Food and Agriculture Organization of the United Nations

FAO STATISTICS

GLOBAL FOREST PRODUCTS

FACTS AND FIGURES 2023

INDUSTRIAL ROUNDWOOD
SAWNWOOD | WOOD-BASED PANELS
FIBRE FURNISH | PAPER AND PAPERBOARD
WOOD FUEL, CHARCOAL AND PELLETS

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GLOBAL FOREST PRODUCTS FACTS AND FIGURES 2023

Forest product statistics from the Food and Agriculture Organization of the United Nations (FAO) present figures for the production and trade (quantity and value) of forest products, covering 77 product categories, 27 product groups, and over 245 countries and territories. Final statistics are released at the end of each year and can be found online in the FAOSTAT-Forestry database from December. This online database archives data from 1961. Data series back to 1947 are available through the Yearbook of Forest Products.

This publication presents highlights and recent trends in data for total trade value and for each of the main product groups. It concludes with a short summary of recent changes or improvements in FAO's work on forest product statistics.

KEY FINDINGS 2019–2023

- After reaching record levels in 2021 and 2022, global international trade in wood and paper products saw a substantial drop of 12 percent in 2023. Exports decreased by USD 64 billion to USD 482 billion. Still, this level of international trade surpassed all levels observed before 2021. The steeper decline in trade value than in traded quantities for most products indicates a drop in forest product prices.
- Global production and trade of most major wood-based products recorded a decline. In 2023, decreases in production of the main wood-based product groups ranged from 2 percent (wood pulp and recovered paper) to 4 percent (industrial roundwood and sawnwood). Only wood-based panels recorded marginal growth in production.
- Global industrial roundwood removals declined by 4 percent to 1.92 billion m^3 in 2023. Global trade decreased by 13 percent to 100 million m^3 (lowest level since 2009), of which 39 percent was imported by China. Exports from the Russian Federation ceased after introduction of a log export restriction in 2022.
- Sawnwood production in 2023 decreased in all five regions around the world. Global production of sawnwood contracted by 4 percent to 445 million m^3 (lowest since 2014), and the decline in international trade was twice as big – 8 percent – contracting to 129 million m^3 (lowest since 2014).
- Global production of wood-based panels grew by just 1 percent to 381 million m^3 (owing to increased production in the Asia-Pacific region that offset decreases in other regions); however, trade in wood-based panels followed a downward trend similar to that of other products. International trade fell by 7 percent to 84 million m^3 (lowest since 2016).

- Global production of wood pulp declined by 2 percent to reach 193 million tonnes in 2023. In contrast, trade in wood pulp increased by 3 percent to reach a record level of 71 million tonnes. Most of the increased supply of wood pulp to international markets came from Brazil, Indonesia and Uruguay in 2019–2023. Global consumption of recovered paper shrunk by 1 percent to 234 million tonnes in 2023.

- In 2023, paper production declined in Europe and Northern America, while it stagnated in Africa, Latin America and the Caribbean. It grew only in the Asia-Pacific region, largely driven by China. Global production of paper and paperboard contracted by 3 percent to 401 million tonnes owing to the continued replacement of printed media with digital products. World trade dropped by 7 percent to 104 million tonnes, the lowest since 2010.

- Production of graphic papers declined by 9 percent while production of other paper and paperboard recorded a smaller decrease of 3 percent in 2023. Production of graphic papers in 2023 (84 million tonnes) was at its lowest level since 1987.

- China, by far the largest producer and consumer of wood-based panels and paper, has grown in importance as both a producer and consumer of forest products. China is also highly important in international trade of forest products, being the world's largest importer of industrial roundwood, sawnwood and fibre furnish (pulp and recovered paper), as well as the world's largest exporter of wood-based panels. Paper and panel production and consumption continued to grow in China in contrast to the downward trend in most other countries.

- Wood pellet production has increased dramatically in the last decades, mainly owing to demand generated from bioenergy targets set by European countries, the Republic of Korea and Japan. However, growth paused for the first time in 2023, recording a drop in production of 2 percent and in trade of 5 percent. In 2023, global production of wood pellets reached 47 million tonnes, of which more than half (29 million tonnes) was traded internationally. Europe and Northern America accounted for most of the global production (51 percent and 28 percent respectively), yet the production share of the Asia-Pacific region increased from 13 percent in 2019 to 18 percent in 2023.

- Europe accounted for 70 percent and the Asia-Pacific region for another 26 percent of global wood pellet consumption in 2023. Imports of wood pellets in Asia jumped by 14 percent in 2023 (and doubled as compared to 2019). Import of wood pellets into Japan and the Republic of Korea (combined) doubled from 2019 to 2023, reaching 9.5 million tonnes and driving up wood pellet production in Viet Nam, Malaysia, Indonesia and Thailand.

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INDUSTRIAL ROUNDWOOD

Industrial roundwood is all roundwood used for any purpose other than energy. It comprises pulpwood, sawlogs and veneer logs, and other industrial roundwood (e.g. roundwood used for fence posts and telephone or electricity poles). This product group is also divided into roundwood from coniferous and non-coniferous species.

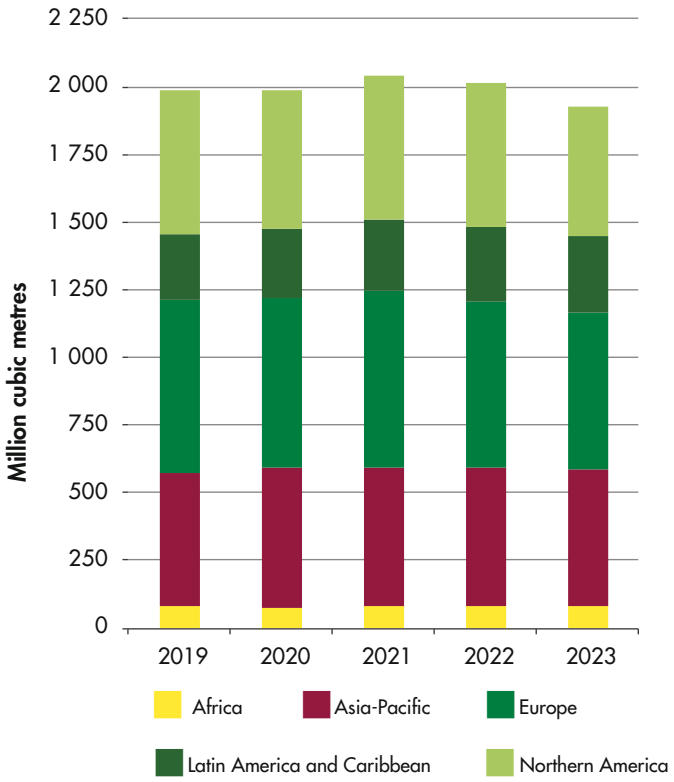
Global industrial roundwood removals amounted to 1925 million m^3 in 2023. This is a decrease of 4.3 percent compared to 2022 (2012 million m^3) and 3.1 percent compared to the level in 2019 (**FIGURE 1A**).

