Europe's sourcing of verified tropical timber and its impact on forests: What Next?

Exploring the EU27 & UK's share of verified legal and sustainable tropical timber product imports

the sustainable trade initiative

Colophon

Global Timber Forum (GTF) builds the capability of forest and wood-based industry associations to engage small and medium sized member companies on responsible trade. GTF has an existing global network of associations and stakeholders with experience in trade data and market research along with stakeholder engagement and communications expertise.

Stichting Probos is a leading not-for-profit Dutch knowledge institute committed to promoting sustainable forest management. Probos has over 50 years' experience in timber market and wood flow research and believes that all policy and strategies should be based on reliable data. Probos works for and with governments, the private sector, and non-governmental organizations.

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- IDH, the Sustainable Trade Initiative
- STTC Technical Committee
- Association Technique Internationale des Bois Tropicaux (ATIBT) and producer members in the Congo Basin
- The Borneo Initiative (TBI)
- Le Commerce du Bois (France)
- GD Holz (Germany)
- Fedustria (Belgium)
- Timber Trade Federation (UK)
- Asociación Española del Comercio e Industria de la Madera (Spain)

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Executive Summary

Commissioned by the European Sustainable Tropical Timber Coalition (STTC), this report builds upon 2019 and 2020 studies that explored European imports of certified primary and secondary tropical timber respectively.[2] Combining analysis of both primary and secondary tropical timber imports, this study also provides supplementary data and ground-level surveys to provide additional insights. The report analyzes 2020, a landmark year for private and public sector sustainability commitments and the goalpost the STTC set for reaching a 50% certification target for EU27+UK tropical timber imports. It lays out the playing field for redoubling efforts to drive sustainability in the tropical timber industry.

Tackling deforestation is a key aim of the U.N. Framework Convention on Climate Change and the Paris Climate Agreement, which has 197 country signatories and is concerned with securing global net-zero carbon emissions, keeping global warming to a 1.5 degrees level, and protecting natural habitats and communities against the effects of climate change. Trees are a natural carbon capture and storage facility, sequestering CO_2 from the atmosphere. Sustainable forestry practices and the wood products produced contribute to a growing carbon store. Replacing CO_2-intensive materials with forest-based (wood and paper) products is a growing trend.

A priority for the 26th Conference of Parties (COP26) is to secure the private and public sector finance required to attain global net zero emissions. Smallholder farmers, community forests, and concession holders are key to tackling the climate crisis, requiring increased financial assistance for climate adaptation, ecosystem restoration, and maintaining livelihoods.[3] Along with timber micro, small, and medium-sized enterprises (MSMEs), they are the backbone of the forest products industry, particularly in the tropics.[4] The Production, Protection, and Inclusion (PPI) approach advocated by IDH – the Sustainable Trade Initiative, focuses on landscapes to: grow agricultural products sustainably (Production), safeguard forests and natural resources (Protection), and ensure communities thrive (Inclusion).[5]

This report utilizes the *exposure to certification* method pioneered by the FLEGT Independent Market Monitor to estimate the percent EU27+UK tropical timber imports linked to FSC or PEFC certification. This method projects the percentage of certified production forest in a tropical country onto total exports of tropical timber products. Combined with EU import data and expert consultation on sustainable timber trade flows it enables a best estimate of the EU27+UK's impact on tropical forests.

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In 2020 the EU27+UK imported a total of 1,093,600 tonnes of primary tropical timber products and 175,800 tonnes of the secondary tropical timber products that fall within the scope of this study directly from ITTO producer countries. The total value of EU27+UK imports of primary tropical timber products (logs, plywood, veneer, and sawnwood) declined by -16.7% from 2019 to 2020, and imports of secondary tropical timber products (doors, mouldings, windows, and other products) declined by -17% compared to 2019. The main importing countries for tropical products are **Belgium**, **France**, and the **Netherlands**. **Brazil** (21% of imports) is the largest supplier of tropical primary and secondary timber products, followed by **Cameroon** (20%), **Indonesia** (16%), **Gabon** (15%), **Malaysia** (9%), **Republic of Congo** (6%), and **Côte d'Ivoire** (3%). **Africa** (49%) is the largest region of origin for all products followed by **Asia** (26%) and **Latin America** (25%). Africa dominates EU27+UK imports of primary tropical wood products, while Asia is the largest supplier of secondary tropical wood products.

While the import volumes overall have declined, the percentage 'exposed to certification' has increased over the three-year period analyzed. The adjusted 2020 estimates show that 31%–36% of primary and secondary timber products are sourced from certified semi-and natural tropical forests, a modest increase of 3%–5 percentage points from the 2018/2019 data. Demand for timber products has risen recently likely due to the increase in home improvement activities.

Translating these rates to on-the-ground impacts reveals the scope of impact of EU27+UK demand. 4,401,000 to 6,015,000 hectares of tropical forests are positively impacted with SFM practices by the current levels of EU27+UK demand for certified primary and secondary tropical wood products, affecting at least 22% to 30% of all certified semi-natural and natural tropical forests. This demand potentially reduces annual CO_2 emissions by between 24.1 and 32.9 million tonnes based solely on preventing re-entry logging. If the EU27+UK sourced 100% verified sustainable tropical timber products, the area positively impacted would be 16.1 million hectares of tropical forests, in line with a potential reduction of 88.3 million tonnes CO_2 emitted per year accounting just for re-entry logging. With the climate emergency gaining speed, ramping up certified imports must be a priority.

It's been a chaotic year for all industries with the COVID-19 pandemic changing trade flows and disrupting supply chains. But despite the growth in the rate of certification, Europe is still far from the STTC 2020 targets. Driving the tropical industry towards legality and sustainability remains a central issue for the private and public sector in producing and consuming countries.

The focus on climate change and increasing demand for wood products comes at a time when current mechanisms for addressing deforestation and degradation are under scrutiny. The European Commission's Forest Law Enforcement Governance and Trade is under review and certification schemes are facing calls to reform. Therefore, this report makes recommendations to stimulate debate on the future of tropical forests. The recommendations section sets out three key areas that capitalize on this growing interest. It references the growing interest in forests and wood products role in climate change, improving the influence and support of the EU27+UK, and increasing the competitiveness of tropical timber products to secure livelihoods.

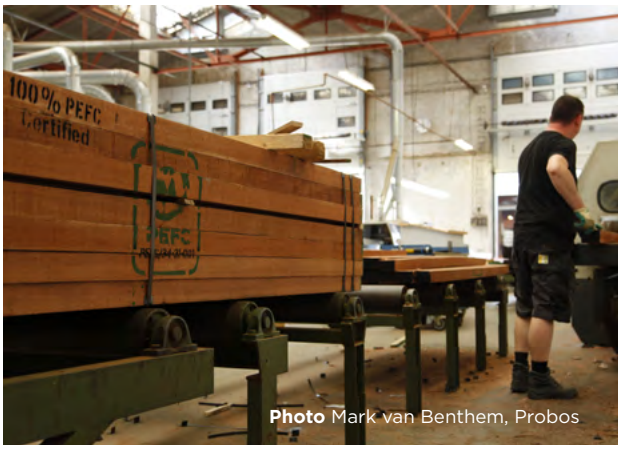

Photo Mark van Benthem, Probos

Supporting producer countries including creating markets for lesser-known species, supporting industry shifts to more production of secondary products in producer countries, and guiding legislative changes that encourage SFM must all be part of the Europe's toolkit for protecting the long-term health of tropical forests. Working in Europe to increase certification rates and total imports of certified products via procurement policy, legislation, and consumer awareness campaigns are also crucial to maintaining Europe's market competitiveness and ability to drive SFM practices abroad. Improving transparency and data collection remains vital to identifying key levers to increasing certification rates. The clock is ticking on the climate crisis and it's more essential than ever that the EU27+UK take leadership in guiding inclusive processes to protect forests and support sustainable timber.

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Preface

Aims of the study

For the last two years, the COVID pandemic has had tremendous impacts on communities and forests around the world. Despite the challenges that the pandemic has brought, the need for sustainable solutions in the forestry and forest-based sectors remains urgent. Sustainable Forest Management (SFM) is crucial for the protection and restoration of forests. Preserving healthy forest ecosystems safeguards the global supply of forest products, protects the environment and vital ecosystem services, and mitigates carbon emissions.

The publication of the 2020 sustainable tropical timber monitoring report is part of our effort to help others to understand the challenges in the tropical timber sector and the critical situation that the world finds itself in. The report enables an improved flow of information, transparency, and accountability, and demonstrates Europe's role in promoting SFM in tropical countries. European demand plays a changing but crucial role in driving SFM practices over the world.

For over a decade now, IDH's Tropical Timber Program has been promoting the use of sustainable tropical timber. Since 2014, IDH convened the European Sustainable Tropical Timber Coalition (STTC) with key partners such as the European Timber Trade Federation (ETTF), ATIBT (Association Technique Internationale des Bois Tropicaux), FSC, and PEFC. Despite Europe's changing demand, the main goals of the STTC continue to be to accelerate market demand for SFM timber products in Europe and to encourage responsible forest management in the tropics. While IDH's focus on sustainability development is shifting to developing landscape approaches to sustainability, other actors are encouraged to also step up and continue the work on certification.

The primary aim of this study is to determine certified sustainable primary and secondary tropical timber products' share of EU27+UK imports, and the impact of European demand on semi-natural and natural tropical forests and carbon stocks.

In detail the aims are to:

- Apply the 'exposure to certification' approach alongside data collated to determine the share of EU27 + UK primary and selected secondary tropical timber products imports that are verified legal, FLEGT-licensed, and certified sustainable
- Collect data directly from producers and the largest tropical timber product consuming countries in the EU27+UK through surveys and interviews[6]
- Disaggregate the level of exposure to certification, FLEGT/TLAS, and legality verification schemes for the seven main EU27+UK tropical timber consuming countries[7]
- Estimate the number of hectares of semi-natural and natural tropical forests that are under sustainable forest management linked to demand from the EU27+UK and assess associated impacts
- Validate the data and surveys of producers and associations, draw conclusions, and make recommendations based on the data

Sustainable forest management is urgently needed across the globe, and the European market can push for sustainable forest practices at a global scale to support the growth of a resilient and sustainable society and ecosystem. Real transformation and radically increasing uptake of sustainable forest management practices will only be possible with the cooperation of all key stakeholders. We thus call upon the European governments, companies, and NGOs to promote, commit, and act to achieve 100% sourcing of verified sustainable tropical timber products.

1 Introduction

This report is the third in a series that uses the 'exposure method' to evaluate the total volume and rate of certification of EU27+UK tropical timber imports. It builds upon the previous two reports: *Unlocking Sustainable Timber Market Growth through Data* focused on primary tropical products, and *Understanding Sustainable Tropical Wood Products Through Data* evaluating a selection of secondary tropical products.[8] Evaluating the deadline for a number of climate commitments, and arriving at the peak of global efforts to combat the climate crisis, the timing of this report is unprecedented.

Tackling deforestation is a key aim of the U.N. Framework Convention on Climate Change and the Paris Climate Agreement, which has 197 country signatories and is concerned with securing global net-zero emissions, keeping global warming to a 1.5-degree level, and protecting natural habitats and communities against the effects of climate change. Trees are a natural carbon capture and storage facility, sequestering CO_2 from the atmosphere. Sustainable forestry practices and the wood products produced contribute to a growing carbon store, and replacing CO_2-intensive materials with forest-based (wood and paper) products is a growing trend.

Photo Mark van Benthem, Probos

A priority for the 26th Conference of Parties (COP26) is to secure the private and public sector finance required to attain global net zero emissions. Smallholder farmers, community forests, and concession holders are the key to tackling the climate crisis – increasing financial assistance for smallholder-focused climate adaptation, restoring ecosystems and avoiding loss of livelihoods are all crucial.[9] Smallholders, community forests, and concessionaires along with timber micro, small, and medium-sized enterprises (MSMEs) are the backbone of the forest products industry, particularly in the tropics.[10] The Production, Protection, and Inclusion (PPI) approach, advocated by IDH, the Sustainable Trade Initiative, focuses on landscapes to grow agricultural products sustainably (Production), safeguard forests and natural resources (Protection), and ensure communities thrive (Inclusion).[11]

The analysis undertaken in this report focuses on the EU27+UK, and deploys the 'exposure method' used in the two previous reports on data from calendar year 2020 to calculate Europe's impact on tropical forests. It gives a complete up to date picture of EU27+UK imports of primary tropical wood products and a selection of secondary tropical timber products (see Section 2) in 2020.

Navigating the complexity in tropical timber trade, this report aims to highlight emerging trends and make recommendations for producers, consumers, corporations, governments, and NGOs to stimulate a market that demands verified sustainable timber. Leveraging a range of actions, it offers guidance to the growth of a timber industry that supports sustainable forest management (SFM) and climate change mitigation.

2 Methodology

2.1 "Exposure to certification"

Traditionally trade flow studies apply a 'source approach', a time-consuming process that determines volumes of verified sustainable timber as they enter the market. Within the scope of this study and the budget available it is not feasible to conduct source approach studies for all seven main tropical timber-consuming countries in Europe. The collation of data on the volume or quantity of verified sustainable wood products within the EU is an on-going challenge. The FLEGT Independent Market Monitor project had pioneered the 'exposure' to certified fibre rather than the 'share of timber supply' or 'market share' approach.[12] The 'exposure method' approach measures the 'exposure' or 'access' to certified fibre, rather than the 'share of timber supply' or 'market share'. It provides a useful insight into those timber trade flows between countries with significant gaps in the supply of certified material and those where certified supply is abundant. It is a basic analysis of forest and trade data. It considers the share of FSC, PEFC, and verified legal certified forests compared to the total forest area. This share is then compared to the export data of the ITTO producer country (Annex 2) in question. The analysis only includes direct imports. Indirect imports, intra-EU trade, transit trade, and re-exports are **not** considered. The full methodology is set out in Annex 3.

