



"International Tropical Timber Organisation/European Commission"

"FLEGT Independent Market Monitoring"
Baseline Report Supplement
Detailed Review of Market Impact Factors

Prepared By:

"Rupert Oliver, IMM Lead Consultant"

Version # [1] Updated on [20/10/2015]

Contents

Introduction	3
Architect and structural engineer’s knowledge of timber.....	3
Declining availability of commercially popular tropical hardwoods.....	4
Design trends in the interiors sector	5
Development of forest certification	5
Development of technical performance standards.....	7
Environmental campaigns.....	9
Exchange rate movements	10
Expansion of green building practices	12
Financial crises	13
FLEGT VPA process.....	14
Freight.....	14
Global concern for climate change and energy security	16
Global expansion of planted forest area.....	17
GSP and timber import tariffs.....	17
Implementation of EU Timber Regulation (EUTR)	18
Implementation of legal timber legislation in other consuming countries	19
Marketing initiatives	20
Modification of wood for external applications	22
Natural disasters and epidemics.....	22
Product innovation to extend applications of non-wood products	24
Public sector procurement policies	24
Rising availability of hardwoods from Europe and other temperate sources.....	25
Rising concern for Corporate Social Responsibility	26
Rising global demand for commercial cash crops.....	27
Rising production of panels and use of new surfacing technologies.....	28
Shift in global economic activity to emerging markets.....	29
Trend to use hardwood for higher value structural applications	30
Wars and other political conflicts	30
Wood export controls.....	32

Introduction

This review supplements and provides additional detail to the analysis contained in section 5 of the baseline report of the Independent Market Monitoring (IMM) initiative¹. It identifies (in alphabetical order) thirty factors impacting on the EU market for timber from countries either implementing, negotiating or preparing for a VPA. The rationale and associated uncertainties are explained for assessed impacts on supply and consumption of timber from VPA countries in the EU.

Each of the impact factors is categorised as either

- “Trend” factors defined as movements in society, economy, and technology that push in a consistent direction and drive long term systematic change.
- “Irregular” factors are 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 on both the supply side and demand side. Two scores are provided for each factor. The score on the left is the assessed impact during the period 2004 to 2013. The score on the right is the projected impact of the factor during the period 2014 to 2023.

The scoring system is summarised below:

Score	Description
+++	Strongly positive impact
++	Moderately positive impact
+	Weakly positive impact
0	No impact
N	Neutral impact (negatives balance positives)
-	Weakly negative impact
--	Moderately negative impact
---	Strongly negative impact
?	Information inadequate to form a judgement

Architect and structural engineer’s knowledge of timber	
Description	Trend
<ul style="list-style-type: none"> • Surveys of architect perceptions indicate that preconceptions about wood’s fire behaviour, durability and strength, coupled with its image as an old-fashioned material, have significantly undermined wood’s competitive position relative to other materials². • Only on one issue – that of environmental friendliness – do wood products typically outperform non-wood competitors in the minds of many architects. • Another problem is that architects still generally know too little about wood as a material due to inadequate training during qualification³. There is also a lack of engineers with detailed knowledge of timber building. 	

¹ Oliver, R. 2015. Europe’s changing tropical timber trade: baseline report of the Independent Market Monitoring initiative. ITTO Technical Series No. 45. International Tropical Timber Organization, Yokohama, Japan.

² See Oliver & Donkor 2010, Leveling the playing field, ITTO Technical Series 36, Annex 3 (p158) Summary of wood-perception surveys of designers and architects

³ For example see O’Connor, J., Kozak, R., Gaston, C. & Fell, D. 2004. Timber use in non-residential buildings: Opportunities and barriers. Forest Products Journal 54(3): 19–28.

Impact on EU supply of timber from VPA countries	0 0
No direct impact	
Impact on EU consumption of timber from VPA Countries	- +
<ul style="list-style-type: none"> • Due to their considerable influence on material specification, the attitudes and degree of acceptance of timber products from VPA countries amongst architects and structural engineers is likely to be one of the most significant factors influencing consumption. • Architects attitudes have often been negative in the past but efforts are being made to change these through development of innovative new timber building systems and information platforms and active promotion campaigns, with some evidence of success. This is suggested by increasingly widespread coverage of timber projects in architectural and product design media. 	
Uncertainties	
<p>Only a limited number of systematic surveys of architects and engineers attitudes to timber are available. Those surveys that have been undertaken have focused heavily on structural uses of wood in a few industrialised countries which are less relevant for many types of tropical hardwood than the finishing and furniture sectors. The structural sector is renowned for being relatively risk-averse and conservative compared to the finishing sectors, where there is more room for experimentation and a greater focus on aesthetics, versatility, ease of use, and naturalness. Therefore the surveys may overstate architect’s technical concerns in relation to tropical timber.</p>	
Declining availability of commercially popular tropical hardwoods.	
Description	Trend
<ul style="list-style-type: none"> • Although tropical hardwood log production has increased during the last decade, availability of the most popular species in western markets such as mahogany, sapele, teak and ramin has declined. • This is partly due to past dependence on over-exploited and converted natural forest combined with efforts in tropical producing countries to improve enforcement of forestry and timber trade regulations. • A larger share of production is also now being diverted to domestic and emerging export markets. • Following the financial crises, numerous tropical processing mills that serviced western markets have closed and a rising proportion of tropical hardwood trade is in the form of raw logs and rough sawn timber. 	
Impact on EU supply of timber from VPA countries	-- --
<ul style="list-style-type: none"> • Over the last 10 years, total hardwood log production in the six VPA implementing countries increased from 57 million m³ to 71 million m³, but a rising share comprised less commercially popular species and was destined for domestic and emerging export markets. • That share of production derived from illegal harvesting and/or conversion forest should decline in the future. • Macro-economic trends suggest that emerging market demand is likely to continue to rise more rapidly in the near term than demand in industrialised nations. 	
Impact on EU consumption of timber from VPA Countries	-- -
<ul style="list-style-type: none"> • Lack of availability of commercially most popular species is frequently cited by traders and manufacturers in the EU and other industrialised nations as a key factor behind falling consumption of tropical hardwoods. • The negative impact of this factor for VPA countries may be mitigated in the future by linking FLEGT licensing with more active promotion of lesser known tropical species 	
Uncertainties	
<p>Large untapped tropical hardwood resources still exist, notably in the Congo basin, but are currently inaccessible. Improving infra-structure could yet lead to increased flows of tropical wood to international markets. Efforts are being made to increase market awareness of lesser known tropical species with mixed results so far. Potentially large amounts of financing may be diverted</p>	

to REDD projects to reduce emissions from deforestation and to improve forest governance in tropical countries with uncertain consequences for tropical wood supply.	
Design trends in the interiors sector	
Description	Trend
Product and building design trends are critically important to the future competitiveness of various materials suppliers. Reviews of trends in the European veneer, furniture and flooring sectors all indicate a very strong fashion for oak at the expense of most other species including, but not limited to, tropical wood. Review of European design literature indicates a concerted move towards 'natural', 'timeless', 'authentic', 'minimalist', 'individual' and 'reclaimed' products in the interiors sector.	
Impact on EU supply of timber from VPA countries	0 0
No direct impact	
Impact on EU consumption of timber from VPA Countries	-- +
<ul style="list-style-type: none"> • The strong trend towards the 'oak look' has been a factor contributing to declining European consumption of tropical woods. • This trend has been very actively encouraged by manufacturers in Europe and other temperate countries keen to boost demand for a regionally available material. In turn, it has encouraged efforts to increase market acceptance of the full range of oak grades, for example through innovative staining techniques. • Trends towards 'natural', 'timeless', 'authentic', 'minimalist' and 'individual' products could all be turned to the advantage of FLEGT licensed timber with appropriate marketing. • However other competing products are also successfully exploiting these trends. Demand for 'natural' and 'authentic' products is encouraging supply and marketing of a range of alternative bio-based products such as bamboo, rubber, cotton, flax and hemp. Some products manufactured from reclaimed material are competing directly with timber products, for example boards from recycled plastic. 	
Uncertainties	
<ul style="list-style-type: none"> • Design trends are uncertain and variable, subject to vagaries of fashion. There may yet be a backlash in the European market away from natural and minimalist materials in favour of artificial and more extensively processed materials (the modernist movement favouring industrially-produced materials and adoption of a 'machine aesthetic' has been a dominant and recurring theme in European design for at least a century). • Scientific research suggests that fashion is driven by a small number of high profile innovators who are then copied by others⁴. The relative competitiveness of different material sectors is very dependent on their success in identifying innovators and influencing their decisions. 	
Development of forest certification	
Description	Trend
Internationally in the last 20 years there has been a significant move towards third party certification of forest management to standards recognised by either the FSC or PEFC. There has also been rapid expansion of chain of custody (CoC) certification of timber trading companies to allow claims of good forestry practice to be conveyed to consumers. In Europe and North America there has been a growing market expectation, particularly amongst large retailers and buyers in the public sector, that timber products should be either FSC or PEFC certified.	
Impact on EU supply of timber from VPA countries	0 N
<ul style="list-style-type: none"> • Overall the effect of certification, where it exists, is likely to reduce intensity of forest management and therefore volume (but not necessarily value) of production. • However the impact on supply in VPA countries is currently assessed to be limited. In November 	

⁴ For example see Durham University, 'Fashions change, but change is always the fashion' published on March 29, 2007, at <https://www.dur.ac.uk/news/newsitem/?itemno=5300>

<p>2014, only 2.1% of forest area in VPA implementing countries was certified to either FSC or PEFC. These countries accounted for only around 1% of global certified forest area and chain of custody certificates issued at that time.</p> <ul style="list-style-type: none"> • Certification is relatively more important in Cameroon, where it accounts for 1 million hectares of forest against around 7 million hectares of commercial forest concessions. • Certification is also relatively more significant in Malaysia where a large proportion of state forest concessions in Western Malaysia are PEFC certified. • Longer term, the VPA process should provide more favourable conditions for certification and encourage greater uptake. This is assessed to have a neutral impact on supply – while total volume of production may decline, the market value of these products will tend to increase. Availability is also increased for that portion of the EU market demanding certificates. 	
Impact on EU consumption of timber from VPA Countries	-- +
<ul style="list-style-type: none"> • The impact of certification on market demand is extremely complex, varying widely by regions, products and sectors. • Overall the impact on EU consumption of timber from VPA countries over the last 10 years is assessed to be moderately negative. This is due to the combination of: clear evidence of rising demand for certification in some sections of the EU market; the relative lack of certification of timber from VPA countries compared to key competitors; and survey evidence which indicates that certification is seen as particularly important to overcome prejudices against tropical timber. • A comprehensive survey of the EU market for verified legal and sustainable timber products undertaken in 2009 indicated that demand at that time was heavily concentrated in just a few member states - notably the UK, Germany, Netherlands, Belgium and France⁵. Demand was being driven by a few large retailers, and by government and trade association procurement policies in those Member States. • At that time, unlabelled products could readily be sold into large sections of the EU market. However, even then, special conditions seemed to apply to tropical products. • The largest ever survey of consumer attitudes to wood products in the EU⁶, undertaken in 2007, indicated that while wood generally was ranked ahead of other materials on environmental friendliness, this applied only if tropical wood was specifically excluded. Many EU consumers regarded tropical wood as damaging to the environment. • This was strongly reflected in attitudes to certification. Consumers did not regard certified wood products as significantly better or more environmentally friendly than wood products without a label. This finding differed for tropical wood, for which labels were necessary to overcome existing negative prejudices. At the time of the surveys, there was generally little or no consumer willingness to pay for certified domestic and other temperate wood products, but there was more willingness to pay premiums for tropical wood. • Since those surveys were carried out, concern for responsible procurement amongst trading companies in the EU has become much more widespread with introduction of EUTR. However there has also been a partial switch in emphasis away from the previous focus on marketing of a limited range of "sustainable" products covered by specific product labels towards due diligence and legality verification of the entire supply base. • The European domestic wood industry has made a decisive move to certification in recent years. Nearly two thirds of all forest area in the EU is certified and probably a significantly higher 	

⁵ Forest Industries Intelligence Ltd, 2009, EU market conditions for “verified legal” and “verified legal and sustainable” wood products – a study for DFID and the UK Timber Trade Federation. Available at: <http://www.forestindustries.info/images/ttfdfidwholeDocAug09.pdf>

⁶ Rametsteiner, E. et al. (2007). Europeans and Wood: What Do Europeans Think About Wood and its Uses? A Review of Consumer and Business Surveys in Europe. Ministerial Conference on the Protection of Forests in Europe Liaison Unit, Warsaw, Poland.