In 2023, removals in each region were as follows: Europe (including the Russian Federation) – 578 million m^3 (30 percent); Asia-Pacific – 507 million m^3 (26 percent); Northern America (United States of America and Canada) – 476 million m^3 (25 percent); Latin America and the Caribbean – 285 million m^3 (15 percent); and Africa – 79 million m^3 (4 percent).

Removals increased in Latin America and the Caribbean (17 percent from 2019 to 2023), the Asia-Pacific region and Africa (both by 2 percent), while in both Europe and Northern America removals decreased by 10 percent over the same period.

In 2023, global trade in industrial roundwood amounted to 100 million m^3 (equal to about 5 percent of production). Trends in total trade and net trade over the observed period showed stability in 2019–2021 followed by a decrease of 17 percent in 2022, and a further 13 percent increase in 2023 (**FIGURE 1B**). At a regional level, the Asia-Pacific region was a net importer of industrial roundwood, and all other regions were net exporters. In 2023, net imports of 21 million m^3 accounted for about 4 percent of consumption in the Asia-Pacific region (it halved from 8 percent in 2019). Northern America and Latin America and the Caribbean were the main net exporters of industrial

FIGURE 1A
INDUSTRIAL ROUNDWOOD REMOVALS



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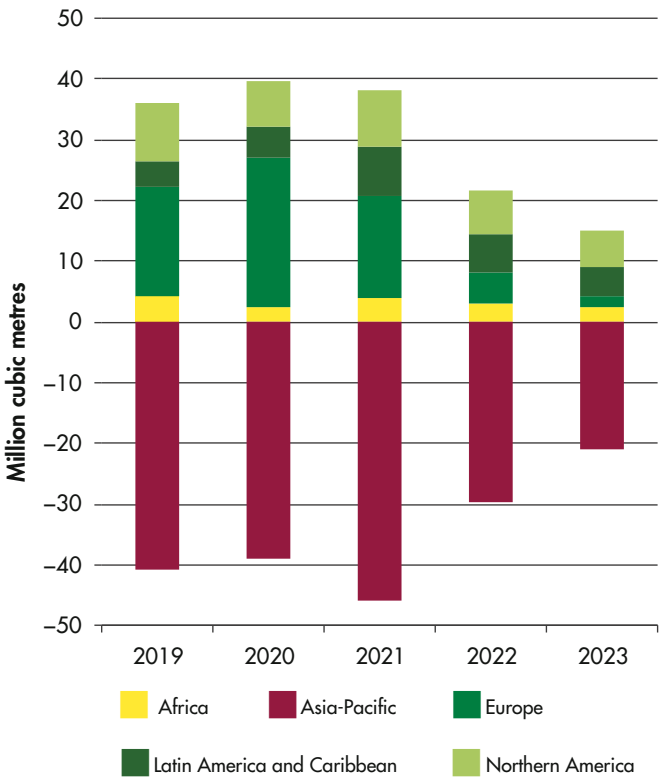
https://doi.org/10.4060/cd3650en-fig1A

FIGURE 1B
INDUSTRIAL ROUNDWOOD NET TRADE



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roundwood, with net exports in 2023 of 6 million m³ and 5 million m³ respectively. Europe's net exports declined from 18 million m³ in 2019 to just 2 million m³ in 2023.

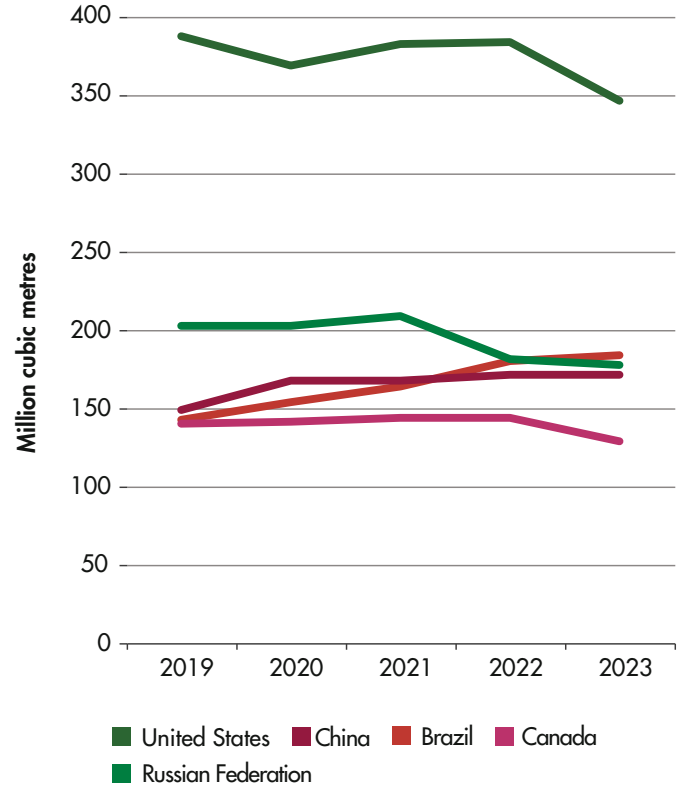
At the country level, the five largest producers of industrial roundwood are the United States, Brazil, the Russian Federation, China and Canada (**FIGURE 2A**). Together, these countries produced 1010 million m³ in 2023, or 52 percent of total global removals. The United States is by far the largest producer in the world (346 million m³ in 2023); removals decreased by 10 percent in 2023. Removals in Brazil increased by 2 percent, in China – unchanged, while the Russian Federation and Canada had 2 percent and 10 percent declines in 2023. Brazil overtook the Russian Federation and China to become the second largest producer of industrial roundwood in 2023.

Compared with other forest products, exports of industrial roundwood are relatively small and only 20 to 25 countries export more than 1 million m³ each year. Combined, the five largest exporters accounted for 45 million m³, or 46 percent of all exports in 2023 (**FIGURE 2B**). New Zealand remained by far the largest exporter of industrial roundwood in 2023 (5 percent increase from 2022). Other major exporters are Germany, the United States, Czechia and Norway. Exports from all these four countries decreased in 2023. The Russian Federation, which was the second biggest exporter until 2021, dropped from the top exporter list after introducing log export restrictions in 2022.