Information on EU imports of tropical wood product is drawn from customs data.[13] It is estimated that there are over 900 individual Customs Codes (HS codes) that relate to the international trade in wood products.[14] The volume of data for wood products is therefore large and often complex in its usage. With 27 EU Member States + the UK, and 28 ITTO producer countries, there are potentially more than 700,000 bi-lateral product flows to monitor. For this reason, all primary tropical timber products and only a selection of secondary products are included in the market analysis; a full detailed list of HS codes is presented in Annex 1. Furniture within HS 94

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is not included as only 3.5% of the furniture sold in Europe is from tropical countries, and only a proportion of this might be regarded as 'tropical wood' (from natural forests).[15]

There is less data available on secondary tropical products, so information obtained from exporters and importers was used to validate the data collated for the secondary tropical timber products. In addition, further analysis was applied to refine the area of productive forest to gain an assessment of timber quantities produced in certified forests. The net result is a repeatable methodology that allows for the current best estimate of the share of EU27+UK primary and secondary timber product imports exposed to certification. This method is also applied on a country-level to the seven major importers of tropical timber.

For 2020, the focus of the analysis remains on the level of exposure to FSC and PEFC **certification**. Publicly available data for **verified legality schemes** and **FLEGT Licensed** timber products (Indonesia) are evaluated, though the total estimates of exposure to certification by region or country **exclude** these. The following **third-party legality verification schemes** are included:[16]

- Timber Origin and Legality (OLB, Bureau Veritas)
- Timber Legality Verification (TLV, Control Union Certifications)
- FSC Controlled Wood (FSC-CW)
- LegalSource (Preferred by Nature)

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2.2 Description of sources

To ensure the exposure to certification data for the import of primary and secondary tropical timber products of the EU27+UK is comprehensive, a variety of data sources are required.

The key data sources for the analysis include:

1. **STIX Global** data on import of the following timber products (HS44) by the EU27+UK:[17]
   - **A.** Roundwood (HS 4403)
   - **B.** Sawnwood (HS 4407)
   - **C.** Veneer (HS 4408)
   - **D.** Plywood (HS 4412)
   - **E.** Tropical wood external and internal doors, their frames and thresholds (HS code 44182010)
   - **F.** Tropical wood mouldings, such as skirting boards and beading (HS code 44092200)
   - **G.** Builders' joinery and carpentry made from tropical wood, such as staircases (selection of HS 44189990)
   - **H.** Tropical wood window frames including pairs of doors external doors and their frames (HS 4418101)
2. **Food and Agriculture Organization of the United Nations (FAO)** data on total forest area, production forest area, and multifunctional forest area (Forest Resource Assessment, 2020)
3. **FAO Data on Industrial Forest Concessions** (FAO Forest Concessions – Past Present and Future, 2016)
4. **Data on forest certification** (FSC & PEFC website, facts & figures, and individual audit reports), excluding FSC and PEFC certified plantations
5. **Internal Probos Data** on categorization of Tropical / Non-Tropical Countries.
6. **International Tropical Timber Organization (ITTO)** export data of tropical timber products (ITTO, 2020)
7. **Data on legal verification schemes** from various scheme owners.
8. **List of product coverage of primary and secondary tropical timber products** including corresponding HS-codes (Annex 1)

In addition to the above data, this report incorporates valuable intelligence collated from sources that are closely linked to this work including:

1. **Thémis, a data gathering tool and online portal**, developed by Probos in consultation with Fedustria (Belgium), Le Commerce du Bois (France), and Association Technique Internationale des Bois Tropicaux (ATIBT)[18]
2. **Market studies** available for the Dutch and Belgian market on primary timber products and results of monitoring efforts of UK TTF and Netherlands Timber Trade Association's members[19]
3. **Forest management information** regarding average yield in regular and certified sustainably managed forests, areas set aside, rotation periods, etc.
4. **Surveys targeting large certified producers** gathering both forest management information and main export markets for certified products via ATIBT and The Borneo Initiative (TBI) – see Text Box 1
5. **Consultation and validation of data** directly with the timber associations of France, Belgium, Spain, Germany, and ATIBT

3 Results: Tropical Timber Product Market in Europe in 2020

3.1 Percentage Share of Tropical Timber Imports in EU27+UK

The total value of EU27+UK imports of primary tropical timber products including logs, plywood, sawnwood, and veneer declined by -16.7% from 2019 to 2020. Figure 1 shows a declining trend for all product groups, with the trend greatest for plywood and sawnwood.

For secondary tropical timber products including doors, mouldings, windows, and other joinery, 2020 import values declined by -17% compared to 2019. The decline in the import value of mouldings and other joinery were particularly notable.

ITTO reports from 2021 back these findings up – EU27 (UK figures not included) imports of tropical sawnwood, mouldings, veneer, and other joinery declined by -13%, -15%, -10%, and -14% respectively in 2020.[20] The most dramatic decline in EU27 imports in 2020 can be seen with sawnwood, which recorded the lowest level (-18%) since this data has been available.

Photo Mark van Benthem, Probos

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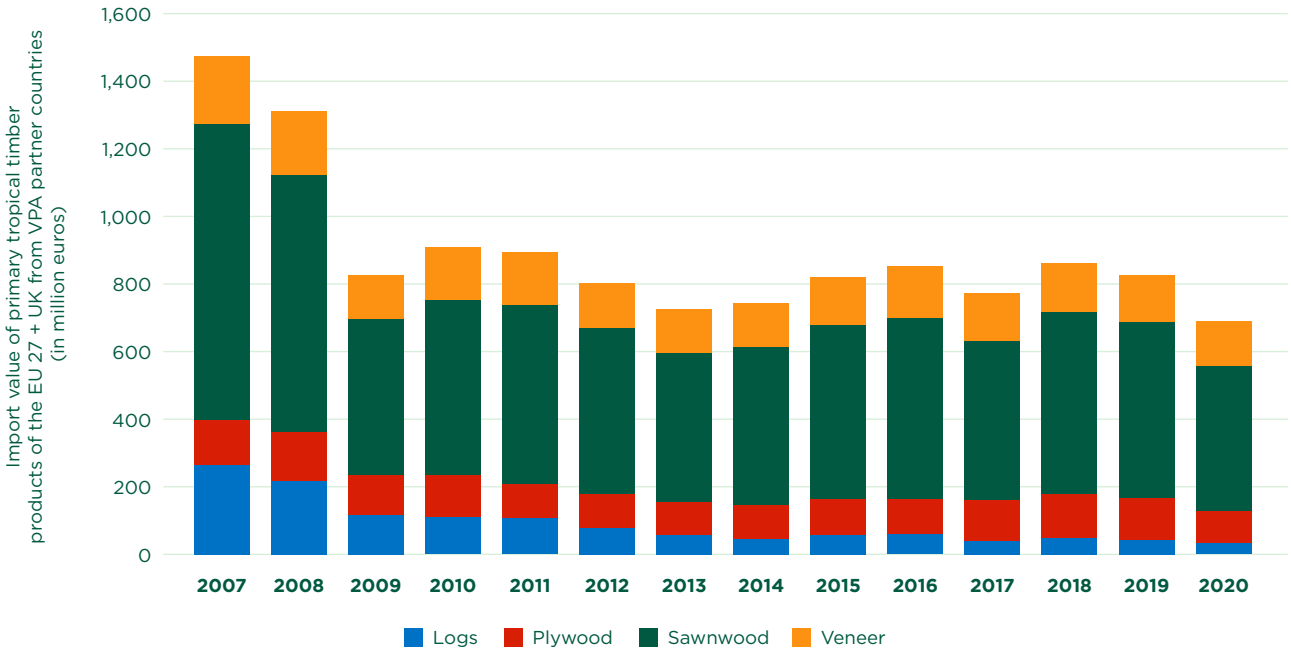
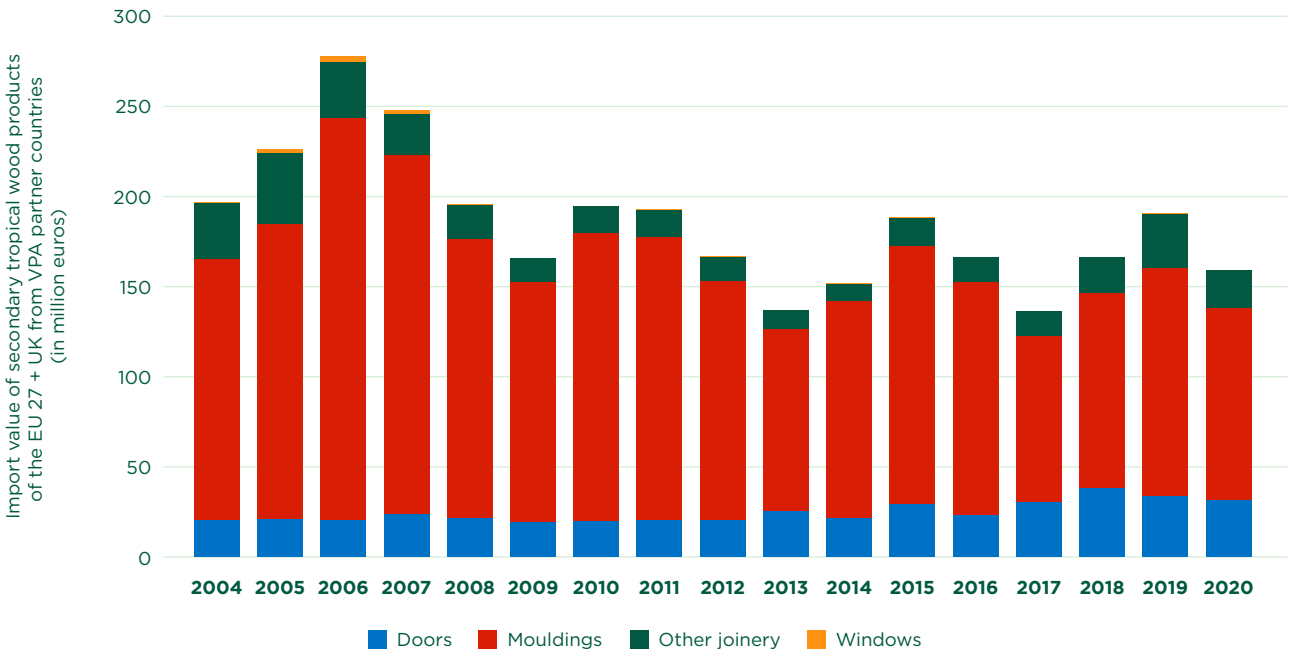
Figure 1 Import value of tropical 1) primary timber products and 2) secondary timber products by the EU27+UK from VPA partner countries. Note: for secondary timber products the graph shows a strong decline in the import value of mouldings between 2016 and 2017. This is not due to a direct decline of imports, but rather the consequence of a change in HS-codes.

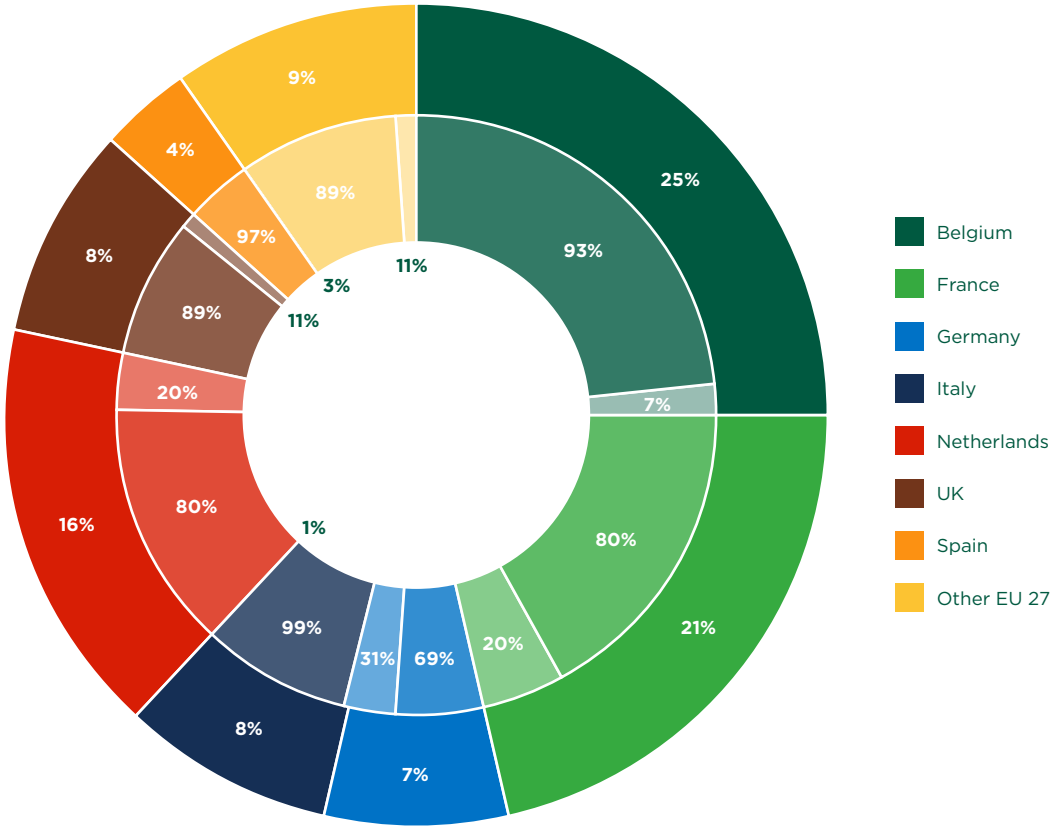




In 2020 the EU27+UK imported a total of 1,093,600 tonnes of primary tropical timber products and 175,800 tonnes of the secondary tropical timber products that fall within the scope of this study (Annex 1) directly from ITTO producer countries. EU27+UK imports from ITTO countries were 89% and 97% of total import quantities for primary and secondary timber products respectively, demonstrating that direct imports from ITTO producer countries cover most imports.

