA partner countries have extremely low connectivity—shipping times from Cameroon and DRC are among the longest in the world.
- The two South American VPA partner countries, Honduras and Guyana, are ranked similarly across the indices. Both countries are higher-placed than the Central African countries for the ease of doing business and on the Global Competitiveness Index, but well below Ghana.
- The connectivity of Honduras and Guyana to international trade networks is extremely low—no better than for Cameroon and DRC.

Those VPA partner countries that score relatively highly on global competitiveness indices—Indonesia, Malaysia, Thailand and Viet Nam—also have the most developed wood-processing sectors and are engaged in the export of value-added wood products to the EU.

Those VPA partner countries that are relatively more challenging places in which to do business and are also poorly connected to international trade routes are more focused on the export of primary wood products. Such countries are also characterized by extremely low wage rates, but they lack other institutional and infrastructural capacity for the development of internationally competitive industries. They have less access to highly skilled staff and capital, suffer from relatively high costs of importing essential raw materials for value-added manufacturing, and are unable to respond to customer demands for quick turn-around times and changing fashions.

These trends are even evident on a regional basis. In Africa, the most connected and competitive VPA partner, Ghana, has evolved value-added industries more extensively and rapidly than the less-connected countries of Central Africa.

The position of China in these global rankings relative to VPA partner countries and EU countries is revealing. Across the full range of competitiveness factors covered by the Global Competitiveness Index, China was ranked a fairly moderate 28th in 2014. Nevertheless, China has emerged in the last decade as the world's most connected country because it has become the primary focus of global shipping networks. This has been a major reason for China's huge expansion as a global wood-processing hub, importing large quantities of primary wood products from all areas of the world, including VPA partner countries, and exporting finished wood products to the EU and other major consumer markets.

3. VPA partner share of global tropical timber trade

This chapter analyzes the share of the global tropical timber trade held by VPA partner countries to ensure that trade flows between VPA partner countries and the EU are considered in their appropriate global context. The chapter examines the changing composition of products in the tropical wood products trade and changing regional supply and demand. It also considers the emerging role of VPA partner countries in the global pulp-and-paper sector.

3.1 Overview

The total value of tropical wood-product exports grew by nearly 15% in the decade to 2013 (Figure 10 and Table 8)[23], from US$27.0 billion to US$30.9 billion (constant 2013 prices). There was a sharp dip in such exports in 2008 and 2009 during the GFC, but trade rebounded rapidly thereafter, driven by rapid growth in emerging markets. The 17 VPA partner countries combined accounted for 81% of the total value of global trade in tropical wood products in 2013, down from 84% in 2004 (Figure 11).

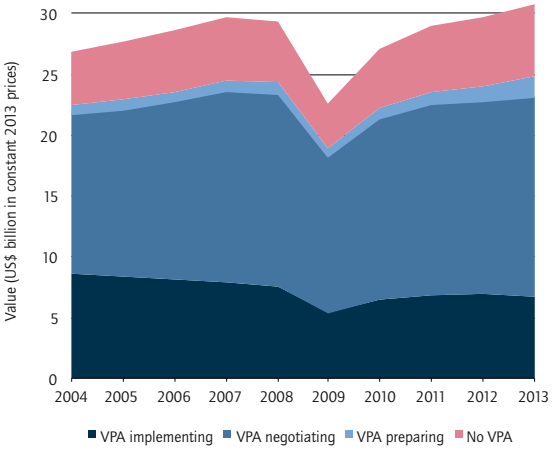
Figure 11 shows the share of global tropical wood products trade by VPA status over the decade to 2013. The six VPA-implementing countries combined accounted for 22% of global tropical wood products trade value in 2013, down from 32% in 2004 (Table 9). The nine VPA-negotiating countries combined accounted for 53% of the value in 2013, up from 49% in 2004: the increase in share was due primarily to increased tropical wood-product exports from Thailand and Viet Nam.

23 In this chapter, "tropical wood products" are defined as comprising all wood-based products in HS chapters 44 (wood) and 94 (furniture) exported by countries wholly located in the tropics. This definition is adopted due to limitations in trade statistics that do not allow reliable differentiation between tropical and temperate species in export flows from individual countries, particularly when dealing with tertiary products such as furniture. The use of this definition creates sources of error, however. For example, it excludes exports from Brazil and China, which are not wholly located in the tropics. As far as it is possible to judge from the available data, exports from both these countries are now dominated by non-tropical species, but they do include some tropical wood. In the case of Brazil, the value of Chapter 44 exports of all hardwood products likely to contain tropical wood fell from US$1.41 billion in 2004 to US$462 million in 2013 (constant 2013 prices). Although Brazil is a large producer of tropical hardwood, most is now used domestically. China's exports of products identified in trade data as composed of tropical species fell from US$300 million in 2004 to US$193 million in 2013 (constant 2013 prices). Another source of error is that a small but growing proportion of wood products exported by tropical countries is likely to consist of temperate rather than tropical timber. This is particularly true for countries like Viet Nam and Indonesia that export significant volumes of furniture, some of which include interior products manufactured from timbers imported from temperate regions.

3.2 Changing composition of global tropical wood products trade

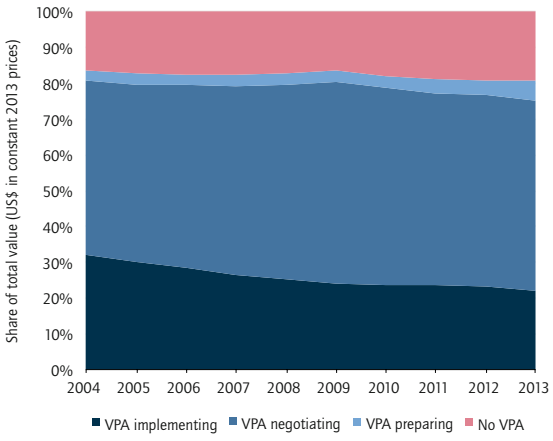
The composition of wood products exported by tropical countries shifted dramatically in the decade to 2013 (Figure 12 and Figure 13). Much of the decline in the value of the global trade in tropical wood products in the immediate aftermath of the GFC was in logs, sawnwood, plywood and veneer, while the total value of exports of wooden furniture and other value-added timber products from tropical countries was relatively stable. This highlights an important benefit of moving into value-added markets—they are generally less volatile than markets for unprocessed raw materials.

Figure 10: Global tropical wood products trade, by VPA status of suppliers, 2004–2013



Source: IMM analysis of Global Trade Atlas data.

Figure 11: Share of global tropical wood products trade, by VPA status of suppliers, 2004–2013



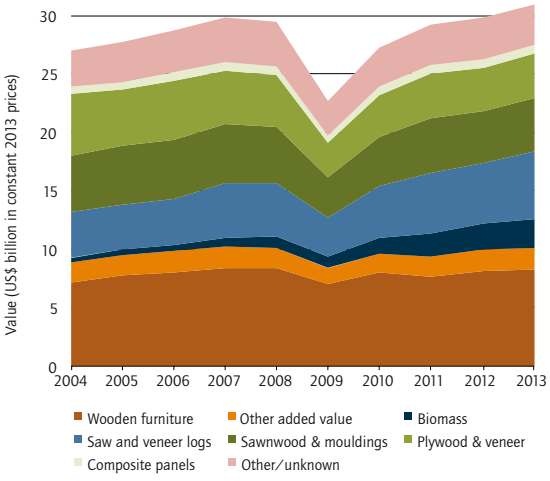
Source: IMM analysis of Global Trade Atlas data.

Table 9: Value of exports of wood products from tropical countries, by VPA status, 2004–2013

VPA status	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Trend 2004–2013
	US$ million at constant 2013 prices										%
Implementing	8 656	8 398	8 141	7 882	7 497	5 458	6 437	6 896	6 929	6 773	-21.8
Cameroon	759	750	817	936	898	552	670	780	759	676	-10.9
Central African Republic	62	68	68	82	106	57	65	65	64	60	-3.1
Congo	356	333	312	344	414	263	373	436	395	346	-2.8
Ghana	269	450	469	498	586	372	365	331	403	365	35.7
Indonesia	7 203	6 796	6 475	6 022	5 493	4 209	4 957	5 249	5 238	5 266	-26.9
Liberia	7	0	0	0	1	5	6	35	71	59	761.7
Negotiating	13 142	13 735	14 727	15 763	15 973	12 794	14 963	15 637	15 907	16 439	25.1
Preparing	746	897	797	932	1021	740	904	1 119	1 253	1 720	130.6
No VPA tropical	4 422	4 735	5 026	5 273	5 012	3 706	4 891	5 499	5 685	5 958	12.4
Total	**26 966**	**27 764**	**28 690**	**29 849**	**29 504**	**22 698**	**27 194**	**29 151**	**29 774**	**30 890**	**14.6**

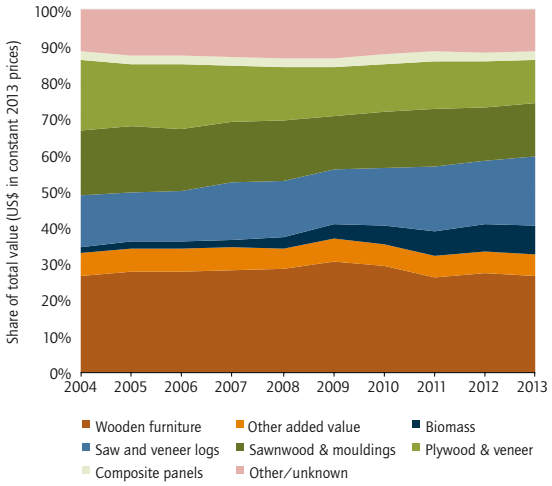
Source: IMM analysis of Global Trade Atlas.

Figure 12: Global tropical wood products trade, by product group, 2004–2013



Source: IMM analysis of Global Trade Atlas data.

Figure 13: Share of global tropical wood products trade, by product group, 2004–2013



Source: IMM analysis of Global Trade Atlas data.

Wooden furniture accounted for around 27% of all wood-product exports from tropical countries in 2013, the same proportion as in 2004. The share of joinery products in tropical wood trade was also reasonably stable (at around 6%) over the period.

Although the trade in value-added tropical wood products was relatively stable over the decade to 2013, there was a significant shift in the relative proportion of trade in primary and secondary processed products. Growth in demand in China and India, a trend that has accelerated since 2009, has focused heavily on sawlogs and veneer logs. The share of logs in international tropical wood products trade increased from 14% to 19% over the decade to 2013. There was also strong growth in demand for biomass for energy production in both China and Japan, particularly biomass produced in Thailand and Viet Nam; the share of this commodity in trade increased from less than 2% to 8% over the decade.

The share of sawnwood in global tropical wood products trade fell from 18% to 15% in the decade to 2013, coinciding with the increasing importance of China and India in international trade relative to western markets (which traditionally prefer

sawnwood). Over the same period, the share of plywood in wood-product exports from tropical countries fell from 20% to 12%, due partly to a decline in the supply of suitable large-diameter logs for plywood manufacture in tropical countries. Tropical hardwood plywood also suffered from weakening markets in industrialized countries, intense competition from Chinese plywood, and substitution by alternative products such as oriented strandboard (OSB).

3.3 Changes in regional supply of tropical wood products

Figures 14 and 15 show changes in the regional supply of tropical wood products over the decade to 2013. The main trend was the rapid rise in exports from countries in the Mekong subregion (taken here to include Cambodia, the Lao PDR, Myanmar, Thailand and Viet Nam). In 2013, these countries combined accounted for 35% of all wood-product exports by tropical countries, compared with 17% in 2004.

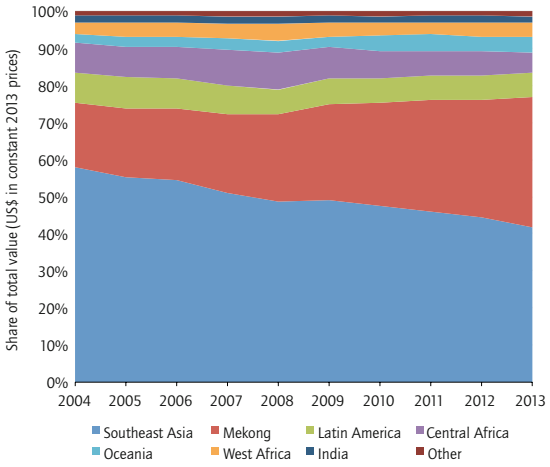
Wood-product exports from countries in the Mekong subregion are diverse, including:

- sawn rubberwood, which is traded extensively with neighbouring countries;
- logs and sawnwood of higher-value species such as Burmese teak and Siamese rosewood (also known as hongmu), which is very popular in China; and
- furniture products exported mainly by Viet Nam to western markets, including the EU, Japan and the United States.

The data do not allow the separation of tropical hardwood outdoor furniture from interior furniture manufactured using imported temperate hardwoods. Nevertheless, anecdotal market reports, combined with trade data showing a rapid rise in American hardwood imports by Viet Nam in recent years, suggest that an increasing proportion of furniture exported by Viet Nam consists of interior furniture using temperate species.

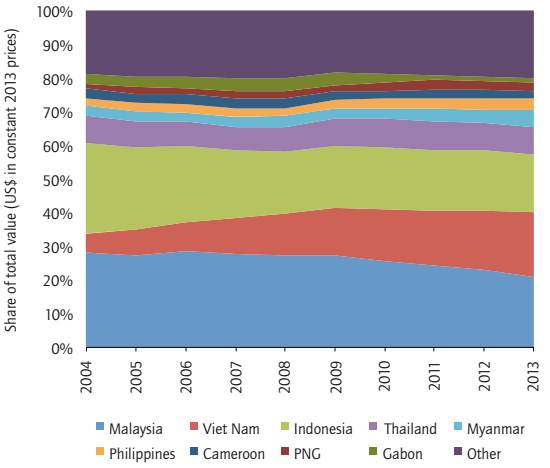
The rise in trade by Mekong subregion countries has resulted in a decline in the relative share of other Southeast Asian countries—mainly Indonesia and Malaysia—in the export of wood products by tropical countries. Nevertheless, Indonesia and Malaysia still occupy pivotal positions in trade, accounting for 17% and 21%, respectively, of all wood-product exports by tropical countries in 2013.

Figure 14: Share of the global tropical wood products trade, by export region, 2004–2013



Source: IMM analysis of Global Trade Atlas data.

Figure 15: Main exporting countries' share of the global tropical wood products trade, 2004–2013



Source: IMM analysis of Global Trade Atlas data.

The share of countries in Central Africa[24] in the international tropical wood products trade fell from 8% to 6% from 2004 to 2013. The decline was particularly marked in 2008 and 2009 because the Central African countries—still heavily dependent on exports of logs and rough-sawn timber—were badly affected by the decline in EU, North American and Middle Eastern markets during the GFC. The share of West African countries in total trade value was relatively stable over the period, at around 3.5%.

24 Central Africa comprises nine countries—Angola, Cameroon, the Central African Republic, Chad, the Congo, DRC, Equatorial Guinea, Gabon, and São Tomé and Príncipe. Of these, six countries —Cameroon, the Central African Republic, the Congo, DRC, Equatorial Guinea and Gabon—are responsible for almost all the timber trade.

Total exports from South American tropical countries excluding Brazil[25] accounted for 7% of international trade in 2013, down slightly from 8% in 2004; the inclusion of Brazil would not significantly affect these percentages. Although ITTO estimates Brazil's hardwood harvest to exceed 100 million m^3 per year, only 30 million m^3 of this harvest is believed to be tropical hardwood, the majority of which is consumed domestically.

A recent TRAFFIC report[26] identified a number of reasons for the declining contribution of Amazonian countries to the commercial wood supply in international markets. They included: difficult forest operating conditions; unclear land tenure; restrictions on the trade of the most commercially valuable species; a reduction in land conversion in Brazil; a relatively low level of international competitiveness of wood-manufacturing industries; and the decline in the North American market after the GFC.

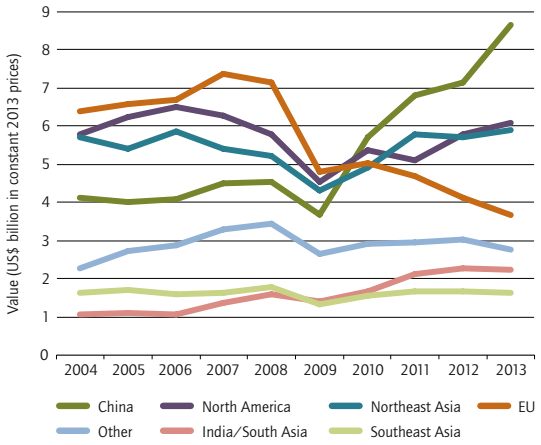
3.4 Changes in regional demand for tropical wood products

Figures 16 and 17 show how regional demand for wood products from tropical countries changed in the decade to 2013. In 2008 and 2009, for example, there was a dramatic fall in tropical wood products trade with the EU, North America and Northeast Asia (Japan and the Republic of Korea). There was also a dip in exports to China in response to declining demand for wood products from Chinese manufacturers engaged in re-exports to western markets.

The main consumer markets for tropical wood products have followed very different trajectories in the aftermath of the GFC. The most significant trend for the purposes of this report is the fall in the value of EU tropical wood-product imports, from a peak of US$7.37 billion in 2007 to US$4.80 billion in 2009 and US$3.66 billion in 2013. The EU's share of global import value from tropical countries halved, from 24% in 2004 to 12% in 2013.

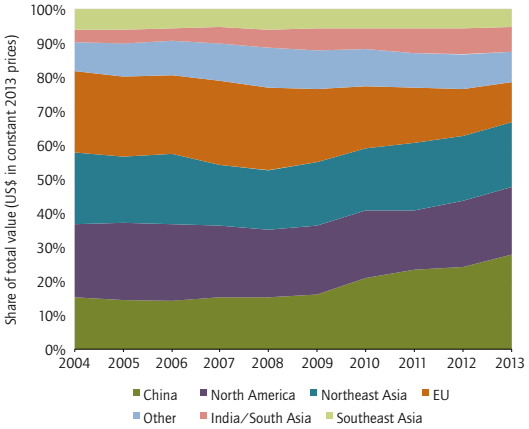
Although the EU has declined in relative importance as a market for tropical wood products, there has been a robust rebound in tropical wood-product imports by North America and Northeast Asia. Tropical wood-product imports by North America increased from US$4.53 billion in 2009 to US$6.08 billion in 2013, with the United States

Figure 16: Global tropical wood products trade, by import region, 2004–2013



Source: IMM analysis of Global Trade Atlas data.

Figure 17: Share of global tropical wood products trade, by import region, 2004–2013



Source: IMM analysis of Global Trade Atlas data.

importing larger quantities of furniture from Indonesia and Viet Nam and of plywood from Indonesia and Malaysia. The value of tropical wood-product imports into northeast Asia grew from US$4.30 billion in 2009 to US$5.91 billion in 2013; there was a significant recovery in Japanese imports of plywood from Indonesia and of furniture products from Viet Nam. The rise in Japan's tropical wood-product imports, particularly plywood, was driven partly by rebuilding in the wake of the March 2011 tsunami.

25 The exclusion of Brazil from the analysis in this chapter is discussed above.
26 Oliver (2013).

These trends imply that there is still potential for tropical countries to develop markets for wood products in industrialized nations, which, combined, accounted for more than half the value of all wood products exported by tropical countries in 2013. Nevertheless, it is also clear that emerging markets are taking a rapidly increasing share of tropical wood in international trade. There has been massive growth in tropical wood-product exports to China, where the value of trade more than doubled from less than US$4 billion in 2009 to close to US$9 billion in 2013. China accounted for 28% of the global import value of tropical wood products in 2013, up from 15% in 2004. The vast majority of China's tropical wood-product imports comprise logs and biomass with a smaller (but growing) amount of sawnwood.

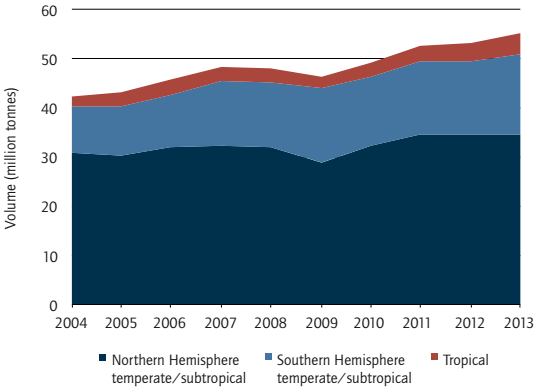
Imports of tropical wood products by India, almost exclusively logs, have also risen rapidly since 2006; in 2013 such imports accounted for 7% of the global tropical wood products trade.

3.5 VPA partner countries in global pulp-and-paper supply

Unlike other segments of the forest products industry, the pulp-and-paper industry is highly capital-intensive. It is less attracted to locations with low labour costs and more to countries where there is low commercial risk and ready access to a large and relatively stable electricity supply and other essential infrastructure. The pulp-and-paper industry also benefits from the presence of relatively undifferentiated forest resources, best supplied by fast-growing plantations and northern boreal forests. In many parts of the world the industry is becoming increasingly dependent on recycled fibre and an efficient supply chain for this material. Finished products are bulky and prone to damage during transport, and customers are unwilling to carry stock and require quick turnaround times, generally favouring locations close to consumers.

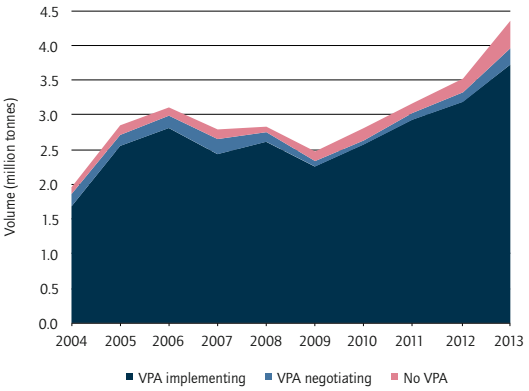
For all these reasons, tropical countries play a relatively minor role in global pulp-and-paper supply. The global trade of woodpulp was 55 million tonnes in 2013, up from 31 million tonnes in 2004 (Figure 18). Much of the increase in trade was due to the increasing dependence of large paper-manufacturing industries in Europe and North America on hardwood chemical pulp produced from eucalypt plantations in the subtropics of the Southern Hemisphere. Brazil's exports of hardwood chemical pulp rose particularly dramatically, from 4.99 million tonnes in 2004 to 9.85 million tonnes in 2013.