<p>proportion of forests utilised for commercial production.</p> <ul style="list-style-type: none"> • FSC and PEFC certified European wood products are now readily available across most categories of product and are increasingly regarded in many market segments – particularly softwoods and panel products - as standard. • The large proportion of certified wood available in European supply chains has also simplified the process of chain of custody for domestic wood, reducing the need for physical segregation of raw material. • Development of risk based procurement standards – such as the FSC Controlled Wood standard – and various other procedures such as group and regional certification has also facilitated availability and reduced the costs associated with certification of European wood. • The move to certification in Europe has been less favourable for suppliers of temperate hardwood outside the EU and non-VPA tropical suppliers. Due to higher dependency on wood from more fragmented privately owned forests, only a small proportion – probably less than 5% - of US hardwood supplied into the EU is fully certified and often requires a premium – although a much larger proportion is recognised as FSC Controlled. • Availability of certified wood from non-VPA countries in the tropics is very limited, only Brazil being in a position to supply more than negligible volumes. • Looking to the future, the development of FLEGT licensing procedures, combined with appropriate communication, has significant potential to remove this constraint. Improvements in governance should provide the pre-conditions for increased certification in VPA countries. 	
Uncertainties	
<ul style="list-style-type: none"> • There is uncertainty over the extent to which attitudes to forest certification across the EU have altered in response both to the dramatic change in economic conditions in the last decade and to the EUTR and similar laws in other industrialised nations. • There has also often been a gap between statement of commitments to certification in both public and private sector procurement policies and the actual proportion of wood procured which is certified. • Certification to date has focused on larger state and industry lands that benefit from economies of scale and on industrialised countries where there is appropriate infra-structure for certification. There is considerable uncertainty surrounding the extent to which certification may be extended into smaller private and community owned forests, particularly in developing countries. 	
Development of technical performance standards	
Description	Trend
<ul style="list-style-type: none"> • In Europe there has been a major drive to encourage implementation of harmonised technical performance standards in product sectors of key relevance to demand for timber from VPA countries. • The Construction Products Directive (CPD) of 1989 was introduced to create a common framework for the regulation of building and construction works in the EU. It was one of the early directives from the EU designed to create a single market for goods and services. • The mechanism for implementation adopted by the CPD was to set very high level requirements for works known as the Essential Requirements. The Essential Requirements covered by the CPD were: Mechanical Resistance and Stability; Safety in Case of Fire; Hygiene, Health and the Environment; Safety in Use; Protection against Noise; and Energy Economy and Heat Retention. • Under CPD, the European Committee for Standardisation (CEN) was mandated to develop harmonised European Norms (hEN) for every construction product to support the Essential Requirements. • The CPD was replaced in 2011 by the Construction Products Regulation (CPR). Whereas key elements of the CPD were voluntary for EU Member States, the CPR is legally-binding throughout the EU and treated as equivalent to national law. 	

- Over 400 hEN standards and 1500 test methods have now been developed and adopted for construction products. Wood-based construction products currently covered by hEN standards include: strength-graded structural timber; wood-based panels; solid wood panelling and cladding; wood flooring products; glulam; prefabricated structural members and wall, floor and roof elements; structural LVL; and impregnated and finger-jointed structural timber.
- All Member States are required to use these standards and cannot regulate using national standards if European standards exist.
- Once a hEN is established, all construction products covered by the standard and used in structural applications in the EU must be assessed for conformance by a Notified Body accredited by an EU Member State.
- The official CE Mark is applied to products demonstrating conformance to the standards.
- Unlike the CPD, the CPR explicitly extends the Essential Requirements for construction products to include sustainability, especially on the sustainable use of natural resources.
- To date, work to develop hEN sustainability standards has focused on methodologies for assessing the sustainability of construction works and for preparation of formal LCA-based Environmental Product Declarations (EPDs).
- As the standards development work progresses, it's expected that provision of environmental life cycle data in the form of EPDs will eventually become an integral part of the CE Marking process.
- In the case of furniture, European technical standards are still largely "voluntary" in the sense that there is no legislation equivalent to the CPR at EU level establishing a framework for mandatory compliance across a wide range of technical parameters.
- However, EU countries have introduced specific regulations demanding compliance to minimum standards on various issues, such as flammability, toxicity, child safety, and VOCs.
- In addition the General Product Safety Directive places a general safety requirement on any product placed on the EU market that is intended for or likely to be used by consumers, including furniture. Liability for injuries or damages caused by defective products is also covered by EU law and injured parties have up to three years to seek compensation.
- These laws, combined with very significant concern for brand protection, have led furniture distributors and retailers to demand compliance to an increasingly wide variety of national, EU and international technical standards for furniture.
- For example, the website of the UK Furniture Industry Research Association (FIRA) lists 40 British standards, 75 combined British and European standards, and 6 combined British, European and International standards applicable to different types of furniture and covering a variety of technical issues⁷.

Impact on EU supply of timber from VPA countries	0 0
---	--------------

No direct impact.

Impact on EU consumption of timber from VPA Countries	- +
--	--------------

- From a competitiveness standpoint, the EU's efforts to develop harmonised technical performance standards have been a mixed blessing for timber from VPA countries.
- Harmonisation at EU level benefits both domestic and external material suppliers because it removes barriers resulting from inconsistent national standards within the EU. It helps reduce communication risks and legal liabilities associated with inappropriate application, poor installation and treatment of wood products. It may also facilitate easier use of wood products by architects and specifiers.
- The increased demand for high quality materials which is implicit to the standards development process also helps boost prospects for those numerous tropical timbers with good technical performance characteristics.

⁷ See: <http://www.fira.co.uk/technical-information/article/176/list-of-standards-relating-to-furniture-and-fitments>

- For example, tropical-hardwood-throughout plywood manufactured in Indonesia in accordance to the EN13986 standard complies with the highest durability and structural strength class appropriate for the toughest external applications. Chinese combi-plywood and most other panels cannot meet this class and therefore, under EU law, should not be used in these applications (although they can meet so called CE2+, the minimum requirement for mechanical performance in interior structural applications).
- 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 timber product manufacturers outside Europe have equal access to technical testing and CE Marking services as their counterparts within the EU.
- Although some CPR Notified Bodies have satellites outside the EU that perform tests and submit results to Europe for final approval, all the Bodies are headquartered in Europe.
- Other less fragmented material sectors have also often been better placed to participate in standards-setting processes than the wood sector. In markets for tertiary products such as doors, windows and engineered wood, active engagement of domestic manufacturers and other material sectors in the standards-setting process has been a source of competitive advantage.
- Nevertheless, some key competitors to timber from VPA countries have struggled to meet the standards. Over the last five years, EU market confidence in some Chinese plywood products was undermined when certain mills falsified CE marks on sub-standard products. This gave rise to concerns about unreliable quality and created nervousness in selling Chinese products into structural markets because of liability issues.
- Overall it is assessed that development of technical performance standards in the EU has had a weakly negative impact on EU demand for timber from VPA countries due to the challenges faced by producers in these countries to deliver against these standards.
- However, looking forward, it is projected that timber from VPA countries could benefit from the focus these standards place on transparency and higher technical performance.
- The emergence of sustainability standards focusing on reporting of life cycle environmental impacts may also generate new opportunities for timber from VPA countries.

Uncertainties

There is uncertainty surrounding the actual extent of enforcement of technical standards throughout the EU. For example, a 2011 study for the European Commission reviewing national building regulations highlighted that while in most EU countries topics of structural and fire safety were regularly assessed in building plans, there was little scrutiny of sustainability aspects. Furthermore, monitoring of actual implementation of technical standards across all areas during and after actual construction work was minimal⁸.

Environmental campaigns

Description	Trend
Environmental non-governmental organisations have attained a level of influence over timber product markets in industrialised countries through: direct public awareness campaigns; regular “naming and shaming” of companies alleged to be dealing in illegal timber or otherwise failing to live up to the highest environmental and social standards; active engagement in FSC standards development; and political lobbying activities, particularly to influence the scope and content of regulations like EUTR and green public procurement policies.	

Impact on EU supply of timber from VPA countries	0 0
--	-------

No direct impact, except to the extent that environmental campaigns have succeeded to influence the forest management practices of large commercial operators in VPA countries, either directly or

⁸ PRC Bouwcentrum International & Delft University of Technology, 2011, The Lead Market Initiative (LMI) and sustainable construction: Screening of national building regulations. Available at: http://ec.europa.eu/enterprise/sectors/construction/studies/national-building-regulations_en.htm

by virtue of their contribution to development of certification standards.	
Impact on EU consumption of timber from VPA Countries	-- ++
<ul style="list-style-type: none"> • Overall the impact of environmental campaigns on consumption of timber from VPA countries in the EU is assessed to have been moderately negative during the last decade. The negative media narrative surrounding illegal logging and deforestation fed by ENGOs has tended to be stronger than the positive narrative on responsible procurement and improving governance. • At least one large mainstream ENGO has adopted a very negative approach to all commercial hardwood production in tropical forest. In a 2009 paper, Greenpeace called for zero-deforestation by 2020 which, according to their definition, "means an end to all forest degradation and deforestation - including an end to the industrial logging of primary and intact forest landscapes". Even FSC certified forests are not immune. In March 2011, Greenpeace called for a moratorium on FSC certification in the Congo Basin. • There is also some evidence to suggest that non-wood material sectors have not been subject to the same level of negative campaigning as wood products. While all the mainstream international ENGOs have very active "forest campaigns", there are no specific campaigns targeting extraction and trading practices in other material sectors (with the exception of agriculture). • But it would be wrong to suggest that tropical hardwood has been uniquely targeted. The legality of some temperate wood species has been subject to intense scrutiny by environmental groups, notably those derived from Russia. Local NGO campaigns have also been raised against commercial forestry operations within the EU which, in some cases, have encouraged larger set-asides and lower intensity forest management. • Amongst non-wood materials, the environmental impact of both uPVC and metals (particularly aluminium) has been the subject of environmental campaigns in the last decade, the former on toxicity grounds and the latter on energy-efficiency grounds. • There are reasons to expect that environmental campaigns will have at least a moderately positive impact on demand for FLEGT-licensed timber in the next decade. 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. • For example FERN, a politically influential ENGO, released a consumer video in April 2014 entitled "the story of FLEGT" highlighting some of the unique positive attributes of the FLEGT VPAs, particularly the fact that they "represent a consensus between government, private sector, and local NGOs" and have produced "new standards of transparency, participation and legal clarity". • Similarly, the WWF is noted in a recent article for the EITF newsletter that "companies and industry bodies which have been prioritising sourcing legally and sustainably... have supported the spread of forest legality and sustainability certification, and raised awareness across sectors and with customers. Many are also going to great lengths to demonstrate they meet the EUTR. And the sustained interest in the success of the FLEGT VPA program is well justified and commendable. This is changing forest governance in many places." 	
Uncertainties	
<ul style="list-style-type: none"> • In the absence of meaningful data, the above assessment of the relative impact on environmental campaigns is highly subjective. • The extent to which ENGOs will promote FLEGT licensed timber on the market in the future remains very uncertain – much hinging on the extent to which they believe the views of civil society are being adequately represented within the process and their view of the progress being made to improve governance. 	
Exchange rate movements	
Description	Trend
<ul style="list-style-type: none"> • Although the often volatile nature of exchange rate movements makes them appear "irregular", 	