Figures 2 and 3 present an overview of the relative shares (percent) of the volume of EU27+UK primary and secondary tropical timber product imports by importing country. Figure 2 shows that for each country, the majority of imports are primary tropical timber products. In Italy 99% of tropical timber imports are primary products, while Germany imports the largest percentage share of secondary tropical timber products at 31% of the EU27+UK imports.

Figure 2 Relative share (%) of EU27+UK primary and secondary tropical timber imports from ITTO producer countries by importing country. The outer circle represents the relative share of an individual country's import of primary and secondary tropical timber combined. The inner circle represents the relative share of an individual country's import of primary and secondary tropical timber separately. For example, Belgium's total import of primary and secondary tropical timber accounts for 25% of the total EU 27 + UK import quantity. From this 25% share, 93% accounts for primary tropical timber imports and 7% accounts for secondary tropical timber imports.



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An overview of EU27+UK imports (in tonnes) of primary and selected secondary tropical timber products on an individual country level is presented in Tables 1 and 2. These reflect where the products first enter the EU27+UK, and do not relate to consumption within these countries.

Belgium is the largest importer of primary tropical timber products, followed by **France**, the **Netherlands**, **Italy**, the **United Kingdom**, **Germany**, and **Spain**. These are the seven main importing countries of the primary tropical timber products in the EU27+UK and together account for approximately 90% of the total EU27+UK import. Portugal (3.1%), Denmark (1.9%), and Greece (1.8%) round out the top ten.

France is the largest importer of secondary tropical timber products, followed by the **Netherlands**, **Germany**, **Belgium**, the **United Kingdom**, **Italy**, and **Spain**. These are the seven main importing countries of the selected secondary tropical timber products in the EU27+UK, accounting for approximately 92% of total EU27+UK imports. **Portugal**, **Denmark**, and **Greece** together account for 68% of the remaining share. Italy and Spain, two countries that represent a significant share of primary tropical timber product imports, import far less secondary tropical timber products.

Figure 3 shows the share (in tonnes) of primary and secondary tropical timber products imported by each of the seven main European countries. It demonstrates that the main importing countries for tropical products are **Belgium**, **France**, and the **Netherlands**. Figure 4 shows that sawnwood accounts for 73% of the primary product imports, and mouldings are nearly 85% of secondary tropical timber products.

Table 1 Major EU27+UK importers of primary tropical timber products in 2020 (tonnes).

Country	Sawnwood	Veneer	Plywood	Logs	Total
Belgium	259,000	3,600	12,300	22,600	297,400
France	136,800	50,700	2,700	25,700	215,800
Netherlands	138,800	3,700	22,700	2,100	167,200
Italy	57,800	29,400	10,900	5,800	103,800
United Kingdom	51,800	0	41,400	1,600	94,800
Germany	46,800	2,400	12,800	400	62,400
Spain	33,300	10,500	200	1,300	45,200
Other EU27	73,700	17,600	3,500	12,100	106,900
Total	**797,900**	**117,800**	**106,500**	**71,400**	**1,093,600**

Table 2 Major EU27+UK importers of selected secondary tropical timber products in 2020 (tonnes).

Country	Mouldings	Doors	Other joinery	Windows	Total
France	51,000	1,100	3,200	100	55,400
Netherlands	32,600	5,700	2,600	100	41,000
Germany	27,600	0	400	0	28,000
Belgium	21,300	100	1,700	0	23,000
United Kingdom	3,400	7,600	900	0	11,900
Italy	600	0	800	100	1,500
Spain	1,100	0	300	0	1,500
Other EU 27	11,700	300	1,600	0	13,700
Total	**149,300**	**14,700**	**11,500**	**300**	**175,800**

Figure 3 Major EU27+UK importers' direct imports of primary and secondary tropical timber products by product group in 2020 (tonnes).

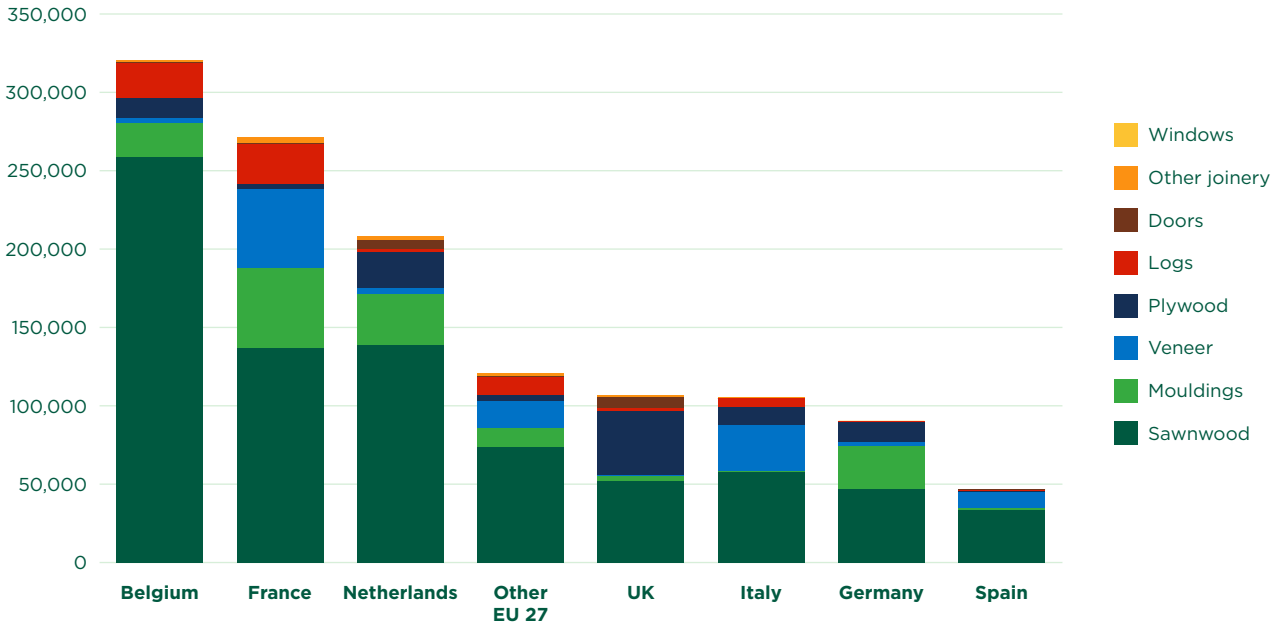


Figure 4 Relative share (%) of EU27+UK primary and selected secondary tropical timber product imports by product group in 2020.

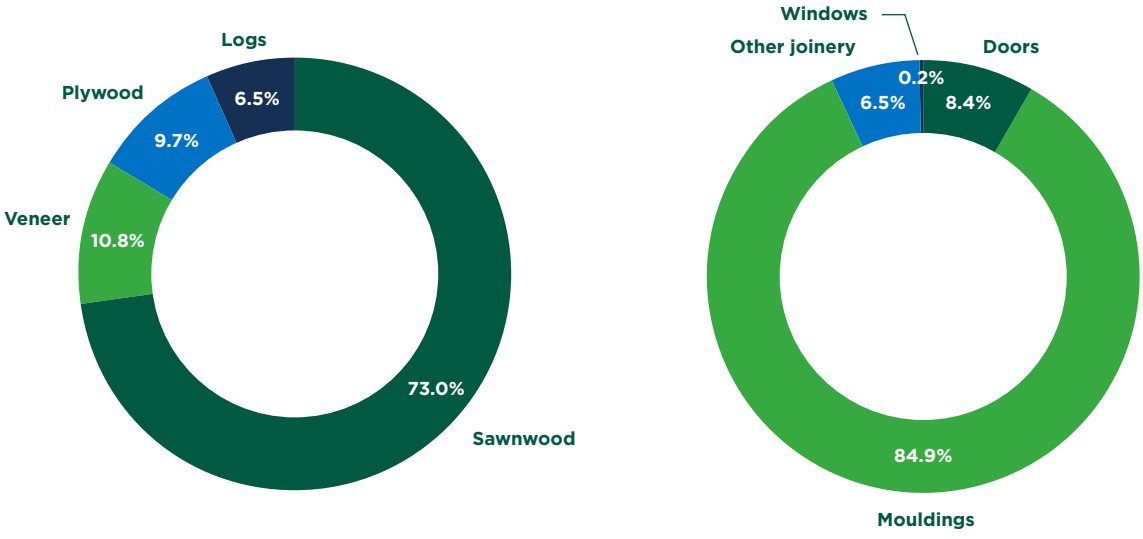


Photo Mark van Benthem, Probos

3.2 Countries of Origin

Analysis of the origin of EU27+UK primary and selected secondary tropical timber product imports for 2020 (Figure 5) shows that **Brazil** (21% of imports) is the largest supplier of tropical primary and secondary timber products combined, followed by **Cameroon** (20%), **Indonesia** (16%), **Gabon** (15%), **Malaysia** (9%), **Republic of Congo** (6%), and **Côte d'Ivoire** (3%). The other 29 ITTO countries together account for 10% of imports.

While interpreting these data it's important to note that only direct imports can be linked to country of origin. Additionally, harbor facilities within one country may be used to export timber originating from other countries as well – Gabon is notable for it's exporting facilities – resulting in an overestimation of the actual timber volume produced in that country and exported to the EU27+UK. Results from the surveys conducted as part of the 2019 study suggest this is not the case for Indonesia and Brazil, the two largest producers of secondary tropical timber products for the EU27+UK market.

Figure 5 Relative share (%) of the EU27+UK direct primary and secondary tropical timber product imports by country of origin in 2020.

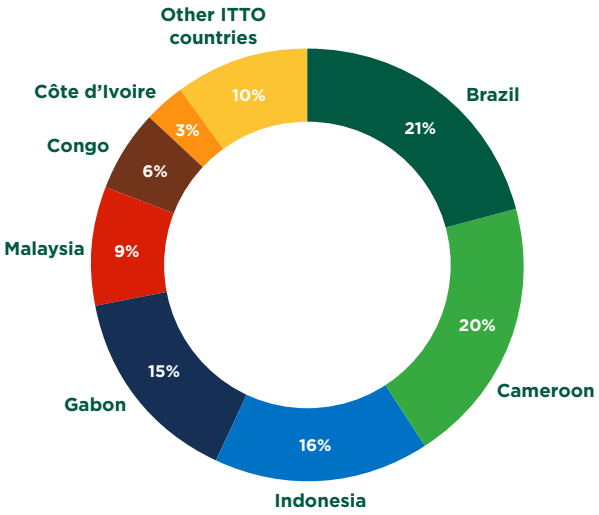


Photo Mark van Benthem, Probos

Primary Tropical Timber Products

Analysis of the origin of EU27+UK imports for 2020 shows that Cameroon is the largest supplier of primary tropical timber products, followed by Brazil, Gabon, Indonesia, Malaysia, Congo, and Côte d'Ivoire (Table 3).

Photo Weekamp Deuren

More than 40% of the logs exported to the EU27+UK came from Congo, followed by Cameroon accounting for approximately 15% (Table 3). Cameroon is the largest supplier of tropical sawnwood to the EU27+UK (29% of sawnwood imports), followed by Brazil, Gabon, Malaysia, and Indonesia. Other ITTO producer countries supply over 8% of tropical sawnwood to the EU27+UK. For tropical plywood, Indonesia is the largest supplier to the EU27+UK, representing 60% of the total tropical plywood imports. Other ITTO producer countries supply over 6% of tropical plywood to the EU27+UK. Gabon accounts for 60% of EU27+UK tropical veneer imports, followed by Côte d'Ivoire and Cameroon. From the 'other' countries Ghana is the largest supplier of tropical veneer to the EU27+UK in 2020 (Table 3).

Table 3 EU27+UK direct imports of primary tropical timber products by country of origin in 2020 (tonnes).

Country	Logs	Sawnwood	Plywood	Veneer	Total
Cameroon	10,500	234,400	600	11,800	257,300
Brazil	150	196,200	4,000	200	200,500
Gabon	1,000	95,900	13,600	71,100	181,600
Indonesia	50	65,400	58,000	600	124,000
Malaysia	600	75,500	24,000	100	100,300
Congo	29,900	44,500	0	6,600	81,000
Côte d'Ivoire	0	20,300	200	22,200	42,800
Other ITTO prod.	29,200	65,500	6,200	5,200	106,100
Total	**71,400**	**797,800**	**106,500**	**117,800**	**1,093,600**

Note: Totals may not add up due to rounding.

Secondary Tropical Timber Products

2020 data show that **Indonesia** (44%) is the largest supplier of the selected secondary tropical timber products to the EU27+UK. Indonesia's leading role as a supplier of this commodity group to the EU is due both to the popularity of bangkirai (*Shorea laevis*) for decking applications in Europe, and to Indonesia's ban on rough sawn exports encouraging greater focus on value-added products.[21] **Brazil** also represents a significant share of selected secondary imports (37%), with demand driven by timber species such as ipe (*Handroanthus spp.*), garapa (*Apuleia leiocarpa*), and massaranduba (*Manilkara bidentata*) that are widely used for decking (under mouldings in trade statistics). Together these two countries are responsible for 81% of the exports of selected secondary tropical timber products to the EU27+UK. Table 4 presents the seven main ITTO producer countries that export secondary tropical timber products to the EU27+UK.

Photo Weekamp Deuren

Table 4 EU27+UK direct imports of selected secondary tropical timber products by country of origin in 2020 (tonnes).

Country	Doors	Mouldings	Other joinery	Windows	Total
Indonesia	13,200	58,500	4,900	100	76,800
Brazil	100	61,900	2,900	100	65,000
Peru	0	9,100	0	0	9,100
Malaysia	1,300	7,300	100	0	8,700
Gabon	0	5,600	0	100	5,700
Vietnam	100	700	3,000	0	3,800
Cameroon	0	1,600	0	0	1,600
Other ITTO prod.	0	4,800	500	0	5,300
Total	**14,700**	**149,300**	**11,500**	**300**	**175,800**

Note: Totals may not add up due to rounding.