Figure 18: Global pulp trade, by region of supply, 2004–2013



Source: IMM analysis of Global Trade Atlas data.

Figure 19: Pulp exports from tropical countries, by VPA status of suppliers, 2004–2013



Source: IMM analysis of Global Trade Atlas data.

Brazil and several other South American countries, especially Chile and Uruguay, are proving highly competitive in global markets for paper-grade chemical woodpulp, offering favourable combinations of good growing conditions and relatively low-cost land and fibre, energy and water resources. The plantation and pulping sectors in these countries have also benefited from considerable inward investment by European and other large international paper corporations.

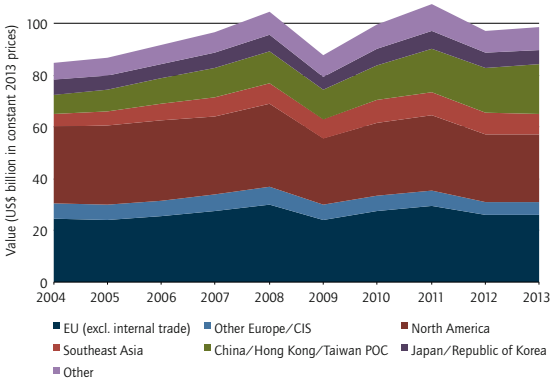
The tropics play a small but rising role in the total global pulp trade, with pulp exports from

tropical countries increasing from 1.95 million tonnes in 2004 to 4.36 million tonnes in 2013 (Figure 19). Almost all these exports were from Indonesia: that country's exports increased from 1.68 million tonnes in 2004 to 3.72 million tonnes in 2013. Malaysia, Singapore and Thailand are the only other tropical countries exporting anything other than negligible quantities of pulp, together accounting for around 0.55 million tonnes in 2013.

The total value of global trade in paper products increased from US$85.1 billion in 2004 to US$98.8 billion in 2013 (excluding internal EU trade; constant 2013 prices) (Figure 20). The long-term growth trend was interrupted in 2009 by the effects of the GFC and by a downturn in exports by European and North American countries in 2012. Nevertheless, paper exports from China rose consistently in the decade to 2013. China's paper production is based on virgin fibre pulp from domestic plantations and imports and on recycled paper. A proportion of waste paper produced in the EU, Japan and the United States is exported to China for recycling.[27]

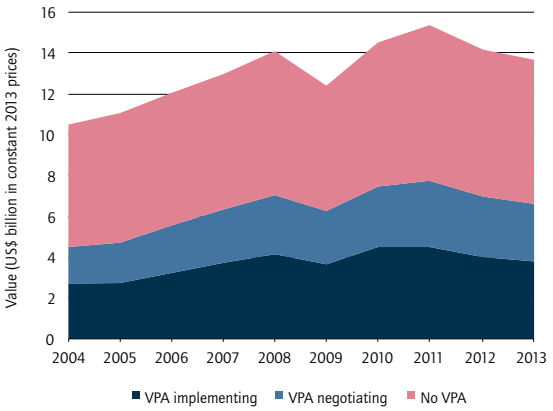
The value of paper-product exports from tropical countries increased from US$10.5 billion in 2004 to a peak of US$15.4 billion in 2011 before falling back to US$13.7 billion in 2013 (Figure 21). Exports from VPA-implementing countries (almost entirely Indonesia) increased from US$2.7 billion in 2004 to a peak of US$4.5 billion in 2011 before weakening to US$3.76 billion in 2013. VPA-negotiating countries exported paper products worth US$2.8 billion in 2013, including US$1.3 billion from Thailand, US$0.9 billion from Malaysia and US$0.5 billion from Viet Nam. Significant paper-product exporters in the tropics not engaged in the VPA process include Hong Kong (China), India, Mexico and Singapore.

Figure 20: Global paper trade, by region of supply, 2004–2013



Source: IMM analysis of Global Trade Atlas data.

Figure 21: Paper exports from tropical countries, by VPA status of suppliers, 2004–2013



Source: IMM analysis of Global Trade Atlas data.

27 Pöyry (2013) noted that total paper-making fibre consumption in China is currently around 144 million tonnes per year and that there are significant ongoing changes in the sources of fibre supply. Traditionally, China has used a large proportion of non-wood pulp made from cereal straw, reeds, grass, bagasse, etc., for papermaking. In the mid-1990s, the share of non-wood pulp exceeded 50% of all papermaking fibre raw materials, but, since the late 1990s, China has launched serious measures to close down outdated pulp mills to save energy, reduce environmental loads and conserve water. The reduction of non-wood pulp capacity has been a major factor behind increased recovered-paper and market-pulp shipments to China. Today, the use of non-wood pulp in China is about 12 million tonnes, 12% of total papermaking fibre consumption. The evolving fibre gap is being filled partly by recovered paper and partly by virgin fibre pulps, including market pulp. The proportion of non-wood pulp may increase again in the future with the development of more efficient non-wood pulping lines.

4. VPA partners in EU timber supply

This chapter summarizes the role of VPA partners in the EU timber supply. The various timber market segments are considered separately, and key competitors and market trends are identified.

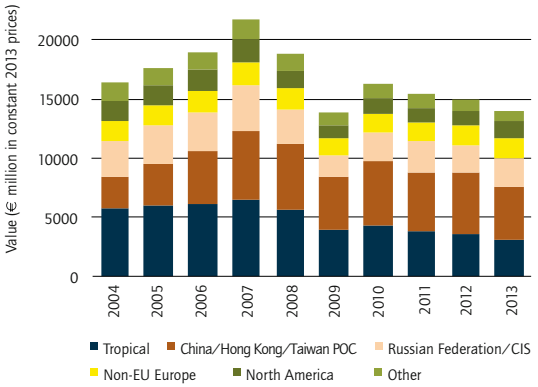
4.1 Share of total wood products import value

The total value of EU imports of wood products was €13.98 billion in 2013. At constant 2013 prices, the value of imports in that year was the second-lowest of the decade to 2013, only just exceeding imports of €13.90 billion in 2009 in the wake of the GFC. EU wood products import value peaked at €21.7 billion in 2007 (Figure 22).

Although precise data on wood end-uses in the EU are unavailable, it is generally considered that, in most EU countries, at least 50% of wood is destined for construction.[28] Furniture industry consumption also tends to be linked to construction activity. The decadal trend of EU construction activity shown in Figure 23 mirrors that of wood products import value, suggesting that the decline in construction activity was an important driver of import declines. Nevertheless, the rate of decline in EU wood-product imports from all non-EU countries between 2007 and 2013 was greater than the rate of decline in construction-sector activity. The total value of EU construction fell by 22% in this period, while the value of wood-product imports from all non-EU countries fell by 36%. This indicates that factors other than weakening construction activity have contributed to the decline in total imports. These factors, which are reviewed in detail in Chapter 5, include:

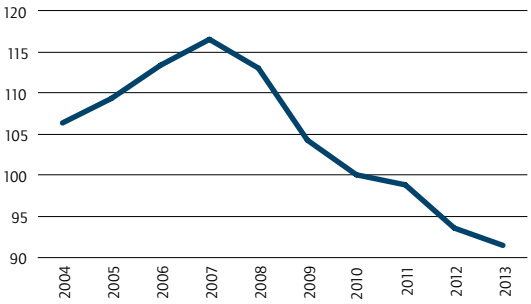
- The diversion of wood products trade from the EU to other emerging markets, which is evident from data showing a very rapid rise in imports of tropical wood products by China and India (see section 3.4).
- The substitution of imported wood products with domestic wood products—an analysis of wood consumption trends shows that imports have lost share to domestic production in several product categories, including sawlogs, sawnwood and veneer.
- The substitution of imported timber by non-wood materials. The extent to which this is occurring is difficult to measure, but there is evidence in some sectors that wood has been losing share to non-wood materials.[29]
- Policy measures in producer countries, such as the introduction of controls on log exports, which has particularly affected EU log imports from Central Africa and the Russian Federation.

Figure 22: Value of EU imports of wood products, by source of supply, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

Figure 23: Eurostat construction production index (2010 = 100)

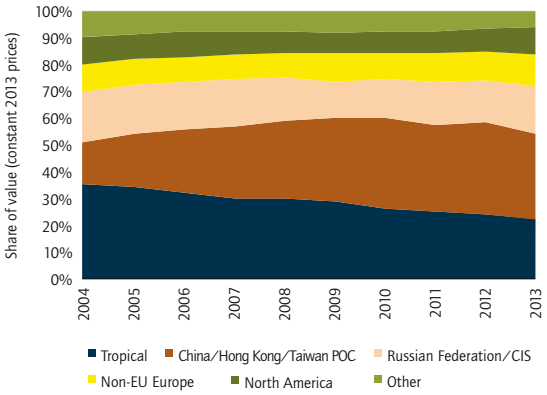


Source: Eurostat.

28 For example, Nick Moore of United Kingdom-based Timber Trends estimates that 70% of United Kingdom timber consumption is destined for the construction sector, while globally the figure is about 50%–see www.building.co.uk/spotlight-on-timber/3076443.article.

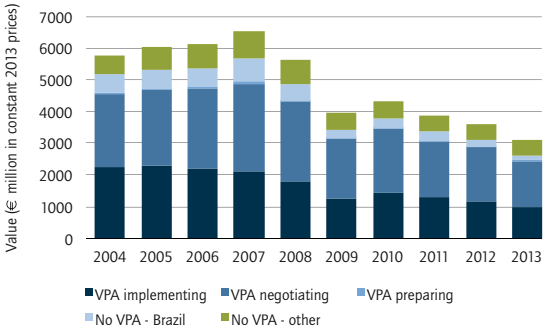
29 For example, an analysis of the activities of Europe's largest window manufacturers in the decade to 2009 by the research agency Freedonia showed that while sales of wood-framed windows increased in line with overall increases in construction activity, market share was lost to plastics and metals. An analysis of EU furniture trade trends in the period 2010 to 2013 for the ITTO Tropical Timber Market Report (June 2014) showed that, while wood remains the dominant material in this sector, there has been a partial switch to metals and plastics. An analysis of the EU flooring sector reported in the ITTO Tropical Timber Market Report (July 2013) indicated that wood-veneered products are under intensifying competitive pressure from laminate flooring and that these, in turn, are losing share to luxury vinyl tiles made from polyvinyl chloride resins and plasticizers.

Figure 24: Share of value of EU imports of wood products, by source of supply, 2004–2013



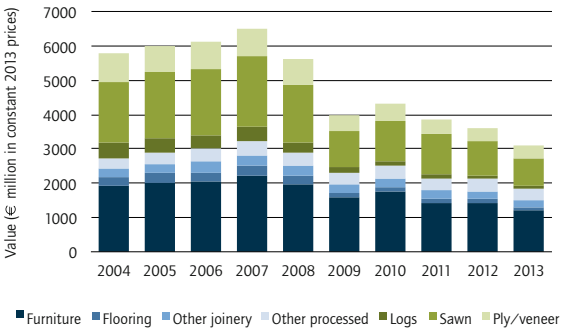
Source: IMM analysis of Eurostat COMEXT data.

Figure 25: Value of EU imports of wood products from the tropics, by VPA status, 2004–2013



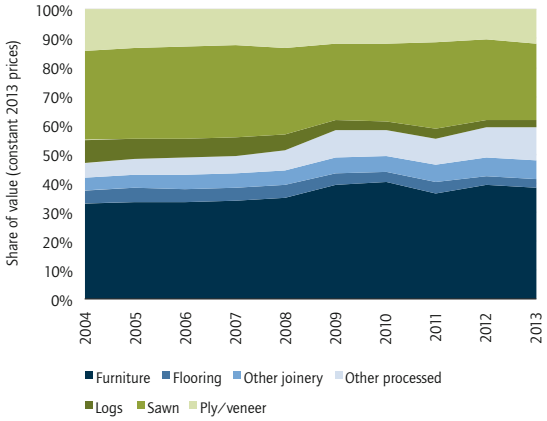
Source: IMM analysis of Eurostat COMEXT data.

Figure 26: Value of EU imports of wood products from the tropics, by product type, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

Figure 27: Share of value of EU imports of wood products from the tropics, by product type, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

Overall imports lost market share to domestic wood products and a range of non-wood materials in the decade to 2013, and imports from tropical regions lost share relative to imports from other regions (Figure 24). The total value of EU wood-product imports from the tropics fell by more than 50%, from a peak of €6.53 billion in 2007 to €3.10 billion in 2013. The tropical wood-product share of all import value fell from 35% in 2004 to 22% in 2013.

Tropical wood products lost share primarily to Chinese products between 2004 and 2010, notably plywood and furniture manufactured mainly from temperate hardwoods, including Chinese plantation-grown poplar and eucalypt and imported Russian and American hardwoods. China's share of EU imports was stable from 2010 to 2013, but tropical suppliers lost share in this period to products from the Russian Federation (notably birch plywood), eastern Europe (notably oak from Bosnia and Herzegovina, Montenegro, Serbia and Ukraine) and North America (notably sawn oak, walnut and tulipwood from the United States).

The VPA partner countries collectively accounted for more than 80% of the value of EU tropical wood-product imports in 2013 (Figure 25), with the six VPA-implementing countries accounting for 32%. The value of wood-product imports from Brazil fell from a peak of €725 million in 2007 to €157 million in 2013.

The decline in EU imports of wood products from the tropics was particularly pronounced for logs, sawnwood and plywood (Figure 26). The value of imports of wooden furniture, joinery and other further-processed products was more stable and, as a result, these products contributed a rising share of EU wood imports from tropical countries, up from 47% of import value in 2004 to nearly 60% in 2013 (Figure 27).

Although data are unavailable, it is likely that an increasing proportion of further-processed wood products imported from tropical countries are constituted by non-tropical timber species. In Viet Nam and, more recently, Indonesia, for example, there has been a partial switch in furniture manufacturing away from exterior products made of tropical hardwoods to interior products more likely to be made of temperate hardwoods.[30]

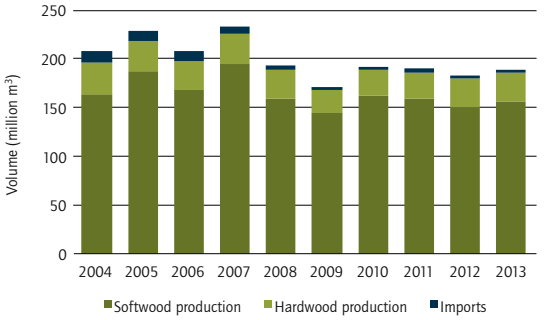
4.2 Share of log supply

Since the onset of the GFC, the supply[31] of sawlogs and veneer logs to the EU has averaged 185 million m^3 per year, down from around 220 million m^3 per year before the GFC (Figure 28). Of the logs supplied in 2013, domestically produced softwood accounted for 82% and domestically produced hardwood for 15%. The share of imports in total supply has been falling, constituting less than 2% in 2013 (Figure 29).

EU imports of sawlogs and veneer logs declined steeply between 2004 and 2009, from 11.4 million m^3 to 2.7 million m^3. Much of the decline was in softwood and birch log imports, driven by the economic downturn and the Russian Federation's imposition of log export taxes in April 2008; the log import volume had recovered to 3.5 million m^3 by 2013. Softwood log imports increased in the period 2009–2013, while hardwood log imports continued to decline (Figure 30).

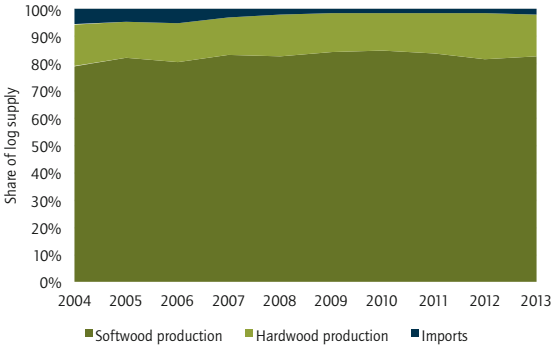
The volume of EU imports of tropical sawlogs and veneer logs fell from more than 1.2 million m^3 in 2004 to less than 200 000 m^3 in 2013 (Figure 31). Most of these imports came from countries that are either implementing or negotiating a VPA, mainly in Africa. VPA-implementing countries supplied 105 000 m^3 of sawlogs and veneer logs to the EU in 2013, down from 482 000 m^3 in 2004, and VPA-negotiating countries supplied 60 000 m^3, down from 664 000 m^3.

Figure 28: Volume of EU sawlog and veneer log supply, 2004–2013



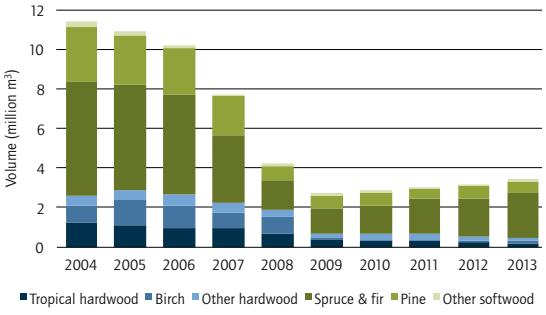
Source: IMM analysis of Eurostat COMEXT data.

Figure 29: Share of volume of EU sawlog and veneer log supply, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

Figure 30: Volume of EU sawlog and veneer log imports, by species group, 2004–2013

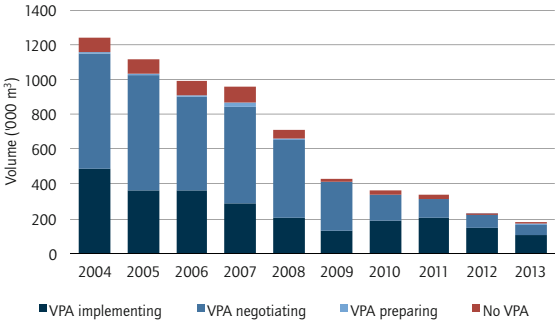


Source: IMM analysis of Eurostat COMEXT data.

30 A sector note on the wood and furniture industry in Viet Nam issued by the Italian Trade Agency in June 2014 stated that while manufacturers in northern Viet Nam continued to focus on exterior furniture, manufacturers in the south of the country, including several major manufacturers of higher-quality products, were now focusing as much on indoor furniture. In October 2012, *Furniture Today* reported on a US$40 million investment by PT Woodworth Wooden Inds in an interior-furniture facility in Indonesia. Woodworth is considered to be the first major Taiwanese company to set up a furniture plant in Indonesia.

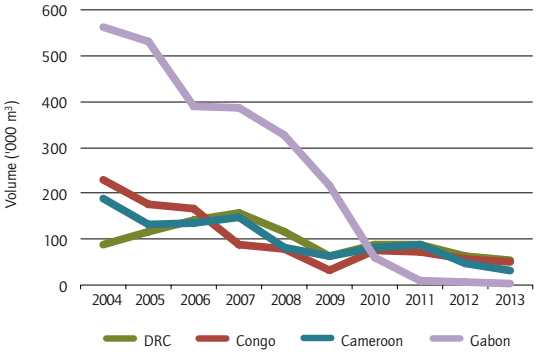
31 In this report, "supply" always refers to imports + production, and "consumption" always refers to imports + production less exports.

Figure 31: Volume of EU tropical sawlog and veneer log imports, by VPA status, 2004–2013



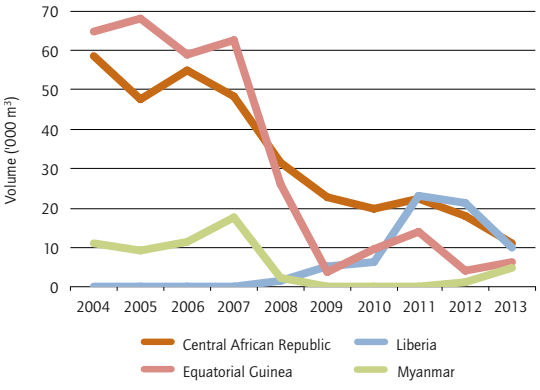
Source: IMM analysis of Eurostat COMEXT data.

Figure 32: EU imports of tropical hardwood logs, by major supplier, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

Figure 33: EU imports of tropical hardwood logs from other suppliers, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

The decline in EU tropical log imports is due to the combined effects of weak European demand, supply constraints, and regulatory impacts. A large part of the decline in trade can be traced to Gabon, which implemented a log export ban in May 2010 (Figure 32). At the same time, the EU's okoume plywood manufacturing sector, formerly a major buyer of logs, struggled to compete during the recession and capacity is now low. Due to supply problems and rising log prices driven by strong demand in emerging markets, many central European mills that formerly imported tropical hardwood logs for sawing and slicing have switched to domestically produced hardwoods.

On the supply side, political unrest is restricting the availability of logs produced in the Central African Republic. The Liberian government placed severe restrictions on all logging activities, including log exports, in January 2013. At the same time, encouraged by the EUTR, environmental groups focused on finding discrepancies in the legal documentation of logs exported from the Congo Basin. This added to the high degree of uncertainty in the EU tropical hardwood log trade.

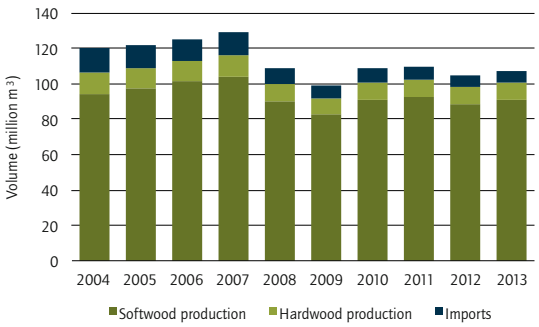
There was an upward trend in EU tropical log imports from Myanmar in 2013 (Figure 33) following the end of trade sanctions against that country. The spike in imports was stimulated by Myanmar's announcement of a ban on log exports from April 2014, which encouraged the main European end-users of natural-forest teak from Myanmar in the boat-building sector to accumulate stocks in advance of the ban.