Owing to the relatively small volumes of international trade in industrial roundwood, the five largest producers are also the five largest consumers. The United States is by far the largest consumer (341 million m³ in 2023), where consumption decreased by 10 percent. China is the second largest consumer (210 million m³ in 2023), with a 3 percent decrease in 2023. Brazil became third largest at 183 million m³ (**FIGURE 3A**), followed by the Russian Federation and Canada. Since 2019, consumption has grown by 29 percent in Brazil, remained flat in China and decreased in the other three major consumer countries.

China's imports reached 38 million m³ in 2023, about 18 percent of consumption (**FIGURE 3B**). A large share of these imports come from New Zealand. After China, other major importers of industrial roundwood are Austria, Sweden, Germany and India. There were no major changes in the ranking of the top five importers from 2019 to 2023.

FIGURE 2A
INDUSTRIAL ROUNDWOOD REMOVALS



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https://doi.org/10.4060/cd3650en-fig2A

FIGURE 2B
INDUSTRIAL ROUNDWOOD EXPORTS

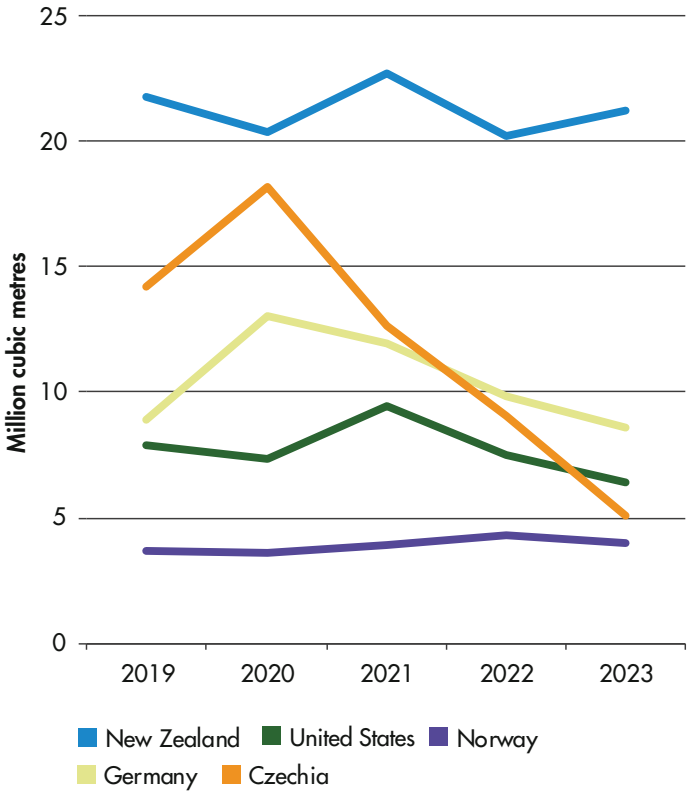

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FIGURE 3A
INDUSTRIAL ROUNDWOOD CONSUMPTION

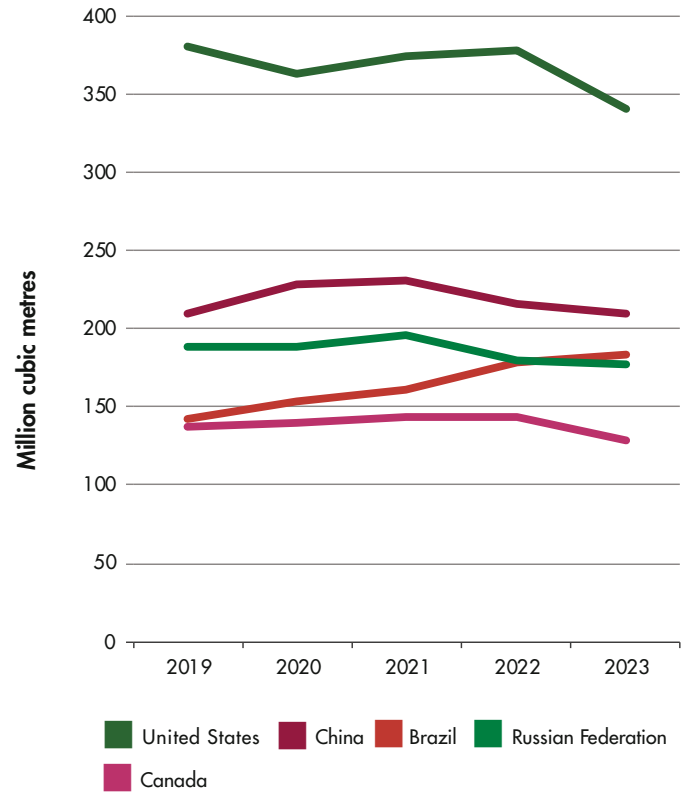

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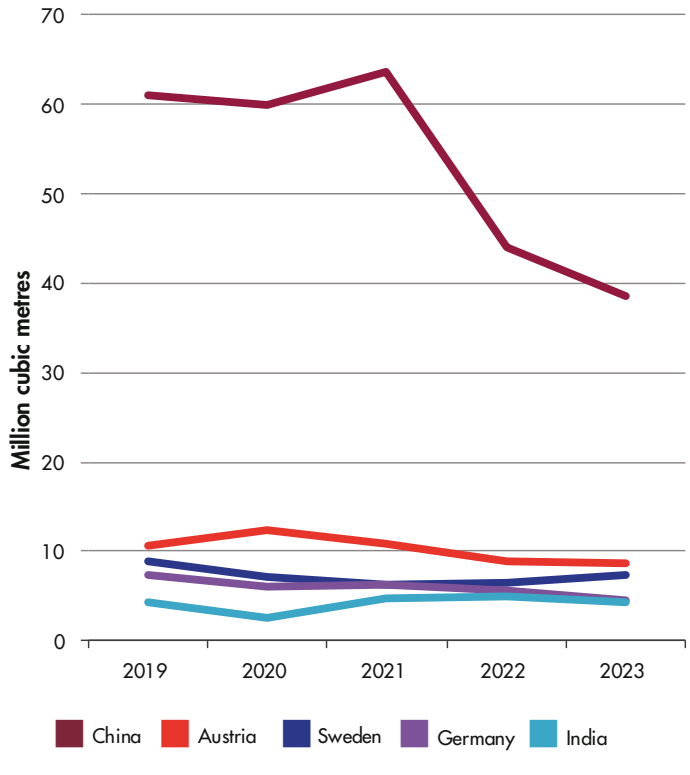
FIGURE 3B
INDUSTRIAL ROUNDWOOD IMPORTS