Photo Weekamp Deuren

3.3 Regions of Origin

The countries of origin are grouped to show which regions of the world are most important for the supply of the selected primary and secondary tropical timber products for the EU27+UK (Table 5 and 6 respectively). The relative share of the total volume of EU27+UK primary and secondary tropical timber product imports by continental region of origin in 2020 is presented in Figure 5. **Africa** (49%) is the largest region of origin, followed by **Asia** (26%), and **Latin America** (25%) (Figure 6). **Africa** is the dominant supplier of tropical veneer (99%) and tropical logs (90%). **Asia** is the largest supplier of tropical plywood (80%).

For secondary tropical timber products, Asia dominates imports of tropical doors (over 99%), `Other Joinery' (73%), and windows (67%). Latin America is the main region of origin for tropical timber mouldings including decking (49%), closely followed by Asia (45%).

Figure 6 Relative share of total volume of EU27+UK primary and secondary tropical timber product imports by continental region of origin in 2020

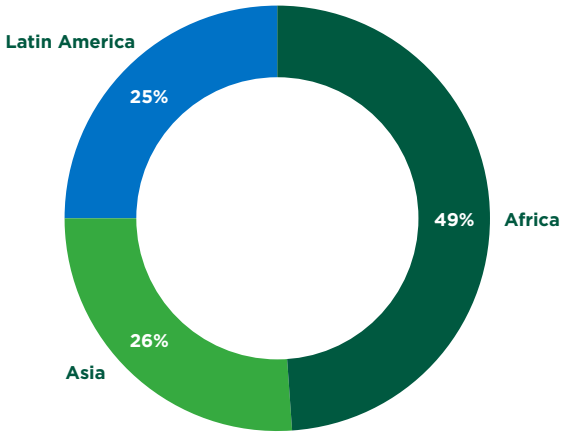


Figure 7 Relative share of total volume of EU27+UK primary tropical timber product imports by continental region of origin in 2020.

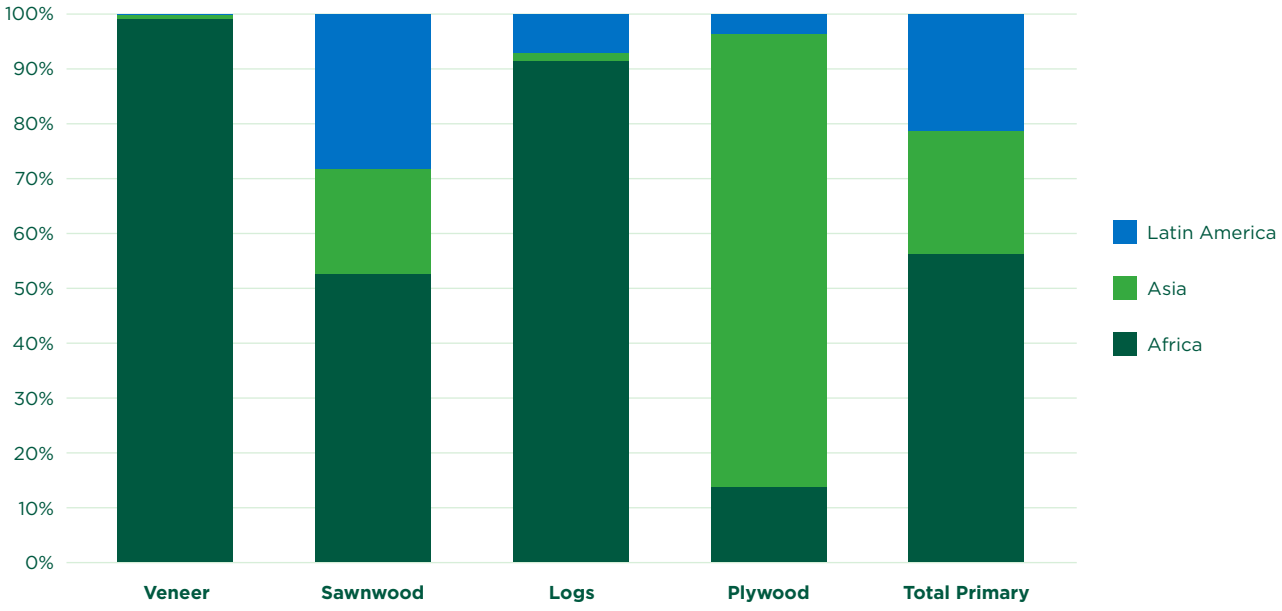


Table 5 EU27+UK primary tropical timber product imports by continental region of origin in 2020 (tonnes).

Region	Logs	Sawn Timber	Plywood	Veneer	Total
Africa	65,200	418,500	14,400	116,700	614,800
Asia	1,000	153,600	88,200	900	243,600
Latin America	5,200	225,700	4,000	200	235,100
Total	**71,300**	**797,800**	**106,500**	**117,800**	**1,093,500**

Note: Totals may not add up due to rounding.

Figure 8 Relative share of total volume of EU27+UK secondary tropical timber product imports by continental region of origin in 2020.

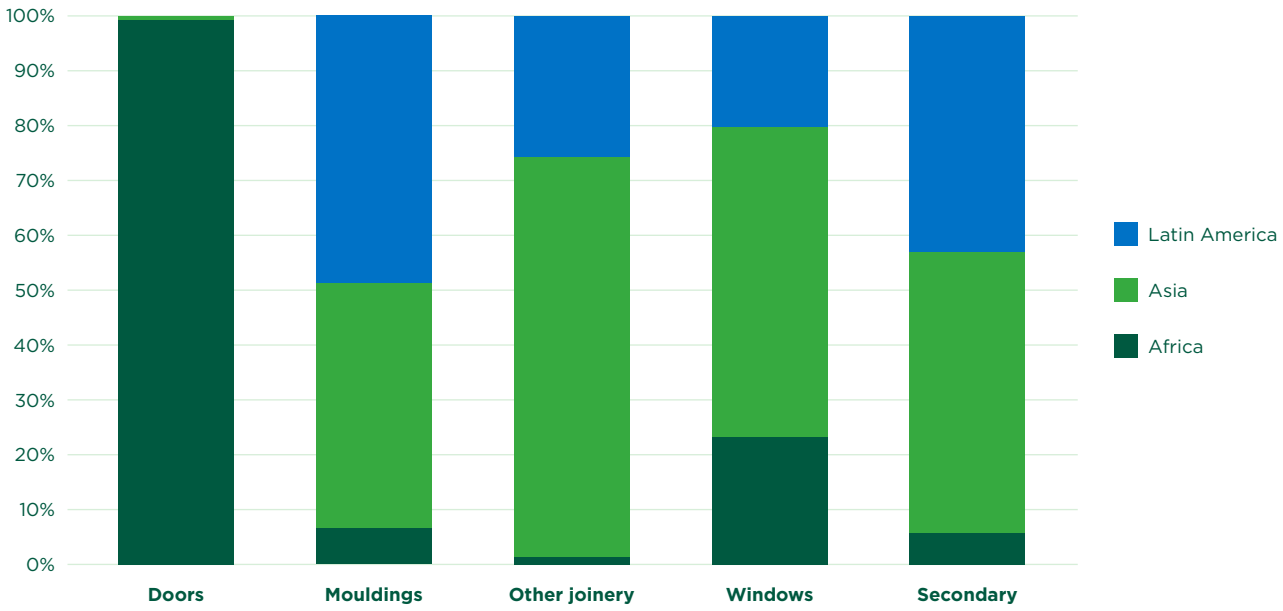


Table 6 EU27+UK secondary tropical timber product imports by continental region of origin in 2020 (tonnes).

Region	Doors	Mouldings	Other joinery	Windows	Total
Africa	5	10,000	200	100	10,000
Asia	14,600	66,800	8,400	200	90,000
Latin America	100	72,700	3,000	55	75,900
Total	**14,700**	**149,300**	**11,500**	**300**	**175,800**

Note: Totals may not add up due to rounding of individual regions.

3.4 Consultation with European Associations

Consultation with five of the leading European importing associations (Germany, France, Belgium, Spain, and ATIBT) showed that they perceive that the European market remains an important one for tropical producers for its stability and general willingness to pay higher prices for certified timber products. The interviews confirmed that the COVID-19 pandemic has had an impact on logistics by increasing shipping times, introducing quarantine periods, and raising freight prices (which are not expected to come down in the immediate future). They collectively agreed that the majority of their members expected a severe crisis and sharp decrease in demand for timber due to the pandemic, however for some products including decking the opposite occurred.

ITTO reports indicate that the impacts of the COVID-19 pandemic on tropical wood product production was dependent on the severity of the pandemic in individual producer countries and the steps taken to control and mitigate the spread of the virus.[22]

In the Congo Basin, where the pandemic had less of an impact, the producers reported that they could sell their certified tropical timber products twice over to European buyers. The decline in EU27+UK imports revealed by trade data they ascribe to lack of availability.

The importing associations do not note recent shifts away from tropical timber for political/environmental reasons – in many cases alternatives do not have the same appearance or properties. Additionally, the sector is slow to change and many supply chains are characterized by long-term supplier-buyer relationships. In interviews they maintain that the traditional tropical species such as ipe, sapele, and iroko are still highly sought after and are perceived by the timber trade and end users as difficult to replace.

One new policy driver affecting timber sourcing is the focus on the circular economy, which promotes the concept of sourcing all materials locally. The European associations reported that there is an increase in demand for local timber, But lack of availability and the unique attributes of tropical timber make it difficult to replace. Increased demand for European timber (particularly by China) further complicates the market, redirecting European grown timber trade flows. China's increased interest in European timber may be due to the proposed Russian log export ban potentially arriving in 2022.[23] Additionally, American and Russian buyers are also looking more to European sources of timber. In April 2021 there was a reported 30% increase in European timber exports to the US compared to the first months of 2020.[24]

The European associations identified that private and public procurement policies are increasing demand for wood products, offering opportunities for certified sustainable tropical timber producers to increase sales to Europe. Members are reporting that (tropical) timber is taking back part of market shares previously lost to alternatives such as aluminum and composites. Consumers are increasingly turning to tropical timber for products such as window frames and decking because it is easier to replace if damaged and users are disappointed in the performance of alternatives.

However, availability appears to be a critical factor hampering expansion for tropical producers and the European market is losing out to less demanding markets such as China. The European associations perceive the lack of uptake of lesser-known species and the negative press surrounding the use of tropical timber to be ongoing challenges not yet adequately addressed. Based on the latter point the European associations welcomed the introduction of a regulation for forest-risk commodities, encompassing the current EU Timber Regulation (EUTR), placing greater focus on the agricultural products that are the major drivers of tropical deforestation.

Photo Mark van Benthem, Probos

Currently just 3% of international climate finance to reduce emissions goes towards protecting forests and other ecosystems, while tropical forest loss currently accounts for 8% of the world's annual carbon dioxide emissions.[25] There is little legislation linked to the ambitious global targets on reducing carbon emissions, however the European associations perceive that more ecologically friendly regulations will emerge and that there are already increased requests for Environmental Product Declarations (EPDs) and carbon foot printing information, and growing interest in measurable impacts on biodiversity. The surveys revealed that these are complex issues to navigate, particularly for tropical producers.

Carbon markets could represent a valuable source of income for tropical producers, however the European associations perceive that while some producers are seriously considering carbon markets, many are not able to take up this emerging opportunity. For some producers the ambiguity of tenure persists as to who owns the right to the 'carbon' – this is particularly notable in the Congo Basin – and there is a need to clarify the rights to ecosystem services payments within the concession agreement renewals to clarify if the concessionaire or government have the right to credits.

Finally, the European associations consider that the competitiveness of tropical producers is impacted not only by lack of investment in growth and product development but also a lack of tax incentives that encourage sustainable forest management as demonstrated by the Congo Basin.

Text box 1: ATIBT and TBI 2021 survey

The `ATIBT and TBI survey' is a collaboration between the International Tropical Timber Technical Association (ATIBT), The Borneo Initiative (TBI), and Probos to collate data on yields, certification, impacts, and trade-flows directly from tropical timber producers. Increasing company buy-in to share trade data is crucial for understanding the market demand and providing evidence of the impacts of certification.

The nine companies who responded collectively manage a certified (FSC and PEFC) forest area of 3.93 million hectares and a legally verified forest area of approximately 1.8 million hectares in the Republic of Congo, Gabon, Cameroon, and Ivory Coast. Besides FSC and PEFC-certified, these nine companies are LegalSource (LS), Origine et Légalité des Bois (OLB), Timber Legality Verification (TLV), and FSC Controlled Wood (FSC-CW) verified. The average yield in certified sustainably managed forests was used to calculate the (potential) impact on the forest.

In 2020 these nine companies harvested approximately 1,300,000 m^3 RWE in total (both certified sustainable and verified legal). Overall, 934,000 m^3 RWE (63%) was exported, from which 548,000 m3 RWE (40%) was exported to the European market. The companies indicated that 62% of the export was destined for the EU27+UK.

Four of the nine companies provided additional data indicating that France, Italy, Belgium, the Netherlands, the UK, Germany, and Spain represent 90% of total exports to Europe. Figure 9 shows the results by destination country in absolute volumes for both 2019 and 2020. The share of certified sustainable timber by destination country in 2020 is as follows: **the Netherlands** (98%), **Germany** (94%), **UK** (94%), **Italy** (87%), **Belgium** (75%), **France** (67%) and **Spain** (47%). Other European countries show a certified share of 80%.

These four companies have responded to the previous surveys, making it possible to compare the results and identify trends. The total export to Europe decreased by more than 2% between 2019 and 2020. The export volumes to Spain and UK decreased substantially, by 64% and 37% respectively. The export volumes to Belgium and Germany also declined, though this was minimal. Exports increased to France (11.4% growth), Italy (6.8%), the Netherlands (5.2%) and other European countries (69.3%, compensating for a sharp decline between 2018 and 2019).