4.3 Share of sawnwood supply

The total supply of sawnwood in the EU peaked at 129 million m^3 in 2007 before falling to a low of 99 million m^3 in 2009. Since then (to 2013), supply has been flat, at slightly under 110 million m^3 per year (Figure 34). In 2013, 85% of supply comprised domestically produced softwood and 9% comprised domestically produced hardwood. The share of imports in total supply fell from 11% in 2004 to 6% in 2013 (Figure 35).

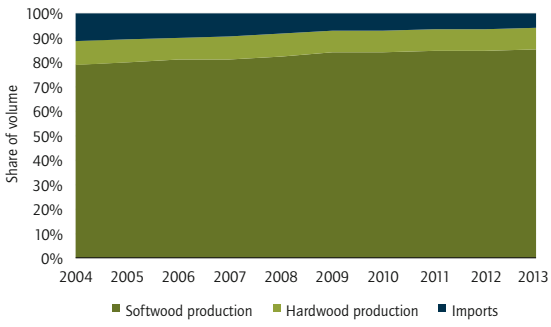
The most dramatic fall in EU sawnwood imports in the decade to 2013 came in 2008 with the onset of the GFC, but the decline is also part of a longer-term trend. With the exception of 2007 and 2010, the volume of EU sawnwood imports fell every year in the decade (Figure 36), from 13.6 million m^3 in 2004 to 6.5 million m^3 in 2013.

Figure 34: Volume of EU sawnwood supply, by major source, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

Figure 35: Share of volume of EU sawnwood supply, by major source, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

The decline in imports has affected all timber types, although the long-term trend has been more pronounced for tropical hardwoods than for other woods. The share of tropical hardwoods in the EU's total sawnwood import volume declined from 19% in 2004 to 14% in 2013. The share of tropical wood in total hardwood sawnwood imports fell from 58% to 50% over the same period.

Various factors are likely to explain the decline in sawnwood imports by the EU, including:

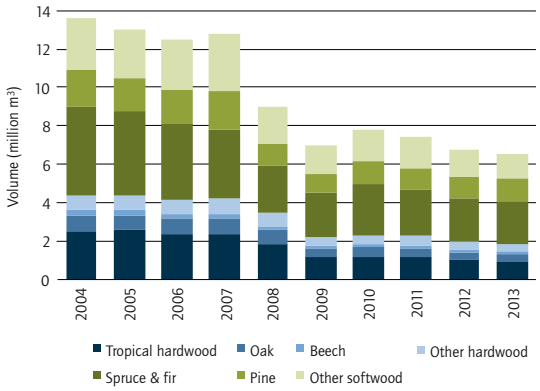
- The presence of a relatively large, stable and well-managed domestic forest resource in the EU, combined with ongoing efforts by domestic producers to increase wood use and resource efficiency.
- Rapid growth in demand in emerging markets, which has encouraged suppliers outside the EU to divert wood away from the EU, notably to China and other parts of Asia.
- Changes in supply-chain management—for example, reduced access to credit during the GFC discouraged stock-holding by EU importers and encouraged greater reliance on just-in-time transactions and greater demand for smaller, mixed consignments. Together, these trends tend to favour suppliers of timber from local forests, who have shorter lead times.
- A strong fashion trend for European species, notably oak, in the interior furnishing sector. This fashion is itself driven partly by European manufacturers seeking to maximize value from readily available local materials.
- Technological innovations, including various forms of surface treatment and thermal and chemical modification, which are extending the range of applications for domestic wood species by changing their look and increasing durability, strength and hardness. For example, thermal modification processing capacity in the EU has increased over the last ten years from negligible levels to more than 300 000 m^3 per year.

Tropical sawnwood imports fell from more than 2.5 million m^3 in 2004 to less than 1 million m^3 in 2013 (Figure 37). VPA-implementing countries supplied 415 000 m^3 of sawnwood to the EU in 2013, down from 901 000 m^3 in 2004, and VPA-negotiating countries supplied 370 000 m^3, down from 891 000 m^3. VPA-implementing countries accounted for 45% of EU imports of tropical sawnwood in 2013 and VPA-negotiating countries accounted for an additional 40%.

While the downturn in EU imports affected all major suppliers of tropical sawnwood to the EU, some countries were affected more than others (Figure 38 and Figure 39). In 2004, Brazil was the EU's largest supplier of tropical hardwood sawnwood, but imports from that country declined particularly rapidly in the decade to 2013. This is particularly important for VPA coverage because Brazil is the only large supplier of tropical sawnwood to the EU not engaged in the VPA process. The decline in imports from Brazil was caused by the combined effects of weak EU demand, exchange-rate volatility, and rising prices in response to restricted supply and increased demand domestically and from the United States.

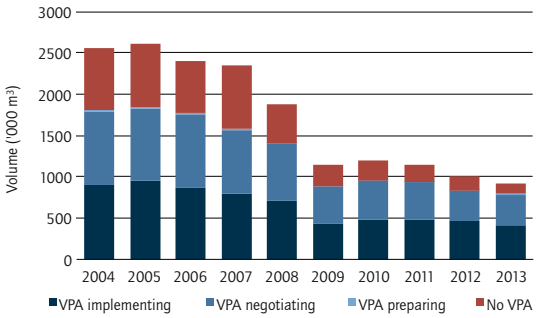
With the decline in imports from Brazil, Cameroon has emerged as the single-largest supplier of tropical hardwood sawnwood to the EU. A lack of financial

Figure 36: Volume of EU sawnwood imports, by species group, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

Figure 37: Volume of EU tropical sawnwood imports, by VPA status, 2004–2013

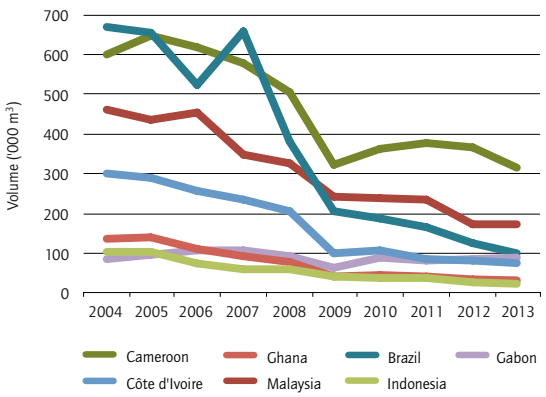


Source: IMM analysis of Eurostat COMEXT data.

credit and greater aversion to commercial risk led to a stronger focus on the most popular species—sapele and sipo—which, in the immediate aftermath of the GFC, were sourced most readily from Cameroon. The supply of these species deteriorated in Cameroon in 2012 and 2013, however. Rising log exports from Cameroon to China placed increasing pressure on facilities at Douala port and helped increase delivery times for sales to Europe. By the end of 2013, there was a lead time of about six months for delivery into Europe of new orders of sapele from Cameroon. This resulted in sharply rising prices, both for free on board (FOB) and stock landed in the EU.

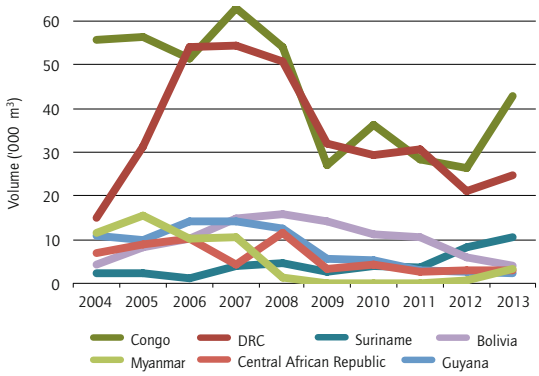
EU imports of tropical hardwood sawnwood from Malaysia fell consistently between 2004 and 2013. Rising prices and declining availability—particularly for denser, more durable varieties of meranti preferred for window frames—led many end-users in Europe to switch to alternative African species, notably sapele.

Figure 38: EU imports of tropical hardwood sawnwood, by major supplier, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

Figure 39: EU imports of tropical hardwood sawnwood, other suppliers, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

Sales of Malaysian meranti sawnwood, which were concentrated in the Netherlands window-frame sector, were exposed to the sharp decline in construction in that country. The lack of recognition of the Malaysian Timber Certification Scheme in public procurement in the Netherlands may also have caused a long-term drag on demand.[32] EU import duties on Malaysian products increased from 3.5% to 7% on 1 January 2014 due to a change in Malaysia's status in the Generalized System of Preferences (GSP).

32 The Malaysian Timber Certification Scheme was accepted for government procurement in the Netherlands in October 2013, alongside other PEFC-endorsed systems and the FSC. This may have played a role in boosting imports of tropical hardwoods into the Netherlands in 2014: in the first ten months of that year, imports of Malaysian timber products in the Netherlands were 246 122 m^3 roundwood equivalent, up by nearly 40% compared with the same period in 2013.

EU imports of sawnwood from Côte d'Ivoire fell from more than 300 000 m^3 in 2004 to less than 100 000 m^3 in 2013. Key factors in the decline were political instability in Côte d'Ivoire and the declining availability of commercially popular species, notably ayous and framire.

The lower availability of commercially popular species is also the main reason behind the progressive decline in EU imports of hardwood sawnwood from Ghana. A large proportion of Ghanaian exports now consist of wawa; this wood is used primarily for internal joinery, where it has faced competition from temperate hardwoods and softwoods. Significant quantities of Ghana's khaya exports have been diverted to the North American market in response to the declining availability of South American mahogany.

With declining supply from other African countries, the implementation of a log export ban and inward investment in wood processing, Gabon emerged as the second-largest African supplier of tropical hardwood sawnwood to the EU in 2013. Some of the large European-owned operations in Gabon have made strong commitments to delivering certified wood products. Other factors limit Gabon's competitiveness, however, including relatively high operating costs and the restricted availability of species that are commercially popular in Europe.

EU imports of hardwood sawnwood from the Congo declined sharply during the GFC, falling from more than 60 000 m^3 in 2007 to less than 30 000 m^3 in 2009. There was a partial recovery in 2013, however, to more than 40 000 m^3. Prospects for further increases in EU imports of hardwood sawnwood from the Congo seem good. The wood-processing sector there is composed of large-scale forest enterprises with access to large concessions and linked to international markets. Alongside VPA commitments, most concessionaires have already implemented forest management plans and some have achieved FSC certification. The country's forests contain a good mix of commercially popular species, including iroko, sapele, utile and wengé.

EU imports of hardwood sawnwood from Indonesia are low and declining, amounting to only 23 000 m^3 in 2013. The decline is due primarily to Indonesia's very tight restrictions on exports of this commodity. Since 2004, Indonesian sawnwood exports have been legally restricted to "surfaced four sides" (S4S) products only.[33]

EU imports of tropical hardwood sawnwood from the Central African Republic peaked at 12 000 m^3 in 2008 but declined sharply in 2009 and were static at around 3000 m^3 per year from 2010 to 2013, constrained by political problems in the country and very long supply lines. Nevertheless, the Central African Republic has a forest resource which, although limited in size, is host to a wide range of high-value species, including ayous, limba and sapele.

4.4 Share of mouldings and decking imports

Products listed in HS 4409, which covers "continuously shaped" wood, include outdoor decking and moulded skirting and beading for interior decorative use. EU imports of these products increased rapidly during the construction boom, from 519 000 m^3 in 2004 to 747 000 m^3 in 2007. Imports then fell even more rapidly, however, with the onset of the GFC, to less than 400 000 m^3 in 2009. After a short-lived recovery in 2010 and 2011, imports fell again to a low of 300 000 m^3 in 2013 (Figure 40).

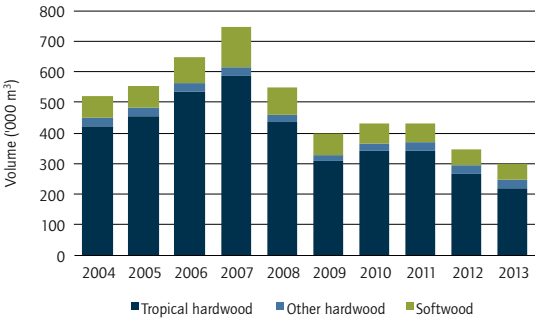
Tropical hardwoods dominate EU imports in this category, accounting for 219 000 m^3 (73%) of the total volume in 2013. In that year, VPA-implementing countries accounted for 36% of tropical hardwood products in this group, and VPA-negotiating countries accounted for a further 11% (Figure 41).

Indonesia is by far the largest VPA partner country exporting mouldings and decking to the EU; this is partly because Indonesia can supply bangkirai, a particularly popular decking timber in Europe, and partly because of Indonesia's ban on rough-sawn exports, which encourages a greater focus on profiled products.

The largest non-VPA suppliers are Brazil and China. Brazil can supply several Amazonian species—such as ipê, garapa and massaranduba—that perform well

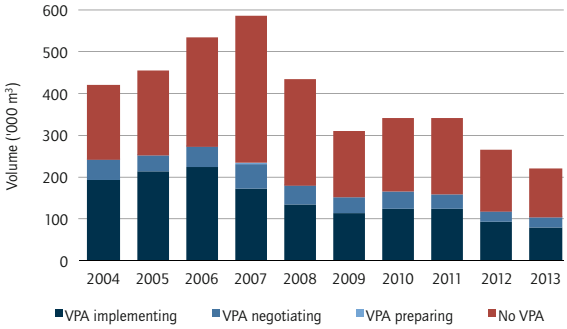
33 Indonesia imposed a ban on sawnwood exports in 2004, but it exempted some types of timber. Indonesia's regulation on sawnwood and other forest products of 2 February 2006, which supersedes the 2004 regulation, states that all exports of sawnwood (HS 4407) are banned, with the following exceptions: S4S, kiln-dried or air-dried, with a cross-section no greater than 4000 mm^2; door or window jambs S4S (including HS 4407), no more than 60 mm thick and 150 mm wide; door or window frames S4S (including HS 4407), no thicker than 40 mm and no wider than 200 mm; and finger-jointed S4S (including HS 4407) made of dried woodchips no longer than 1500 mm.

Figure 40: Volume of EU mouldings/decking imports, by species group, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

Figure 41: Volume of EU tropical mouldings/decking imports, by VPA status, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

as decking timbers. China depends on imported tropical timber, with a strong preference for teak in the decking sector. China also exports small quantities of interior hardwood mouldings to the EU market.

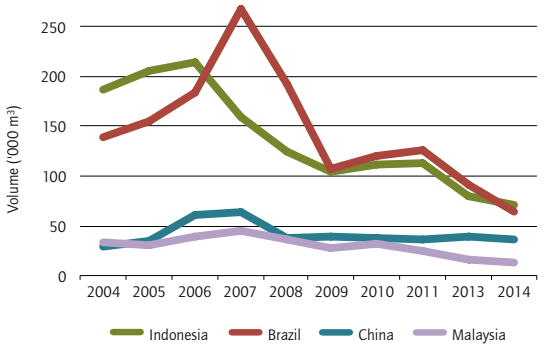
The decline in imports in this category is due to a combination of weak European demand and declining availability of tropical species suitable for decking and decorative mouldings, compounded by increased substitution.

Ramin was formerly strongly favoured for decorative moulding applications. It is no longer available, however, following its listing in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in 2005 and the progressive tightening of export quotas imposed by the main range states of Indonesia and Malaysia.

Tropical hardwood decking is being substituted for wood–plastic composites, thermally and chemically modified European hardwoods, and preservative-treated softwoods. European timbers and medium-density fibreboard (MDF) are replacing tropical hardwood decorative mouldings.

The decline in EU imports in this product category has been particularly pronounced for the two largest suppliers, Brazil and Indonesia (Figure 42). Imports from both countries exceeded 200 000 m^3 per year before the GFC but had fallen to around 70 000 m^3 by 2013. Imports from China were steady at around 40 000 m^3 per year from 2008 to 2013, but imports from Malaysia fell from a peak of 45 000 m^3 in 2007 to 13 000 m^3 in 2013.

Figure 42: EU imports of tropical mouldings/decking, by major supplier, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

Cameroon and Ghana each supply the EU with 3000–4000 m^3 of this commodity per year. In addition to decking timbers, some of this volume comprises decorative mouldings in lighter African hardwoods such as ayous (known as wawa in Ghana).

There were isolated reports in 2013 of some tropical interior moulding products regaining market share at the expense of temperate hardwoods. For example, American tulipwood has made significant inroads into the European market for painted mouldings in recent years but, in 2013, a lack of log supply and rising United States' and international demand led to a significant increase in prices across the full range of American hardwood species, and Ghanaian wawa retook its share when the price of American tulipwood increased.

4.5 Share of veneer supply

The EU market for veneers has been in decline. The supply of veneers to the EU fell by 33% between 2007 and 2013 due to the combined effects of economic recessions, declining domestic plywood manufacturing capacity, and competitive pressure from a wide variety of substitute wood and non-wood materials (Figure 43).

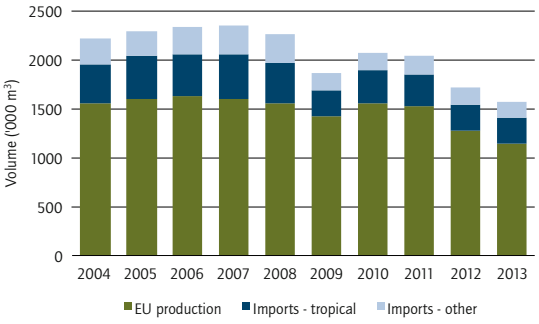
EU imports of veneer fell more steeply than production during the GFC, leading to a sharp loss of market share (Figure 44). EU veneer production fell from 1.60 million m^3 in 2007 to 1.14 million m^3 in 2013. Imports of temperate hardwood veneer were 163 000 m^3 in 2013, down from 305 000 m^3 in 2007, and imports of tropical hardwood veneer fell from 451 000 m^3 to 266 000 m^3 (Figure 45).

EU imports of tropical hardwood veneer include both rotary veneer used primarily for plywood and sliced veneer used for decorative applications. As capacity declines in the EU for the manufacture of tropical plywood, sliced veneer is accounting for an increasing share of imports.

VPA-implementing countries accounted for 20% of tropical hardwood veneer import volume over the decade to 2013. Of those countries, Cameroon was the largest supplier to the EU in 2013, followed by the Congo, Ghana and Indonesia (Figure 46). EU imports of tropical hardwood veneer are negligible from the Central African Republic and Liberia.

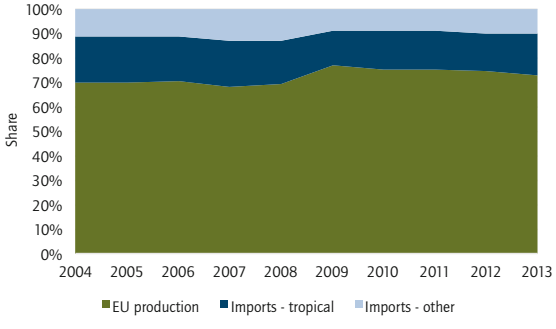
After declining sharply in 2009, EU veneer imports from Cameroon were stable from 2010 to 2013 at around 30 000 m^3 per year, while imports from

Figure 43: Volume of EU veneer supply, by major source, 2004–2013



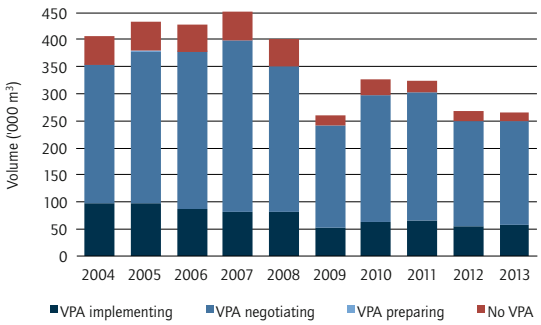
Source: IMM analysis of Eurostat COMEXT data.

Figure 44: Share of EU veneer supply, by major source, 2004–2013



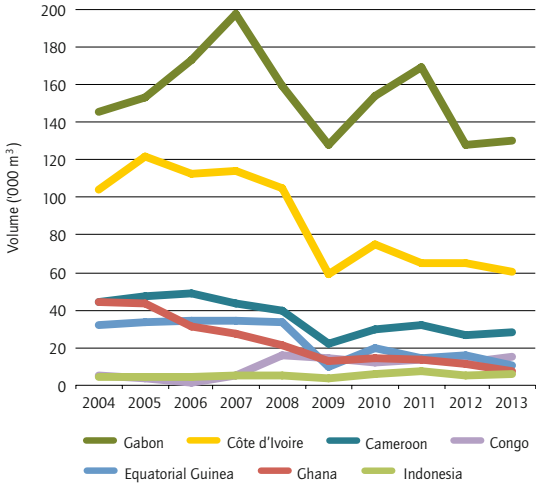
Source: IMM analysis of Eurostat COMEXT data.

Figure 45: Volume of EU tropical veneer imports, by VPA status, 2004–2013



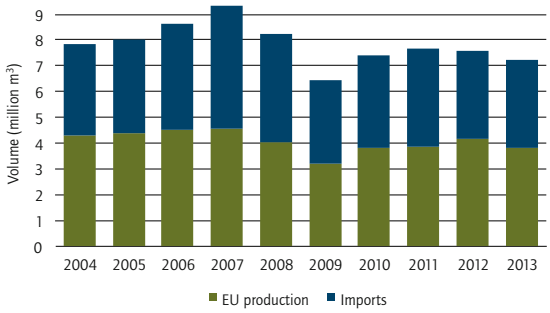
Source: IMM analysis of Eurostat COMEXT data.

Figure 46: EU imports of tropical veneer, by major supplier, 2004–2013



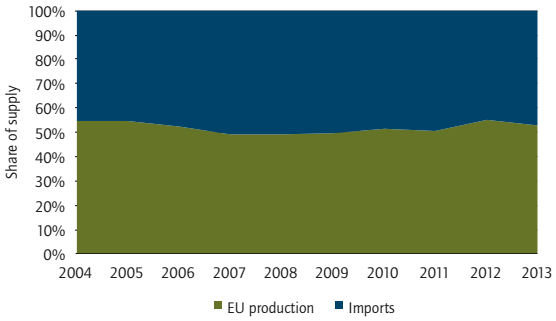
Source: IMM analysis of Eurostat COMEXT data.