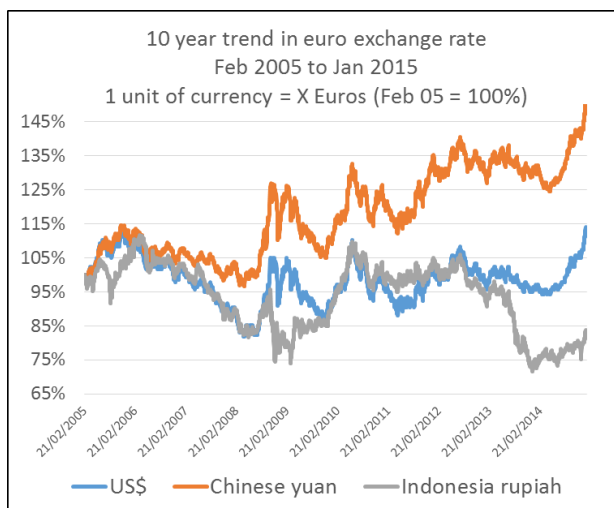
this is categorised here as a “trend” factor because long term trends are clearly discernible due to underlying changes in national economies and structural changes (such as adoption of the euro in 1999).

- Exchange rate is often perceived as a major competitiveness factor in the timber trade because of the impact it has both on producers costs of imported raw material and prices on offer to importers.
- Volatility in exchange rates may undermine business confidence, create uncertainty and disrupt trade.
- Short and medium term competitive advantages arise depending on the currency used for transactions.
- In European tropical hardwood trade, when the euro is weak relative to the US dollar African producers that invoice in euros receive a short term price advantage compared to Asian and South American producers that usually invoice in dollars. A weak dollar has the opposite effect, giving Asian and South American producers a short-term price advantage.
- The relative strength of the Chinese yuan against both the euro and dollar has also been a concern, for example European plywood manufacturers have complained of ‘monetary dumping’ alleging that ‘undervaluation’ of the yuan and/or ‘overvaluation’ of the euro in international currency markets reduces their competitiveness.
- However, exchange-rate movements are always a double-edged sword. Suppliers like those in China that rely heavily on imported raw materials, also suffer when their domestic currency is weak because it raises the costs of raw materials.
- Weak domestic currencies can discourage domestic processing and increased export of raw materials.

Impact on EU supply of timber from VPA countries

N | N

- Overall the effect of this factor is assessed to be neutral, with positive impacts offset by negative impacts.
- The chart below shows trends in the euro-exchange rate against three currencies of particular relevance to the European trade in wood products from VPA countries.



- Although occasionally there have been large short-term fluctuation in the euro-dollar exchange rate, there has been no long-term trend either up or down over that period.
- The same is true of the euro-rupiah exchange rate - although in this case there has been more volatility adding to the uncertainty in European trade in Indonesian products over the last 10 years.
- Suppliers in VPA countries in the Congo using the CFA Franc (pegged to the euro), and which tend to invoice in euros, have been more insulated from exchange rate effects in the EU.

- The situation in Ghana is different. Ghana’s currency suffered a massive slide in recent years, falling from 0.75 against the euro in August 2007 to 0.20 in August 2014, before recovering a little ground to 0.26 at the end of 2014. Investors were increasingly concerned about the government’s ability to curb spending and rein in the rising current-account deficit.
- This factor, alongside general weakness in European and North American markets and strong demand for unprocessed wood in Asia, is likely to have been a significant additional drag on wood processing industries in Ghana during the period.

Impact on EU consumption of timber from VPA Countries	- N
<ul style="list-style-type: none"> • Overall, the impact is assessed to be weakly negative during the last decade. Although not a leading driver of the systematic decline in EU timber imports from most VPA countries since 2007, exchange rate movements have impacted on the relative share from different countries. • Adoption of the euro as the national currency of 11 EU countries from 1 January 1999, and subsequent extension to another 8 countries in the period 2001 to January 2015 has been one factor helping to increase competitiveness of domestic wood suppliers in the EU, reducing transaction costs and volatility in sales prices. • Suppliers in North America have also generally benefitted from the relative stability of the euro-dollar exchange rate. • In the early years of the last decade, the relatively low value of the yuan on international currency markets gave Chinese manufacturers a significant edge. However there has been consistent appreciation of the Chinese yuan against the euro over the last decade (see chart) and this has eroded some of the price advantages of Chinese plywood and furniture products in the European market. This may have contributed to signs of slowing growth in EU imports of Chinese wood products in 2013 and 2014. There was particularly sharp appreciation in the Chinese yuan in the second half of 2014 and early 2015. • The Brazilian real was generally appreciating against other international currencies between 2005 and 2010 (although there was a sharp but short-lived dip in 2008), and this factor contributed to rising prices and falling EU imports of Brazilian tropical hardwood products at that time. While the Brazilian real depreciated between 2010 and 2014, this did little to boost EU imports from Brazil during a period of depressed demand. • Looking to the future, exchange rate movements are projected to have a neutral effect on EU market demand for timber from VPA countries, as the benefits of euro establishment are already integrated into market trends and China's earlier advantage from the relatively weak yuan is diminishing. 	
Uncertainties	
<p>There is a relatively high level of certainty with respect to monitoring this factor. Exchange rates are comparatively easy to monitor and can be readily correlated with cross border trade flows. On the other hand, there is always uncertainty over potential future impacts of exchange rates, particularly with on-going concerns in the euro-zone due to the debt crises.</p>	
Expansion of green building practices	
Description	Trend
<p>While still impacting on only a minority of the EU construction sector, green building systems like BREEAM (UK & Netherlands), DGNB (Germany), HQE (France), and LEED (US and International) that rate the environmental performance of whole buildings, both during construction and use, are becoming more widespread. Concern for climate change and energy efficiency has been a particularly important factor driving uptake.</p>	
Impact on EU supply of timber from VPA countries	0 0
<p>No direct impact.</p>	
Impact on EU consumption of timber from VPA Countries	- +
<ul style="list-style-type: none"> • As with public sector procurement policies, the impact of green building initiatives has been constrained to date by the lack of widespread uptake in the European construction sector, particularly as most are still non-mandatory. • However there is a significant drive underway to extend application of green building standards as this is widely seen as a priority action in order to meet the EU's ambitious targets to reduce greenhouse gas emissions. • To date, the relatively tough requirements for procurement of "sustainable timber", together with over-reliance on single-issue environmental assessment which tends to favour "local" or "recycled" materials has probably hindered market access for timber from VPA countries. 	

<ul style="list-style-type: none"> • However, the move to green building offers longer term opportunities for timber from VPA countries. • Rating systems are increasingly shifting to a more scientifically oriented life cycle approach with potential to increase consumption – assuming that LCA confirms assumptions that legal and sustainable tropical timber products have low environmental impact compared to non-wood materials. • On the other hand, this is far from guaranteed as other material sectors have been adept at shifting the scope of green rating standards to reflect their environmental strengths. 	
Uncertainties	
<p>The extent to which some rating systems will adopt a scientific LCA-based approach is still questionable. Gathering and providing detailed LCA data is expensive and will be challenging for tropical suppliers. In the absence of strong regulatory drivers, there's still a big gap between the hype surrounding green building rating systems and the actual level of uptake in the highly conservative building sector.</p>	
Financial crises	
Description	Trend
<p>The financial crisis of 2007–2008 is considered by many economists to have been the worst financial crisis since the Great Depression of the 1930s. The crisis played a significant role in the failure of key businesses, declines in consumer wealth estimated in trillions of U.S. dollars, and a downturn in economic activity leading to the 2008–2012 global recession and contributing to the European sovereign-debt crisis. Economies worldwide slowed during this period, as credit tightened and international trade declined, although the effects were most pronounced in North America and Europe.</p>	
Impact on EU supply of timber from VPA countries	-- 0
<p>The crises led directly to the closure of numerous mills in those VPA countries with high exposure to the EU market, notably in Africa, and contributed to the reorientation of supply chains towards less impacted countries, mainly China, India and other emerging markets. There has also been significant erosion of infra-structure to supply tropical hardwoods within Europe. Several commercial enterprises that played a critical role by maintaining landed stocks in Europe have closed sites or withdrawn from the market altogether. For example, DLH which was formerly one of Europe's largest tropical hardwood trading companies, closed its' large Antwerp stock-holding operation in 2013 and sold off much of the rest of its European capacity during 2014. Other recent closures of tropical hardwood enterprises in Europe include Precious Woods Europe and the Dutch company Bekol International.</p>	
Impact on EU consumption of timber from VPA Countries	--- --
<ul style="list-style-type: none"> • In most EU countries, at least 50% of timber is destined for construction, a sector which fell 22% in the period 2007 to 2013. • Falling construction sector activity combined with high rates of unemployment and higher government and consumer debt also led to declines in ancillary sectors such as furniture and packaging which are also important sources of demand for timber products. • Lack of credit and falling consumption also encouraged: greater risk aversion amongst buyers; reduced speculative purchasing; and increased preference for just-in-time orders of smaller mixed loads. All these trends encouraged procurement of domestic over imported wood products. • All these trends are indicated by the sharp fall in EU imports of timber products in 2008 and 2009, a trend which closely followed the trend in EU construction, joinery and furniture sector activity. • The fall in imports from VPA countries was even more pronounced than the fall in imports from other supply countries (notably China and Russia) and in domestic production. As a result timber from VPA countries lost share across a wide range of sectors in the intensively competitive 	