In 2020 the four companies exported approximately 57% of their total export volume to European countries. However, 85% of the volume that was certified sustainable, demonstrating higher demand in the European market for certified sustainable timber, the vast majority (76%) was claimed as certified sustainable. This represents a 10% increase since 2018. This is not completely demand driven, but partly due to company responsible sourcing commitments as 15% of the volume is sold but not demanded as certified.

In total twenty TBI partners in Indonesia responded to the survey all of which are primary timber producers (concessionaires). Collectively they produced 1.7 million m³ RWE in 2020 from a forest area of approximately 2,148,000 hectares. This represents a significant increase in responses since 2019. The results provided valuable information on average yield numbers, though little data was available on exports to the EU27+UK. The yield figures were used to verify the (potential) impact on the forest. These yield figures differ from data derived from the publicly available summaries in the FSC Public Search database.[26] To maintain consistency with previous years, data from the FSC database are used.

Figure 9 Total export volume to European countries by four reporting ATIBT members and the volume sold with an FSC- or PEFC-certificate in 2018, 2019 and 2020. Note that Germany was not specified as country of destination in the 2018 and was then included in the category 'Others'.

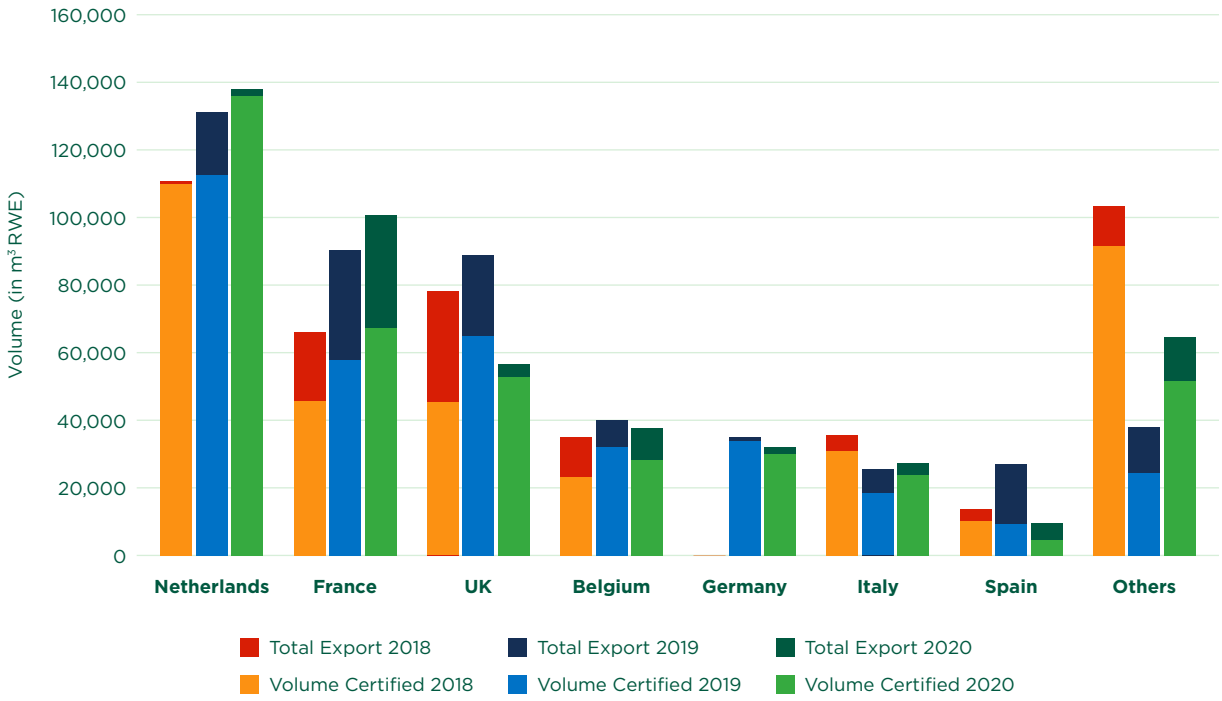


Photo Weekamp Deuren

4 Exposure to Certification and Verification

4.1 Share exposed to and actual certification

In 2020 a total of 1,269,400 tonnes of primary and secondary tropical timber products were imported by the EU27+UK directly from ITTO producer countries. Based on the exposure measure an estimated 359,000–526,000 tonnes are exposed to certification of SFM. This means that **28% to 41% of total EU27+UK imports of the selected product groups are exposed to certification of SFM**.

The volume *exposed* to certification provides a good estimate of a possible range of certified tropical timber products entering the EU27+UK. However, there is a difference between *exposure to certification* and actual products entering the EU27+UK market *with a SFM certificate*.

To improve the accuracy of the estimated market share of certified sustainable tropical timber products in Europe, the exposure outcome is validated by consulting European (timber trade) associations in markets where data availability is poor. It is important to emphasize that the validation focuses on tropical timber consumption rather than raw import flows. This validation results in an estimated range of the percent of tropical timber products imported by the EU27+UK that are certified SFM (Table 7).

Comparing the outcome of the validation with the results of the exposure measure indicates that the exposure measure's lower boundary (28%) slightly underestimates and the upper boundary (41%) overestimates the volume that enters the market with a SFM certificate. The corrections reveals that **approximately 31% to 36% of the EU27+UK total imports of primary and secondary tropical timber products are estimated to be certified for SFM**.

Table 7 shows the estimated market share of EU27+UK primary and selected secondary tropical timber product imports exposed to certification. Note that the estimated market shares below are a weighted average of primary and secondary tropical timber products combined.

Table 7 Total EU27+UK direct imports and estimated market share of primary and secondary tropical timber products exposed to certification in 2020

Region	Imports (Tonnes)	Market share exposed to certification (adjusted)	Assumed certified imports (Tonnes)	Share of EU27+UK tropical timber imports exposed to certification
Belgium	320,500	30%-35%	95,000–111,000	24.4%
Netherlands	208,300	65%-70%	135,400–145,800	33.3%
France	271,100	23%-29%	62,300–78,600	16.7%
UK	106,700	45%-50%	48,000–53,300	12.0%
Germany	90,300	25%-30%	22,600–27,100	5.9%
Italy	105,300	5%-13%	5,300–13,200	2.2%
Spain	46,700	5%-10%	2,400–4,700	0.8%
Other EU27+UK	120,600	15%-18%	18,000–19,800	4.7%
Total	**1,269,400**	**31%-36%**	**388,900–455,300**	**100%**

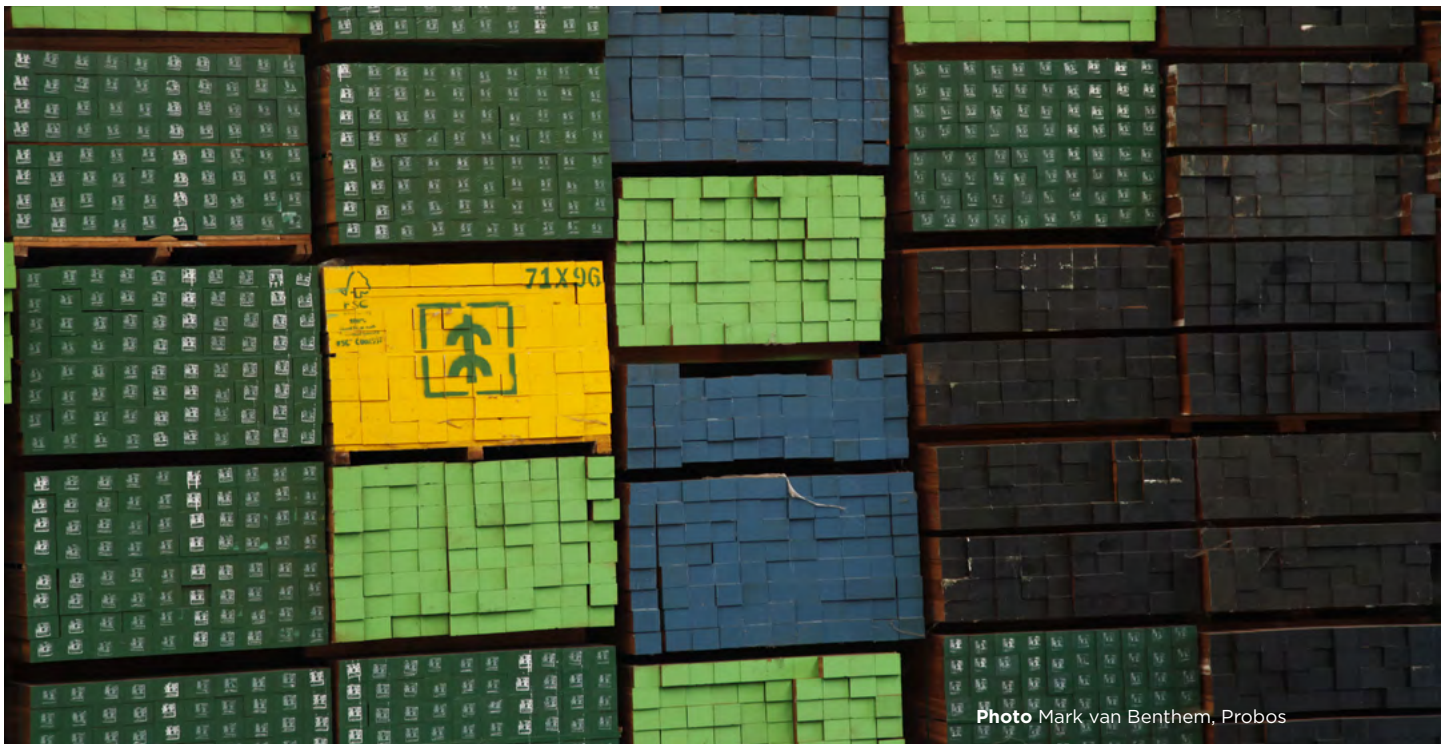


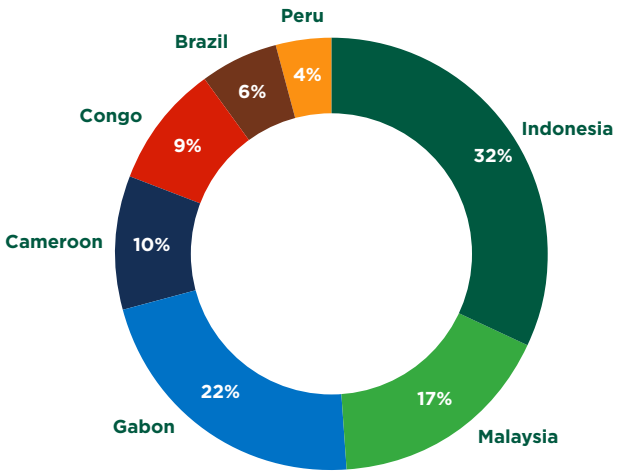
Photo Mark van Benthem, Probos

The *Other EU27+UK countries* have a relatively high market share compared to for instance Italy and Spain. Denmark, estimated to have a high market share compared to the remaining other *EU27+UK countries*, is the main reason for this. With an import of 24,000 tonnes, Denmark is the second largest importing country within the other *EU27+UK countries* following Portugal.

The **Netherlands** remains the largest importer of primary and secondary tropical timber products exposed to certification in the EU27+UK, followed by **Belgium**, **France**, the **United Kingdom**, **Germany**, **Italy**, and **Spain**. Figure 9 shows the relative share of EU27+UK primary and secondary tropical timber product imports exposed to certification by country of origin. **Indonesia** (32%) is by far the largest supplier, followed by **Gabon** (22%) and **Malaysia** (17%). **Gabon** is the largest African supplier of primary and secondary tropical timber products exposed to certification.

Approximately 78% of the EU27+UK primary and secondary tropical wood product imports exposed to certification are certified to FSC – 15% are certified to PEFC all of which comes from Malaysia. The remaining 7% is exposed to both FSC and PEFC due to dual certification of productive forests in Brazil and Gabon.

Figure 10 Relative share of EU27+UK direct primary and secondary tropical timber product imports exposed to certification in 2020 by ITTO producer country.



4.2 Impact on Sustainably Managed Forests

Direct imports of primary and the selected secondary tropical wood products to the EU27+UK from ITTO producer countries totaled to 1,269,400 tonnes in 2020. This translates into 4,138,400 m^3 RWE (see Annex 4 for conversion factors). The trade flows quantified in this study and the share of imports over the three continental regions (Africa, Latin America, and Asia – see Table 8), make it possible to assign imports to producing regions.

The average harvest per hectare in certified sustainably managed semi-natural and natural forests for each region (excluding plantations) is calculated, considering areas where no harvest takes place. For Africa this results in a harvest level of 0.27 m^3 RWE per hectare, for Latin America 0.40 m^3 RWE per hectare, and for Asia 0.62 m^3 RWE per hectare. Based on expert consultation we estimate that approximately 75% of the average harvest is in theory suitable for export to Europe for use in primary tropical wood products, and 55% meets secondary tropical wood product requirements.

Using these average harvest levels, and projecting these onto the current timber flows, we can estimate that between **4,401,000 and 6,015,000 hectares of tropical forests are positively impacted with SFM practices by the current levels of EU27+UK demand for certified primary and secondary tropical wood products.** Approximately 85% of this area can be attributed to the demand for primary wood products.

Photo Mark van Benthem, Probos

For comparison, a total of 19.8 million hectares (excluding plantations) is currently certified in the tropical regions, representing 8.9% of production forest in the tropics.[27] Therefore, it is estimated that **the EU27+UK currently impacts at least 22%–30% of all certified semi-natural and natural tropical forests with its current demand** for certified primary and selected secondary tropical wood products.

If the EU27+UK sourced 100% certified sustainable tropical wood products (those included in this study), approximately **16.1 million hectares of semi-natural and natural tropical forests could be impacted assuming current levels of demand** (shifts in sourcing would affect average yield harvests and subsequently the forest area needed).