Figure 47: Volume of EU plywood supply, by major source, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

Figure 48: Share of EU plywood supply, by major source, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

Ghana slid from 40 000 m^3 in 2004 to little more than 7000 m^3 in 2013. EU veneer imports from the Congo increased from negligible levels in 2007 to about 15 000 m^3 per year in the period 2008 to 2013. EU imports of veneer from Indonesia are consistently in the range of 4000–6000 m^3 per year.

Gabon and Côte d'Ivoire, both of which are negotiating VPAs, are the largest suppliers of tropical hardwood veneer to the EU. Expectations that Gabon's log export ban in 2010 would lead to an increase in imports of veneer from Gabon are yet to be realized, however: EU veneer imports from Gabon were volatile year-on-year over the decade, but the overall trend was downward, declining from over 140 000 m^3 in 2004 to 130 000 m^3 in 2013.

EU veneer imports from Côte d'Ivoire fell sharply during the GFC but remained stable at around 60 000 m^3 per year between 2009 and 2013.

Equatorial Guinea is the largest EU supplier of tropical hardwood veneer not engaged in the VPA process. EU imports from that country were around 15 000 m^3 per year between 2009 and 2013.

Trade reports in 2013 and 2014 indicated that the EU market for hardwood veneers remained very difficult, with producers suffering from declining turnover in the face of lower sales volumes, declining prices and continuing loss of market share to competitors. Pressure on prices continued for mass-production grades of the plywood, flooring and furniture and was extending into markets for more specialist grades.

European tropical hardwood plywood manufacturers are making efforts to halt sales declines and to protect the last remaining facilities, with potential implications for veneer imports. In a measure designed to support the industry, which is concentrated in the Poitou-Charentes region of France, the EU suspended the GSP tariff specifically for okoume veneer from Gabon on 24 June 2014 and backdated the suspension to 1 January 2014. The 0% tariff on okoume veneer from Gabon is now expected to apply until at least the next GSP review on 31 December 2018.

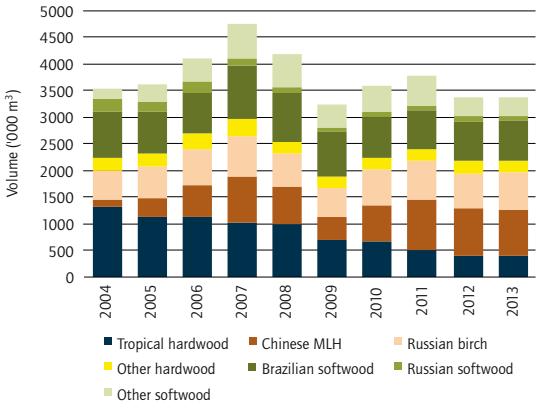
4.6 Share of plywood supply

The EU does not have a large domestic plywood sector, mainly because it lacks supplies of the large-diameter logs required for plywood manufacture. Nevertheless, the domestic industry is still an important competitor for imported plywood. EU plywood production fell from a high of 4.55 million m^3 in 2007 to 3.17 million m^3 in 2009, although production had recovered to 3.81 million m^3 by 2013 (Figure 47). Domestic production contributes 50-55% of the plywood supply in the EU, a proportion that hardly changed in the decade to 2013 (Figure 48).

Most large EU plywood manufacturers are based in Finland or Sweden and use softwood and birch. Smaller plywood manufacturers in southern Europe are using temperate species such as poplar and beech.

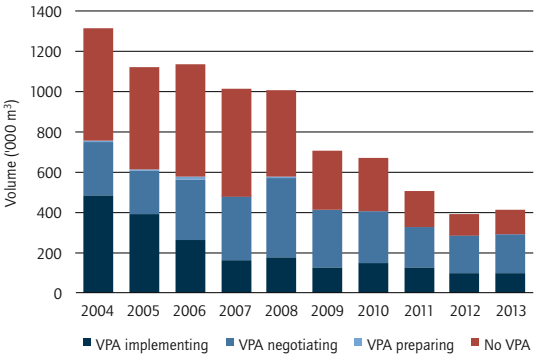
France has traditionally been the main European location for tropical plywood manufacturers, using mainly okoume from Central Africa, but this industry has declined rapidly in recent years. Okoume plywood manufactured in France has the advantage for buyers that it can be sourced relatively quickly. Lead times for standard dimensions may be less than two weeks, while more specialist products may be delivered within a month. However, efforts to diversify sales of okoume plywood manufactured in Europe on

Figure 49: Volume of EU plywood imports, by product type, 2004–2013



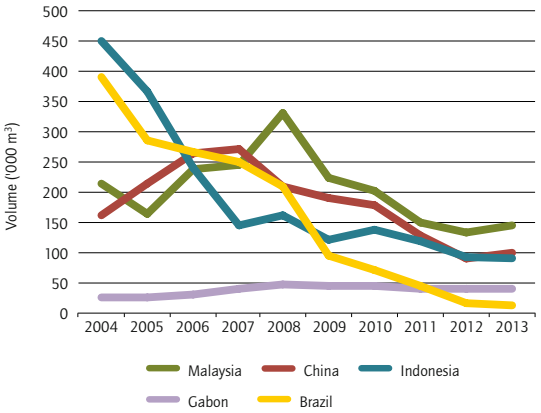
Source: IMM analysis of Eurostat COMEXT data.

Figure 50: Volume of EU tropical plywood imports, by VPA status, 2004–2013



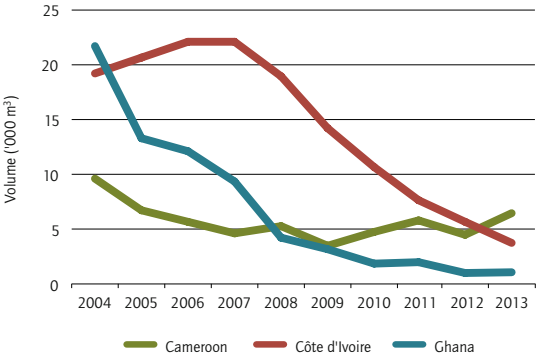
Source: IMM analysis of Eurostat COMEXT data.

Figure 51: EU imports of tropical plywood, by major supplier, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

Figure 52: EU imports of tropical plywood from other African suppliers, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

the back of short lead times and robust legality and sustainability credentials are yet to gain traction.

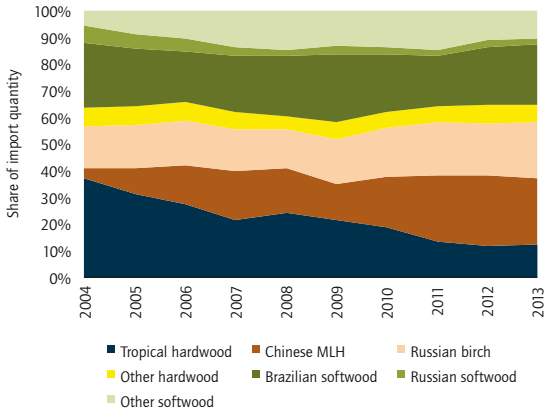
Although the total share of imports in EU plywood supply changed little in the decade to 2013, trends in the actual volume and composition of imports were volatile (Figure 49). Total EU imports peaked at 4.75 million m^3 in 2007 during the construction boom but fell to 3.24 million m^3 in 2009 during the GFC. Plywood imports recovered to 3.76 million m^3 in 2011 but weakened again to 3.38 million m^3 in 2013.

EU imports of tropical hardwood plywood fell from 1.3 million m^3 in 2004 to 411 000 m^3 in 2013, declining in nearly every year over the decade (Figure 50, Figure 51 and Figure 52).

The six VPA-implementing countries supplied a total of 98 000 m^3 of plywood to the EU in 2013, down from 482 000 m^3 in 2004. Nearly all this volume was from Indonesia. The availability of logs for plywood production has declined in Indonesia, while the EU market has become increasingly reluctant to pay higher prices for the combination of high strength and light weight offered by Indonesian products. An increasingly large share of Indonesian plywood has been heading to Japan, where there is a greater willingness to pay premium prices. In Europe, where price became a more critical determinant of demand during the GFC, Indonesia lost share first to Malaysian product and then to Chinese product.

Ghana was once a significant supplier of plywood to the EU, exporting 21 000 m^3 there in 2004, but this volume had fallen to negligible levels by 2013. The availability of large logs suitable for plywood manufacturing has declined in Ghana, and a rising share of production has also been diverted to regional markets, notably Nigeria.

Figure 53: Share of EU plywood imports, by product type, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

The nine VPA-negotiating countries supplied 191 000 m^3 of plywood to the EU in 2013, down significantly from 400 000 m^3 in 2008 and 264 000 m^3 in 2004. EU imports of plywood from Malaysia surged during the boom years before 2008 (taking share from Indonesia) but slumped during the GFC.

EU plywood imports from Côte d'Ivoire followed a similar trajectory to those from Ghana, declining consistently in the decade to 2013.

Strong EU demand and inward investment in processing capacity led to a rise in EU imports from Gabon between 2004 and 2008 and the higher volume of around 40 000 m^3 per year was maintained from 2009 to 2013. The further expansion of the EU market for okoume plywood manufactured in Gabon has been constrained, however, by a long-term shortfall in veneer supply in the country, particularly for FSC-certified material, which is increasingly demanded in Europe. There was a short-term rise in EU imports of okoume plywood from Gabon at the end of 2013 to beat an increase in import duty (from 3.5% to 7%) scheduled for 1 January 2014 due to a change in Gabon's GSP status.

Figure 53 shows that the species' mix of EU plywood imports changed dramatically in the decade to 2013, with the share of tropical hardwood falling from 37% in 2004 to 12% in 2013. Tropical wood lost share mainly to Chinese mixed light hardwood (MLH) based on plantation-grown poplar and eucalypt. Chinese MLH plywood provides significantly lower technical performance than tropical hardwood plywood—it is non-durable and lacks strength. During the GFC, however, many European buyers overlooked performance in preference to the very low prices for the Chinese product. The MLH product trades at prices even lower than OSB and comparable with MDF. Unlike tropical hardwood plywood, which has suffered from price volatility and fluctuating availability in recent years, Chinese MLH plywood prices have been relatively stable and the product has been available consistently.

Before the GFC, there was widespread stocking of tropical hardwood in the EU because of its huge adaptability—it could be used for anything from interior joinery and fittings to external cladding. The appearance of Chinese MLH on the European market at a time when the market was weakening meant that tropical hardwood plywood largely lost its broad market niche for a general-purpose product. Tropical hardwood plywood is now increasingly confined to applications for which it is specifically required, such as external applications where durability is essential and internal applications where visual qualities are paramount.

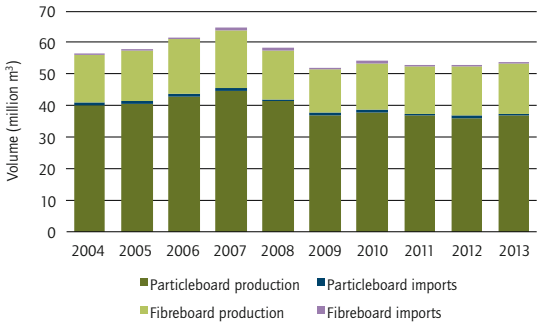
There is also a geographic dimension to plywood market share in the EU. The trend towards the increased use of Chinese MLH is particularly pronounced in the United Kingdom, which is the largest-volume market for imported plywood. The major markets in continental Europe have generally been more willing to pay higher prices for better-quality tropical hardwood plywood, particularly from Indonesia.

Tropical hardwood plywood has also faced competitive pressure from Russian birch plywood, which increased its share of the EU market in the decade to 2013. By the end of that decade, however, declining availability and rising prices for Russian birch plywood began to open up new opportunities for tropical products. Due to a change in the Russian Federation's GSP status, the increase in FOB prices for Russian birch plywood came on top of an increase in import duty, from 3.5% to 7%, on Russian deliveries into the EU from 1 January 2014.

4.7 Share of composite-panel supply

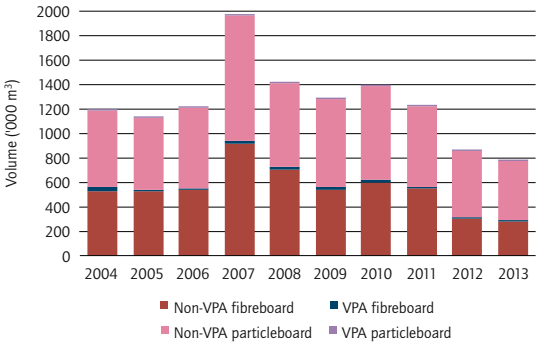
The EU plywood market contrasts sharply with the market for other wood-based panels such as particleboard, OSB and MDF, which are almost all sourced from within the EU (Figure 54). Total European manufacturing capacity of these panels

Figure 54: Volume of EU composite-panel supply, by major source and product, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

Figure 55: Volume of EU composite-panel imports, by product and VPA status, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

is in excess of 50 million m^3 per year. Imports from outside the EU peaked at nearly 2 million m^3 in 2007 but fell to below 800 000 m^3 in 2013 (Figure 55). Imports from all VPA partner countries combined were negligible, reaching 28 000 m^3 in 2004 but falling to 5000 m^3 in 2013. These imports consisted mainly of fibreboard, almost all of which came from Malaysia and Thailand. The majority of EU composite-panel imports comes from other European countries, notably Norway and Switzerland.

To date, the composite-panels sector in Europe is mainly of interest to VPA partner countries for the critical role it has played in driving the development of tropical wood substitutes. OSB has been an important competitor for construction plywood, and MDF has taken an increasing share of the EU interior decorative mouldings market, to some extent replacing light tropical hardwoods such as ayous.

The expansion of composite-panels manufacturing in Europe has also gone hand-in-hand with a major programme of product innovation. There has been substantial improvement in the dimensional accuracy and surface properties of wood-based panels, and the development of high-performance coatings has greatly enhanced durability, wear resistance, and mechanical and thermal resistance. The development of impregnated décor paper, vinyl foils, and direct printing technologies has greatly intensified competitive pressure on tropical hardwoods (and all other real-wood products) in interior decorative applications.

Manufacturing sectors that fabricate products by combining products using such new technologies expanded rapidly in the EU in the years before the GFC. As the GFC took effect, capacity greatly exceeded demand, with the result that prices fell to very low levels, often a fraction of the prices of the real-wood products they replaced.[34]

4.8 Share in the windows sector

The vast majority of doors, windows, kitchens and stair parts installed in the EU are manufactured there. Most wood materials and components supplied to the joinery sector—including mouldings, finger-jointed lumber and glulam—is also produced domestically. External suppliers have struggled to penetrate the European joinery sector: success requires detailed knowledge of changing consumer tastes, regular contact with a large and generally fragmented network of building contractors, and responsiveness to customer concerns. Suppliers of joinery products also need to be willing and able to adhere to an increasingly complex range of quality and environmental standards established at the regional (i.e. EU) and national levels.

These trends are particularly evident in the windows sector. In 2013, the total supply of wooden windows to the EU was valued at €5.96 billion, down from a peak of €8.77 billion in 2007 (at constant 2013 prices—Figure 56). The recent downturn is due mainly to a decline in window production in Italy, Europe's largest window-manufacturing country.

34 For example, the 22 member companies of the European Laminated Flooring Association (all located in Europe or Turkey) manufactured 460 million m^2 of laminated flooring in 2012, which was 53% of global production. Low-end laminate flooring typically sells in the EU for less than €10 per m^2, while upscale products with bevelled edges, handscraping, wire brushing and exotic designs may be priced at €20–30 per m^2. The cheapest engineered wood flooring faced with tropical hardwood veneers can rarely be sourced for less than €35 per m^2, and solid timber flooring is considerably more expensive.

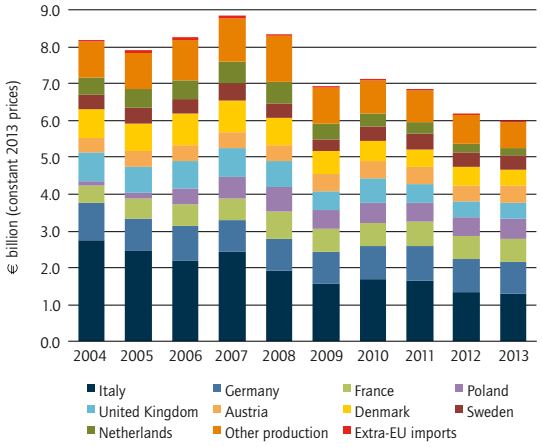
Production elsewhere in Europe was more variable and, in some cases, volatile in the decade to 2013 (Figure 57). Stricter energy regulations in many EU countries have created new demand for energy-efficient windows, which has helped maintain wooden-window-frame production even as the overall value of construction has fallen in most European countries.

Imports of finished windows make up only a tiny and declining proportion of the total European market for wooden window frames. The value of EU imports of wooden windows fell from €78 million in 2006 to €23 million in 2013 (Figure 58). Imports accounted for only 0.4% of the total market in 2013, down from 0.8% in 2007. Most imports derive from Bosnia and Herzegovina, Norway and the United States.

EU imports of wooden windows from tropical countries were valued at only €2.0 million in 2013, down from €9.5 million (constant prices) in 2006 (Figure 59). Imports from VPA-implementing and VPA-negotiating countries combined were valued at €530 000 in 2013, down from a peak of €5.45 million in 2006 (constant prices).

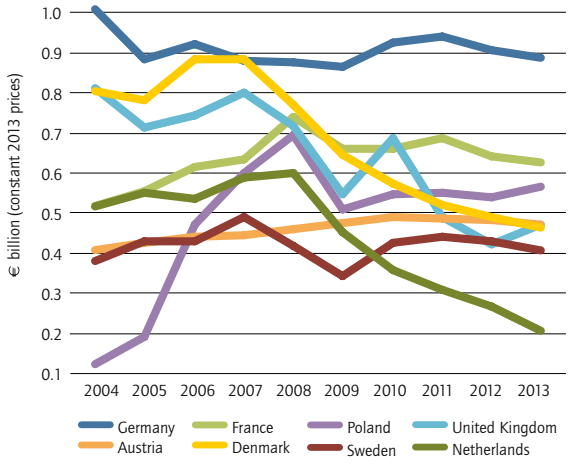
Most of the small volume of wooden windows imported into the EU from the tropics in 2013 came from the Philippines. The value of imports from Indonesia peaked at €3.95 million in 2006 but had fallen to only €210 000 by 2013. Brazil and Malaysia are the only other countries that supplied non-negligible quantities of tropical wooden windows to the EU in the decade to 2013.

Figure 56: EU supply of wooden window frames, by member state production and extra-EU imports, 2004–2013



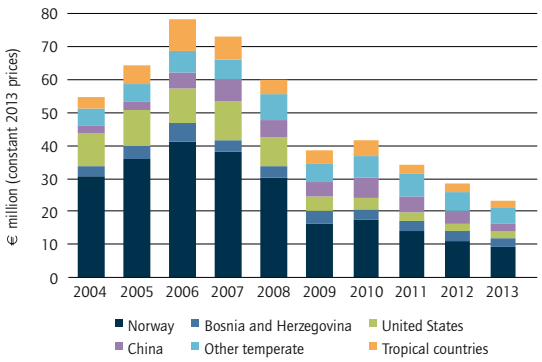
Source: IMM analysis of Eurostat PRODCOM and COMEXT data.

Figure 57: Production of wooden window frames, main EU supplying countries (excluding Italy), 2004–2013



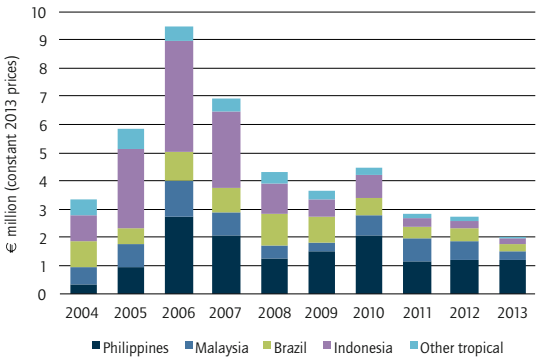
Source: IMM analysis of Eurostat PRODCOM data.

Figure 58: EU imports of wooden window frames, by main source, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

Figure 59: EU imports of wooden window frames from tropical countries, by main source, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

The EU market for wooden window frames is much more significant to VPA partner countries for the role it plays as an end-user of imported sawnwood and laminated veneer lumber (LVL). In this sector, tropical wood is restricted to a small-volume, high-value niche and has come under considerable competitive pressure from wood and non-wood alternatives.

Domestic wood dominates the supply of materials in the European wooden-window-frame sector. The most widely used wood materials are pine (in solid form) and laminated spruce. Denser, slower-growing grades of oak are also used quite widely for higher-value window frames, either in solid form or, increasingly, in laminates.

The tendency to rely on local species increased during the GFC. Most window manufacturers require timber of consistent quality that is readily available, preferably on a just-in-time basis. At the same time, the move to fully factory-finished windows has increased the focus on consistent compliance with very tight size specifications to avoid wastage and on technical standards for strength, durability and stability. These factors are becoming progressively more important than aspects such as versatility and ease of on-site working, which, in the past, tended to favour imported products such as tropical hardwoods.

Trends in the sector have particularly encouraged the use of engineered wood products, and some external wood-product suppliers have been able to exploit this: certain Chinese, Indonesian and Malaysian manufacturers have developed and now supply LVL to the European windows sector (see section 4.11).