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SAWNWOOD

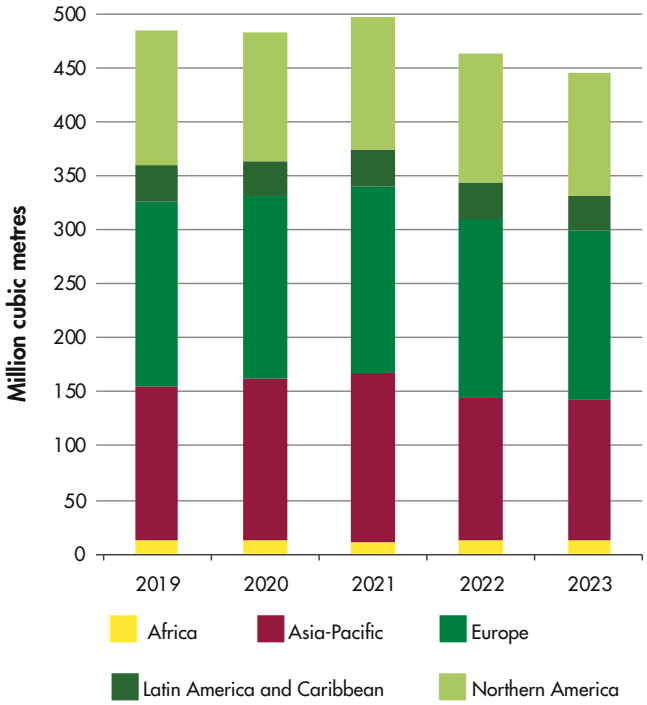
Sawnwood encompasses planks, sleepers (cross-ties), beams, joists, boards, rafters, scantlings, laths, boxboards, "lumber", and a range of other manufactured timber products. FAO statistics subdivide this category into coniferous and non- coniferous sawnwood.

In 2023, global sawnwood production totalled 445 million m^3, which was 3.9 percent lower than in 2022 (463 million m^3) and 8 percent lower than in 2019 (484 million m^3). **FIGURE 4A** shows that sawnwood production, after reaching record levels in 2021, decreased in the following two years. This trend is largely due to decreasing production in all regions except Africa, where production remained modest. The latest regional production figures for 2023 are as follows: Europe – 156 million m^3 (35 percent); Asia-Pacific – 130 million m^3 (29 percent); Northern America – 113 million m^3 (25 percent); Latin America and the Caribbean – 33 million m^3 (8 percent); and Africa – 12 million m^3 (3 percent).

Global trade in sawnwood amounted to 127 million m^3 (equal to 29 percent of production) in 2023 and, like production, has steadily decreased since 2019. Most of this reduction in trade occurred in Northern America, the Asia-Pacific region and Europe. Net trade between the five regions decreased consistently during the observed period (**FIGURE 4B**).

The two main importing regions for sawnwood are Africa and the Asia-Pacific, with net imports of 3 million m^3 and 43 million m^3 respectively in 2023. Europe is the main exporting region, with net exports of 43 million m^3, while Latin America and the Caribbean and Northern America are minor net exporters, totalling 3 million m^3 and 2 million m^3 respectively in 2023.

FIGURE 4A
SAWNWOOD PRODUCTION



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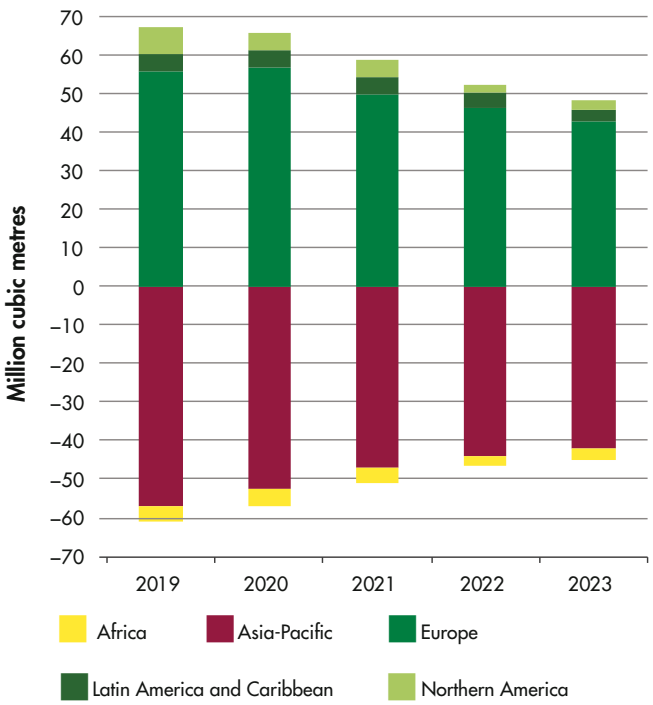
https://doi.org/10.4060/cd3650en-fig4A

FIGURE 4B
SAWNWOOD NET TRADE



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At the country level, the five largest producers of sawnwood are the United States, China, the Russian Federation, Canada and India (**FIGURE 5A**). Together, these five countries produced just over half (52 percent, or 231 million m^3) of the world's sawnwood in 2023. The United States is the largest producer; production declined by 5 percent since 2019, reaching 78 million m^3 in 2023. In China production steeply dropped by 28 percent in 2022, from 80 million m^3 in 2021 to 57 million m^3 in 2022. Production in China, the Russian Federation and Canada declined by 16 percent from 2019 to 2023. Production in India remained flat.

Two of the largest sawnwood producers are also the major exporters (Canada and the Russian Federation); the other three main exporters are Sweden, Germany and Finland (**FIGURE 5B**). Together, these five countries exported 78 million m^3 (76 percent of total exports) in 2023. Exports from the Russian Federation decreased by 41 percent from 2019, and in 2022 it became the second largest exporter behind Canada. Canada's exports declined by 17 percent since 2019. Exports from Germany, Sweden and Finland remained relatively stable over the period.

As well as being the largest producers, China and the United States were also the two main consumers of sawnwood in 2023, consuming 97 million m^3 and 85 million m^3 respectively (**FIGURE 6A**). China's consumption declined by 20 percent, and the United States by 4 percent over the five-year period. The other three main consumers of sawnwood in the world are India, the Russian Federation and Germany.