It follows that in total approximately 10.1–11.7 million additional hectares could be impacted if both primary and secondary tropical wood products were 100% verified sustainably sourced. This shift in sourcing would further grow the total land dedicated to certified sustainably managed semi-natural and natural forests as there are also other markets demanding these products and individual production forests produce a wide range of species and material quality.

Table 8 Overview of exports to EU27 + UK, productive & certified forest area, and current and potential area of tropical forests impacted by EU27+UK primary and secondary tropical wood product imports by continental region of origin.

		Africa	Latin America	Asia	Total
Productive forest area (1,000 ha)	-	69,119	71,656	83,288	**224,064**
Certified forest area (1,000 ha, excl. plantations)	-	6,100	5,042	8,706	**19,848**
Total Export to EU27 + UK (1000 m3 RWE)	Primary	1,954	752	891	**3,598**
	Secondary	29	222	289	**540**
	Total	1,983	975	1,181	**4,138**
Currently impacted by EU27 + UK (1,000 ha)	Primary	2,650–2,966	272–453	884–1,591	**3,805–5,010**
	Secondary	71–74	127-215	398-717	**596–1,006**
	Total	2,720–3,040	399-668	1,282–2,308	**4,401–6,015**
Potentially impacted by EU27 + UK with 100% sustainable sourcing (1,000 ha)	Primary	9,651	2,508	1,917	**14,076**
	Secondary	196	1,010	848	**2,053**
	Total	9,846	3,518	2,765	**16,129**

Text Box 2: Estimated carbon footprint for the EU27+UK

The previous two studies presented the estimated carbon impact of EU27+UK's import of primary and the selected tropical timber products. This figure was based only on the assumption that forest certification prevents premature re-entry logging, which leads to repeated loss of carbon stocks in the affected forests. The estimated amount was attributed to the current EU27+UK demand of certified (primary and secondary) tropical timber products.

This figure was constructed by calculating a CO_2 emission reduction factor per hectare per year in tropical forests, based on Sasaki et al.[28] This factor was subsequently multiplied by the total tropical forest area impacted by the current and potential EU27+UK demand for verified sustainable tropical timber products. Table 9 below estimates the CO_2 impacts of preventing premature re-entry logging linked to current and potential EU27+UK demand for certified tropical timber products.

The updated table shows that the current EU27+UK demand for certified primary and secondary tropical timber products reduces annual CO_2 emissions by between 24.1 and 32.9 million tonnes. If the EU27+UK sourced 100% verified sustainable tropical timber products, the area positively impacted would be 16.1 million hectares of tropical forests, in line with a potential reduction of 88.3 million tonnes of CO_2 emitted per year based on preventing re-entry logging only. According to the Statistics Netherlands (CBS), this is the equivalent to two and a half times the carbon emissions produced by the Netherlands for electricity production in 2020. Besides premature re-entry logging, there are more carbon benefits to verified SFM, increasing the carbon reduction potential (for example lower intensity silvicultural practices such as reduced impact logging have positive benefits for soil carbon). This figure is lower than 2019 figures, due to the reduction in total EU27+UK imports.

Table 9 Potential reductions in CO_2 emissions by avoiding premature re-entry logging linked to EU27+UK imports of sustainable primary and secondary tropical wood products.

Region	Primary products	Secondary products	Total
Currently impacted (1000 ha)	3,805–5,010	596–1,006	**4,401–6,015**
Potentially impacted (1000 ha)	14,076	2,053	**16,129**
Current reduced CO_2 emissions (million tonnes)	20.8–27.4	3.3–5.5	**24.1–32.9**
Potential reduced CO_2 emissions with 100% sustainable sourcing (million tonnes)	77.0	11.2	**88.3**

4.3 Verified Legal imports

Approximately 15% of total EU27+UK tropical wood product imports are exposed to one of the verified legal schemes included in the scope of this study (see Table 10). Veneer is the secondary product group with the highest exposure to legal verification (28%), followed by sawnwood (18%) and roundwood (18%). In total, primary products represent 99% of all verified legal tropical timber products imported by the EU27+UK. EU27+UK imports from Cameroon are well over half (61%) of the total quantity exposed to verified legal schemes, followed by Côte d'Ivoire (22%), Republic of Congo (10%), and Gabon (5%). The harvest intensity in forests bound to a verified legal scheme is unknown, thus the impact on verified legal forests cannot be calculated.

Text Box 3: Forest Law Enforcement Governance and Trade (FLEGT) Licenses

Voluntary Partnership Agreements (VPAs), a component of the EU FLEGT Action Plan, are trade agreements between the EU and timber producing countries that aim to make trade contingent on a timber legality assurance system (TLAS) tailored to partner-country laws. VPAs are a multi-stakeholder process to improve forest governance by clarifying and reforming national laws and strengthening their enforcement. Timber and timber products that comply with the TLAS receive a FLEGT license and are considered legal under the EU and UK Timber Regulations. Indonesia is the only country that is fully implementing a TLAS and issuing licenses. Over 70% of Indonesia's commercial wood supply is sourced from plantations (70%) and community forests (15%).[29] The plantations are certified to Pengelolaan Hutan Produksi (PHPL), which is considered the sustainable standard under the Indonesian TLAS known as Sistem Verificasi Legalitas Kayu (SVLK).

In total, approximately 200,800 tonnes of tropical wood products with a **FLEGT-license** are imported by the EU27+UK directly from **Indonesia**. This represents roughly 16% of all tropical wood products imported by the EU27+UK. Primary tropical wood products (124,000 tonnes) are the majority of the total FLEGT-licensed imports – FLEGT-licensed secondary tropical wood product imports sum to 76,800 tonnes. However, FLEGT-licensed products only represent 11% of total primary tropical wood products imports, while for secondary tropical wood product imports the share is far more significant (44%). Another 398,700 tonnes (31%) originate from VPA implementing countries. 355,700 tonnes (9%) are estimated to come from VPA negotiating countries. In total, 75% of EU27+UK imports originate from countries working on a VPA with the EU.

Table 10 Overview of the certification, FLEGT-Licensing, VPA-status, and exposure to verified legal systems of EU27+UK primary and secondary tropical wood product imports by destination country in 2020.

	Product group	Total imports (tonnes)	Exposed to certification % (adjusted)	Exposed to certification products (tonnes)
Belgium	Primary	297,400	30%–35%	89,200–104,100
	Secondary	23,000	25%–30%	5,800–6,900
	Total	320,500	30%–35%	95,000–111,000
France	Primary	215,800	25%–30%	53,900–64,700
	Secondary	55,400	15%–25%	8,300–13,800
	Total	271,100	23%–29%	62,200–78,600
Netherlands	Primary	167,200	65%–70%	108,700–117,100
	Secondary	41,000	65%–70%	26,700–28,700
	Total	208,300	65%–70%	135,400–145,800
UK	Primary	94,800	45%–50%	42,700–47,400
	Secondary	11,900	45%–50%	5,300–5,900
	Total	106,700	45%–50%	48,000–53,300
Italy	Primary	103,800	5%–12.5%	5,200–13,000
	Secondary	1,500	5%–12.5%	100–200
	Total	105,300	5%–12.5%	5,300–13,200
Germany	Primary	62,400	25%-30%	15,600-18,700
	Secondary	28,000	25%-30%	7,000-8,400
	Total	90,300	25%-30%	22,600-27,100
Spain	Primary	45,200	5%–10%	2,300–4,500
	Secondary	1,500	10%–15%	100–200
	Total	46,700	5%–10%	2,400–4,700
Other	Primary	106,900	14%–17%	15,300–18,500
	Secondary	13,700	19%–23%	2,700–3,100
	Total	120,600	15%–18%	18,000–21,600
Total	**Primary**	**1,093,600**	**30%–35%**	**332,900–388,000**
	Secondary	**175,800**	**32%–38%**	**55,900–67,300**
	Grand Total	**1,269,400**	**31%–36%**	**388,900–455,300**

FLEGT-licensed	From VPA implementing country	From VPA negotiating country	Exposed to third party legality verification
15,600	146,500	92,600	69,100
4,900	2,100	4,900	1,000
20,500	148,600	97,500	70,200
1,400	66,600	75,600	23,800
2,400	1,900	4,300	600
3,800	68,400	79,900	24,400
41,400	28,500	50,700	13,200
31,500	1,200	3,500	400
72,900	29,700	54,300	13,700
22,500	30,200	35,400	12,700
9,900	500	800	-
32,400	30,700	36,200	12,700
4,900	48,600	38,000	35,500
400	200	100	-
5,300	48,900	38,100	35,500
33,200	12,600	9,200	3,600
23,000	300	1,000	-
56,200	13,000	10,200	3,600
100	21,700	10,700	15,400
100	-	-	-
200	21,700	10,700	15,400
5,000	36,200	28,400	19,200
4,600	1,400	500	200
9,500	37,700	28,900	19,400
124,000	**391,000**	**340,500**	**192,400**
76,800	**7,700**	**15,200**	**2,300**
200,800	**398,700**	**355,700**	**194,800**

Photo Mark van Benthem, Probos

4.4 Comparison of Results

In 2020 a total of 1.269,400 tonnes of tropical timber products were imported to the EU27+UK, a decline of 12% compared to the sum of 2018 primary and 2019 secondary imports (1,445,500 tonnes). However, the estimated market share of tropical timber products exposed to certification has increased. The previous data estimates that 371,000–471,000 tonnes of primary (2018) and secondary (2019) tropical timber exposed to certification entered the EU27+UK, equating to a market share of 26%–33%. In 2020, the volumes of tropical timber products imported has fallen to around 389,000–455,000, with products exposed to certification estimated to have a market share of 31%–36%.

Figure 11 Volume of EU27+UK primary and secondary tropical timber product imports exposed and not-exposed to certification. The bars indicate the estimated lower and upper boundaries of certification after validation of the exposure measure.

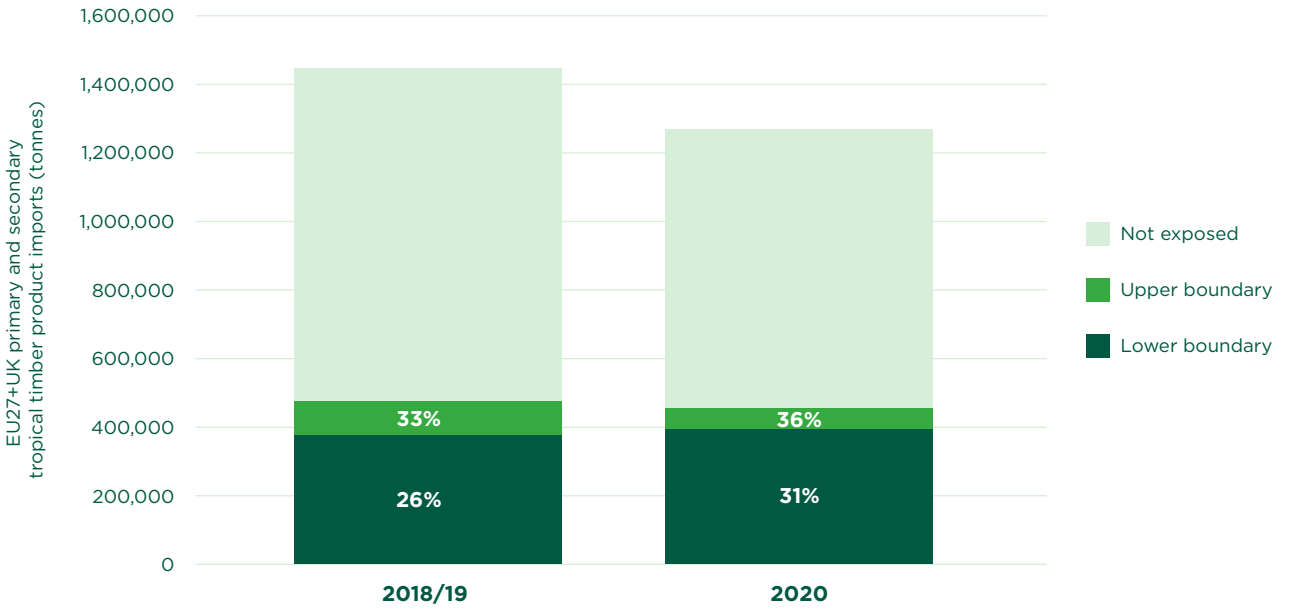
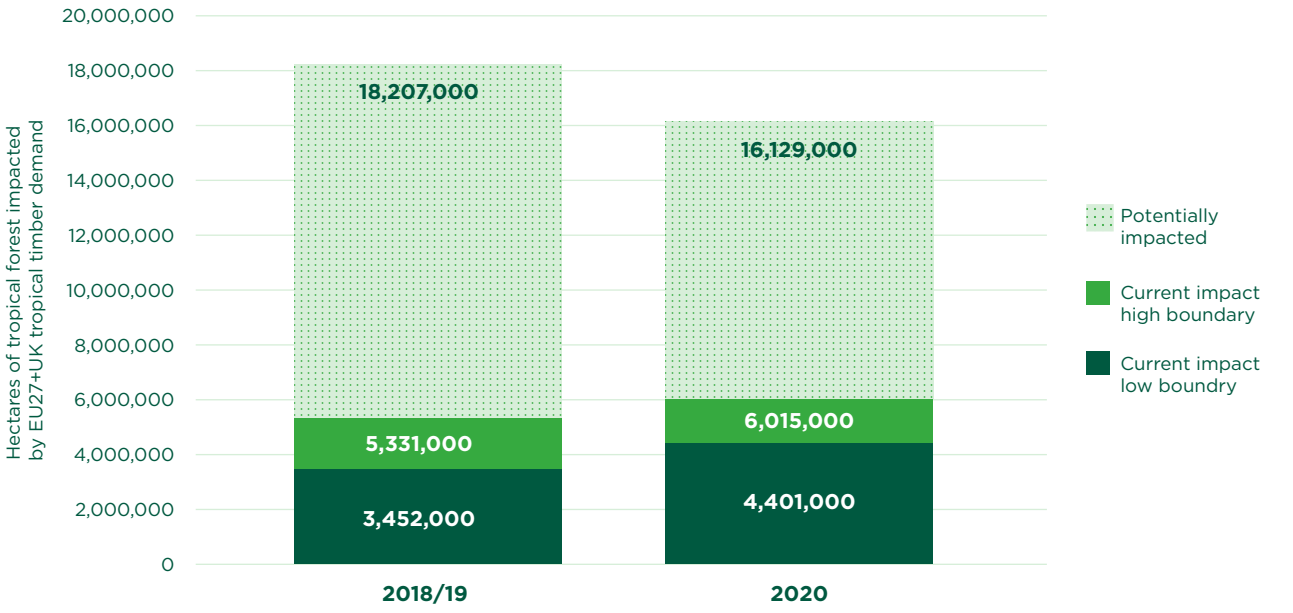


Photo Mark van Benthem, Probos

However, there is a slight difference in the calculation of the estimated boundaries when 2020 is compared to 2018/2019. Using new data available and validation with the European associations it is now possible to generate an estimation of the market share for the *other* EU27+UK countries. Inclusion of the estimated market share of these other countries lead to an increase of approximately 1.5% for the estimated boundaries in 2020.