Competition with non-wood materials in the window sector has been intense in recent years. Even before the GFC, the overall share of wood in European window manufacturing had fallen from around 30% in 1998 to 25% in 2008. The main beneficiary was plastics, which had a share of around 45% in 2008. The dominance of plastics is due to a combination of low-priced product, strong marketing and distribution networks, and constant innovation to improve thermal insulation, aesthetics and recycling. Nevertheless, wooden windows have performed reasonably well compared with substitutes in the wake of the GFC, for several reasons: improvements have been made in the quality of products and services provided by the wooden-window-frame sector; there has been a concerted shift to fully factory-finished units with long service-life guarantees; and emerging concern for environmental issues and energy efficiency has improved the competitiveness of wooden windows.[35]

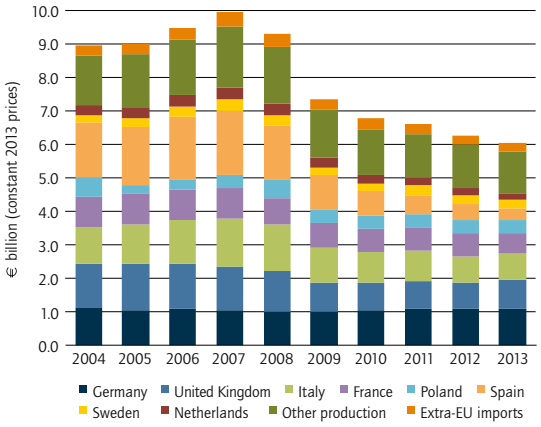
35 From Oliver and Donkor (2010).

4.9 Share in the doors sector

Import penetration is slightly higher in the EU wooden-door sector than in the wooden-window sector. The total supply of wooden doors to the EU market was valued at €6.06 billion in 2013, down from €9.94 billion in 2007 (constant prices; Figure 60). In 2013, EU domestic production was valued at €5.79 billion, while imports were worth €275 million, which was 4.5% of the total supply.

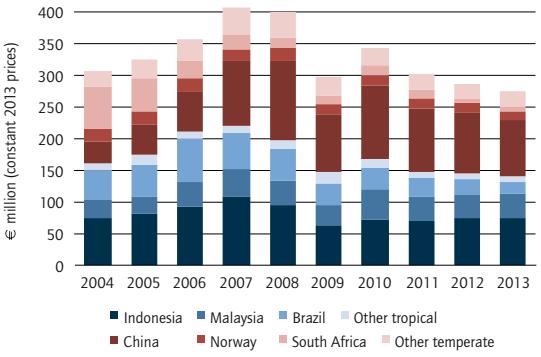
A significant proportion of finished door products imported into the EU derive from three large tropical countries—Brazil, Indonesia and Malaysia (Figure 61). Imports from Indonesia were valued at €75.4 million in 2013, down from a peak of €108.3 million in 2007 (constant prices). Imports

Figure 60: EU wooden-door supply, by member state production and extra-EU imports, 2004–2013



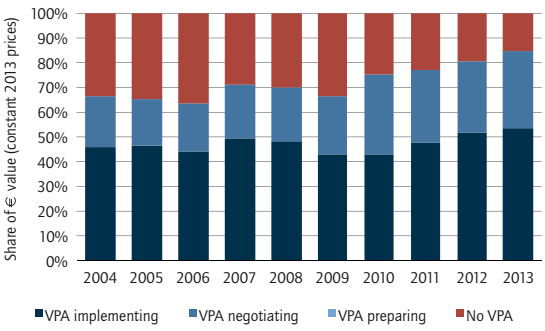
Source: IMM analysis of Eurostat COMEXT data.

Figure 61: EU wooden-door imports, by main source, 2004–2013



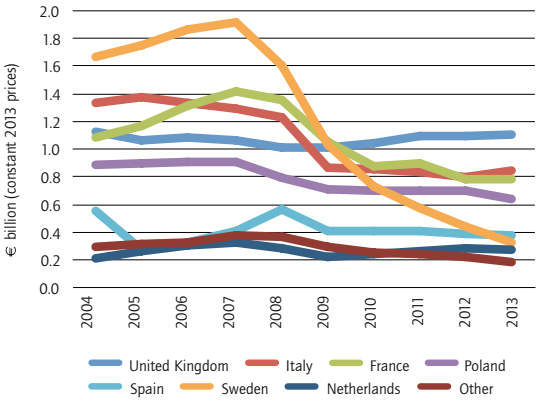
Source: IMM analysis of Eurostat COMEXT data.

Figure 62: Share of EU wooden-door imports from tropical countries, by VPA status, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

Figure 63: EU wooden-door production, by EU member state, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

from Malaysia were worth €38.5 million in 2013, down from €43.7 million in 2007 (constant prices). Imports of hardwood doors from Brazil fell particularly dramatically, from €67.8 million in 2006 to €18.1 million in 2013 (constant prices).

The EU receives a negligible supply of doors from tropical countries other than Brazil, Indonesia and Malaysia. The more rapid decline in EU imports from Brazil relative to those from Indonesia and Malaysia meant that, by 2013, more than 80% of doors imported into the EU from the tropics derived from VPA partner countries (Figure 62).

The largest external suppliers of doors to the EU outside the tropics are Norway and South Africa, which contributed €13.6 million and €5.1 million, respectively, in 2013. EU imports from South Africa had fallen dramatically, however, from €66.5 million in 2004.

Although domestically manufactured products continued to dominate, the value of production in the EU fell more rapidly than imports, from a peak of €9.5 billion in 2007 to €5.8 billion in 2013. As a result, overseas suppliers increased their share of the overall EU market, from 3.4% in 2004 to 4.5% in 2013.

By far the biggest fall in production was in Spain, formerly the EU's largest wooden-door manufacturer, from €1.71 billion in 2007 to €0.33 billion in 2013 (Figure 63). Wooden-door production also fell steeply in France, Italy and the United Kingdom between 2007 and 2013, but it increased slightly in Germany, in line with generally more robust construction activity in that country; demand for wooden doors in Germany was also boosted by energy-saving measures. Germany is now Europe's largest wooden-door manufacturer, with a production value of more than €1.1 billion in 2013.

To date, the EU wooden-door sector has been more significant to VPA partner countries as a driver of imports of wood raw materials than of finished products. Overall trends in the sector were not positive for timber products from VPA partner countries in the decade to 2013. Wooden doors manufactured in Europe are now rarely made from solid timber; rather, they are manufactured using veneered panels and finger-jointed timbers.

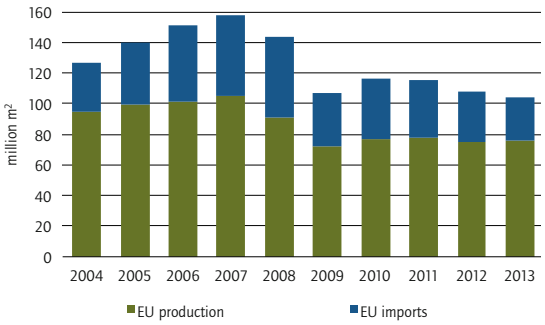
Doors with real-wood veneer have also been losing share to doors manufactured using high-pressure laminate foils and white lacquered products. This is partly due to a shift in overall door production from southern European countries such as Spain and Italy, which strongly favoured real-wood veneer, to Germany, where there is a very sophisticated foil and laminates industry.

4.10 Share in the flooring sector

Of all finished joinery products, only flooring is imported in relatively large quantities from outside the EU. The production of real-wood flooring[36] in the EU was 76 million m^2 in 2013, while imports were 28.3 million m^2 (Figure 64), comprising 19.9 million m^2 of finished flooring products and

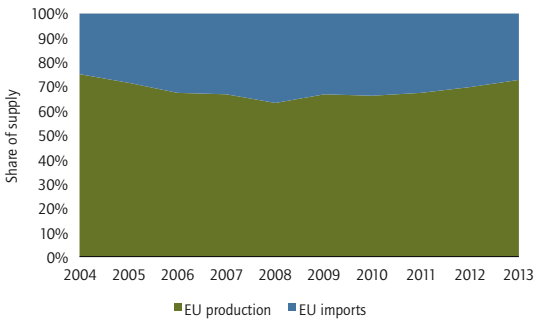
36 The term "real-wood flooring" is used here to describe flooring products that are either manufactured with solid wood or engineered with a real-wood veneer; it excludes laminated products which, although consisting of a wood-based high-density fibreboard or MDF core, are typically faced with paper and a melamine resin wear layer.

Figure 64: EU real-wood flooring supply, by production and imports, 2004–2013



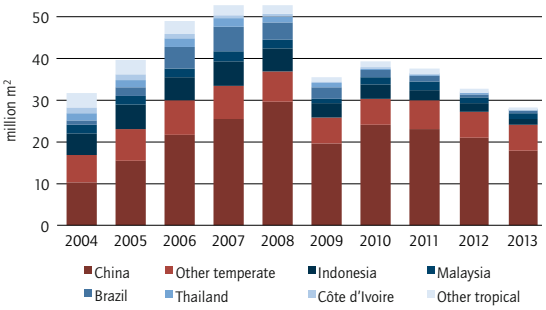
Source: IMM analysis of Eurostat PRODCOM and COMEXT data.

Figure 65: Share of EU real-wood flooring supply, by production and imports, 2004–2013



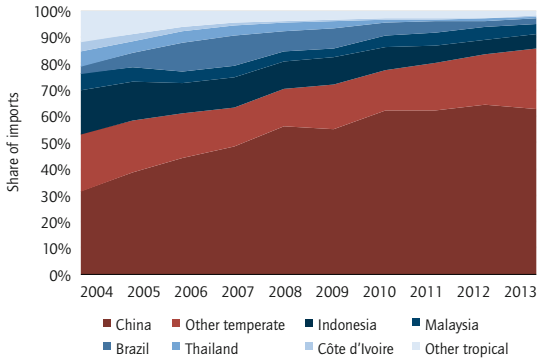
Source: IMM analysis of Eurostat PRODCOM data.

Figure 66: EU real-wood flooring imports, by source of supply, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

Figure 67: Share of EU real-wood flooring imports, by source of supply, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

8.4 million m^2 of wooden blocks and strips for flooring. Imported products gained market share from 2004 to 2008, but this trend reversed from 2009 to 2013 (Figure 65).

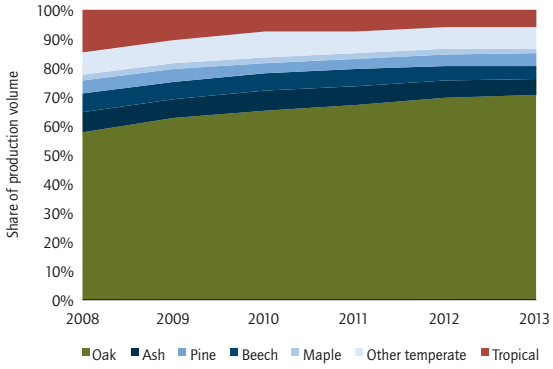
EU imports of real-wood flooring products increased from 31.9 million m^2 in 2004 to 52.7 million m^2 in 2007, fell to 35.6 million m^2 during the GFC, staged a brief recovery to reach 39.2 million m^2 in 2010, and declined again, to 28.3 million m^2, in 2013 (Figure 66).

Although total real-wood flooring imports have been volatile, there has been a consistent trend in this sector away from tropical suppliers in favour of products from China and other temperate countries such as Bosnia and Herzegovina, the Russian Federation, Switzerland and Ukraine (Figure 67). China's share of overall EU real-wood flooring imports increased from 32% in 2004 to 64% in 2012; it dropped back slightly, to 63%, in 2013, while the share held by Bosnia and Herzegovina, the Russian Federation, Switzerland and Ukraine increased.

Countries engaged in the VPA process were only relatively minor suppliers of real-wood flooring to the EU in the decade to 2013, and they lost market share over the period. Of the six VPA-implementing countries, Indonesia is still the largest supplier of real-wood flooring to the EU by far; nevertheless, EU imports from Indonesia declined dramatically from a high of 6.0 million m^2 in 2007 to 1.5 million m^2 in 2013.

Of the VPA-negotiating countries, the main suppliers of real-wood flooring to the EU in the decade to 2013 were Côte d'Ivoire, Malaysia and Thailand. Imports from Malaysia declined from 2.4 million m^2 in 2007 to 1.2 million m^2 in 2013. Imports from Thailand peaked at 2.1 million m^2 in 2006 but fell to a negligible amount in 2013. Imports from Côte d'Ivoire, mainly of unfinished flooring blocks and strips, were 1.3 million m^2 in 2004, but they had fallen to negligible amounts by 2013.

Figure 68: Share of European real-wood flooring production, by surface timber type, 2008–2013



Source: IMM analysis of FEP data.

In addition to competition from China and other temperate flooring producers outside the EU, tropical hardwood suppliers face increased competition from a resurgent EU domestic industry. There are signs that EU real-wood flooring manufacturers have adjusted to the new market situation by boosting their competitiveness in international markets. This is implied not only by the recent decline in EU imports of real-wood flooring but also by a rise in EU exports to other regions. The value of EU real-wood flooring exports increased by 5.5% from 2012 to 2013, to €527 million, following a 10% increase in export value from 2011 to 2012. Most of the export gains in 2013 were to markets outside Europe, notably China, Turkey and the United States. The value of the EU's trade deficit in real-wood flooring fell from €281 million in 2011 to only €68 million in 2013.

Flooring is one of the few sectors for which good data are available on the end-uses of different species, providing valuable insights into interior finishing trends. These trends have not been positive for tropical wood or for any timber other than oak (Figure 68). In 2013, oak accounted for 71% of real-wood flooring production in countries that are members of the European Parquet Flooring Federation, up from 58% in 2008. In the same period (2008–2013), the share of tropical wood fell from 15% to 6%, and ash, beech and maple also lost market share.

4.11 Share in the glue-laminated sector

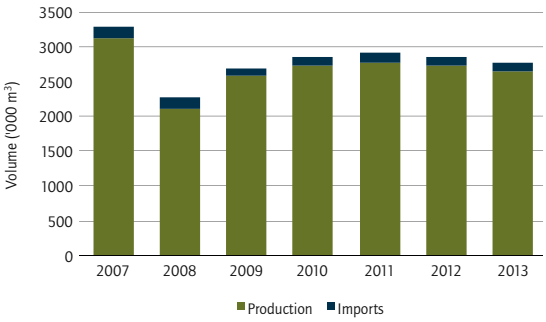
There is a strong trend towards the increased use of engineered wood products in Europe. This trend has particularly benefited glue-laminated timber, which comprises layers of small-dimension lumber glued together into components. Glue-laminated timber includes both large "glulam" beams used for structural applications and LVL used for joinery applications.

Glue-laminated timber has numerous technical and environmental assets. It has a high strength-to-weight ratio and good fire resistance, is naturally durable and robust, and performs consistently and predictably. It also allows the efficient use of small-dimension material to produce stable and light but strong products in a wide range of sizes. Glulam beams can be used to create vast interior spaces with no internal supports.

LVL has proven particularly well suited to the manufacture of modern factory-finished joinery products that meet tough quality and environmental standards and are offered with lifetime guarantees. LVL has also been a major beneficiary of the move to install highly insulated triple-glazed windows in parts of Europe, notably Germany, as an energy-efficiency measure. This has required window-framing materials that are extremely strong but also lightweight, a combination readily achieved by LVL but which only a few expensive wood species can achieve in their solid-wood state.

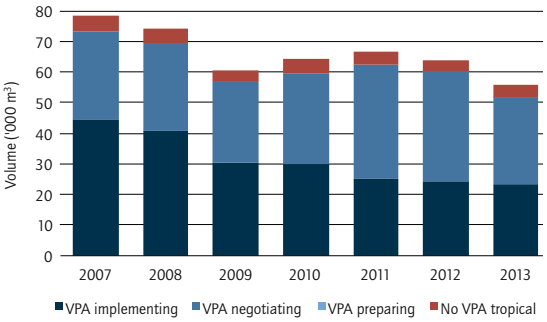
Europe is now the world's largest market for glue-laminated timber, accounting for around 60% of all global consumption. While glue-laminated timber

Figure 69: EU glue-laminated timber supply, by origin, 2007–2013



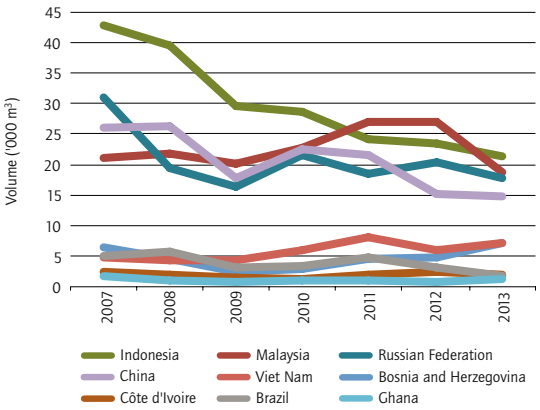
Source: IMM analysis of PRODCOM and COMEXT data

Figure 70: Volume of EU tropical glue-laminated timber imports, by VPA status, 2007–2013



Source: IMM analysis of Eurostat COMEXT data.

Figure 71: EU imports of glue-laminated timber, by major supplier, 2007–2013



Source: IMM analysis of Eurostat COMEXT data.

was a significant growth sector in Europe in the decade to 2007, domestic capacity overshot demand following the GFC. The total supply of glue-laminated timber in the EU was 2.76 million m^3 in 2013, down from a peak of 3.28 million m^3 in 2007 (Figure 69). There has been strong competition for sales in the EU in recent years, and European producers have also focused on increasing exports, notably to Japan (for traditional post-and-beam construction in place of solid posts and beams).

Imports form only a small component of overall glue-laminated timber supply to the EU. About 112 000 m^3 of glue-laminated timber was imported into the EU in 2013, down from 170 000 m^3 in 2007. The import share of consumption spiked in 2008 at 6%, when domestic producers responded more quickly than importers to declining demand. The import share of total consumption was static from 2009 to 2013, at around 4%.

Although trade statistics do not separate smaller-dimension LVL from structural glulam beams, most imports are believed to comprise LVL for the manufacture of window frames. This is implied by the countries of origin, which are better known for the supply of LVL rather than structural glulam beams.

Imports of glue-laminated timber from tropical countries declined from 109 000 m^3 in 2007 to 72 500 m^3 in 2013 in the aftermath of the GFC (Figure 70). The six VPA-implementing countries supplied 23 200 m^3 of glue-laminated timber to the EU in 2013, down from 44 600 m^3 in 2007. Most of the imported supply derived from Indonesia, and there were smaller volumes from Cameroon and Ghana. Despite the overall decline, Indonesia was the EU's single-largest external supplier of glue-laminated timber in 2013. Imports from Indonesia consist mainly of meranti profiles for window frames.

The nine VPA-negotiating countries supplied a total of 28 400 m^3 of glue-laminated timber to the EU in 2013, down from a peak of 37 300 m^3 in 2011. Most of this volume derived from Malaysia, which was the second-largest external supplier of glue-laminated timber to the EU in 2013 after Indonesia, contributing 18 700 m^3. Viet Nam supplied 7100 m^3 of glue-laminated timber to the EU in 2013, and Côte d'Ivoire supplied 1900 m^3.

Other external suppliers of glue-laminated timber to the EU are Bosnia and Herzegovina, China and the Russian Federation (Figure 71). All these countries have increased their share of imports in recent years, but this has been due to the decline in imports from Indonesia rather than any significant increase in their exports to the EU, which continue to supply only relatively small volumes. Imports from Brazil fell from around 5000 m^3 in 2007 to negligible levels in 2013.

European glue-laminated timber producers are concentrated in Austria and Germany. Their sales are focused primarily on the European market, the only large non-European market being Japan. A large proportion of European production uses spruce, and attempts to establish pine glue-laminated products in the European market have been only partially successful. Larch glue-laminated timber has also come to be appreciated by specifiers looking for a greater degree of natural durability without the need for pressure treatment.

Among hardwood species, European oak and American white oak are used most regularly for the manufacture of glue-laminated timber in Europe.

Germany has traditionally been the largest market for glue-laminated timber from VPA partner countries, being an early adopter of LVL in the windows sector. This trend has progressively filtered through to other countries and a wider range of end-use sectors. Italy experienced particularly rapid growth in glue-laminated timber consumption in the decade before the GFC—from 100 000 m^3 in 1998 to 1.05 million m^3 in 2007. Consumption has declined since then, however, to 790 000 m^3. Glue-laminated timber is used in Italy in the construction of homes, home patios and agricultural buildings.

Successful participation in the European glue-laminated timber sector is a complex and capital-intensive process. The supply of glue-laminated timber is subject to standards covering the production process, quality control, production technique/technology, computer-analysis processes, and construction safety documentation. The general requirements for glue-laminated timber are defined in the EN14080 standard. Mechanical properties are established or experimentally defined using procedures prescribed in the EN408 standard. Glue-laminated timber strength classes are described in EN1194 ("Wood Constructions – Glued Laminated Timber – Strength Classes and Determination of Characteristic Values").

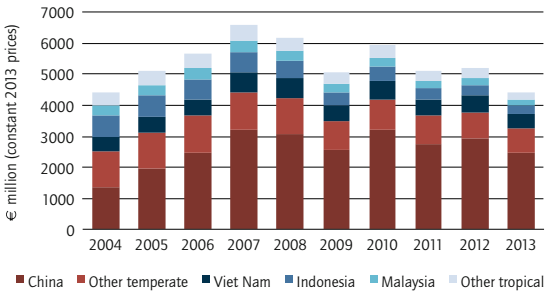
4.12 Share in the furniture sector

EU imports of wood furniture[37] increased rapidly from €4.74 billion in 2004 to €6.90 billion in 2007, due to a surge in trade with China[38], before dipping to €5.27 billion in 2009 during the GFC. After a brief rebound in 2010, imports declined again, to €4.43 billion in 2013 (Figure 72). The value of EU wood-furniture imports (at constant prices adjusted for inflation) in 2013 was below the level of a decade before. Imports have declined since 2007 for two reasons: the economic crisis in Europe, and the increasing competitiveness of domestic European manufacturers.

37 This analysis of the role of VPA countries in the European wood-furniture sector excludes kitchen furniture. Kitchen furniture is supplied almost exclusively by domestic manufacturers and is therefore less relevant to overseas manufacturers. In terms of trade flows and market participants, the EU's kitchen furniture industry has more in common with the joinery sector than with other parts of the furniture industry.