In 2023, China and the United States imported 28 million m^3 and 25 million m^3 respectively (**FIGURE 6B**). Other major sawnwood importers were the United Kingdom of Great Britain and Northern Ireland, Italy and Japan. Together, these five countries imported 68 million m^3 of sawnwood (equal to 54 percent of all imports) in 2023, and in all these countries, imports accounted for a significant share of sawnwood consumption (91 percent in Italy, 70 percent in the United Kingdom, 29 percent in both China and the United States, and 30 percent in Japan).

FIGURE 5A
SAWNWOOD PRODUCTION

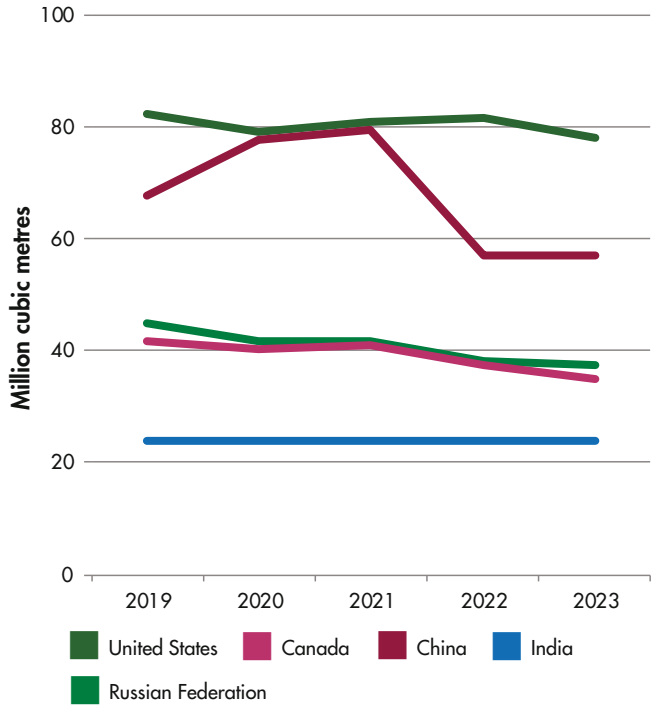

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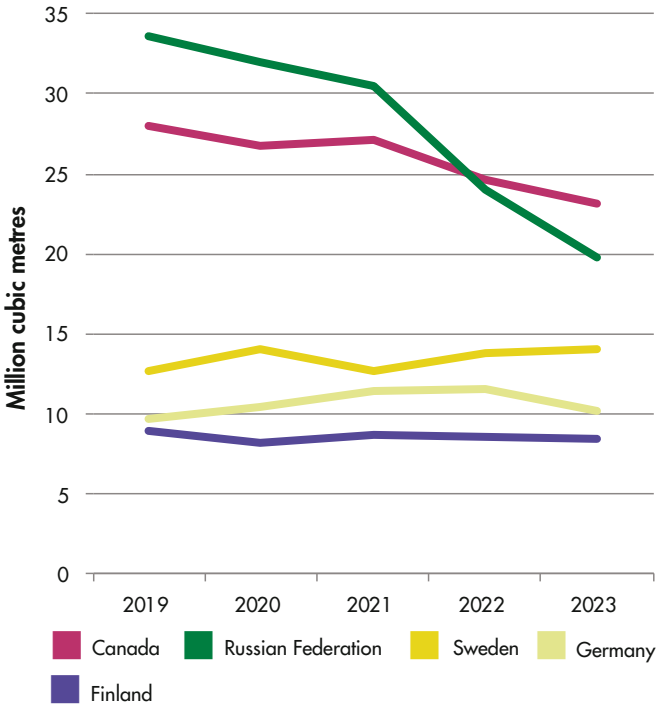
FIGURE 5B
SAWNWOOD EXPORTS



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https://doi.org/10.4060/cd3650en-fig5B

FIGURE 6A
SAWNWOOD CONSUMPTION

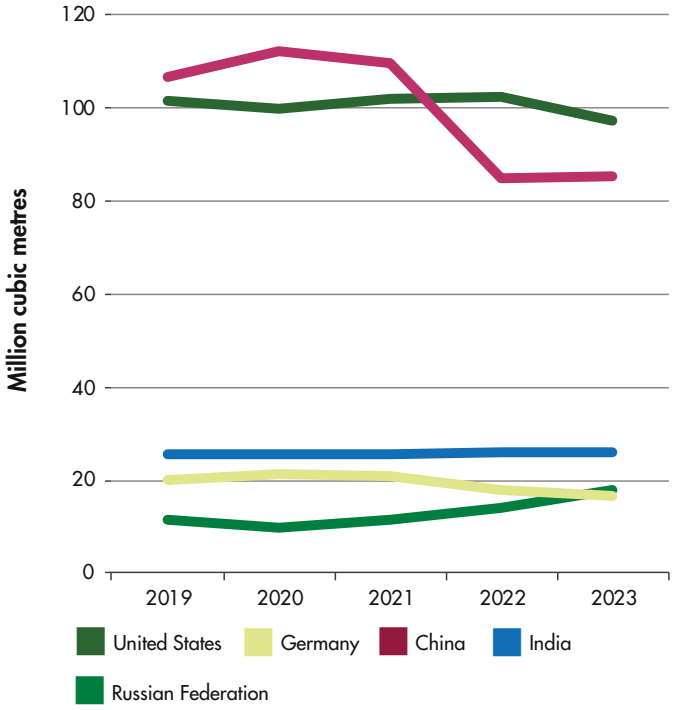

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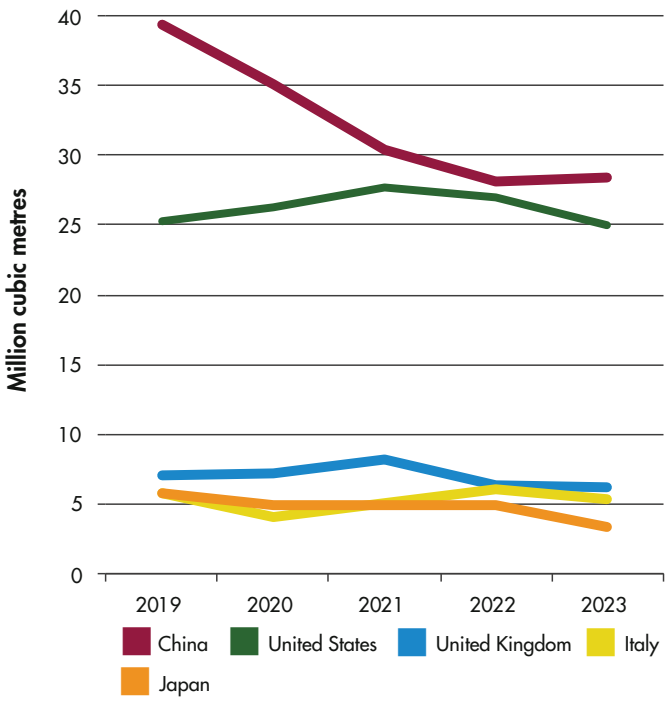
FIGURE 6B
SAWNWOOD IMPORTS