<p>environment that emerged following the crises.</p> <ul style="list-style-type: none"> • While the worst effects of the financial crises are now past, it continues to cast a long shadow over EU timber imports from VPA countries. Eight years on from the onset of the crisis, optimism of sustained growth has been undermined by the continuing fallout from the debt crisis and persistent unemployment. Bank finance has remained relatively difficult to obtain, particularly for SMEs. Continuing uncertainty and lack of finance have combined to ensure that the EU timber trade remains very risk adverse. 	
Uncertainties	
<p>Uncertainty continues to surround the timing, geographic distribution and strength of recovery in the EU.</p>	
FLEGT VPA process	
Description	Trend
<p>Voluntary Partnership Agreements (VPA) between the EU and timber supplying countries 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 by both parties to develop a Legality Assurance System (LAS) which licenses timber and timber products for export to the EU. FLEGT licenses together with CITES certificates are the only forms of documentation recognised in EUTR as sufficient assurance of legal origin to require no further due diligence by operators.</p>	
Impact on EU supply of timber from VPA countries	? +
<p>The main impact on supply should be to eliminate illegally logged wood from supply chains into the EU. Although on-going measures to implement licensing procedures will almost certainly have impacted on wood supply in VPA countries, it is too early to assess the scale or direction of this impact. Longer term, the combined effect of FLEGT licensing and EUTR should help ensure more consistent long-term supply of legally verified timber to the EU from VPA countries.</p>	
Impact on EU consumption of timber from VPA Countries	0 ++
<p>EU market impact in advance of FLEGT licensing has probably been negligible, although the fact of signing a VPA and engaging in the forest governance reform process may be contributing already to more positive ratings in EUTR due diligence systems. Longer term, FLEGT licensed timber is expected to benefit from recognition under EUTR.</p>	
Uncertainties	
<p>There is uncertainty over the timing of licensing in VPA-implementing countries and the outcome of on-going VPA negotiations in other countries. The full implications of licensing procedures on supply and costs to operators in VPA countries have yet to be assessed and are likely to vary widely. The extent to which licensing procedures are successful in eradicating illegally logged timber from supply chains into other export markets needs to be determined. The extent of acceptance of FLEGT licenses as appropriate evidence of due diligence or due care in non-EU markets also needs to be assessed.</p>	
Freight	
Description	Trend
<ul style="list-style-type: none"> • While, overall, sea freight rates have become a less important factor in the commodity trade, the combined cost of land and sea transport remains a major competitiveness factor for many tropical hardwood producers located in isolated areas at considerable distances from ports. • Short-term fluctuations in freight rates can also be very disruptive to trade. • The cost of freight may be less important to competitiveness than shipping reliability and time, particularly since the onset of the financial crises which has increased emphasis on stock control and just-in-time delivery. 	
Impact on EU supply of timber from VPA countries	-- -
<ul style="list-style-type: none"> • Overall, the impact is assessed to have been moderately negative during the last decade. • Freight-related factors have been a drag on exports of timber from VPA countries. Although 	

<p>Malaysia scores well on the UNCTAD Liner Shipping Connectivity Index, most other countries implementing or negotiating a VPA perform poorly.</p> <ul style="list-style-type: none"> • Indonesia is relatively more “connected” than the other VPA Implementing countries and has benefitted from increased access to containerisation. However it is also located at considerable distance from the EU with long transit times compared to competing timber supply countries. • Export of timber from Cameroon, the Central African Republic and Congo Republic is particularly affected by long transport distances and inefficient port operations. • In practice, freight problems have actively discouraged moves towards increased processing in VPA countries, particularly in Africa, and to encourage increased dependence on exports of unprocessed primary timber products. • High dependency on bulky and comparatively lower-value primary commodities such as logs and rough-sawn wood mean that freight costs are proportionally more significant⁹. • Serious logistical problems at Douala port in Cameroon - partly because of exports to China being prioritised - are regularly cited as a major factor impeding EU imports of timber from the country. • The tropical wood industry has also been particularly susceptible to short term disruption in freight rates due to its relatively high fragmentation and associated lack of leverage with major shipping lines. • Looking to the future, there are more positive indications. There is significant current and planned investment in new transport infra-structure in VPA countries that could mitigate freight-related problems. • In November 2014, the newly elected Indonesian President announced that efforts will be made to raise nearly \$6 billion in projects to expand five major ports in north Sumatra, Jakarta, east Java, south Sulawesi and Papua to serve large vessels and build feeder lines for smaller ports. • Port congestion which has seriously hampered exports from Cameroon in recent years is also widely expected to become less of a problem following the recent announcement by the Minister of the Economy, Planning and Regional Development that the Limbe Deep Seaport supported by South Korean investment should become operational during 2015. • The Kribi Seaport in Cameroon, supported by US\$567 million of Chinese investment, is also reported to be 60% complete and is expected to provide a large new harbour serving all of Central Africa. 	-- -
Impact on EU consumption of timber from VPA Countries	
<ul style="list-style-type: none"> • The combined effects of higher transport costs and lengthy and uncertain transit times are assessed to have had a moderately negative impact on EU consumption for timber from VPA countries in the EU during the last decade. • The factor has become more important in the EU as a range of other factors have put a premium on rapid and reliable delivery (including lack of credit for holding stock, just-in-time trading, move to prefabrication, concern to provide long-term product guarantees, and responsiveness to fashion changes). • Across all freight-related issues, competing products tend to have a commercial advantage over timber from VPA countries. • European and American hardwoods benefit from much shorter transit times and less costly transport routes than VPA 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. 	

⁹ One estimate indicates that for the Central African Republic, trucking from forest to the port of export account, on average, for between 32% and 38% of the total cost, insurance, freight (CIF) Europe price of the product. In Ferrantino and Christ, 2009, Land Transport for Exports: The Effects of Cost, Time, and Uncertainty in Sub-Saharan Africa. US International Trade Commission, Washington, DC, United States.

<ul style="list-style-type: none"> • Many non-wood competing materials are derived from large relatively consolidated industrial sectors better able to influence shipping lines. • Looking forward, recent moves to improve infra-structure in VPA countries has potential to mitigate the negative impact of freight issues on EU market consumption. 	
Uncertainties	
There is uncertainty surrounding the real long-term impact of on-going efforts to improve transport infra-structure in VPA countries. Costs of transport are heavily dependent on volatile oil price trends.	
Global concern for climate change and energy security	
Description	Trend
Policy initiatives at international and national level in response to climate change and energy security have potential to impact the wood supply chain at every stage - from the forest where more finance is being directed towards forest protection as carbon sinks and more wood raw material is being diverted for biomass, through wood processing where greater emphasis is being placed on energy efficiency, through to delivery and end-use markets where there is greater emphasis on “low carbon” materials and more energy efficient building designs. The leading international policy process is the UN Framework Convention on Climate Change (UNFCCC).	
Impact on EU supply of timber from VPA countries	0 ?
<ul style="list-style-type: none"> • Minimal impact to date. Most of the small amount of support allocated for new plantations through the UNFCCC Clean Development Mechanism (CDM) went to China. • UNFCCC Reduced Emissions from Deforestation and Forest degradation (REDD) programs are still in the early stages. There may be significant long term impacts of REDD, but these are highly uncertain both in terms of scale and direction. • In theory, REDD programs should curtail availability of wood from tropical conversion forests and facilitate a switch to lower volume but higher value trade in tropical wood from sustainably managed permanent forest estates. • Large areas of forest may be removed entirely from timber production as a reliable alternative income stream from carbon credits, not dependent on harvesting, would become available. 	
Impact on EU consumption of timber from VPA Countries	0 +
<ul style="list-style-type: none"> • In the absence of widespread carbon labels and taxes, the impact has probably been minor to date. • Climate policy in the EU has contributed to some increased interest in wood as a low-carbon and good insulating material in the construction sector. • However concerns about the carbon implications of transport plus reliance on the “production approach” when accounting for carbon storage in wood products in national carbon accounts in line with UNFCCC rules means that much of the focus is on promoting use of domestic wood rather than imported products. • Nevertheless, with provision of objective carbon footprint data and effective marketing, climate-related policies in consuming countries may create new opportunities to increase market demand for FLEGT licensed timber. • The overall effect of these policies may be to reduce availability and competitiveness of other materials. Greater diversion of raw material for biomass reduces availability for composite panels and long term increases in energy costs may impose a higher cost burden on non-wood products which tend to be more energy intensive. 	
Uncertainties	
Continuing uncertainty over level of: international commitment to climate change and REDD policies; political and market acceptance of carbon storage benefits of hardwood products; and subsidies to biomass for renewable energy. Development of alternative energy sources and technologies may reduce concern for energy security and efficiency. Alternative low-carbon materials are being developed.	

Global expansion of planted forest area	
Description	Trend
Global plantation area expanded from 178 million hectares in 1990 to 264 million hectares in 2010. While being only 5% of global forest area, plantations contribute over 35% of global wood supply. In the 1990s, most new plantations were in the USA, Russia, and Chile. Since 2000, most have been in China.	
Impact on EU supply of timber from VPA Countries	0 +
VPA countries have only relatively minor engagement in plantation development. There is only around 4 million hectares of forest plantation in countries that have ratified a VPA, almost all in Indonesia. An additional 10 million hectares is in countries currently negotiating VPAs.	
Impact on EU consumption of timber from VPA Countries	- -
<ul style="list-style-type: none"> • Faster growth rates and economic advantages of plantations imply timber products from natural forests in VPA countries may form a declining share of overall EU wood fibre consumption. • Opportunities for timber from VPA partner countries in structural markets may diminish. • The trend towards increased reliance on plantation wood in non-VPA countries is set to continue. FAO has estimated that plantations could be producing 1.5 billion m³ per year of industrial roundwood by 2050, around 50-75% of total projected global consumption. • Development of plantation resources has had a particularly dramatic impact to increase supply of plywood from China, and panel products in South America and Europe. • However, fast growing and bland utilitarian plantation wood products are less competitive in high-end markets for appearance wood. 	
Uncertainties	
Technical innovation may boost prospects for fast-growing plantation woods in appearance markets. Newly established plantations in China and elsewhere are not necessarily well managed and may not produce forecast levels of fibre.	
GSP and timber import tariffs	
Description	Trend
<ul style="list-style-type: none"> • Successive international trade rounds have seen a dramatic fall in tariffs, including on timber, so their role to influence competitiveness is now relatively insignificant. • EU import tariffs on many timber products in Chapter 44 of the CN codes are zero and never exceed 10%. • No tariffs apply to fuelwood, charcoal, logs, hoopwood/poles, rough sawn timber and mouldings. • Tariffs of 4% to 5% apply to planed, sanded and finger-jointed sawn timber of tropical hardwood, maple, cherry and ash. • Hardwood veneers and plywood attract tariffs of 3-6% and 6-10% respectively. • Import tariffs are zero on all wood furniture with the exception of components and kitchen furniture which are subject to 2.7% tariff. • Import tariffs are zero on all pulp and paper products. • Preferential tariffs for EU imports are applied to many developing countries through the Generalised Scheme of Preferences (GSP). • Nevertheless, occasional changes to tariffs or to the GSP status of different countries can have short term effects on trade flows as importers organise shipments to avoid the higher rates. 	
Impact on EU supply of timber from VPA countries	0 0
No direct impact	
Impact on EU consumption of timber from VPA Countries	+ +
<ul style="list-style-type: none"> • Overall the impact is assessed to be small due to the relatively low level of EU import tariffs on timber products. Most VPA countries gain preferential treatment under various programs¹⁰. This 	

¹⁰ A recent summary of the status of countries under various schemes for preferential import tariff treatment in the EU is provided in http://trade.ec.europa.eu/doclib/docs/2013/december/tradoc_152012.pdf