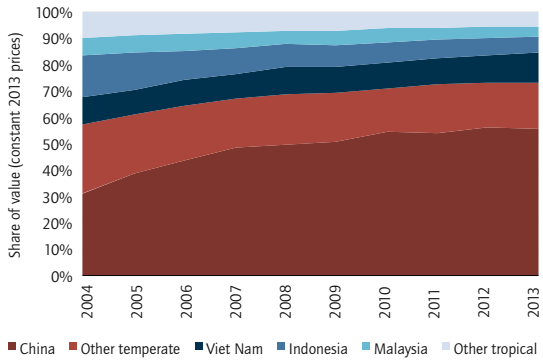
38 All prices are constant 2013 prices adjusted for inflation using the Eurostat Harmonized Indices of Consumer Prices covering all items for the eurozone.

Figure 72: EU wood-furniture imports, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

Figure 73: Share of EU wood-furniture imports, 2004–2013



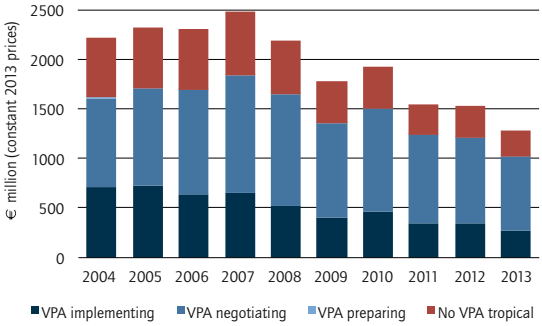
Source: IMM analysis of Eurostat COMEXT data.

The market share of EU wood-furniture imports held by suppliers in tropical countries fell from 47% in 2004 to 29% in 2013 (Figure 73). Viet Nam increased its share from 9% to 11% in the period, but Indonesia's share declined from 15% to 6% and Malaysia's share fell from 6% to 4%. China's share of total EU wood-furniture import value increased from 29% to 54% over the period.

The six VPA-implementing countries supplied the EU with wood furniture worth €273 million in 2013, down from €721 million in 2005 (Figure 74). Nearly all this product derived from Indonesia. EU imports of wood furniture from Ghana were worth €6.7 million in 2004 but had declined to negligible levels by 2013. The value of wood-furniture imports from all other VPA-implementing countries is close to zero.

The nine VPA-negotiating countries supplied the EU with wood furniture worth €739 million in 2013, down from a peak of €1188 million in 2007. Most of the product in 2013 derived from Malaysia,

Figure 74: Value of EU wood-furniture imports from tropical countries, by VPA status, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

Thailand and Viet Nam. In 2013, Viet Nam supplied wood furniture to the EU worth €497 million, down from €631 million in 2007, and Malaysia supplied wood furniture worth €168 million, down from €386 million in 2007. The value of imports from Thailand declined from €168 million in 2007 to €73 million in 2013. EU furniture imports from these countries are likely to increasingly involve temperate timbers imported and re-exported by VPA partner countries (see section 4.1).

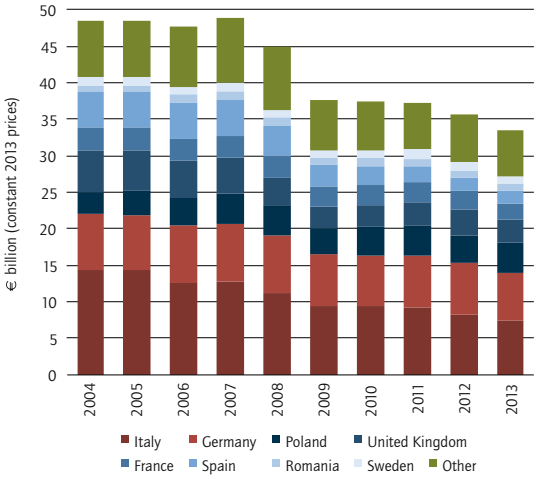
Of the tropical countries not engaged in the VPA process, the largest suppliers of wood furniture to the EU are Brazil and India. The value of imports from Brazil to the EU fell from €297 million in 2007 to €105 million in 2013. India supplied the EU with wood furniture worth €115 million in 2013, down from €201 million in 2007.

The role of all external furniture suppliers to the EU needs to be considered against the background of the region's domestic industry, which remains a major global player, due not only to its size but also to its influential role in international fashion and design.

The EU's role in the global furniture market changed dramatically in the decade to 2013, particularly during the GFC. In 2013, EU production of wood furniture was valued at €33.4 billion, down from a peak of €48.9 billion in 2007 (Figure 75). The EU has slipped from first to second (after China) among the world's biggest wood-furniture producers; nevertheless, it still accounts for around one-quarter of world furniture production and consumption.

The share of imports in total EU wood-furniture supply peaked at 14% in 2010 before falling to 12% in 2013 (Figure 76). This is in contrast to the United States, for example, where a very large

Figure 75: Value of EU wood-furniture production, by member state, 2004–2013

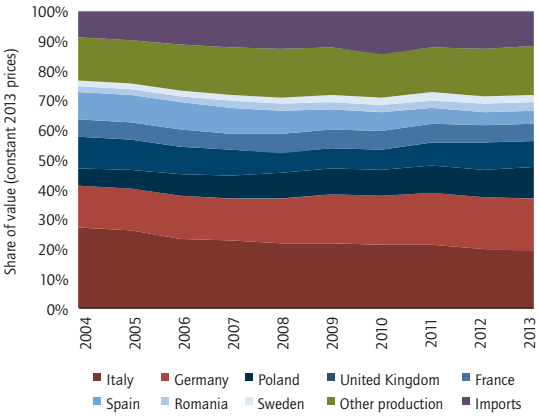


Source: IMM analysis of Eurostat COMEXT data.

section of the furniture-manufacturing industry shifted to lower-cost locations, particularly China, in 2000–2008.

The continuing dominance of local manufacturers in the European market might seem surprising given relatively high labour and other production costs in Europe. A key reason for this is the high level of investment in machinery and product development in the European furniture sector, which has reduced the relative contribution of labour to overall costs and placed a premium on technical, design-related and market knowledge and boosted the general quality of European products and perceived value of European

Figure 76: Share of value of EU wood-furniture supply, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

brands. European manufacturers have built on this perception with sophisticated marketing and communication campaigns that, in turn, have encouraged a high degree of loyalty to European products among consumers.

European manufacturers have also exploited other advantages arising from close proximity to consumers. An increasingly important factor in wood-furniture marketing is the ability to supply quickly on demand, respond rapidly to changing tastes, and provide customers with support services—including "no-questions-asked" guarantees for customers wanting to return products.

In many European countries, the retail sector is quite fragmented, with many smaller companies, and selling into them requires local knowledge and a large network of contacts. It is no accident that the United Kingdom, where large companies dominate the retail sector, is also the European country with the largest market penetration by overseas suppliers.

For all these reasons, European manufacturers choosing to relocate in the last decade have tended to opt for countries in eastern Europe, which offer a good compromise between lower costs of production and reasonable proximity to the large consumer markets of western Europe. German manufacturers have tended to shift to Poland, while many Italian manufacturers have opted for a move to Slovenia.

Although furniture manufacturing has risen in eastern Europe in the last decade, the traditional western European manufacturing countries still retain a very large share of EU furniture production capacity. In fact, the two largest western European producers, Italy and Germany, together account for around 40% of all wood furniture supplied in the EU, and this share was stable from 2006 to 2013. Despite widespread reports of declining consumption and intense competition, the value of wood-furniture production in the leading western European manufacturing countries was also stable in that period.

The value of EU wood-furniture consumption has fallen nearly every year since the onset of the GFC, from €49.3 billion in 2007 to €31.3 billion to 2013. European furniture manufacturers have responded to this decline with efforts to boost productivity and develop export markets. European wood-furniture exports fell from €6.62 billion in 2008 to €5.20 billion in 2009 due to a significant contraction in the United States market at that time but rebounded to €6.67 billion in 2013, with rising sales in Asia, the Middle East, North America and the Russian Federation. The EU had a trade deficit in wood furniture of €332 million in 2007; by 2013, it had a trade surplus of €2.14 billion.

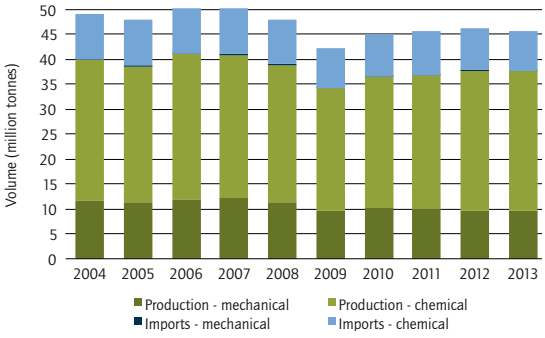
4.13 Share in the pulp sector

Paper (and paperboard) is produced with virgin pulps and processed recovered paper. Recycled paper now accounts for more than half the fibre used for paper and paperboard production in Europe. Paper is often made using a combination of pulps; many paper mills are integrated, with capacity to engage in virgin pulpmaking, recovered-paper processing, and paper production. Other mills rely heavily on pulp purchased on the open market.

Woodpulp supply to the EU averaged close to 50 million tonnes per year in the five years to 2008 but fell to an average of about 45 million tonnes in the period 2009–2013 (Figure 77).

Nearly all mechanical woodpulp consumed in the EU is produced domestically; imports from outside the EU are significant only in the chemical woodpulp sector.[39] The trend towards the greater use of chemical woodpulp is driven by the need for greater strength because European papermakers are increasingly blending less-costly and weaker mechanical pulps and recycled paper fibres into the furnish they use to make paper.

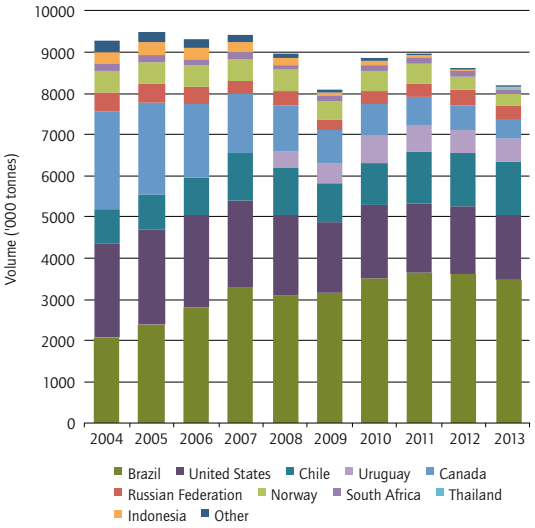
Figure 77: EU woodpulp supply, domestic production and imports, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

39 Pulp may be categorized into mechanical, chemical and chemi-mechanical types. Mechanical pulp is produced by the application of mechanical energy to separate the wood fibres; it retains most of the lignin present in the wood and contains almost as much lignin as cellulose fibre. An advantage of mechanical pulp is the high yield relative to wood use, but the paper it produces tends to be low in strength. Chemical pulp is produced mainly by the kraft (sulphate) process (and occasionally by a sulphite process) that liberate fibres from the wood matrix by dissolving the matrix in a chemical solution at high temperatures. Chemical pulps contain much less lignin than mechanical pulps and produce paper of greater strength. Chemi-mechanical pulp is produced by pre-softening the wood with chemicals, followed by mechanical pulping.

Figure 78: EU imports of woodpulp, by major supplier, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

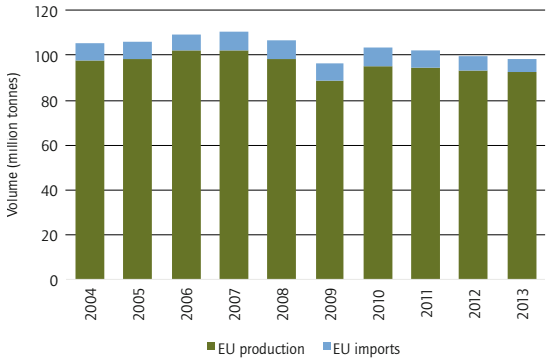
Imports consistently contributed around 20% of total annual EU woodpulp supply in 2004–2013. Total imports peaked at 9.5 million tonnes in 2005 and fell to a low of 8.1 million tonnes in 2009. After a brief recovery in 2010 and 2011 they declined again, to 8.2 million tonnes in 2013.

The share of EU woodpulp imports held by Brazil, Chile and Uruguay has been rising, mainly at the expense of Canada and the United States, where production capacity has been declining (Figure 78). Imports from Brazil and Uruguay consist primarily of chemical hardwood pulp from eucalypt plantations, while imports from Chile are a mix of chemical hardwood (eucalypt) pulp and chemical softwood (radiata pine) pulp.

Figure 79: EU imports of woodpulp from countries engaged in the VPA process, 2004–2013

Source: IMM analysis of Eurostat COMEXT data.

Figure 80: EU paper supply from domestic production and imports, 2004–2013



Source: IMM analysis of Eurostat PRODCOM and COMEXT data.

Indonesia and Thailand are the only VPA partner countries that supplied non-negligible volumes of pulp to the EU in the decade to 2013. EU pulp imports from Indonesia, consisting entirely of chemical hardwood pulp, fell rapidly, from more than 300 000 tonnes in 2004 to only 19 000 tonnes in 2013 (Figure 79). Indonesia's pulpwood plantations consist primarily of *Acacia mangium*, with smaller quantities of *Acacia crassicarpa*, *Gmelina arborea* and *Eucalyptus deglupta*. Imports from Thailand were negligible until 2013, when they increased sharply to 33 000 tonnes.

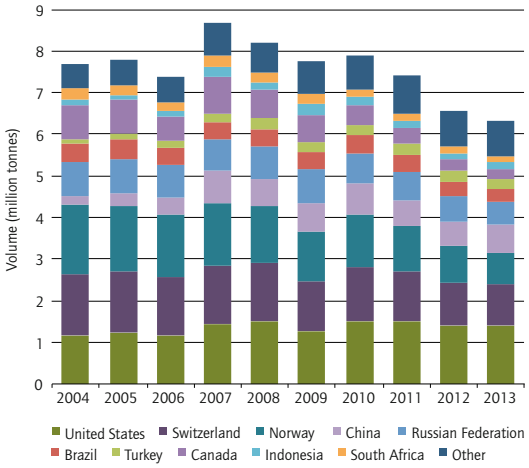
4.14 Share in the paper sector

The value of paper-product imports into the EU—€6.7 billion—in 2013 was higher than the total for all wood products in CN Chapter 44 (€4.6 billion). Nevertheless, imported paper is relatively insignificant compared with the total supply of paper products to the EU (Figure 80).

Wood-based paper supply to the EU fluctuated between a high of 111 million tonnes and a low of 96 million tonnes in the decade to 2013 (Figure 80), rising between 2004 and 2007. Paper consumption in the EU fell during the GFC, recovered in 2010 and declined again in 2011–2013, linked to the general economic downturn and to the advance of digital media, which is eroding demand for newsprint and other printing papers.

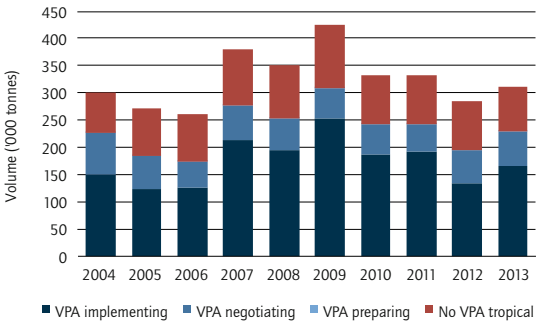
EU domestic paper production reached a high of 102 million tonnes in 2006 but fell to 92 million tonnes in 2013. EU paper-product imports peaked at 9.7 million tonnes in 2007, at around 8% of total EU supply (Figure 81). By 2013, EU paper imports had fallen to 6.3 million tonnes, which was 6.4% of EU supply.

Figure 81: EU imports of paper, by major supplier, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

Figure 82: Volume of EU paper imports from tropical countries, by VPA status, 2004–2013



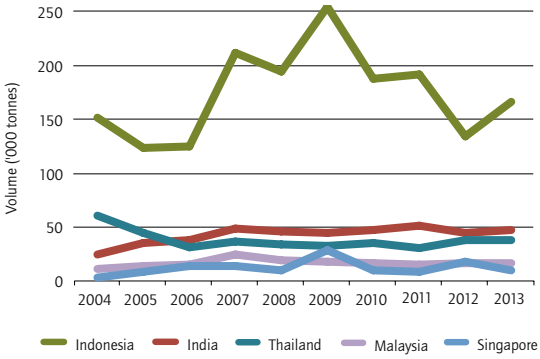
Source: IMM analysis of Eurostat COMEXT data.

The decline in EU imports following the GFC was due in large part to falling imports of kaolin-coated paper from non-EU European countries, probably the result of capacity closures in those countries.

Less than 5% of paper-product imports into the EU derive from tropical countries. Total EU imports from the tropics[40] increased from 300 000 tonnes in 2004 to 425 000 tonnes in 2009 but declined to 286 000 tonnes in 2012. There was a slight rise in 2013, to 311 000 tonnes (Figure 82).

40 Brazil is excluded here because it is assumed that the large majority of Brazilian paper products imported into the EU are derived from plantations in subtropical zones and not from tropical Amazonia. Paper imports from Brazil in the decade 2004–2013 peaked at 465 000 tonnes in 2005. The EU imported 312 000 tonnes of paper products from Brazil in 2013.

Figure 83: EU imports of paper from tropical countries, 2004–2013

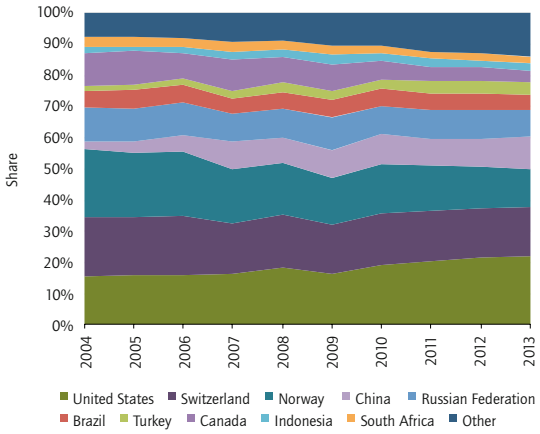


Source: IMM analysis of Eurostat COMEXT data.

Trends in EU imports of paper products from tropical countries are driven primarily by Indonesia, which is by far the largest tropical supplier (Figure 83). Imports from Indonesia peaked at 250 000 tonnes in 2009 before declining to 134 000 tonnes in 2012. It remains to be seen whether the recovery in EU imports from Indonesia in 2013, to 167 000 tonnes, will be sustained. EU imports of paper from Indonesia consist primarily of uncoated papers for writing and printing, together with kaolin-coated papers for a variety of printing applications.

The only other tropical countries supplying non-negligible quantities of paper to the EU are India, Malaysia, Singapore (most likely re-exports from other Asian countries) and Thailand. EU imports of paper from all these countries were relatively stable in 2007–2013, with no single country supplying more than 50 000 tonnes per year.

Figure 84: Share of EU imports of paper, by major supplier, 2004–2013



Source: IMM analysis of Eurostat COMEXT data.

Figure 84 shows the total share of import tonnage among the largest external suppliers of paper to the EU in the ten years to 2013. The United States gained share, mainly at the expense of Canada, Norway and Switzerland. There was also a notable increase in imports of paper products from China, from 146 000 tonnes in 2004 to 491 000 tonnes in 2013. Much of the product from China comprises relatively high-value paper products, such as cartons and containers, exercise books, stationery items like labels and envelopes, and paper cups and dishes.

5. Review of factors affecting the EU market for timber from VPA countries

This chapter summarizes and reviews the factors affecting the supply of timber from VPA partner countries to the EU and the consumption of this timber in the EU. It includes an assessment of the relative significance of each factor in the decade to 2013 and the potential impact in the period 2014–2023.

5.1 Methodology for systematic review of factors

The author drew on his experience of monitoring the European hardwood market, as well as on research conducted for this report, to identify 30 individual factors affecting the EU market for timber from VPA partner countries. Table 10 summarizes these factors and their assessed impacts.

The review summarized here is necessarily subjective and based on the opinions of a single market analyst. It is designed to provide a starting point for more comprehensive assessments over the life of the IMM that obtain inputs from a wider range of commentators.

The review focuses exclusively on the EU market. It refers to "wood products", which are here defined as all products in CN Chapter 44 (wood) and wood-based products in CN Chapter 94 (furniture). Due to the relatively small volumes of pulp and paper imported into the EU from VPA countries, and the different factors affecting those industries compared with tropical wood products, the pulp-and-paper sector is not included in this review.

Impact factors are categorized as either:

- "trend" factors, defined as movements in society, the economy and technology that push in a consistent direction and drive long-term systematic change; or
- "irregular" factors, defined as unsystematic and unpredictable events leading to sharp step-changes in trade—sometimes (but not always) with a rapid rebound to "normal" conditions.

Impacts are assessed separately for:

- "supply"—specifically, the impact on the total volume or value of wood products in aggregate available for export to the EU from VPA partner countries; and
- "consumption"—specifically, the impact on the total volume or value of wood products in aggregate consumed in the EU from VPA partner countries.

Table 11 presents the key to the scores for the assessed impact of various factors.

Two scores are provided for each factor: 1) the assessed impact in the period 2004–2013; and 2) the projected impact in the period 2014–2023. The latter scores are "optimistic" projections, based on the following assumptions: most VPA partner countries achieve FLEGT licensing in 1–3 years (i.e. by 2017) and there is no serious disruption in the supply of wood products from those countries in the next ten years; there is at least relative stability in EU economic conditions; and there is active market development for FLEGT-licensed wood products to ensure that emerging opportunities are exploited.

The market factor impact analysis involved the following steps:

- the identification and description of each factor, drawing on past experience and a variety of secondary sources;
- a preliminary assessment of the strength and direction of impact, based on the best available information; and
- a review and quality check, including the identification and reconciliation of any inconsistencies in assessment of the relative strength and direction of impacts.

A detailed description of each factor, as well as a discussion of the rationale for each score and comments on any uncertainties associated with the factor, is available at www.itto.int/imm.