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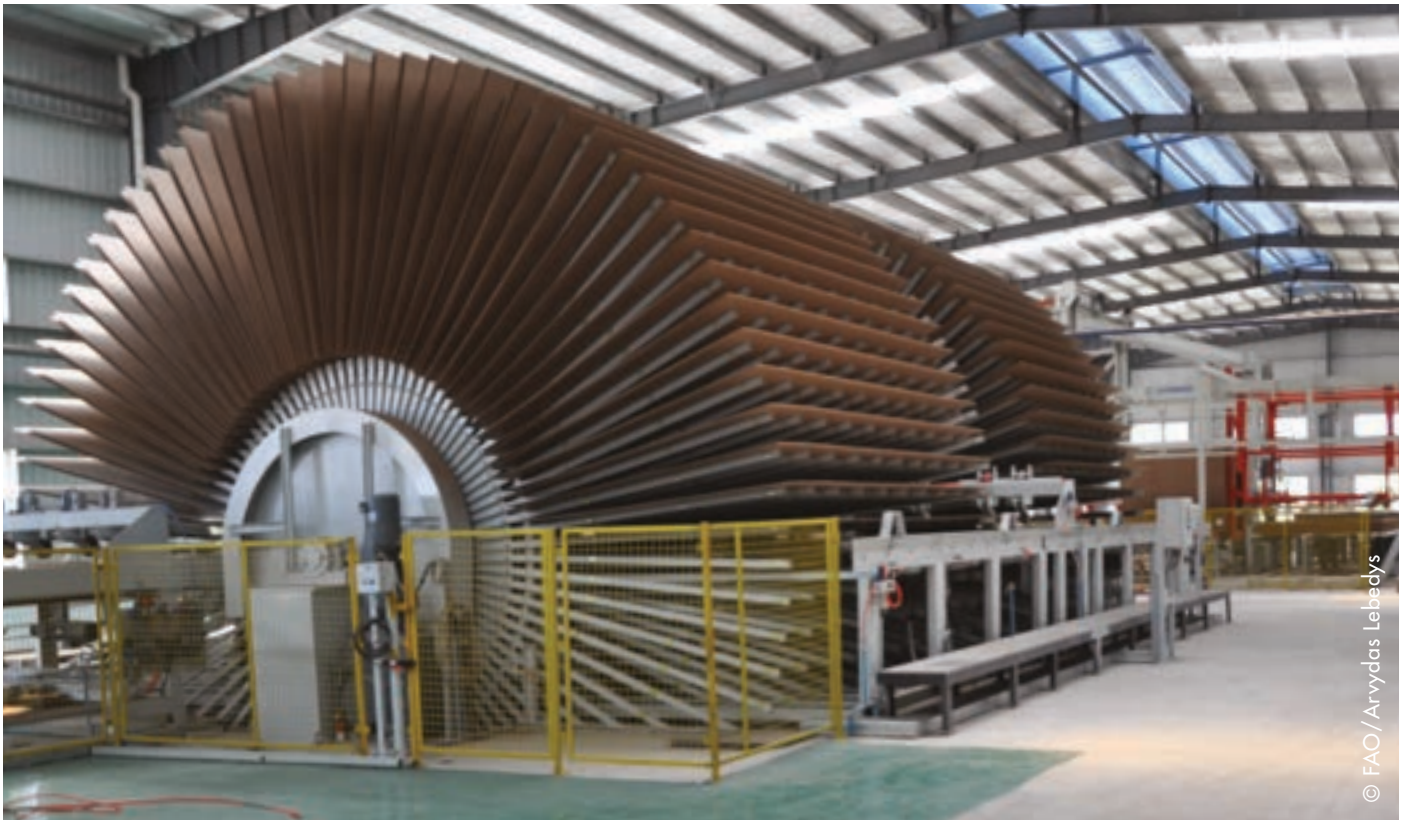

WOOD-BASED PANELS

The wood-based panels product category consists of plywood (including blockboard and laminated veneer lumber), particle board, oriented strand board (OSB) and fibreboard. Fibreboard is further subdivided in FAO's statistics into hardboard, medium/high density fibreboard (MDF/HDF) and other fibreboard, based on the density and manufacturing process of these panels.

In 2023, global wood-based panel production reached 381 million m^3, a 1 percent increase over the previous year (376 million m^3) and a 4 percent increase over the observed period (**FIGURE 7A**). Wood-based panels was the product category that saw fast growth in production, owing to rapid and consistent growth in the Asia-Pacific region until 2019. In later years, global production has stabilized.

The Asia-Pacific region accounted for 60 percent of global production in 2023 (230 million m^3), followed by Europe (86 million m^3, or 23 percent), Northern America (43 million m^3, or 11 percent), Latin America and the Caribbean (20 million m^3, or 5 percent) and Africa (4 million m^3 or 1 percent). Production in the Asia-Pacific region increased by 5 percent, remained unchanged in Africa, and declined by 2 to 6 percent in the other three regions.