Overall, the forest area that the EU27+UK could potentially impact if imports were 100% verified sustainably sourced decreased from 18.2 to 16.1 million hectares due to the decline in volume imported. The actual forest area currently impacted by the EU27+UK demand for certified tropical timber products has increased from 3,452–5,331 to 4,401–6,015 (1000 ha). This is likely due to increase in forest area certified, and a shift towards more imports exposed to certification from Africa. Africa has a relatively low harvest intensity compared to Latin America and Asia, therefore a higher certified forest area is required to produce the equivalent volume of certified tropical timber products.

Figure 12 Forest area currently and potentially impacted by EU27+UK primary and secondary tropical timber product imports. The bars indicate the estimated lower and upper boundaries for impacted forest area based on the exposure method.



5 Conclusions

In summary, the 2020 data results show that while the tropical timber imports decreased, the percentage exposed to certification of sustainable forest management has increased. While the target set for 2020 by STTC was not met, the data demonstrates the EU27+UK still has the potential to positively impact up to 16 million hectares of semi-natural and natural forests if it were to source 100% verified sustainable timber products.

This report is the first of the three reports to evaluate both primary and secondary timber products data for the same year. This latest report clearly identifies that primary timber products dominate the imports in total volume, particularly from Africa. The impact of the COVID-19 pandemic led to disrupted supply chains for tropical timber products, however demand rose (likely due to home renovation projects), leading to timber shortages and in some cases price increases. Specifically, availability of certain species is perceived to be a concern for EU27+UK importers where they are unable to replace tropical timber with other products with similar properties.

The EU27+UK market for tropical timber products is stable despite decreasing availability, but is still significantly lower level than 2009. While there was a reduction in 2020 imports, 2021 data indicates that import levels will return to pre-COVID levels. EU27+UK faces competition from less challenging markets but remains the global leader in demanding verified sustainable timber products. Evidently, European importers are prepared to pay higher prices for value-add, and as a result Europe remains an attractive market for tropical producers. This signifies that if demand for verified sustainable tropical timber increases, EU27+UK importers still have the potential to grow the positive impacts on tropical forests.

There is a newly emerging interest in using timber as an alternative to more environmentally damaging materials, with data indicating that demand for tropical timber in 2021 is continuing to rise. With over 75% of the selected imports by the EU27+UK originating from countries active in a FLEGT VPA, this suggests the program is significantly important to both producing countries and importing industries.

However, the EU27+UK is not the principal importer for most tropical timber exporting countries. Additionally, research suggests that deforestation rates due to local consumption are much higher than those attributed to international trade, which gives an indication as to why demand-side measures such as the EU Timber Regulation and US Lacey Act are having limited impacts.[30] Moreover, the European Commission is assessing the future of FLEGT VPAs and is introducing a regulation focused on forest-risk commodities aimed at the agricultural drivers of deforestation.[31] There is also an acknowledgement that while certification is a good tool for both producers and buyers, it has not been able to prevent deforestation. In October 2021 a coalition of NGO's publicly called for FSC to reform.[32] The landscape management approach, rather than the management unit approach impacted by certification schemes, aims to reconcile the competing objectives of nature conservation and economic activities across a given landscape and its adoption is growing in view of climate change mitigation (see Text Box 4).

The specific conclusions of this report are as follows:

1. Trade data is a valuable starting point in the analysis of market dynamics and understanding the impacts on tropical forests, but it is best understood when **combined with direct insights from producers and buyers**. Intra-trade is not currently included within the scope of estimates. **Intra-EU and other intra-producer trade of raw materials** and components are likely to have a bearing on estimates.

2. Most **tropical timber products imported into the EU27+UK are primary tropical wood products**, with sawnwood accounting for the greatest share of the total volume.

3. The STTC 2020 target to increase the share of verified sustainable tropical timber materials in the EU to 50% of all tropical timber products by 2020 has not been achieved. The **imported volume of primary and secondary tropical timber products overall has declined** in comparison to the data analyzed in the previous studies, but 2020 was impacted COVID-19 pandemic and imports have risen sharply in 2021.

4. **Brazil** (21% of certified imports) is the largest supplier of primary and secondary tropical timber products exposed to certification to the EU27+UK, followed by **Cameroon** (20%), **Indonesia** (16%), **Gabon** (15%), **Malaysia** (9%), **Republic of Congo** (6%), and **Côte d'Ivoire** (3%).

5. **Africa** (49% of imported volumes) is the most significant sourcing region for the EU27+UK, followed by **Asia** (26%,) and **Latin America** (25%). Africa is the dominant supplier of tropical veneer (99%) and tropical logs (90%). Asia is the largest supplier of tropical plywood (80%) and the dominant supplier of tropical doors with a share of over 99%. Latin America is the main sourcing region for tropical timber mouldings including decking (49%), followed closely by Asia (45%).

6. Despite decreasing imports, the **EU27+UK market remains a key market for verified sustainable and verified legal tropical timber products**. Some tropical species are perceived to be irreplaceable for certain product applications, perhaps explaining why the veneer product group has experienced the least decline in imports by volume. These are likely demanded for their specific properties and appearance. Conversely, the greater shift away from tropical plywood imports may be explained by the availability of alternative sources with equivalent engineering properties.

7. **Total European imports are likely impacted by the lack of availability of tropical wood that meets Europe's stringent standards, resulting in a shift in markets to less-demanding markets.** Regulatory and policy drivers for responsible sourcing and due diligence as well as product quality standards such as CE Marking all contribute to this effect.

8. **The lack of uptake of lesser known and used species and the negative press surrounding the use of tropical timber** are perceived by the European timber associations to be ongoing challenges that have yet to be adequately addressed.

9. The European associations welcome the introduction of a regulation for forest-risk commodities that encompasses the current EU Timber Regulation (EUTR), **placing greater focus on agricultural products that are the major drivers of tropical deforestation.**

10. While it is not possible to link the results of the ATIBT and TBI producer surveys to the official data available, **these results add valuable ground-level insights that the demand is growing for certification and sustainable claims.** Moreover, these initiatives are important to customers and producer companies alike.

11. The 2020 results highlight that **decreasing imports reduce the potential for Europe to positively impact the area under SFM.** Imports for tropical timber decreased by 13% for primary tropical timber products and 6% for secondary tropical timber products compared to the data analyzed in the previous reports (data from 2018 and 2019 respectively).

12. After validation with the European associations, **approximately 31% to 36% of total EU27+UK primary and secondary tropical timber product imports are estimated to be exposed to certification**, an increase of 3% to 5 percentage points from previous years.

13. **Growth in the area of certified forests in tropical regions since 2018** is the reason for the increasing volume of tropical wood products exposed to certification.

14. **The share of EU27+UK tropical timber product imports exposed to third-party legality verification is approximately 15.3% with most of this volume sourced from Cameroon. The import share with a FLEGT license is 15.8%**, all imported from Indonesia.

15. **In total, 75% of EU27+UK imports originate from countries active in a FLEGT VPA with the EU**. This demonstrates the importance of the FLEGT VPA for the EU27+UK, however contextualizing this with the actual volumes imported is important.

16. The **legality verification schemes are variable in terms of transparency**, not all schemes provide reasonable/sufficient levels of publicly available information.

17. **The EU27+UK currently directly impacts at least 22%–30% of all certified semi-natural and natural tropical forests (4.4 to 6.0 million hectares) each year** with its demand for certified primary and the selected secondary tropical wood products.

18. The European associations perceive that the **growing interest in the circular economy and zero-carbon coupled with responsible sourcing policies are increasing demand for all wood products**. There is particular interest in local and preferably verified sustainable products. Emerging new trade patterns (in 2021) could indicate that global timber trade supply chains are shifting, possibly in response to the climate emergency and growing appetite for forest products as alternatives to more environmentally damaging materials.

19. The EU27+UK is overall **regarded as an attractive, stable, though demanding market by tropical producers, and prepared to pay higher prices** for verified sustainable timber products.

20. If the EU27+UK sourced **100% verified sustainable tropical timber products, it would positively impact at least 16 million hectares of semi-natural and natural tropical forests**.

Text Box 4: Landscape Approach to Sustainability

Landscape Approaches (or Jurisdictional Approaches) to Sustainability are key to achieving inclusive and sustainable development in sourcing regions. They reconcile global commitments with local priorities, ensuring local and global stakeholders are working towards the same sustainability goals. **A landscape approach is an integrated strategy that aims to bring together multiple stakeholders to address complex environmental, economic, social, and political challenges that typically go beyond the boundary of a single farm or production unit.**

In recent years industry has grown more ambitious in using landscape approaches to tackle deforestation. In parallel, companies face greater expectations to go beyond certification in tackling sustainability in their supply chains. Acknowledging that moving towards deforestation-free sourcing will require "more transformational change in key commodity landscapes," proponents of Landscape Approaches argue that there are limitations when focusing only on individual supply chains or solely on deforestation.

Joint action at the landscape level is therefore needed in addition to other initiatives (like certification) to cover complex sustainability issues in production areas. It is promising to see that multi-stakeholder initiatives at the local level are emerging with common targets and actions aimed at more responsible production, ecosystem protection, and inclusion of local/regional actors. These biome-based and local landscape approaches will likely become key tools for protecting ecosystems while guaranteeing verified responsible sourcing of commodities.

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6 Recommendations

The global focus on climate change and accompanying increased demand for wood products represents an opportunity for verified sustainable timber producers. There are now a number of initiatives and organizations offering support and guidance for businesses to become climate-and nature-positive. This coincides with greater scrutiny of supply and demand side measures to address deforestation and degradation. Leveraging this interest will require increased engagement with MSMEs and surrounding communities.

All timber MSMEs including smallholders, concession holders, and community forest managers are critical partners in climate mitigation and poverty reduction efforts. Many remain marginalized and unorganized, and are known to be a chronic problem in supply chains, often a source of tension with end users pushing for commercial requirements and improved environmental custodianship. Overseas Development Aid (ODA) has traditionally been difficult for MSMEs to access. A lack of institutional support, perception that the barriers are too challenging, and the complexity for donors all contribute to excluding MSMEs. An increase in climate finance pledged through the U.N. Framework Convention on Climate Change could turn the tables for smallholders, concession holders, community forest managers, and timber MSMEs, offering an additional source of income for sustainable practices.

The following recommendations aim to stimulate debate on how tropical timber producers can take advantage of these emerging opportunities and address tropical deforestation and degradation.

1. Improve competitiveness and added value of tropical timber in producer countries to increase the positive impacts on tropical forests and livelihoods

A. Appraise lessons learned from a range of supply-side regulatory, voluntary, and landscape approaches to positively engage all MSMEs – this includes smallholders, concession holders, and community forests and must recognize their different challenges and market drivers

B. Increase the export readiness of tropical timber producers through capacity building focused on their challenges, and promote greater understanding of the EU27+UK market's commercial and environmental requirements

C. Encourage investment to introduce new technologies, improve production efficiencies, and increase product development to enable tropical timber producers (particularly in Africa) to transition from a primary to a secondary products processing sector

D. Review national fiscal and policy regimes for tropical producers in order to incentivize sustainable forest management and encourage diversification through payments for ecosystem services (such as carbon credits) – examples include clarifying forest tenure rights, revising tax regimes, and introducing local and national public procurement policies giving preference to verified sustainable timber products

2. Increase the attractiveness of the EU27+UK market, lessen perceived trade barriers, and encourage tropical timber producers to develop their capabilities and product offering

- **A.** Implement positive policies that promote the use of verified sustainable timber and scale up campaigns that focus on the uniqueness of tropical timber, new product developments, lesser-known species, and the benefits of tropical forest management
- **B.** Promote access to the EU27+UK market and provide better guidance and information through mechanisms such as producer country embassies, trade fairs, associations, and chambers of commerce to enable tropical timber producers to better understand commercial and environmental market requirements
- **C.** Encourage European associations, retailers, and other end users to specify the use of verified sustainable tropical timber and set targets to monitor and report on progress
- **D.** Develop guidance for EU27+UK businesses to understand emerging policy and regulatory drivers and navigate the plethora of nature and climate net-positive initiatives (such as Science Based Targets Initiative), encouraging their engagement[33]

3. Extend data collection for primary and secondary tropical timber products, increase data validation, and assess consumption trends to support tropical producers to better understand EU27+UK markets

- **A.** Extend surveys with tropical timber producers and include those that operate in the agroforestry sector to provide greater insights into the interpretation of the official data sources, gain intelligence on their drivers, perceptions, and challenges, and monitor the impacts on tropical forests and links to agricultural production
- **B.** Conduct research and data collection with a wider range of buyers and end users including timber traders, importers, retailers, specifiers, architects, and associations to understand market trends and gain insights into the interpretation of the official data sources
- **C.** Design a methodology to evaluate intra-trade in the EU27+UK to assess end use and consumption in addition to analyzing import volumes
- **D.** Advocate for greater data transparency from certification and legality verification schemes