Table 10: Assessed impact of factors on supply from VPA partner countries and on EU consumption, 2004–2013 and 2014–2023

Factor	Trend or Irregular	Supply		EU consumption	
		2004–2013	2014–2023	2004–2013	2014–2023
Knowledge of timber among architects and structural engineers	Trend	↔	↔	↓	↑
Declining availability of commercially popular tropical hardwoods	Trend	↓↓	↓↓	↓↓	↓
Design trends in the interiors' sector	Trend	↔	↔	↓↓	↑
Development of forest certification	Trend	↔	↕	↓↓	↑
Development of technical performance standards	Trend	↔	↔	↓	↔
Environmental campaigns	Trend	↔	↔	↓↓	↑↑
Exchange-rate movements	Trend	↕	↕	↓	↕
Expansion of green building practices	Trend	↔	↔	↓	↑
Financial and economic crises	Trend	↓↓	↔	↓↓↓	↓↓
FLEGT VPA process	Trend	?	↑	↔	↑↑
Freight	Trend	↓↓	↓	↓↓	↓
Global concern for climate change and energy security	Trend	↔	?	↔	↑
Global expansion of planted forest area	Trend	↔	↑	↓	↓
GSP and timber import tariffs	Trend	↔	↔	↑	↑
Implementation of the EUTR	Trend	↔	↑	↔	↑↑
Implementation of legal timber legislation in other consumer countries	Trend	↔	↑	↔	↔
Increasing prefabrication in construction sector	Trend	↔	↔	↓↓	↔
Marketing initiatives	Trend	↔	↔	↓↓	↑↑
Modification of wood for external applications	Trend	↔	↔	↓	↓
Natural disasters and epidemics	Irregular	↓	?	↓	?
Product innovation to extend applications of non-wood products	Trend	↔	↔	↓↓	↓↓
Public-sector procurement policies	Trend	↔	↔	↓	↑
Rising availability of hardwoods from Europe and other temperate sources	Trend	↔	↔	↓	↓↓
Rising concern for corporate social responsibility	Trend	↕	↕	↓	↑
Rising global demand for commercial cash crops	Trend	↕	↓	↓	↔
Rising production of panels and use of new surfacing technologies	Trend	↔	↑	↓↓	↓
Shift in global economic activity to emerging markets	Trend	↓↓↓	↓↓	↓↓	↓
Trend of using hardwood for higher-value structural applications	Trend	↔	↔	↔	↑
Wars and other political conflicts	Irregular	↓↓	?	↔	?
Wood export controls	Trend	↕	↕	↕	↕

See Table 11 for a key to the symbols used in this table. See www.itto.int/imm *for a detailed description of the factors and rationale for each assessment.*

Table 11: Key to scores for assessed impact of various factors

Score	Description
↑↑↑	Strongly positive impact
↑↑	Moderately positive impact
↑	Weakly positive impact
↔	No impact
↕	Neutral impact (negatives balance positives)
↓	Weakly negative impact
↓↓	Moderately negative impact
↓↓↓	Strongly negative impact
?	Information inadequate to form a judgement

5.2 Factors negatively affecting supplies to the EU from VPA partner countries

Of the 30 identified factors, seven had a negative impact on the supply of wood products from VPA partner countries to the EU in the period 2004–2013 (Table 12). One factor—the shift in global economic activity to emerging markets, particularly China, India and domestic markets—was assessed as having a strongly negative impact.

The factor "declining availability of commercially popular tropical hardwoods" was assessed as having had a moderately negative effect on supply between 2004 and 2013. Availability is declining partly because of past overexploitation of the most valuable hardwood species and partly because of efforts in tropical producer countries to improve the enforcement of their forestry and timber trade regulations. This factor is expected to continue to limit supply in 2014–2023. The negative impact on VPA partner countries could be mitigated, however, by linking FLEGT licensing with the more active promotion of lesser-known tropical species.

The factor of "freight" refers to the level and volatility of freight rates and to the reliability of shipping and transit times. This factor was assessed as having had a moderately negative impact on supply in 2004–2013. It has become more important since the GFC, which made stock control and just-in-time delivery even more important. The GFC itself led directly to the closure of numerous mills in VPA partner countries with a high exposure to the EU market, notably those in Africa. There are more positive indications for the next decade because of significant current and planned investment in new transport infrastructure in VPA partner countries, which could mitigate freight-related problems.

The two "irregular" factors of "wars and other political conflicts" and "natural disasters and epidemics" were assessed as having had a moderately negative impact on supply in 2004–2013. This is due to the extent and intensity of political conflict in several African VPA partner countries, the ongoing Ebola epidemic in Africa, and the effect of natural disasters (such as the 2004 Indian Ocean tsunami and the 2011 Japanese tsunami/earthquake) in diverting supply to affected areas. The uncertain nature of these events means that this factor cannot be assessed for the period 2014–2023.

The impact of the factor "rising global demand for commercial cash crops" on timber supply from VPA partner countries was assessed as having been neutral in the period 2004–2013, when forests in VPA partner countries came under intense and often rising pressure for conversion to agriculture and other commercial cash crops. Such conversion removes a proportion of forestland permanently from timber production, but it also generates a short-term supply of timber from conversion operations. The future impact on supply was assessed as weakly negative

Table 12: Summary of factors negatively affecting supply from VPA partner countries to the EU

Factor	Trend or Irregular	Supply	
		2004–2013	2014–2023
Shift in global economic activity to emerging markets	Trend	↓↓↓	↓↓
Declining availability of commercially popular tropical hardwoods	Trend	↓↓	↓↓
Freight	Trend	↓↓	↓
Financial and economic crises	Trend	↓↓	↔
Wars and other political conflicts	Irregular	↓↓	?
Natural disasters and epidemics	Irregular	↓	?
Rising global demand for commercial cash crops	Trend	↕	↓

See Table 11 for a key to the symbols used in this table. See www.itto.int/imm *for a detailed description of the factors and rationale for each assessment.*

Table 13: Summary of factors with potential to positively affect supply from VPA partner countries to the EU

Factor	Trend or irregular	Supply	
		2004–2013	2014–2023
Global expansion of planted forest area	Trend	↔	↑
Implementation of the EUTR	Trend	↔	↑
Implementation of legal timber legislation in other consumer countries	Trend	↔	↑
Rising production of panels and use of new surfacing technologies	Trend	↔	↑
FLEGT VPA process	Trend	?	↑

See Table 11 for a key to the symbols used in this table. See www.itto.int/imm *for a detailed description of the factors and rationale for each assessment.*

because sustainable timber supply will be impeded as more land is converted to alternative uses. It remains to be seen whether the VPA process and other programmes to reduce deforestation can succeed in mitigating this trend.

5.3 Factors with potential to positively affect supplies to the EU from VPA partner countries

No factor was identified as having a clear, unambiguously positive impact on supply in 2004–2013. In this period, most VPA partner countries fell well behind their competitors in improving supply by such mechanisms as increased access to plantation timber and technical product innovation.

Nevertheless, five factors were identified which, while having little or no impact on supply in the period 2004–2013, could have a positive impact on supply in 2014–2023 (Table 13). The combination of technical developments (e.g. genetic improvements and improved land preparation and planting techniques), a more stable investment climate, and demand for more intensive use of the land, may lead to increases in the establishment and yield of timber plantations in some VPA partner countries, notably in Southeast Asia.

Similarly, although the production of composite panels has been concentrated heavily in non-tropical regions, production is already rising in Indonesia from a small base. The development of composite-panel industries has the potential to provide new income streams for hardwood suppliers by providing a market for "waste" materials, including small-diameter wood, chips and even sawdust.

The other three factors that could have a positive impact on supply in 2014–2023 are the FLEGT VPA process itself, the implementation of the EUTR, and the implementation of timber legality legislation in other consumer countries. The combined effect of FLEGT-licensed timber and the implementation of the EUTR should be to ensure a more consistent long-term supply of legally verified timber to the EU from VPA partner countries. The introduction of legislation equivalent to the EUTR in other consumer countries would reduce opportunities to divert supplies to less-sensitive markets elsewhere; this outcome depends on whether major consumer countries adopt a consistent approach to timber legality.

5.4 Factors with negative impacts on the EU's consumption of wood products from VPA partner countries

A wide range of factors had negative impacts on the EU's consumption of wood products from VPA partner countries in 2004–2013 (Table 14).

Global financial crisis

The GFC was assessed as having had a strongly negative impact on the EU timber market. It played a significant role in the failure of key businesses, declines in consumer wealth estimated in the trillions of United States dollars, and a downturn in economic activity leading to the 2008–2012 global recession and contributing to the European sovereign-debt crisis. In most EU countries, at least 50% of wood products is destined for the construction sector, which experienced a drop in output of 22% in 2007–2013. The sharp fall in EU imports of wood products in 2008 and 2009 closely followed trends in the EU's construction, joinery and furniture sectors.

Although the worst effects of the GFC are past, it continues to cast a long shadow over EU wood-product imports from VPA partner countries. Eight years on from the onset of the GFC, there is still much uncertainty over the timing, geographic distribution and strength of the EU's recovery.

Table 14: Summary of factors with a negative impact on the EU's consumption of timber from VPA partner countries

Factor	Trend or Irregular	Consumption	
		2004–2013	2014–2023
Financial and economic crises	Trend	↓↓↓	↓↓
Product innovation to extend applications of non-wood products	Trend	↓↓	↓↓
Shift in global economic activity to emerging markets	Trend	↓↓	↓
Declining availability of commercially popular tropical hardwoods	Trend	↓↓	↓
Freight	Trend	↓↓	↓
Rising production of panels and use of new surfacing technologies	Trend	↓↓	↓
Rising availability of hardwoods from Europe and other temperate sources	Trend	↓	↓↓
Global expansion of planted forest area	Trend	↓	↓
Modification of wood for external applications	Trend	↓	↓
Increasing prefabrication in construction sector	Trend	↓↓	↔
Exchange-rate movements	Trend	↓	↕

Product innovation in non-wood-materials sectors

Through product innovation, non-wood-materials sectors are competing for a share in a range of product applications previously dominated by tropical wood products. This competition was assessed as having had a moderately negative impact on the EU's consumption of wood products from VPA partner countries in 2004–2013. Key innovations in the decade included: new materials for decking, cladding and other external applications based on recycled plastics; new metal window systems designed to overcome problems of thermal bridging and condensation associated with these products; new types of concrete and concrete surface coatings; and the development of luxury vinyl tiles that compete directly with wood products in the medium-to-high-end flooring market. The demand for improved performance and functionality continues to be a major driver of the development of innovative new materials. The impact of this factor is not expected to wane in the period to 2023.

Development of composite panels and new surfacing technologies

The massive development of composite-panel industries in the EU was assessed as having had a moderately negative impact on the EU's consumption of wood products from VPA partner countries in the decade to 2013. Composite panels compete directly with solid wood products in a wide range of mainly interior applications. They have squeezed solid wood out of lower-end and medium-end furniture, cabinet, door, flooring and other panelling applications. OSB has become a significant competitor of plywood from VPA partner countries in construction applications. Real-wood veneers are also now largely restricted to higher-end applications.

While this factor is projected to have a negative impact on the EU's consumption of wood products from VPA partner countries in 2014–2023, the effects are expected to be weaker than in the previous decade. There is some evidence that the process of market-shift to composite panels in the EU is already complete, with both solid wood and veneers now confined to higher-end, more prestigious applications.

Direct competition from China

The factor "shift in global economic activity to emerging markets" was assessed as having had a moderately negative impact on the EU's consumption of wood products from VPA partner countries in 2004–2013. This is due to the emergence of China as a major supplier of wood products that compete directly with European manufacturers and with products from VPA partner countries and is particularly true of the plywood, furniture and flooring sectors. In 2013 and 2014, signs began to emerge that China's competitiveness in the EU was declining due to rising labour and other costs and the appreciation of the yuan. This factor is projected to remain weakly negative in the period to 2023, however.

Freight

Overall, the freight factor was assessed as having had a moderately negative impact on the EU's consumption of wood products from VPA partner countries in the decade to 2013 by acting as a drag

on wood-product exports from those countries. In contrast, competing industries have been well placed to exploit their proximity to the EU market and faster transit times. European and American hardwoods benefit from much shorter transit times and less costly transport routes than VPA partner countries when delivering to the EU market. The UNCTAD Liner Shipping Connectivity Index indicates that China is now the world's most connected country, a factor contributing considerably to its recent strong growth as a wood-processing hub. In the next decade, ongoing moves to improve infrastructure in VPA partner countries have the potential to mitigate the negative impact of the freight factor on EU market consumption.

Rising availability of temperate hardwoods

The rising availability of temperate hardwoods was assessed as having had a weakly negative impact on the EU's consumption of wood products from VPA partner countries in the decade to 2013. The availability of temperate hardwoods from EU sources increased in the decade to 2008 due to EU expansion and greater economic and political stability in central and eastern Europe. More recently, however, there have been signs that the strong focus of EU demand on oak is putting pressure on that part of the resource, although the EU's large beech resource remains under-used.

The main current and potential source of expanded temperate hardwood supply is the United States. That country is host to the world's largest temperate hardwood forest resource, comprising a growing stock of 11.4 billion m^3, which is double the volume 50 years ago. United States hardwood exports have been expanding as wood-manufacturing activities have shifted offshore—notably to China and Southeast Asia. International promotion of wood from this resource is backed by well-funded marketing activities through the American Hardwood Export Council. The annual harvest of commercial hardwoods in the United States declined to under 100 million m^3 in 2009, well below the annual growth rate of 292 million m^3, suggesting strong potential for expansion.

To some extent, the potential for significant further increases in hardwood availability in the United States and Europe may be constrained by fragmented ownership, environmental restrictions on harvesting, and the increased diversion of raw material to renewable energy markets and China. Nevertheless, the rising availability of temperate hardwoods from the United States, combined with efforts to increase the use of domestically produced beech in the EU, is expected to have a moderately negative impact on the EU's consumption of timber from VPA partner countries in the next decade.

Rising availability of plantation timbers

Rising competition from plantation wood was assessed as having had a weakly negative impact on the EU's consumption of timber from VPA partner countries in the decade to 2013. The impact was not assessed as any greater than "weakly negative" only because of the relative lack of direct competition between tropical hardwoods and plantation timber: bland, fast-growing utilitarian plantation wood products are less competitive that tropical hardwoods in high-end markets for appearance wood.

Nevertheless, the faster growth rates and other economic advantages of plantations imply that the share of overall EU wood-fibre consumption held by wood grown in natural forests in VPA partner countries may be declining, with the trend towards increased reliance on plantation wood in non-VPA partner countries set to continue. FAO estimated that plantations could be producing 1.5 billion m^3 per year of industrial roundwood by 2050, which would be 50–75% of total projected global consumption. The development of plantation resources has led to a particularly dramatic increase in the supply of plywood in China and of panel products in South America and Europe.

Wood modification techniques

The impact of a rising supply of temperate hardwoods and plantation wood is heightened when considered alongside the development of thermal and chemical wood modification techniques. To date, the main impact of these techniques has been to reduce EU tropical wood consumption due to substitution by competing products in market sectors formerly dominated by tropical wood. The major beneficiaries have been producers of European and North American wood species, which are being used in a wide range of exterior joinery applications, including windows, doors, conservatories and cladding. Europe already has more than 300 000 m^3 of thermal treatment capacity, up from negligible levels a decade ago.

In the decade to 2023, the negative impact of this factor on wood products from VPA partner countries may be relatively low because some tropical wood species in those countries can also be treated to enhance performance. For example, thermally modified limba/frake is now being marketed in Europe for cladding and other external applications. In this case, the wood is supplied from West Africa and treated thermally in the EU.

Prefabrication in the construction sector

There is an ongoing shift in the EU construction sector away from on-site fabrication towards the prefabrication of wall, floor and roof sections and windows and doors (with frames included).

Although the move to prefabrication has largely benefited timber relative to non-wood materials such as concrete, brick and stone, this factor was assessed as having had a moderately negative impact on demand for wood products from VPA partner countries. This is partly because the plastics industry played a major role in initiating the trend towards the prefabrication of windows and doors and was exploiting it ahead of the timber industry. It is also partly because the move to prefabrication is leading to a decline in the market for versatile utility hardwoods traditionally used for finishing applications on building sites. Manufacturers are now tightly controlling specifications and seek specific materials backed by detailed data on technical and environmental performance.

Looking forward, wood-product suppliers in VPA partner countries could neutralize and begin to exploit the trend towards prefabrication by providing technical performance data alongside FLEGT licences.

Exchange-rate movements

The impact of exchange-rate movements on the consumption of wood products from VPA partner countries in the EU was assessed as having been weakly negative in the decade to 2013. Although not a leading driver of the systematic decline in EU wood-product imports from most VPA partner countries since 2007, exchange-rate movements have had an effect on the relative share held by different countries.

The adoption of the euro as the national currency of 11 EU countries on 1 January 1999, and the subsequent extension of the eurozone to another eight countries between 2001 and January 2015, has helped increase the competitiveness of domestic wood suppliers in the EU, reducing transaction costs and sales-price volatility. Suppliers in North America have also generally benefited from the relative stability of the exchange rate between the euro and the United States dollar. Chinese suppliers benefited from the relatively weak value of the yuan in the early years of the decade to 2013, although this advantage has waned in recent years.

Exchange-rate movements are projected to have a neutral effect on EU market demand for wood products from VPA partner countries in the decade to 2023 because the benefits arising from the establishment of the euro are integrated into market trends now and China's earlier advantage from the relatively weak yuan is diminishing.

Table 15: Summary of factors with a negative impact on the EU's consumption of timber from VPA partner countries in the past but which could have a positive impact in the future

Factor	Trend or Irregular	Consumption	
		2004–2013	2014–2023
Design trends in the interiors' sector	Trend	↓↓	↑
Development of forest certification	Trend	↓↓	↑
Environmental campaigns	Trend	↓↓	↑↑
Marketing initiatives	Trend	↓↓	↑↑
Knowledge of timber among architects and structural engineers	Trend	↓	↑
Development of technical performance standards	Trend	↓	↑
Expansion of green building practices	Trend	↓	↑
Public-sector procurement policies	Trend	↓	↑
Rising concern for corporate social responsibility	Trend	↓	↑

See Table 11 for a key to the symbols used in this table. See www.itto.int/imm *for a detailed description of the factors and rationale for each assessment.*

5.5 Factors with a negative impact on past consumption but positive potential

A number of factors were assessed as having had a negative impact on the EU's consumption of wood products from VPA partner countries in 2004–2013 but which offer opportunities to increase consumption in 2014–2023 (Table 15). Engagement in the VPA process is an important reason for believing that many of these factors can be turned to the advantage of VPA partner countries.

Environmental campaigns

The overall impact of environmental campaigns on the EU's consumption of wood products from VPA partner countries was assessed as having been moderately negative in the decade to 2013. The negative media narrative on illegal logging and deforestation, which has been fed by environmental non-governmental organizations (NGOs), tended to be stronger than the positive narrative on responsible procurement and improving governance. At least one large mainstream environmental NGO adopted a very negative approach to all commercial hardwood production in tropical forests. There is also some evidence to suggest that non-wood-materials sectors have not been subject to the same level of negative campaigning as wood products.

There are reasons to expect that environmental campaigns will have at least a moderately positive impact on demand for FLEGT-licensed wood products. Generally, environmental NGOs continue to prefer FSC to any other form of forest certification or legality assurance, but some are actively promoting the VPA process.

Marketing initiatives

The impact of marketing initiatives on the consumption of wood products from VPA partner countries in the EU was assessed as having been moderately negative in 2004–2013. This was due to the relatively low level of resources put towards the promotion of wood products derived from VPA partner countries compared with those available to promote competing materials. The need to provide such promotion is even more important in the wake of economic recessions in Europe and North America. At a time of intense competition in traditional markets, new sources of demand must be developed through innovative products and marketing strategies.

Existing and newly emerging marketing initiatives are projected to have a moderately positive impact on the EU's consumption of wood products from VPA partner countries in the decade to 2023. Both the FLEGT VPA process and the EUTR have the potential to generate a positive public narrative on the use of tropical timber, providing a strong demonstration of leadership. Wood-marketing initiatives, including those focused on promoting legally verified tropical wood products, have been increasing in the EU, and there are signs they are having an impact.

Design trends in the interiors sector

Product and building design trends are critically important for the competitiveness of various materials. The strong trend towards the "oak look" was an important factor in the EU's declining consumption of wood products from VPA partner countries in 2004–2013. Evidence from the EU flooring sector suggests that oak now accounts for around 70% of wood-look surfaces consumed annually in the EU, up from about 50% a decade ago. Much of this gain has been at the expense of tropical hardwoods.

Nevertheless, other design trends in the EU interiors sector, such as "natural", "timeless", "authentic", "minimalist" and "individual", could, with appropriate marketing, be turned to the advantage of wood products from VPA partner countries.

Forest certification, green public procurement, green building and corporate social responsibility

The four factors of forest certification, green public procurement, green building and corporate social responsibility (CSR) are all aspects of the same over-arching process of encouraging sustainable forms of consumption in the EU. In practice, the market impact of these factors is extremely complex, varying widely by region, product and sector.

Combined, these factors were assessed as having had a moderately or weakly negative impact on the consumption of wood products from VPA partner countries in the EU in 2004–2013. The negative impact was due to the combined effects of the following:

- Preference for FSC or PEFC certification in those EU member states with the most far-reaching public procurement policies and in large corporations implementing CSR policies.

- A relative lack of FSC-certified and PEFC-certified wood products in VPA partner countries compared with key competitors.
- Survey evidence indicating that certification is particularly important for overcoming prejudice against tropical wood products in the EU.
- The challenge faced by developing countries in meeting the high labour and social welfare standards required in CSR policies.
- The continued reliance on simplistic criteria for environmental assessment in many EU procurement policies and codes, which tend to favour "local" or "recycled" materials instead of comparing impacts over the full life cycle.

In the next decade, the development of FLEGT-licensing procedures, combined with appropriate communication, has the potential to remove some of these obstacles. The specific recognition of FLEGT-licensed wood products in public procurement policies would create new opportunities. The VPA process should also help provide the preconditions for increased certification in the countries concerned. At the same time, green-building rating systems in the EU are increasingly adopting a scientific life-cycle approach. This has the potential to increase consumption given the likely relatively low overall environmental impact of many FLEGT-licensed wood products.