Global trade in wood-based panels has increased gradually from 2019 to 2021 and decreased in the following two years. In 2023, it dropped by 7 percent to 84 million m^3, equal to 22 percent of total production. Two regions – Europe and the Asia-Pacific – dominated international trade in wood-based panels, and together accounted for 70 percent of all imports and 81 percent of exports in 2023. In the Asia-Pacific region, exports increased by 20 percent, but imports decreased by 5 percent over the five-year period. Europe saw a decrease of 19 percent in exports and 16 percent from 2019 to 2023. In Northern America, wood-based panel

FIGURE 7A
WOOD-BASED PANEL PRODUCTION

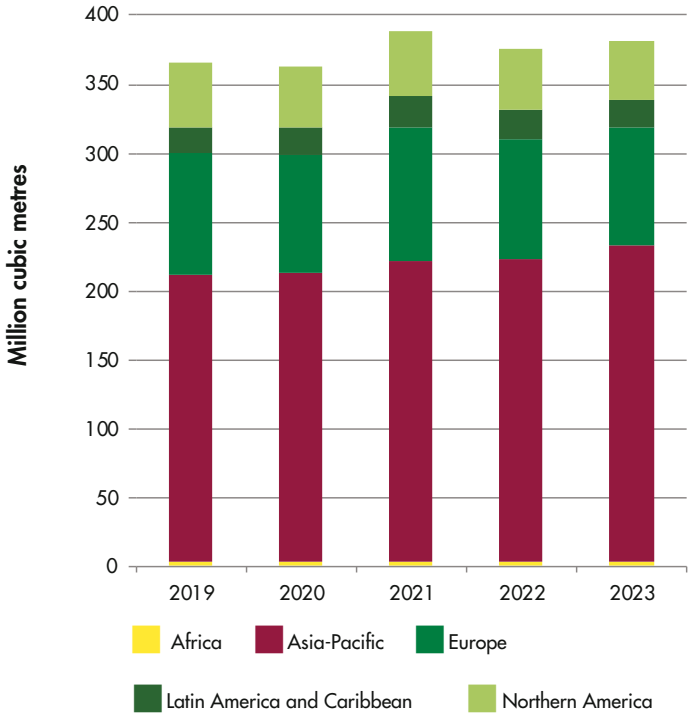

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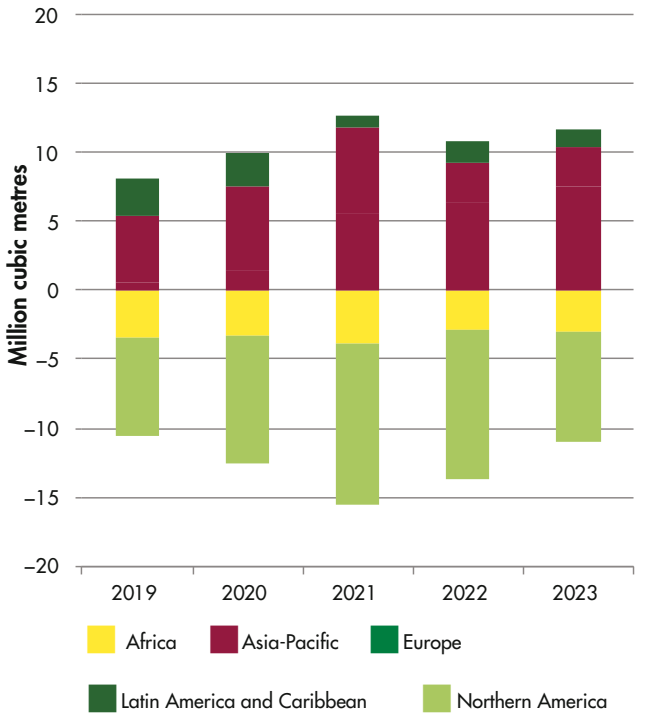
FIGURE 7B
WOOD-BASED PANEL NET TRADE



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imports remained stable, but exports decreased by 7 percent from 2019 to 2023. Latin America and the Caribbean saw an increase of 10 percent in imports, but exports declined by 13 percent over the same period.

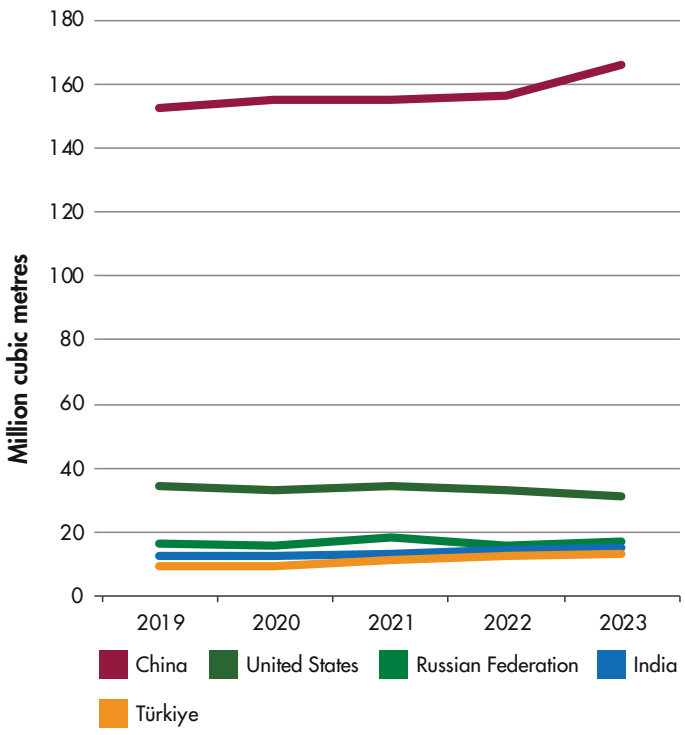
Northern America was the main net importer of wood-based panels in 2023 (8 million m^3), followed by Africa (3 million m^3). The Asia-Pacific region meanwhile exported 8 million m^3 of the products to the rest of the world as the largest net exporter (**FIGURE 7B**). Net exports from Europe and Latin America were 4 million m^3 combined.

The five largest producers of wood-based panels (China, the United States, the Russian Federation, India and Türkiye) accounted for 64 percent (242 million m^3) of global production in 2023 (**FIGURE 8A**). China alone accounted for 43 percent of global production in 2023. After somewhat stable production until 2022, production in China increased in 2023 due to increased particle board and OSB production. The most notable trend was the 36 percent increase in production in Türkiye, from 10 million m^3 in 2019 to 13 million m^3 in 2023. In 2023, Türkiye surpassed Brazil to become the fifth-largest producer. India also increased production over the period (by 25 percent to 15 million m^3 in 2023). In contrast, production in the United States declined by 9 percent, and the Russian Federation remained quite stable over the period.

The five largest exporters (China, Canada, Thailand, Germany and Indonesia) exported a combined 38 million m^3 in 2023 (equal to 45 percent of global exports) (**FIGURE 8B**). China's exports increased from 11 million m^3 to 14 million m^3 over the five years. In Thailand exports grew by 25 percent from 2019. Canada and Germany saw 7 percent and 12 percent decreases respectively over the period 2019–2023. In 2022, Indonesia overtook Brazil and the Russian Federation, leaving them behind as the sixth largest and seventh largest exporters of wood-based panels, respectively.