<p>effectively puts them on a tariff level equivalent to domestic European suppliers who have duty free access throughout the region.</p> <ul style="list-style-type: none"> • CAR and Liberia are covered by the “Everything But Arms” (EBA) framework for least developed countries and are subject to zero tariff on all wood products imported into the EU. • Cameroon, Congo Republic, Ghana, and Indonesia are covered by GSP and are subject to zero tariff on EU imports of all wood products except particle board, fibreboard, plywood, windows and doors which pay standard rate of duty less 3.5%. • Of countries currently negotiating a VPA, Ivory Coast, Thailand and Vietnam benefit from GSP status, while DRC and Laos are covered by EBA, and Honduras and Guyana gain duty free access under free trade agreements. • Gabon and Malaysia lost their GSP preferential status from 1 January 2014 as their economies have grown to such an extent they no longer need support to export successfully to the EU. • The two countries currently preparing for VPA negotiations – Myanmar and Cambodia - are both covered by EBA. • These tariff structures give most VPA countries a slight edge over other external timber suppliers into the EU, very few of which now benefit from preferential treatment. • Of non-VPA tropical countries benefitting from duty free access into the EU through the EBA, only Equatorial Guinea supplies more than negligible volumes of timber to the EU. • Amongst suppliers of competing temperate products, Ukraine’s EBA status was altered to the slightly less favourable GSP status from 1 January 2014. • Several other significant competitors to VPA countries lost their GSP preferential status from 1 January 2014 including Belarus, Brazil, and Russia. • GSP status for China’s wood products was suspended by the EU in December 2012 as they are regarded as so competitive to need no support in the EU market. The fact that China no longer benefits from preferential treatment gives most VPA countries a slight market advantage in the plywood sector. • Suppliers to the EU in countries currently negotiating VPAs without GSP status – Malaysia and Gabon – pay the same level of duty as China but are at a disadvantage compared to suppliers in the EU and countries benefitting from GSP or EBA in those sectors subject to tariff (planed/sanded sawn wood, veneer, plywood, window and door sectors) 	
Uncertainties	
<p>The EU is currently engaged in bilateral negotiations towards Economic Partnership Agreements with countries in several regions, including North America and the Economic Community of West African States (ECOWAS). The outcome of negotiations is still uncertain but if agreement is reached zero tariffs would likely be imposed on timber products from the countries concerned.</p>	
Implementation of EU Timber Regulation (EUTR)	
Description	Trend
<p>EU Regulation No 995/2010 which came into effect on 3 March 2013 lays down obligations for operators who place timber and timber products on the EU market including a prohibition on placing illegally harvested timber on the market and mandatory requirement to exercise 'due diligence'.</p>	
Impact on EU supply of timber from VPA countries	0 +
<p>EUTR is still in the early stages of implementation and market analysis indicates limited direct impacts on trade flows to date. Longer term, the combined effect of FLEGT licensing and EUTR should help ensure more consistent long-term supply of legally verified timber to the EU from VPA countries.</p>	
Impact on EU consumption of timber from VPA Countries	0 ++
<ul style="list-style-type: none"> • Preliminary analysis of import data undertaken by IMM in 2015 as input to the EC’s official EUTR Biennial Review identified no significant step-change in EU trade volumes directly attributable to EUTR implementation 	

<ul style="list-style-type: none"> • However discussions with traders and market reports indicate EUTR has driven important structural changes in some supply chains, for example encouraging a switch to lower risk plantation grown face veneers in the plywood sector, greater focus on reliable long term suppliers and demand for certified products in countries where there are perceived risks of illegal harvest, and increased trade by way of larger EU importers with more resources for due diligence. • Greater risk adversity and reduced speculative purchasing is also suggested by relatively low but stable EU timber imports from VPA countries since introduction of EUTR. • Longer term, EUTR is expected to significantly increase opportunities for FLEGT licensed timber in the EU market. Since FLEGT licensed timber (alongside CITES listed) is the only timber not subject to the due diligence requirements of EUTR, the regulation has potential to boost consumption of timber products from VPA countries at the expense of non-VPA countries. • The timber sector as a whole should also benefit from positive communication of EUTR as a mechanism that ensures wood is the only commodity supplied into the EU with a negligible risk of being derived from an illegal source. 	
Uncertainties	
Some EU member states still need to demonstrate that EUTR enforcement measures and sanctions regimes are effective in ensuring illegal wood is removed from trade. There are differing interpretations within the private sector and between member state authorities of the due diligence requirements and of the risks associated with various countries and supply chains. There is uncertainty surrounding the extent to which on-going efforts to prepare common guidance and harmonise interpretations will be successful. There is uncertainty over the costs and other commercial implications of FLEGT licensing relative to private sector procedures for legality verification.	
Implementation of legal timber legislation in other consuming countries	
Description	Trend
With similar controls to EUTR, the U.S. Lacey Act Amendment has been in force since May 2008 and the Australian Illegal Logging Prohibition Bill was introduced from November 2012 (amended in November 2014 to introduce new diligence requirements). Japan's non-regulatory Goho Wood scheme promoting procurement of legally verified wood was introduced in 2006 and by 2013 was being implemented by 143 associations and 9000 companies. Like Japan, China has adopted a non-regulatory approach. The Chinese government has prepared guidelines for "Sustainable Forest Products Trade and Investment by Chinese Enterprises" and the China National Forest Products Industry Association is involved a project to pilot test a new system to verify the legality of wood imports.	
Impact on EU supply of timber from VPA countries	0 +
In theory, effective enforcement of consistent legal timber requirements across all major consuming markets in addition to the EU should enhance incentives for countries to complete VPA negotiations and for a wider range of suppliers in VPA countries to adopt VPA legality licensing procedures. Opportunities to divert supplies to less sensitive markets elsewhere in the world should be reduced. However, this outcome is dependent on more consistent enforcement and interpretation across consuming countries.	
Impact on EU consumption of timber from VPA Countries	0 0
No direct impact.	
Uncertainties	
Key areas of uncertainty are the extent and effectiveness of enforcement measures in other consuming nations, the variable requirements for legality verification, and level of awareness and recognition of FLEGT licenses in consuming countries other than the EU.	
Increasing prefabrication in construction sector	
Description	Trend

<ul style="list-style-type: none"> • There has been a significant shift away from on-site fabrication towards prefabrication of wall, floor and roof sections and of windows and doors (with frames included). • This has gone hand-in-hand with the development of state-of-the-art manufacturing techniques in modern highly automated factories. • In the European wood sector, there is increasing reliance on factory production lines using computer numerical control (CNC) machines for accurate cutting, aligning, screwing, nailing, painting and handling which drastically reduce waste materials and allows the waste that is produced to be controlled and recycled. • European and North American forest products companies have played a key role to drive the move to prefabrication in EU construction through development of sophisticated timber building systems which have taken rising share of the construction market in the last decade. • In addition to timber building systems, many finishing components are now fully factory finished. For example, throughout much of the EU windows sector, full-factory finished, double or triple glazed units are becoming the norm. These products offer enhanced security and long term warranties. Members of the UK's Wood Windows Alliance now typically offer 30 year guarantees on the frame and up to 10 years on paint or stain finish, seals and ironmongery. • For construction companies, benefits include predictability, quality assurance, faster construction times, less waste, less noise and disruption to neighbours, less (even zero) defects and lower site accident rates and improved health and safety. 	
Impact on EU supply of timber from VPA countries	0 0
No direct impact	
Impact on EU consumption of timber from VPA Countries	-- 0
<ul style="list-style-type: none"> • While the move to pre-fabrication in the EU has largely been to the benefit of timber relative to some non-wood materials including concrete, brick and stone, to date it is assessed to have had a moderately negative impact on demand for timber from VPA countries. • This is partly because the plastics industry played a major role to initiate the trend towards prefabrication in the windows and doors sector and began to exploit it before the timber industry. • It's also because the move to prefabrication is leading to decline in the market for versatile utility hardwoods traditionally used for finishing applications on building sites. A large part of tropical hardwood's appeal in the EU market was its proven ability to perform well in a wide range of applications. • However specification is now much more tightly controlled by manufacturers looking for specific materials backed by detailed data on technical and environmental performance. • Looking forward, timber suppliers in VPA countries could neutralise and begin to exploit this trend by ensuring provision of technical performance data alongside FLEGT licenses. • This would align with the broader objective of promoting greater use of lesser known species from VPA countries, helping to shift the emphasis from species name and more on to technical performance in specific applications. 	
Uncertainties	
While the move to pre-fabrication is a long-term EU wide trend, the pace and extent of change in different sectors is uncertain.	
Marketing initiatives	
Description	Trend
The effectiveness of market development and promotion activities are a key determinant of competitiveness in any industry. FLEGT licensed timber would benefit from specific marketing initiatives raising awareness of the VPA process in key target audiences and gathering useful feedback on consumer needs. It would also benefit from generic wood marketing initiatives that raise awareness of technical and environmental benefits and issues associated with wood products. At the same time other competing material and timber product suppliers are investing in	

marketing initiatives that might undermine demand for FLEGT licensed timber.	
Impact on EU supply of timber from VPA countries	0 0
No direct impact	
Impact on EU consumption of timber from VPA Countries	-- ++
<ul style="list-style-type: none"> • The impact over the last decade is assessed to be moderately negative. This is due to the relatively low level of resources committed to positive promotion of timber from VPA countries compared to competing materials. • The need to commit to such promotion has become even more important following the recession in Europe and North America. At a time of intense competition in traditional markets, there is an essential need to find new sources of demand through innovative products and marketing strategies. • A survey of European wood market development initiatives in November 2012 indicated that at that time these initiatives were generally under-funded and patchy in their coverage¹¹. Those that existed were more focused on promotion of European and North American timbers than tropical timber. The Malaysian Timber Council was the only reasonably well-resourced campaign focused on raising awareness of tropical forest issues. • Meanwhile other wood and non-wood sectors have maintained and even expanded their commitment to positive marketing. For example, the American Hardwood Export Council (AHEC) has been investing \$1.5 million a year in innovative communication efforts in Europe. The France-Bois Forêt (FBF) campaign was launched with strong support of the French Ministry of Agriculture in 2005 with the aim of promoting a stronger culture of wood use in all sectors. • Data on the financial resources dedicated to marketing of non-wood materials could not be found for this review. However, the fact that the concrete, steel, and plastics industries are all less fragmented than the timber sector suggests they can more readily leverage finance for large promotion campaigns. The scale of those promotion campaigns is evident from the sophistication and extent of their output in the form of technical and environmental brochures, reports, media campaigns (both social and traditional), regular high-profile participation at trade shows and other events, and engagement in political lobbying and standards-setting processes. • Looking forward, existing and newly emerging marketing initiatives are projected to have a moderately positive impact on EU consumption of timber from VPA countries. • The FLEGT VPA and EUTR processes both lend themselves well to development of a positive public narrative on tropical wood use, providing a strong demonstration of leadership. FLEGT licensing and effective enforcement of EUTR will allow the industry to make far-reaching and legitimate claims – for example that it is the only material supplying sector able to demonstrate 100% legality and a strong commitment to governance reform at point of extraction. • Efforts are now being made to improve the cohesion of wood promotion at EU level through initiatives such as the CEI Bois Road Map, “European Wood” and the European Timber Trade Federation (ETTF). The Global Timber Forum was launched in May 2013, with strong tropical industry participation, with the aim of creating a new communications hub for timber trade federations and national and regional umbrella bodies around the globe. • In November 2013, over forty private and public sector organizations jointly launched the European Sustainable Tropical Timber Coalition (STTC). The STTC has the single specific aim to increase European demand for timber from sustainably managed tropical forests. • At the ATIBT Forum in November 2014 in Paris there was strong representation from the private sector, government authorities and NGOs in both consumer and producer countries government bodies. The meeting was sponsored by a broadening coalition of organisations determined to promote the positive attributes of tropical timber and the efforts made to improve environmental performance. These organisations included the ETTF, IDH - the Sustainable Trade 	