7 Annexes

Annex 1: Primary and secondary tropical timber product codes included in this study

Product Group	Product Code	Description
Tropical Doors	44182010	Doors and their frames and thresholds of tropical timber
Tropical Mouldings	44092200	Tropical wood continuously shaped along any of its edges, ends, or faces, whether or not planed, sanded, or end-jointed
Other tropical Joinery	44189990*	Builders' joinery and carpentry of tropical Wood
Tropical Windows	44181010	Windows and french windows and their frames of tropical wood

**This product code does not distinguish between tropical and non-tropical products. In order to make this distinction an analysis has been performed based on the ratio of tropical/non-tropical products of doors, mouldings, and windows per partner country.*

Product Group	Product Code		Description
Sawnwood	44079927*	44072983	(Tropical) wood sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or end-jointed, of a thickness exceeding 6mm
	44079940*	44072985	
	44079990*	44072995	
	44079996	44072996	
	44079998*	44072997	
	44072810	44072998	
	44072891	44072710	
	44072899	44072791	
	44072110	44072799	
	44072191	44072210	
	44072199	44072291	
	44072510	44072299	
	44072530	44072610	
	44072550	44072630	
	44072590	44072650	
	44072915	44072690	
	44072920	44069200*	
	44072925	44061000*	
	44072945	44069000*	
	44072960		

Product Group	Product Code	Description
Veneer	44089015* 44089035* 44089085* 44089095* 44083111 44083121 44083125 44083130 44083915 44083921 44083930 44083955 44083970 44083985 44083995	(Tropical) sheets for veneering
Roundwood	44039900* 44039995* 44034100 44034910 44034935 44034985 44034995 44042000*	(Tropical) wood in the rough
Plywood	44123290 44129410* 44129930* 44129950 44123110 44123190	(Tropical) plywood, veneered panels and similar laminated wood

** These products have only been included when directly imported from tropical timber producing countries. This has been done because these products consist of unspecified (non-coniferous) timber.*

Annex 2: Division of ITTO producer countries in continental regions

Product Group	Product Code
Africa	Benin
	Cameroon
	Central African Republic
	Republic of Congo
	Côte d'Ivoire
	Democratic Republic of the Congo
	Gabon
	Ghana
	Liberia
	Madagascar
	Mozambique
	Nigeria
	Togo
Asia	Cambodia
	Indonesia
	India
	Malaysia
	Myanmar
	Papua New Guinea
	Philippines
	Thailand
	Viet Nam
Latin America	Bolivia (Plurinational State of)
	Brazil
	Colombia
	Costa Rica
	Ecuador
	Guatemala
	Guyana
	Honduras
	Mexico
	Panama
	Peru
	Suriname
	Trinidad and Tobago
	Venezuela (Bolivarian Republic of)

Annex 3: Steps to calculating exposure of certification

The input data to calculate the volumes exposed to certification is explained in detail below.

Step 1
Calculating EU27+UK tropical timber product import

Imports of the product categories of both primary and secondary tropical timber products are derived from the trade data platform STIX Global. This utilizes direct import Eurostat COMEXT data that is validated and regularly updated. Trade between producer countries and within the EU is not considered.

Selection of tropical products is mostly straightforward, however the secondary product group 'other joinery' (HS 44189990) contains both tropical and non-tropical timber products. To correct this, a ratio of tropical/non-tropical products has been generated for each producer country based on STIX export quantities of doors, mouldings, and windows to the EU27+UK. Multiplying this ratio with the total export of 'other joinery' to the EU27+UK gives an estimate of the share tropical timber within the joinery product group. A selection is made within STIX to identify only imports of tropical timber products from ITTO producer countries. Non-ITTO are not included as they supply very little to the EU27+UK market.

Step 2

Determining productive forest area in tropical countries

To determine the productive area of natural and semi-natural tropical forests in the ITTO tropical timber producing countries, several data sources are used. If FAO data on industrial concessions is available, it is assumed that these areas represent the productive forest area within a specific country.[34] Where not available, FAO `production forest area' (as stated in FRA 2020), is used as "productive forest". The areas of productive forest are further adjusted to reflect areas within them that are not allocated to concessions, other forest management units, or not in production (such as riparian zones, high conservation values, roads, villages, rivers, protected areas, buffer zones, etc.). Therefore, it is assumed that a modest correction of -20% would account for overestimation of the productive forest area. Specifically, 20% of the productive area figure is deducted to generate a more realistic productive area that is available for timber supply.

Step 3
Determining certified forest area, VPA status and presence of verified legal systems in tropical countries

The data available through the FSC and PEFC websites are used to determine the certified area of natural and semi-natural forests within all tropical countries with adjustments made where forests are dual certified.[35] Plantation areas are deducted by identifying the primary species such as pine, coupled with a review of available audit reports. The division of ITTO producer countries into continental regions is presented in Annex 2.

For each ITTO producer country the **FLEGT status** was determined in line with the three FLEGT Independent Market Monitor categories: I) FLEGT-Licensing country, II) VPA implementing country, and III) VPA negotiating country (Annex 4).[36] The forest area in ITTO producer countries operating under **third-party legal verification schemes** was obtained from the four verification schemes that provide publicly available data – OLB, TLV, FSC-CW, and LegalSource – thus the data is incomplete as it does not include other verification schemes.

Step 4
Share of forest area certified and legally verified in tropical countries

Dividing the certified natural and semi-natural forest area with the total productive forest area, results in the percent of the total productive forest area that is FSC and/or PEFC certified per country. The same method is used for calculating the share of forest area verified legal through third party schemes.

Step 5
Calculating total export exposed to certification and legal verification

ITTO primary export data does not separate out the secondary tropical timber products included in this study as available production data is limited. Therefore, an assumption regarding the total production of these secondary tropical timber products is made. The EU27+UK's share of global export of primary and secondary tropical timber products is projected onto the export per ITTO country to the EU27+UK to generate an estimate of the global export of primary and secondary tropical timber products. Subsequently, the total export quantity is multiplied with the % of the total productive forest area that is FSC and/or PEFC certified. This calculation results in a total export quantity of tropical timber products exposed to certification per country. A similar calculation has been performed for the total export exposed to legal verification. Backed by experts and (limited) data gathered via surveys, it seems that the raw materials used to manufacture the secondary tropical timber products originated mainly from the producing countries themselves. Hence, no corrections for country of origin have been implemented.

Step 6
Calculate export to EU27+UK exposed to certification and legal verification

Through existing market intelligence, research, and trade data, it is assumed that between 50 to 80% of all certified tropical timber is destined for Europe. It is appreciated that this is not the case in all tropical producer countries, but there is evidence from the surveys amongst producers from the Congo Basin and South-East Asia to support this.

By multiplying the total certified export of tropical timber products per tropical country with 50% or 80%, the lower and upper boundary of the export quantity to the EU27+UK, the share exposed to certification is determined. Comparison of this *'EU27+UK exports exposed to certification'* figure to the *`Total export to EU27+UK per tropical country'*, an exposure to certification figure is generated for each tropical country. In some cases, 50%-80% of the total export exposed to certification/verification of a certain tropical country exceeded the total EU27+UK import from that country. In this case, it is assumed that 50-90% of the *EU Import* from that country is certified.

For the verified legal scheme primary and secondary tropical timber product imports, the share of forest area exposed to a verified legal scheme per country is multiplied with the total import of the EU27+UK from each country.

Step 7
Validating outcomes

The data validation was conducted through a series of group or individual consultation meetings with representatives of the main tropical timber importing federations of Europe, data gathered via the new Thémis framework, and a survey sent to ATIBT and TBI producer members.[37] The seven main tropical timber importing countries are based on total tropical timber imports rather than secondary tropical timber product imports, though they represent over 90% of the total secondary tropical timber into the EU27+UK.

Step 8

Determining the additional required forest area to be certified to sustain 100% certified EU27+UK imports of primary- and secondary tropical timber products

STIX import data are used to determine the total (2020) demand for primary and secondary tropical timber by the EU27+UK. This data is expressed in tonnes and recalculated into roundwood-equivalents (RWE) using internationally accepted conversion factors (Annex 5) to relate the import figures to the harvested quantities within the producer countries.

Subsequently, for each region the total import quantity and share of certified quantity is calculated by using the exposure to certification figures per producer country. Shares of certified and non-certified quantities have been calculated for both the lower (50%) and upper (80%) boundaries.

The average yield per hectare of certified sustainable forest management is needed for each of the identified continental regions to estimate the forest area needed to supply the total EU27+UK import. An estimate of this yield for each region has been calculated within this project. For this calculation (limited) data available on harvest levels in certified concessions in tropical producer countries are used. The data was derived from certification audit reports, questionnaires to concessionaires, and regional and national offices of the FSC and the PEFC. A weighted average harvest level (based on the actual harvest volume within the total certified forest area in a year) in certified forest concessions per tropical region is calculated, considering rotation cycles. This resulted in the following average yields: Africa – 0.27 m^3/ha/yr, Latin America – 0.40 m^3/ha/yr, and Asia – 0.62 m^3/ha/yr.

Almost all the harvested volume in certified sustainably managed natural tropical forests is of export quality, therefore, it is assumed that 75% of the yield meets exports requirements for primary timber products.[38] For secondary timber products, where rejection and wastage rates are higher, a lower of 55% yield figure is used. The average yield for each region is adjusted and used to calculate the forest area to meet 100% of the 2020 EU27+UK imports of the selected verified sustainable tropical timber products. This analysis was applied to each of the seven main EU tropical timber importing countries.

Annex 4: Country division based on VPA status

VPA status	Country
FLEGT-Licensing	Indonesia
VPA implementing country	Cameroon
	Central African Republic
	Ghana
	Guyana
	Honduras
	Liberia
	Republic of Congo
	Vietnam
VPA negotiating country	Cote d'Ivoire
	Democratic Republic of Congo
	Gabon
	Laos
	Malaysia
	Thailand

Annex 5: Conversion factors

Product Group	Tonnes to m^3 product	m^3 product to m^3 RWE
Veneer	2.23	1.8
Sawn Wood	1.46	2.21
Roundwood	1.11	1
Plywood	1.93	2.3
Tropical Doors	1.4	3
Tropical Mouldings	1.3	2.21
Other tropical Joinery	1.4	3
Tropical Windows	1.4	3

Endnotes

1. Participation does not necessarily imply endorsement of the results of this study by the listed organisations.
2. "Unlocking sustainable tropical timber market growth through data," *IDH- the sustainable trade initiative*, 2019; and "Understanding sustainable tropical Wood products through data," *IDH- the sustainable trade initiative*, 2020
3. Ki-moon, Ban, "Smallholder farmers provide the key to tackling the climate crisis" *The Independent*, 15 Oct. 2021
4. "Enhancing the Development of a Responsible SME Forest Products Sector: Recommendations and Call to Action for National and International Policies and Programmes," *Global Timber Forum*, October 2020
5. "Landscape: Sustainable production, forest protection and social inclusion," *IDH- the sustainable trade initiative*
6. The UK was included within the study despite having withdrawn from the EU on January 31st, 2020. For all statistics relating to calendar year 2019 the UK's data will be included within the EU data.
7. FLEGT – Forest Law Enforcement Governance & Trade; TLAS – Timber Legality Assurance System
8. "Unlocking sustainable tropical timber market growth through data," *IDH- the sustainable trade initiative*, 2019; and "Understanding sustainable tropical Wood products through data," *IDH- the sustainable trade initiative*, 2020
9. Ki-moon, Ban, "Smallholder farmers provide the key to tackling the climate crisis," *The Independent*, 15 Oct. 2021
10. "Enhancing the Development of a Responsible SME Forest Products Sector: Recommendations and Call to Action for National and International Policies and Programmes," *Global Timber Forum*, October 2020
11. "Landscape: Sustainable production, forest protection and social inclusion," *IDH- the sustainable trade initiative*
12. FLEGT Independent Market Monitor
13. European Union (2013) HS Codes identified within: *Commission Implementing Regulation (EU) No 1001/2013 of 4 October 2013 amending Annex I to Council Regulation (EEC) No 2658/87 on the tariff and statistical nomenclature and on the Common Customs Tariff*
14. "In or out? Can the European Union's Timber Regulation keep out illegal timber?" *WWF UK*, 2014
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16. Other schemes exist but information regarding certificates issued was not available.
17. STIX is a joint initiative of The International Tropical Timber Organisation (ITTO) and the Global Timber Forum (GTF) and provides access to data on timber products trade as reported by the statistical agencies of 46 countries including nearly all the world's largest exporters and importers.
18. Themis Timber Market Survey

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21. Tropical Timber Market Report. Volume 23, Number 15," *The International Tropical Timber Organization*, 2019

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25. Mulder, Ivo, "Why private investment in deforestation-free commodity production needs to be scaled up," *Tropical Forest Alliance*, 12 Oct. 2018; Gibbs, David, Nancy Harris, and Frances Seymour, "By the Numbers: The Value of Tropical Forests in the Climate Change Equation," *World Resources Institute* 4 Oct. 2018

26. Forest Stewardship Council

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28. Sasaki N, Asner GP, Pan Y, Knorr W, Durst PB, MaHO, Abe I, Lowe AJ, Koh LP and Putz FE, "Sustainable Management of Tropical Forests Can Reduce Carbon Emissions and Stabilize Timber Pro-duction," *Frontiers in Environmental Science 4:50*, 2016

29. IMM analysis of Indonesian Ministry of Environment and Forestry data from RPBBI website

30. Mulhern, Owen, "Outsourcing Deforestation: The Local vs. the International Footprint" *Earth.org*, 3 Jun. 2021

31. Schally, Hugo-Maria, "EU Action on Deforestation : State of Play," *European Commision DG Environment*, 17 Mar. 2021

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33. Science Based Targets

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