Development of technical performance standards

The EU's efforts to develop harmonized technical performance standards, particularly through the Construction Products Regulation (CPR), have been a mixed blessing for the competitiveness of wood products from VPA partner countries.

Harmonization at the EU level benefits both domestic and external materials suppliers because it removes barriers resulting from inconsistent national standards within the EU. The increased demand for high-quality materials, which is implicit in the standards development process, also helps boost prospects for those numerous tropical wood products with good technical performance characteristics.

On the other hand, the fact that the standards are European (and mandatory in the case of the CPR) rather than voluntary international standards inevitably raises questions about the extent to which they are creating barriers to external suppliers relative to internal EU suppliers. It is also questionable whether wood-product manufacturers outside Europe have the same access to technical testing and CE marking[41] services as their counterparts within the EU.

Overall, the development of technical performance standards in the EU was assessed as having had a weakly negative impact on the EU's consumption of wood products from VPA partner countries in 2004–2013. In the next decade, however, wood products from VPA partner countries could benefit from the emphasis these standards place on transparency and higher technical performance. The emergence of sustainability requirements in the latest text of the CPR, which focus on the reporting of life-cycle environmental impacts, may also generate opportunities for wood products from VPA partner countries.

5.6 Factors with positive impacts on the EU's consumption of wood products from VPA partner countries

This assessment identified only a single factor—the GSP and wood import tariffs—with a clear positive impact on the EU's consumption of timber from VPA partner countries in 2004–2013. Most VPA partner countries obtain preferential treatment under various programmes. Overall, the impact of this factor was assessed as small due to the relatively low level of EU import tariffs on wood products. Preferential treatment effectively puts wood products from VPA partner countries on the same tariff level as domestic European suppliers, which have duty-free access throughout the region. This tariff treatment gives most VPA partner countries a slight edge over other external wood suppliers to the EU, very few of which are now afforded preferential treatment.

Several other factors were identified as having had zero impact on the EU's consumption of wood products from VPA partner countries in 2004–2013 but which have the potential to increase consumption in 2014–2023 (Table 16).

The FLEGT VPA process and the implementation of the EUTR are prominent among factors projected to have a positive impact in the next decade or so.

41 CE marking indicates a product's compliance with EU legislation and so enables the free movement of products within the European market. By affixing CE marking to a product, a manufacturer declares, on its sole responsibility, that the product meets all the legal requirements for the CE marking.

Table 16: Summary of factors with a positive impact on the EU's consumption of timber from VPA partner countries

Factor	Trend or irregular	Consumption	
		2004–2013	2014–2023
GSP and timber import tariffs	Trend	↑	↑
Implementation of EUTR	Trend	↔	↑↑
FLEGT VPA process	Trend	↔	↑↑
Global concern for climate change and energy security	Trend	↔	↑
Trend of using hardwoods for higher-value structural applications	Trend	↔	↑

Their impact on EU consumption was assessed as having been negligible in 2004–2013 in advance of VPA FLEGT licensing and with the EUTR coming into force only at the end of the period. The fact of signing a VPA and engaging in a forest governance reform process may already be contributing to more positive ratings in the EUTR due-diligence systems, but this is difficult to discern from existing trade data. Nevertheless, FLEGT licensing and the EUTR are expected to have a moderately positive impact on EU consumption to 2023.

In the absence of widespread carbon labels and taxes, the impact of "global concern for climate change and energy security" has probably been minor to date. Climate policy in the EU has helped increase interest in the construction sector in wood as a low-carbon material with good insulating properties. However, concerns about the carbon implications of transport, and a reliance on the "production approach" when accounting for carbon storage in wood products in national carbon accounts, mean that much of the focus has been on promoting the use of domestic wood rather than imported wood products. Nevertheless, with the provision of objective carbon footprint data and effective marketing, climate-related policies in consumer countries may create new opportunities for increasing market demand for FLEGT-licensed timber.

To date, the impact factor identified as "trend of using hardwood for higher-value structural applications" has mainly benefited hardwoods from European countries where there has been a concerted effort to increase the use of domestic resources, particularly small-dimension wood in the form of glue-laminated timber. In the longer term, however, there may be opportunities to increase the consumption of wood products from VPA partner countries in these applications, particularly the more durable timbers in high-exposure environments.

5.7 Neutral factors

The factor of "wood export controls" was assessed as having had a neutral impact on both the supply of wood products from VPA partner countries to the EU and the consumption of these products within the EU. Over the decade to 2013, controls were imposed in all VPA partner countries on the export of various wood products at various times, with significant impacts on supply. Most of these controls tended to decrease the supply of unprocessed wood and increase the supply of processed goods.

Wood export controls have had complex impacts on the consumption of wood products from VPA partner countries in export markets. For example, they reduced consumption in those market segments that prefer unprocessed wood products but led to the increased consumption of lesser-known wood species and further-processed products.

In some instances, wood export controls effectively removed important competitors from the market. Many non-VPA partner countries also impose controls on wood exports. For example, Brazil has a long-term ban on log exports and also imposed a ban on mahogany (*Swietenia macrophylla*) exploitation in 2001. Controls on the harvesting and trade of mahogany, both through CITES and national measures, are so stringent that volumes of trade in this species, formerly one of the world's most popular tropical timbers, are now negligible.

5.8 Concluding comments

This review highlights the diversity and complexity of factors that affect the EU market for wood products from VPA partner countries. There are many factors outside the scope of the FLEGT VPA process with the potential to act as a drag on both the supply and demand of wood products from VPA partner countries in the next decade.

Prominent among these factors are the following: the continued weakness of the EU recovery following the GFC; the ongoing shift in global economic activity to emerging markets; continuous product innovation to broaden applications for temperate wood and non-wood products; the strong commitment of competitors to market development; the potential for increased production of hardwoods in Europe and other temperate countries; and the relative lack of freight infrastructure in most VPA partner countries.

The implication is that the process of FLEGT licensing, even when combined with the EUTR, cannot be regarded as a "magic bullet" that, on its own, will transform the EU market for wood products from VPA partner countries.

On the other hand, this review highlights that the VPA process has strong potential for overcoming some of the most significant existing obstacles to market development in the EU and beyond for wood products from VPA partner countries. It has the potential to increase the long-term security of wood supply from VPA partner countries, a factor that has become even more relevant in a market environment in which there is intense and mounting pressure on financial and physical resources.

By strongly emphasizing good governance—which aligns with lower commercial risk—the FLEGT VPA process can help remove barriers to inward investment in sustainable tropical timber industries. It can also help overcome market prejudice against tropical timber in the EU and turn around environmentalist campaigns so that they become a voice in support of the industry.

The review has identified several factors with the potential to provide new opportunities for wood products from VPA partner countries in the next decade if the VPA process is combined with a strong commitment to communication and market development programmes in the EU and other export markets. These opportunities stem from emerging design trends, increased interest in hardwood for structural applications, concern about climate change and carbon footprints, rising commitment to real sustainability goals instead of greenwash, and the international timber sector's improving knowledge and expertise in marketing.

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Annex 1: Source of EU trade data

Data on EU imports and exports contained in this report are derived from the Eurostat COMEXT database and have been cleaned using procedures developed by the author over a period of ten years as a service to clients. These procedures were used in this report due to the tight timeframe and the fact that they are already highly evolved and have provided the basis for reporting to the ITTO Market Information Service, the European Timber Trade Federation and other agencies over several years. In future IMM reports, it is expected that the system will be superseded by the European Forest Institute Forest Products Trade Flow database, which is being redeveloped with support from the IMM.

Among other things, the EU trade database system used in the report:

- draws on monthly import and export data derived from the Eurostat COMEXT bulk download facility[42];
- includes procedures for cleaning (rectifying errors) in datasets by comparing value, tonnage and volume data;
- is structured around the Eurostat declarant country, partner country and CN product codes;
- stores complete monthly data for all 28 EU member states[43] from 2004 to the most recent Eurostat update (typically with a lead time of two months for extra-EU data and three months for intra-EU data);
- stores all data from chapters 44 (wood), 45 (cork), 47 (pulp), 48 (paper), 49 (printed papers), and 94 (furniture);
- calculates "roundwood equivalent" volume in cubic metres for all entries using an adapted version of conversion factors prepared by various UN agencies including ITTO, FAO and the UN Economic Commission for Europe[44];
- is readily scalable—for example, the system could be extended to include additional parameters for categorization and analysis, such as the scope of VPA-licensed products from individual VPA partner countries once available; and
- is currently stored in Access (desktop).

Moreover:

- Data can be disaggregated as required to the full CN 8-digit level, and by declarant and partner countries.
- Data tables have been extended to allow analysis of trade data by:
  - product group;
  - global region of supply;
  - EUTR coverage; and
  - VPA status.
- Preliminary work has been carried out to store the data online in a MYSQL database and to develop online visualization tools using a combination of php and javascript.

42 Eurostat bulk download is at: http://ec.europa.eu/eurostat/estat-navtree-portlet-prod/BulkDownloadListing

43 Data for all current member states in November 2014, including those that acceded to the EU after 2004, have been backdated to 2004.

44 For references to various factors and a detailed discussion see: www.globaltimber.org.uk/rwevolume.htm. James Hewitt, who authored the globaltimber.org website, has provided very helpful input into the author's process for deriving conversion factors.

Annex 2: Data quality issues

Although the various databases used to prepare this report have certain strengths, they all suffer from data gaps, inconsistencies and errors.

Accuracy of trade data

Based on many years' analysis of international timber trade flows by ITTO and the author, it can be said that, in general, trade value data tend to be more reliable than trade tonnage data, which in turn, are more reliable than volumetric data (e.g. m^3). The collection of volumetric data on timber products is highly prone to error, often to the extent that it is almost unusable. This applies equally to data derived from producer countries and importing countries, including in the EU.

The reasons for this failure in data collection are uncertain and variable. It is most likely due, however, to wide variations in the volumetric units used for different products and by different actors (e.g. m^3, m^2, board feet, cubic feet, hoppus feet, timber ton) and a widespread lack of understanding of these units among the officials responsible for recording trade volumes (or who lack the time or inclination to convert them).

EU COMEXT data

The author has developed a comprehensive statistical system to check and as far as possible clean errors in EU COMEXT data by comparing volumetric data with the available information on tonnage and value. This system has the advantage of applying a single set of rules for identifying and cleaning errors; it has also been subject to peer review in the sense that data have been published regularly by ITTO, the European Timber Trade Federation and other agencies over several years. However, the system has been developed by a single technician and there is uncertainty over its robustness. The algorithms could probably be improved with input from qualified statisticians.

Global Trade Atlas

The Global Trade Atlas is a powerful data analysis tool that provides reasonably comprehensive coverage of international trade. A major strength is that is provides data using the HS system of product codes at the highest available level (8-digit or 10-digit). However, the data are not cleaned, and the Atlas does not provide a bulk download function to facilitate the mass cleaning of errors using a consistent methodology. Instead, data must be downloaded for individual countries, which is laborious, and cleaned manually (for this report, by the comparison of value and quantity data to ensure that unit values are within acceptable bounds).

Another shortcoming of the Global Trade Atlas is that it does not provide complete coverage of VPA partner countries. There is a particularly significant gap in data from Africa and the Mekong subregion (especially Cambodia, the Lao PDR, Myanmar and Viet Nam). Of those countries that have currently ratified or are negotiating a VPA, the Global Trade Atlas provides export data only for Côte d'Ivoire, Ghana, Indonesia, Malaysia and Thailand. This problem is partly mitigated by the Atlas's "mirror" function, which allows the export trade of all the VPA countries to be estimated from the import data of the 80 consuming countries contained in the Atlas.

UN Comtrade

The UN Comtrade system is useful for its comprehensiveness. It provides annual trade data from 1962 to the most recent year and covers close to 200 countries and areas. Comtrade was used in this report to fill data gaps, where possible, for those countries not contained in the Global Trade Atlas.

However, Comtrade has limitations.[45] Countries using the HS system are committed to harmonizing at the 6-digit level, and Comtrade only reports data to that level, reducing the detail available for each product group. Many countries do not report regularly and may suppress data for particular commodities for reasons of commercial confidentiality. Comtrade makes no attempt to estimate data for missing years or commodities. Commodity classifications are often subject to change, and not all countries necessarily report in the most recent commodity classification. For these reasons, and because of simple recording errors, imports reported by one country in Comtrade frequently do not coincide with exports reported by its trading partner.

45 Some of limitations of Comtrade are described at http://comtrade.un.org/db/help/uReadMeFirst.aspx.

Lack of species data

Another limitation of all timber trade data collected in line with the HS and CN product coding systems is that they rarely provide reliable disaggregation on the basis of wood species. At the 6-digit level (the limit of international harmonization of product codes), the HS system requires the collection of separate data for "tropical hardwood" for some product groups (logs, sawnwood, veneers and plywood). The HS also requires data collection for a small number of named timber species, including, in the case of sawnwood, sapelli and iroko and species groups (such as white lauan, white meranti, white seraya, yellow meranti and alan). Individual countries using the HS system may then subdivide codes further at the 8-digit or 10-digit level to provide more detailed information on individual timber species at the national level.

While this should happen in theory, in practice the information provided by many countries on species is unreliable. There are often major flaws in data collection. The tropical species groups for which data may be collected often contain a range of timbers that are related only loosely and which have very different applications.

Another problem is that the major category of "tropical hardwood" is defined in the HS codes with reference to a list of named species. Unfortunately, this list is far from exhaustive and has not kept up with the times. Many so-called "lesser-known species" do not appear on the list, and any trade in these species is typically listed, therefore, under the "other hardwood" category. As dependence on big-name tropical hardwoods has waned, the majority of trade for many producer countries now consists of "other" hardwoods not separately identified in trade statistics. There is also often no way of differentiating trade in "other" tropical species from hardwoods derived from non-tropical regions.

For these reasons, this report does not disaggregate trade flows by species, and analysis is mainly limited to the broad categories of "tropical hardwood", "other hardwood" and "softwood". It is acknowledged that this is a major limitation of the analysis, and the IMM will need to look at ways of improving the situation as the project develops in consultation with VPA partner countries and other agencies. The licensing system itself should provide an opportunity for improving the monitoring of trade in specific tropical species from VPA partner countries.

Production data

The quality of timber production data is generally even lower than that of trade data. Very few government authorities regularly commit significant resources to the compilation of production data, which can be challenging, particularly when harvesting and processing activities are distributed among numerous fragmented smaller operators. In many tropical countries, the compilation of log production data may be further complicated by the large forest areas involved and by continuing dependence on wood from largely unregulated timber harvesting and forest conversion operations.

The main international source of wood production data is the United Nations. Various agencies, including ITTO, UNECE and FAO, jointly gather data through the Joint Forest Sector Questionnaire (JFSQ).

The JFSQ is issued annually to national correspondents based in competent government departments in every United Nations member country. While the data are freely available, they also have significant weaknesses. They are provided separately for "coniferous", "tropical non-coniferous" and "other non-coniferous wood", but no additional species-specific data are provided. Data on secondary and tertiary products are not presented regularly.

From the perspective of monitoring trade trends, however, the main weakness is the failure of many key producer and consumer countries to collate and report accurately and completely in the JFSQ or to participate regularly in the survey.

Annex 3: The ranking of VPA partner countries in global competitiveness indices

Table A3.1: World Bank Ease of Doing Business Index

Country	Ease of Doing Business rank	Starting a Business	Dealing with construction permits	Getting electricity	Registering property	Getting credit	Protecting investors	Paying taxes	Trading across borders	Enforcing contracts	Resolving insolvency
Malaysia	6	16	43	21	35	1	4	36	5	30	42
Thailand	18	91	14	12	29	73	12	70	24	22	58
Peru	42	63	117	79	22	28	16	73	55	105	110
Colombia	43	79	24	101	53	73	6	104	94	155	25
Ghana	67	128	159	85	49	28	34	68	109	43	116
Guatemala	79	145	61	34	23	13	157	85	116	97	109
Solomon Islands	97	82	81	130	172	86	52	30	78	109	127
Viet Nam	99	109	29	156	51	42	157	149	65	46	149
Philippines	108	170	99	33	121	86	128	131	42	114	100
Papua New Guinea	113	101	165	24	87	86	68	116	134	168	128
Guyana	115	94	33	155	111	170	80	110	71	73	141
Indonesia	120	175	88	121	101	86	52	137	54	147	144
Honduras	127	162	83	125	94	13	170	144	84	182	136
Ecuador	135	176	64	138	91	86	138	91	122	99	143
Cambodia	137	184	161	134	118	42	80	65	114	162	163
Sierra Leone	142	75	176	179	170	86	22	128	140	149	158
Liberia	144	31	129	142	181	86	147	42	142	165	161
Lao PDR	159	85	96	140	76	159	187	119	161	104	189
Bolivia	162	180	136	128	144	130	138	185	126	131	67
Gabon	163	153	71	138	166	109	157	152	135	157	153
Côte d'Ivoire	167	115	162	153	127	130	157	173	165	88	95
Cameroon	168	132	127	62	159	109	128	180	159	175	151
Myanmar	182	189	150	126	154	170	182	107	113	188	155
DRC	183	185	90	142	133	159	147	176	171	177	167
Congo	185	182	142	175	164	109	157	183	180	164	142
Central African Republic	188	177	156	177	141	109	138	188	185	180	189

Source: www.doingbusiness.org/rankings.

Table A3.2: World Economic Forum Global Competitiveness Index

Country	2014 rank (out of 144)	2013 rank (out of 148)	2004 ranking (out of 104)
Malaysia	20	24	31
Thailand	31	37	34
Indonesia	34	38	69
Philippines	52	59	76
Peru	65	61	67
Colombia	66	69	64
Viet Nam	68	70	77
Guatemala	78	86	80
Lao PDR	93	81	n.l.
Cambodia	95	88	n.l.
Honduras	100	111	97
Bolivia	105	98	98
Gabon	106	112	n.l.
Ghana	111	114	68
Côte d'Ivoire	115	126	n.l.
Cameroon	116	115	111
Guyana	117	102	n.l.
Myanmar	134	139	n.l.
Central African Republic	n.l.	n.l.	n.l.
DRC	n.l.	n.l.	n.l.
Ecuador	n.l.	n.l.	n.l.
Liberia	n.l.	n.l.	n.l.
Papua New Guinea	n.l.	n.l.	n.l.
Congo	n.l.	n.l.	n.l.
Sierra Leone	n.l.	n.l.	n.l.
Solomon Islands	n.l.	n.l.	n.l.

Note: n.l. = not listed.
Source: www.weforum.org/issues/global-competitiveness.

Table A3.3: UNCTAD Line Shipping Connectivity Index and World Bank Logistics Performance Indices

	UNCTAD Liner shipping connectivity index	World Bank Logistics performance index	Burden of customs procedures	Lead time		Documents		Quality of port infrastructure
				To export	To import	To export	To import	
	0–100 (low to high)	1–5 (worst to best)	1–7 (worst to best)	days	days	number	number	1–7 (worst to best)
	2013	2012	2013	2012	2012	2013	2013	2013
Malaysia	98.2	3.49	5	3	2	4	4	5.4
Viet Nam	43.3	3	3.5	2	2	5	8	3.7
Thailand	38.3	3.18	3.9	2	1	5	5	4.5
Colombia	37.5	2.87	3.7	4	8	4	6	3.5
Peru	32.8	2.94	4.1	1	2	5	7	3.7
Indonesia	27.4	2.94	4	2	3	4	8	3.9
Ecuador	21.7	2.76	3.9	2	4	7	6	4.2
Guatemala	20.3	2.8	3.9	4	4	8	7	4.1
Ghana	19.4	2.51	3.4	2	19	6	7	4.2
Philippines	18.1	3.02	3.2	3	4	6	7	3.4
Côte d'Ivoire	17.6	2.73	3.4	2	5	9	10	4.5
Congo	15.8	2.08	N/A	11	N/A	11	10	N/A
Cameroon	10.9	2.53	4	18	45	11	11	3.7
Honduras	10.7	2.53	3.5	3	2	5	7	3.9
Gabon	9	2.34	3.6	4.3	13	6	8	2.7
Papua New Guinea	6.6	2.38	N/A	N/A	N/A	7	9	N/A
Myanmar	6	2.37	3.3	1	1	9	9	2.6
Solomon Islands	6	2.41	N/A	N/A	N/A	7	5	N/A
Liberia	5.9	2.45	3.9	N/A	N/A	10	12	3.4
Cambodia	5.3	2.56	3.5	2	2	8	9	4
Sierra Leone	5.2	2.08	3.3	2	2	7	9	3.6
Guyana	4.3	2.33	3.9	N/A	N/A	6	7	3.4
DRC	4	2.21	N/A	88	3	8	9	N/A
Bolivia	N/A	2.61	3.7	3	3	7	6	2.5
Central African Republic	N/A	N/A	N/A	N/A	12	9	17	N/A
Lao PDR	N/A	2.5	4.2	N/A	N/A	10	10	2.6
World average	**N/A**	**2.87**	**4.1**	**4.2**	**5.9**	**6**	**7**	**4.2**

Note: N/A = not available.
Source: Compiled from UNCTAD and World Bank Indices - http://lpi.worldbank.org/international/global.

This baseline report was prepared in the inception phase of the Independent Market Monitoring initiative to determine the state of European Union (EU) markets for wood products prior to the issuance of import licences under the EU's Forest Law Enforcement, Governance and Trade programme. The Independent Market Monitoring initiative has been established under an ITTO project to support the implementation of bilateral voluntary partnership agreements (VPAs) between the EU and participating timber-supplying countries.

The report covers all products within the scope of existing or potential future VPAs, including primary wood products, wooden doors, floors and furniture, and pulp and paper. It focuses on the trade between the 28 EU member states and 17 tropical timber-supplying countries at various stages of the VPA process.

Recognizing that market trends in the EU and VPA partner countries are highly dependent on trade with other regions of the world, the report also puts trade flows between the EU and VPA partner countries in their global context.

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