¹¹ Forest Industries Intelligence Ltd, 2012, [Efforts to promote use of wood in the EU region](#), a study for the Japan Lumber Inspection and Research Association

<p>Initiative, STTC, ITTO, UNFAO, the EU FAO FLEGT Programme, Central African Forest Commission and GIZ, the German international cooperation body.</p> <ul style="list-style-type: none"> • The 2012 survey of European wood marketing initiatives noted the rising level of commitment to promotion. Despite limited resources, wood marketing and promotion activities in Europe have improved considerably and become much more effective and focused over the last ten years. Innovative promotional activities such as design-led marketing, regional industry clusters, and wider use of social media have emerged. There is greater focus on target-oriented approaches supported by regular evaluation. • There is evidence this is encouraging a strong change in attitude to wood's performance, especially from architects and engineers. On wood's environmental credentials, new and more positive messages are being heard and the media are generally becoming more objective. 	
Uncertainties	
<p>Positive communication of FLEGT licensing and EUTR depends on successful implementation of these programs. There is also uncertainty over the level of on-going financial support for marketing of FLEGT licensed timber and over the extent to which on-going efforts to build cohesion in a fragmented industry will be successful.</p>	
Modification of wood for external applications	
Description	Trend
<p>A wide range of thermal modification techniques and chemical treatments can now be applied to timber to enhance performance, sometimes with the specific intent of mimicking the aesthetic qualities, durability and strength of tropical hardwoods.</p>	
Impact on EU supply of timber from VPA countries	0 0
<p>No direct impact.</p>	
Impact on EU consumption of timber from VPA Countries	- -
<ul style="list-style-type: none"> • To date the main impact has been to reduce consumption due to substitution by competing products in market sectors formerly dominated by tropical wood. • The major beneficiaries have been European and North American wood species which are being used in a wider range of exterior joinery applications including windows, doors, conservatories and cladding. • Europe already has over 300,000 m3 of thermal modification capacity, up from negligible levels a decade ago. • However the trend may benefit some tropical wood species from VPA countries that can also be modified to enhance performance. For example, thermally modified idigbo/frake is now being marketed in Europe for cladding and other external applications. In this case the wood is supplied from West Africa and thermally modified in the EU. 	
Uncertainties	
<p>There are continuing uncertainties over comparative costs, technical performance, and environmental attributes of modified wood products. Market acceptability of modified wood products is in doubt due to poor technical performance of some early products.</p>	
Natural disasters and epidemics	
Description	Irregular
<ul style="list-style-type: none"> • The ebola crisis in West Africa which began in December 2013 and peaked in the second half of 2014 demonstrates the hugely damaging and corrosive effects these may have throughout all areas of a national economy. By 28 January 2015, there had been 22,000 officially recorded cases and 8,800 recorded deaths, almost all in Sierra Leone, Liberia and Guinea. The true figures may be significantly higher as many cases go unrecorded. • The impact of natural disasters on national economies can be equally devastating. In the last decade, the most destructive natural disasters (in terms of lives lost) were: <ul style="list-style-type: none"> ○ The Haiti Earthquake of January 2010 which killed 314,000 people. ○ The December 2004 tsunami in the Indian Ocean killing at least 230,000 people in a 	

<p>dozen countries, over half of which were in Indonesia, and the remainder concentrated in Sri Lanka, India and Thailand.</p> <ul style="list-style-type: none"> ○ The May 2008 storm surge from Cyclone Nargis which inundated densely populated areas around the Irrawaddy River delta in Myanmar and killed around 138,000 people. ○ The 2008 earthquake in China's Sichuan province which killed 87,000 people (including many children due to particularly poor construction of schools, mainly in concrete). ○ The 2005 earthquake which killed about 80,000 people in north-western Pakistan and Kashmir. ○ The 2011 Japan Earthquake/Tsunami when around 19,000 people were killed. ○ Typhoon Haiyan in early-November 2013 which killed more than 10,000 people in the Philippines. <ul style="list-style-type: none"> ● Other much less widely reported events occur regularly and affect millions of people - for example India Monsoon floods in June and July 2012 led to displacement of 6.9 million people. Rainy season floods in Nigeria in Sep-Oct 2012 led to displacement of 6 million people. ● For the timber trade, natural disasters and epidemics can seriously disrupt supplies and/or lead to the diversion of a significant volume of timber over a short period of time for reconstruction efforts. ● In areas prone to natural disasters – particularly concentrated in the Pacific Rim - this can significantly impact on the choice of building techniques and therefore materials. 	
<p>Impact on EU supply of timber from VPA countries</p>	<p>- ?</p>
<ul style="list-style-type: none"> ● The impact is assessed to be weakly negative overall during the last decade. ● From the perspective of timber trade, the immediate effect of the ebola crises has been to interrupt efforts to rebuild forest sector institutions in Liberia and likely significantly delay supply of FLEGT licensed timber. ● The direct impact of natural disasters on timber supply from VPA countries has occasionally been dramatic, but also relatively confined in geographic terms and short lived. ● The 2004 tsunami event almost certainly had the most direct impact. Market reports at the time highlighted the closure of numerous mills in Indonesia and massive dislocation to wood supply. Longer term, significant quantities of timber were inevitably diverted to rebuilding efforts. An environmental impact assessment of the tsunami¹² estimated demand created for reconstruction efforts in Aceh Province of Indonesia alone at between 4 and 8 million cubic metres of logs. ● Anecdotal market reports also suggest that large quantities of Indonesian and Malaysian plywood were diverted to Japan in the immediate aftermath of the 2011 tsunami event, significantly raising prices and reducing availability to the European market. 	
<p>Impact on EU consumption of timber from VPA Countries</p>	<p>- ?</p>
<ul style="list-style-type: none"> ● The direct impact of natural disasters on European consumption of timber from VPA countries is assessed to have been weakly negative in the last decade. ● Disasters leading to massive destruction of infra-structure in the EU are comparatively rare with flooding the main risk. Earthquakes are focused mainly in Southern European countries and there were no serious events in the last decade. ● However serious storms in Europe have occasionally led to the dumping of large volumes of timber on the EU market in a short period of time. The most significant event in the last decade was in January 2005 when the 'Gudren' storm damaged 85 million cubic metres of standing timber across northern Europe. The 'Kyrill' storm in January 2007 damaged 54 million m3 in Central Europe and Scandinavia. ● Longer term, timber structures have demonstrably good performance in earthquake zones as they are able to flex rather than collapse entirely. As a result there are particularly good market 	

¹² UNEP, 2005, AFTER THE TSUNAMI National Rapid Environmental Assessment – Indonesia, available at: http://www.unep.org/tsunami/reports/TSUNAMI_INDONESIA_LAYOUT.pdf

development opportunities for timber in earthquake zones.	
Uncertainties	
The full long-term effects of the ebola crisis on timber supply from Liberia are still uncertain. While the timing and scale of individual natural disasters are unpredictable, it is highly certain that they will continue to occur and impacts will rise as larger populations live in exposed areas. Climate change is also frequently cited as likely to increase the frequency and intensity of natural disasters.	
Product innovation to extend applications of non-wood products	
Description	Trend
Through product innovation, non-wood material sectors are competing for a share in a range of product applications previously dominated by tropical timber products. Other material sectors are also becoming adept at shifting the green agenda towards their strengths, for example concrete's emphasis on thermal mass, and plastic and metal's emphasis on end-of-life and recycling. Relatively high levels of consolidation and good organisation in other material sectors facilitates large co-ordinated marketing and lobbying campaigns.	
Impact on EU supply of timber from VPA countries	0 0
No direct impact	
Impact on EU consumption of timber from VPA Countries	-- --
This factor has contributed to declining consumption of tropical hardwood in specific market segments in the last decade. Particularly significant developments include: <ul style="list-style-type: none"> • PVCu manufacturers continue to innovate to improve the look and strength and environmental performance of this material for windows, doors and cladding. • Metal window systems are being designed to overcome problems of thermal bridging and condensation associated with these products (some combine the metals with temperate timbers). • Recycled plastic, sometimes with recycled wood fibre, is being used to create durable composite products for external decking, cladding and hoarding. • Concrete is being extended into external cladding and internal wall applications through development of new surface coatings, finishes and fibre composites. • Luxury Vinyl Tiles are being developed which compete directly with wood products in the medium and high-end flooring market. The impact of this factor is unlikely to wane in the next decade. The development of new materials that have increased performance and functionality has become a major driver of innovation in recent years. According to the Industrial Technologies arm of the Research and Innovation department of the European Commission, it is estimated that 70% of all new product innovation is based on materials with new or improved properties ¹³ .	
Uncertainties	
There is considerable uncertainty over the real level of market acceptance of some non-wood alternatives, particularly in more conservative segments of the construction sector.	
Public sector procurement policies	
Description	Trend
<ul style="list-style-type: none"> • According to Chatham House, at least 26 countries, mostly in the EU currently possess some form of timber procurement policy at central government level¹⁴. • Some policies establish "legal" as the minimum criteria but prefer "sustainable" where possible. 	

¹³ Details of new developments in materials science are posted at the website of the EC Research and Innovation department http://ec.europa.eu/research/industrial_technologies/materials_en.html

¹⁴ See Duncan Brack (2014), Promoting Legal and Sustainable Timber: Using Public Procurement Policy, Chatham House, September 2014:

http://www.chathamhouse.org/sites/files/chathamhouse/field/field_document/20140908PromotingLegalSustainableTimberBrackFinal.pdf

<p>Others establish a time frame to move from “legal” to “sustainable”. Yet others require “legal and sustainable” without differentiating to terms.</p> <ul style="list-style-type: none"> • “Sustainable timber” is typically equated with FSC, PEFC or otherwise third party verified timber. • Some policies already make reference to FLEGT licenses as acceptable evidence of compliance in their central government procurement policies including Austria, Finland, Italy (for office furniture), Latvia, Lithuania, and Sweden. • Since 2009, UK government policy has indicated that FLEGT Licenses “or equivalent” provide an alternative route for compliance not conditional on meeting the detailed criteria for “legal and sustainable” timber. Demonstrating equivalence requires <i>"evidence from a country that has not entered into a VPA which demonstrates that all of the requirements equivalent to FLEGT-licensed timber have been met"</i>. • The following EU countries have not developed national criteria but rely on EU Green Public Procurement guidelines which reference FLEGT licenses as acceptable evidence of compliance: Bulgaria, Cyprus, Czech Republic, Malta, and Slovenia. • The following EU country policies do not currently identify FLEGT licenses as compliant – Belgium, Denmark, Germany, Italy (paper only), Luxembourg, Netherlands and Spain. 	
Impact on EU supply of timber from VPA countries	0 0
No direct impact	
Impact on EU consumption of timber from VPA Countries	- +
<ul style="list-style-type: none"> • To date the relatively limited share of government in timber procurement and, in most cases, weak implementation has constrained the impact of these policies on overall export market consumption. • However, these policies can be important in those few markets where government procurement forms a relatively large share of overall procurement (such as Belgium and the Netherlands). • Furthermore, where these policies are strictly implemented in the public sector, they can have a lasting impact on procurement practices in other sections of the market. • Experience in the UK indicates that large manufacturers shifting to certification to supply the public sector soon adopt a policy of requiring certification for all their product ranges in order to simplify supply chain management and communication. • The preference for FSC or PEFC certification in those EU member states with the most far-reaching public procurement policies, combined with the relative lack of FSC and PEFC timber from VPA countries, has meant that these policies have probably had a minor negative impact on EU consumption of timber from VPA countries to date. • Wood materials from large state and private forest holdings in Europe and other industrialised countries (dominated by softwoods and composite panels) tend to be less costly to certify than tropical timbers, particularly those from smaller private and community forest operations. They therefore benefit from greater access to markets demanding certified product. • Lack of equivalent public procurement requirements for “sustainability” of non-timber products may also have contributed to loss of market share for timber products. • Recognition in public procurement policies would create new opportunities for FLEGT licensed timber in the future, but much hinges on the level of recognition and extent to which these policies are effectively enforced. 	
Uncertainties	
<p>Lack of harmonisation in the content and consistency in enforcement in public sector procurement policies is a major area of uncertainty and has disrupted market access for wood products in the past and is likely to do so in the future. Some EU Member States are moving towards LCA-based procurement systems allowing comparability between materials and with potential to supersede policies focused on single materials and issues.</p>	
Rising availability of hardwoods from Europe and other temperate sources	
Description	Trend

<ul style="list-style-type: none"> • In the decade to 2008, availability of temperate hardwoods from EU sources was increasing due to EU expansion and greater economic & political stability in central Eastern Europe. • The trend was boosted by growth of the furniture sector in Eastern Europe – particularly Poland – combined with a strong fashion for European oak. • European forest policy has emphasised the need to increase harvests of under-utilised domestic hardwood resources. • The European hardwood resource is 52 million hectares with growing stock of 9.5 billion m3. • Compared to other hardwood resources, volume and growth rates per unit area are quite high in Europe, mainly due to more intensive forest management. • Availability of kiln dried and square edged European oak and beech has increased. However European forests are unable to produce significant volumes of other hardwood species. • The US is host to the world’s largest temperate hardwood forest, covering 113 million hectares and with growing stock of 11.4 billion m3, double the volume of 50 years ago. Annual harvest of commercial US hardwoods is around 160 million m3 well below annual growth rate of 292m m3. The resource comprises several hundred species of which around 30 are of significant commercial value. • US hardwood exports have been expanding as wood manufacturing activities have shifted offshore – notably to China and South East Asia – and backed by well-funded marketing activities through the American Hardwood Export Council (AHEC). 	
Impact on EU supply of timber from VPA countries	0 0
No direct impact.	
Impact on EU consumption of timber from VPA Countries	- --
<ul style="list-style-type: none"> • In the past, direct competition between tropical and temperate hardwoods has been constrained as each tended to focus on different market niches – temperate for interior applications, tropical for exterior. • However lighter tropical species have been used for some interior applications including mouldings, furniture, and cabinets and these markets have been a major target of temperate hardwood producers. • New wood modification techniques are now encouraging greater replacement of tropical hardwoods by temperate hardwoods for external applications. • New staining techniques are also encouraging replacement of tropical wood by temperate species in furniture and other markets for appearance wood. • These developments combined with relative under-utilisation of temperate hardwoods suggests this factor will become more significant in the future. 	
Uncertainties	
Potential for significant further increases in European and U.S. hardwood availability may be constrained due to fragmented ownership, environmental restrictions on harvesting and increased diversion of raw material to renewable energy markets and to China.	
Rising concern for Corporate Social Responsibility	
Description	Trend
<ul style="list-style-type: none"> • Corporate social responsibility (CSR) is an increasingly important component of global business strategies. CSR considerably broadens the range of issues traditionally regarded as falling within the remit of corporate action. The UN Global Compact, used as the basis of the CSR policies of many of the world’s largest companies, encompasses principles on human rights, labour standards, the environment and anti-corruption. • CSR’s growing importance is demonstrated by KPMG’s International Survey of Corporate Responsibility Reporting conducted most recently in 2013 with coverage of the Global Fortune 250 Group of Companies (G250) and the 100 largest companies by revenue in 41 countries. • Among G250 companies, the CSR reporting rate increased from 50% of surveyed companies in 2005 to 93% in 2013. The survey also showed that 71% of the world’s 4100 largest companies 	

<p>now undertake and regularly report on CSR, an increase of 7% compared to 2011. There was a particularly dramatic increase in CSR reporting rates in the Asia Pacific region, from 49% in 2011 to 71% in 2013.</p>	
Impact on EU supply of timber from VPA countries	N N
<p>To the extent to which producers and exporters in VPA countries have also adopted CSR policies, these may impact on intensity of harvesting, prices and commitment to more sensitive markets with respect to CSR issues.</p>	
Impact on EU consumption of timber from VPA Countries	- +
<ul style="list-style-type: none"> • Due to the difficulties of meeting high labour, environmental and governance standards, CSR policies to date have probably had a negative impact on EU consumption of timber from VPA countries. • However, provided there is good market awareness and recognition of the VPA process, the move to CSR offers opportunities to increase consumption of timber from VPA countries in the future. • CSR places greater emphasis on stakeholder participation and higher labour and environmental standards and discourages procurement from areas perceived to suffer from high levels of corruption - all issues accommodated within the VPA process. • Good CSR also implies corporate adoption of a comprehensive life cycle philosophy and implies that companies spend the time to improve their knowledge of underlying issues and to develop realistic programs of action. • Tropical hardwoods have suffered considerably more than most other commodity sectors from simplistic single-issue campaigns. Moves to a more rational and informed approach that balances the impacts of different materials and takes broader issues such as governance and rural development into account should be very beneficial for FLEGT licensed timber. 	
Uncertainties	
<p>There is uncertainty over the extent to which CSR is adopted amongst smaller companies, particularly significant in supply and markets of timber from VPA countries. There is also uncertainty over the extent to which CSR statements are converted into meaningful action¹⁵.</p>	
Rising global demand for commercial cash crops	
Description	Trend
<p>Economic growth and expanding middle classes in emerging economies is driving unprecedented demand for commercial cash crops. The OECD-FAO Agricultural Outlook for 2014 shows that in the period 2000 to 2014, annual global production (in million tonnes) of wheat increased from 585 to 710, oil from 263 to 434, rice from 401 to 502, beef from 59 to 67, and coarse grains from 870 to 1273. The rising trend is projected to continue with livestock and biofuel production expected to grow at higher rates than crop production. Production growth will come mainly from developing countries in Asia and Latin America.</p>	
Impact on EU supply of timber from VPA countries	N -
<ul style="list-style-type: none"> • Tropical forests have been under intense and rising pressure of conversion for agriculture and other commercial cash crops. • One study estimates that of 239 million hectares of gross global deforestation between 1990 and 	

¹⁵ Some insight is provided by the KPMG survey which attempts to monitor the quality of CSR reporting, separating 'greenwash' from reports which demonstrate meaningful progress against specific and relevant performance targets. While the survey indicates generally rising levels of meaningful action, it also reveals significant gaps with respect to issues, regions and market sectors of particular relevance to the VPA process. For example, many CSR programs are still weak on issues of wider stakeholder participation, governance and in engaging supply chains. The quality of CSR reporting is highest in Europe, with large corporations in Italy, Spain, the UK and France leading the way while those in China/Hong Kong are at the bottom of the list. In terms of sectors (for which KPMG do not categorise forest products separately), the survey indicates quality of CSR reporting is lowest in trade and retail, manufacturing and construction and building materials.

<p>2008, 29% can be directly attributable to conversion for crop production and 24% for ruminant livestock production¹⁶.</p> <ul style="list-style-type: none"> • Globally, the main crops that contributed to deforestation were soybeans (19%), maize (11%), oil palm (8%), rice (6%), and sugar cane (5%). • Legal and sustainable timber harvesting operations effectively have to compete for both land area and finance against alternative potentially more lucrative uses of the land. • The short term impact of this trend on timber supply from VPA countries is tentatively assessed to be neutral. On the one hand it removes a proportion of forest land permanently from timber production, but it can create a short term boost to supply from conversion operations. • The long term trend is likely to be to reduce sustainable timber supply as more land is converted to alternative uses. It remains to be seen whether the VPA process and other programs to reduce deforestation are successful in mitigating this trend. 	
Impact on EU consumption of timber from VPA Countries	
	- 0
<p>No direct impact, however demand for all tropical timber products has been seriously damaged by the widespread misconception in Europe that harvesting tropical timber is a major factor contributing to tropical deforestation. In the future, the VPA process has potential to neutralise this negative impact.</p>	
Uncertainties	
<p>There is much uncertainty over the extent to which rising demand for commercial cash crops can be achieved through intensification on existing agricultural lands rather than requiring forest conversion. Another uncertainty relates to the technical development and level of political and public acceptance of GM crops and other ways to increase food production on the same area of land. The success of policy processes like FLEGT and REDD+ and at national level to slow or halt deforestation is uncertain. “Zero deforestation” commitments are now being made by large producers, traders, and buyers – particularly in the palm oil sector – but it remains to be seen how successful these will be.</p>	
Rising production of panels and use of new surfacing technologies	
Description	Trend
<ul style="list-style-type: none"> • Worldwide production of composite panels like MDF and OSB increased dramatically prior to the recession, particularly in Europe and North America. • Total European manufacturing capacity of these panels is in excess of 50 million m3 per year. Production is now increasing rapidly in China. • A recent report forecasts that between 2013 and 2017 global production of particleboard will rise from 78 million m3 to 90 million m3 and MDF will rise from 94 million m3 to 100 million m3¹⁷. • The trend has gone hand in hand with new surfacing technologies to give the appearance of solid wood. Initially this boosted prospects for real wood veneers but over time improvements in the dimensional accuracy and surface properties of composite panels have enhanced the range of surfacing options. • So too has the development of high-performance coatings (HPCs) that significantly improve durability, wear and mechanical properties. • Wood veneers must now compete with laminates, melamine, paper-based foils, and direct printing. 	
Impact on EU supply of timber from VPA countries	
	0 +

¹⁶ European Commission, 2013. The impact of EU consumption on deforestation: Comprehensive analysis of the impact of EU consumption on deforestation. Study funded by the European Commission, DG ENV, and undertaken by VITO, IIASA, HIVA and IUCN NL.

¹⁷ From BIS Shrapnel global survey of Particleboard and MDF producers quoted in an article for Wood-based Panels International by Bernie Neufield, 17 September 2014 at: <http://www.wbpionline.com/features/global-prospects-for-mdf-and-particleboard-4376280/>

<ul style="list-style-type: none"> • Composite panel production is heavily concentrated in non-tropical regions but production is currently rising in Indonesia from a small base. • The development of composite panels industries has potential to provide new income streams for hardwood suppliers through sale of “waste” materials including small diameter wood, chips, even sawdust. • However, like other capital and energy intensive sectors, such development is heavily dependent on the presence of a relatively stable socio-economic environment and appropriate infrastructure. 	
Impact on EU consumption of timber from VPA Countries	
<ul style="list-style-type: none"> • The massive development of composite panels industries in the EU has been a major factor behind declining consumption of timber from VPA countries in the last decade. • Composite panels compete directly with solid hardwood products across a wide range of mainly interior applications. They have squeezed solid hardwood out of lower and medium-end furniture, cabinet, door, flooring and other panelling applications. OSB has been a significant competitor to plywood from VPA countries. Real-wood veneers are also now largely restricted to higher-end applications. • There is some evidence that the process of market shift to composite panels in the EU may already be complete, with both solid hardwood and veneers now confined to higher-end more prestigious applications. • There may even be new opportunities to reverse the trend and reintroduce real wood veneer into more mainstream furniture and cabinet products by exploiting consumer demand for “cheap chic” (combining quality with value for money), authenticity, naturalness, and environmental qualities. 	
Uncertainties	
Composite panel producers increasingly have to compete for raw material supply with biomass consumers in the energy sector. There are uncertainties over the underlying strength of consumer demand for authentic wood compared to artificial surfaces.	
Shift in global economic activity to emerging markets	
Description	Trend
<ul style="list-style-type: none"> • In 2013, for the first time ever emerging markets accounted for more than half of world GDP on the basis of purchasing power, according to the International Monetary Fund (IMF). In 1990 they accounted for less than a third of a much smaller total. From 2003 to 2011 the share of world output provided by the emerging economies grew at more than a percentage point a year. • The trend was fuelled by rising population combined with the tumbling costs of shipping and communication and a shift towards liberalisation and global markets, particularly in China. China recorded the highest rate of growth, although it was also significant in the other BRIIC nations - Brazil, Russia, India and Indonesia. • The growth in trade was matched by a growth in demand for commodities as China and other emerging nations soaked up energy and raw materials, including timber. • The global value of tropical timber exports to China more than doubled from less than US\$4 billion in 2009 to close to US\$9 billion in 2013. In 2013, China accounted for 28% of the global import value of timber products from tropical countries, up from 15% in 2004. • The vast majority of tropical hardwood imports into China comprise logs and biomass with a smaller (but growing) amount of sawn timber. • Imports of tropical timber by India, almost exclusively logs, have also risen rapidly since 2006 and in 2013 accounted for 7% of global trade in timber products shipped by tropical countries. 	
Impact on EU supply of timber from VPA countries	
<ul style="list-style-type: none"> • Availability of wood for export to the EU has fallen dramatically over the last 2 decades, partly because a large and growing proportion of timber from VPA countries is being diverted to domestic and emerging markets, particularly China and India. 	

<ul style="list-style-type: none"> • To some extent, growing emerging market demand for timber from non-VPA countries and for other competing materials has helped offset the decline in demand in the EU and other industrialised nations since onset of the financial crises. As a result it helped maintain prices for these commodities and prevented capacity closures that otherwise would have been unavoidable. • EU importers that were formerly dominant now have to compete for supply with large buyers in other parts of the world. This implies that European importers have less leverage to influence prices, technical and material specifications. • This factor is expected to be important in the future. However the pace of change may slow. Growth rates in all the BRIICs declined in 2013-2015. The likelihood of growth in other emerging economies having an effect in the near future comparable to that of the BRIICs in the recent past is low - they do not have the potential for catch-up that the BRIICs had in the 1990s and 2000s. 	
Impact on EU consumption of timber from VPA Countries	-- -
<ul style="list-style-type: none"> • Impact is assessed to be moderately negative as China has itself emerged as a major supplier of timber products that compete directly with those from VPA countries, particularly in the plywood, furniture and flooring sectors. • However there are some signs that China's competitiveness in Europe is beginning to decline owing to rising labour and other costs and appreciation of the yuan. 	
Uncertainties	
There is uncertainty over the continuing pace of the shift in economic activity towards emerging markets.	
Trend to use hardwood for higher value structural applications	
Description	Trend
Structural use of wood is growing in many markets. Due to product variability and higher cost, hardwood use is currently limited in the structural sector, but there is a trend to use more hardwood in prestigious projects. Hardwoods generally have better inherent strength than softwoods allowing design of larger and more efficient structures with longer performance life. Small dimension hardwood may also be used for structural applications as glulam beams. Hardwood structures also offer aesthetic advantages.	
Impact on EU supply of timber from VPA countries	0 0
No direct impact.	
Impact on EU consumption of timber from VPA Countries	0 +
<ul style="list-style-type: none"> • To date, this trend has mainly benefitted hardwoods from European countries where there has been a concerted effort to increase utilisation of domestic resources, particularly small dimension wood in the form of glulam. • Longer term there may be opportunities to increase consumption of hardwoods from VPA countries in structural applications in the EU and other export markets, particularly more durable timbers in high exposure environments. • These opportunities may be enhanced through innovative development of tropical hardwood glulam and other engineered wood products. 	
Uncertainties	
There is intense competition from other materials in structural applications, both wood (mainly softwoods) and non-wood (notably steel). Lack of awareness, misconceptions of environmental impact, and inherent conservatism of architects remain obstacles. More research is required on structural use of tropical hardwoods to be made available to structural engineers and architects.	
Wars and other political conflicts	
Description	Irregular
Military conflicts are irregular and unpredictable but when they occur have a disastrous impact on all (non-military) economic activity, leading to massive dislocation of institutions and infrastructure and undermining social and technical capacity.	

Impact on EU supply of timber from VPA countries	-- ?
<ul style="list-style-type: none"> • Not all VPA countries have been directly affected by wars over the last decade. However conflicts have been sufficiently widespread and severe in their effects that the overall impact is assessed to have been moderately negative in the last decade. Past and present conflicts affecting countries implementing or negotiating VPAs in the last decade include: <ul style="list-style-type: none"> • Liberia experienced two exceptionally bloody civil wars between 1989 and 2003, but has been at peace since then. • The Central African Republic, where there was civil war between 2004 and 2007 and conflict reignited in November 2012. Efforts to reach and enforce a cease-fire deal are currently on-going. • The Republic of Congo suffered a civil war between 1997 and 1999 and localised outbreaks of fighting in 2002, but has been at peace since then. • Ivory Coast had a civil war between 2002 and 2004 which split the country between the rebel-held north and government-controlled south. Ivory Coast remained tense and divided until a power-sharing deal in 2007 which held out the prospect of peace. A second civil war flared briefly in 2011 but the political situation has since stabilised. • Democratic Republic of Congo is struggling to recover from Africa's "world war" in which millions died between 1998 and 2003. Since then there has been an unsettled peace, although eastern regions remained volatile. This is still the case despite 2013 peace agreements and the country hosting the UN's largest peacekeeping mission. • While not descending into outright civil war, Thailand's political situation has been volatile over the last decade, experiencing political coups in 2006 and 2014. Both coups were subsequently endorsed by the monarchy and the latter led to imposition of nationwide martial law. • A feature of all the conflicts in African VPA countries is that they led to short-term increases in unregulated logging and exports of "conflict timber", while damaging long term supply potential of the forests and the infra-structure required for timber processing and transport. • Concerns related to political volatility have acted as a drag on sustainable commercial investment in industrial infra-structure. However the very fact that VPA processes are underway is one indication that the political situation is normalising in most VPA countries and that prospects for future investment and sustainable timber supply are improving. 	
Impact on EU consumption of timber from VPA Countries	0 ?
<ul style="list-style-type: none"> • The EU consuming market has not been directly impacted by wars and serious political conflicts in the last decade. • In contrast to the VPA countries, very few significant suppliers of competing timber products have been affected by wars during the last decade. • The prolonged Ukrainian crisis which began in November 2013 is the only conflict with potential to affect supplies of temperate timber into the EU market, although recent market reports indicate that the effect to date has been minimal. Most sawmills and exporting companies are located in western Ukraine while the conflict is in the eastern provinces. • The countries of the former Yugoslavia suffered severe political upheavals and conflicts during the early 1990s, but in the last decade have emerged as large suppliers of good quality oak to the EU market. 	
Uncertainties	
<p>Some studies suggest that conflicts have declined in intensity and frequency in recent years¹⁸. However, the nature, location and regularity of conflicts in the future is highly uncertain.</p>	

¹⁸ The Human Security Report suggests that during 2012—the most recent year for which there are data—the number of conflicts being waged around the world dropped sharply, from 37 to 32. High-intensity conflicts have declined by more than half since the end of the Cold War, while terrorism, genocide and homicide numbers are also down.

Wood export controls	
Description	Trend
Many timber supplying countries, including VPA countries, have implemented controls through export bans or tariff regimes designed to restrict exports of specific timber products, usually logs and rough sawn timber. These measures may be applied to support development of domestic wood product manufacturers, to help control illegal harvesting, or prevent over-exploitation of threatened species.	
Impact on EU supply of timber from VPA countries	N N
<p>Over the last decade, controls on exports of various products have been imposed at various times in all VPA countries with significant impact on timber supply. The overall impact of these controls is assessed as neutral – most controls tend to decrease supplies of unprocessed timber while increasing supply of processed goods. These controls include:</p> <ul style="list-style-type: none"> • Since 1999, Cameroon has banned exports of the most commercially valuable species including iroko, moabi, bibolo, wenge, and bubinga. • Since the mid-1990s, Central African Republic has attempted to impose minimum requirements for processing of timber of between 70% and 85% prior to export. • In the Congo of Republic, the Forest Code of 2000 requires that the majority of Congolese timber must be processed locally. For some industries not yet established in the country, 15% of a company’s high-quality timber harvest may be exported as logs and not processed. • Ghana imposed an export ban on all logs except those from plantations in 1994. Export levies on sawn wood are also adjusted by species and the degree of processing to encourage greater use of lesser-known species and processing before export. Rosewood harvesting and export from Ghana was prohibited in July 2014 • The UN Security Council imposed an embargo on Liberian timber in July 2003 which was formally lifted in 2006. In January 2013, the Liberian government imposed a ban on logging and export of timber cut under Private Use Permits (PUPs) which effectively shut down most commercial logging operations in the country. • Indonesia reintroduced a log export ban in 2001. This was relaxed for plantation grown logs in 2009. Since 2004, Indonesian exports of sawn wood have been legally restricted to “surfaced four sides” (S4S) products only 	
Impact on EU consumption of timber from VPA Countries	N N
<ul style="list-style-type: none"> • Export controls have had complex impacts on consumption of wood products from VPA countries in export markets. They have led to reduced consumption in those market segments that prefer unprocessed timber products. On the other hand they have directed more consumption to lesser-known species and further-processed products. • In some instances they have effectively removed important competitors from the market. Many non-VPA 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 (<i>Swietenia macrophylla</i>) exploitation in 2001. Controls on 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. 	
Uncertainties	
Enforcement of some of the measures has been mixed and varies over time. For example, despite apparently far-reaching measures to encouraged processing in CAR, logs have continued to dominate export trade from the country. Illegal log exports have been significant from Indonesia at various periods in the past, although controls have tightened significantly in the last decade.	