The five top consumers of wood-based panels are the same as the five largest producers, suggesting that the products are mostly consumed domestically. The trends in consumption are similar to those in production (**FIGURE 9A**). Türkiye became the fifth-largest consumer by overtaking Germany and Poland in 2023 – its consumption increased from 8 million m^3 in 2019 to 10 million m^3 in 2023.

FIGURE 8A
WOOD-BASED PANEL PRODUCTION



Source: FAO. 2024. FAOSTAT: Forestry production and trade. [Accessed on 10 December 2024]. https://www.fao.org/faostat/en/#data/FO. Licence: CC-BY-4.0.

https://doi.org/10.4060/cd3650en-fig8A

FIGURE 8B
WOOD-BASED PANEL EXPORTS

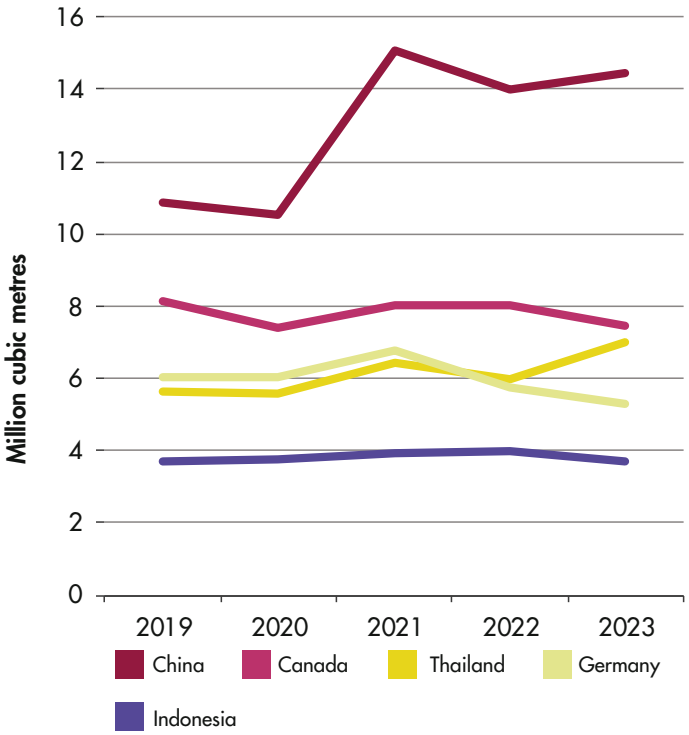


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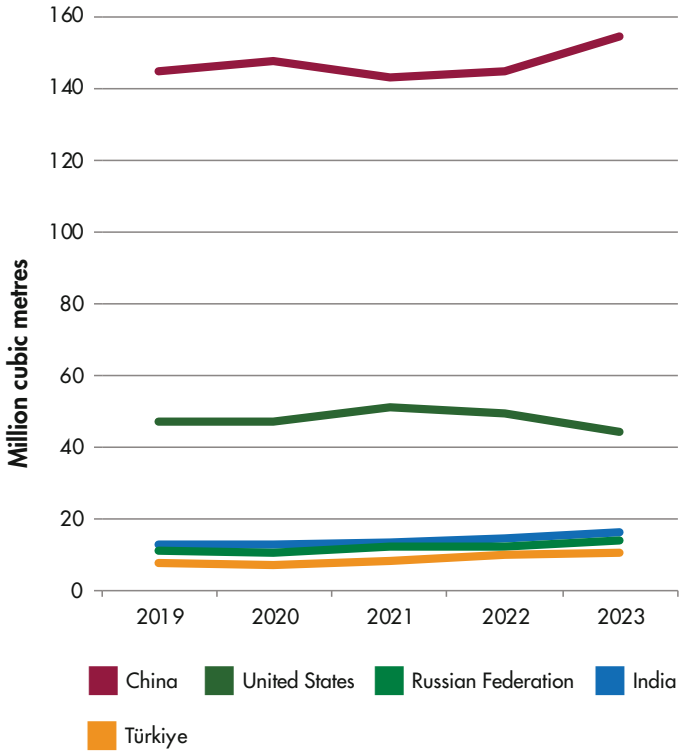
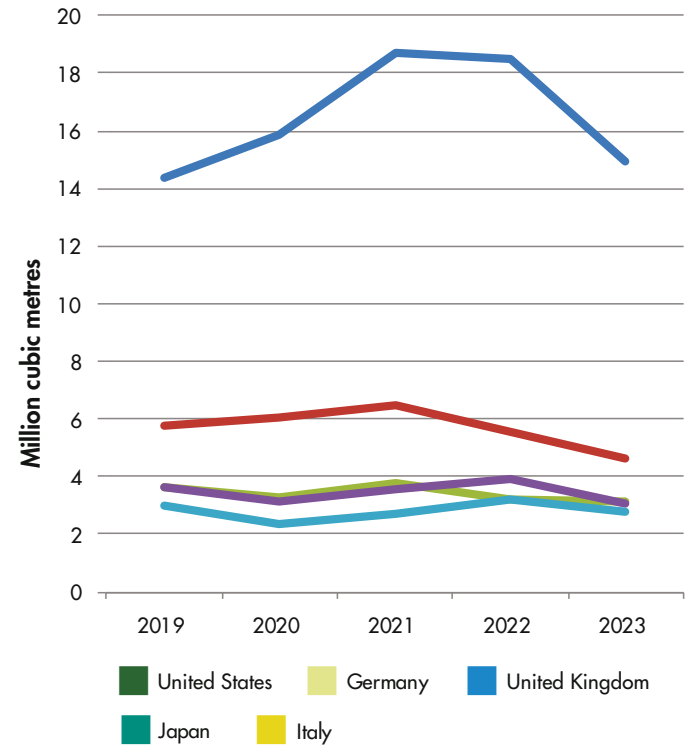
FIGURE 9A
WOOD-BASED PANEL CONSUMPTION



Source: FAO. 2024. FAOSTAT: Forestry production and trade. [Accessed on 10 December 2024]. https://www.fao.org/faostat/en/#data/FO. Licence: CC-BY-4.0.

https://doi.org/10.4060/cd3650en-fig9A

FIGURE 9B
WOOD-BASED PANEL IMPORTS



Source: FAO. 2024. FAOSTAT: Forestry production and trade. [Accessed on 10 December 2024]. https://www.fao.org/faostat/en/#data/FO. Licence: CC-BY-4.0.

https://doi.org/10.4060/cd3650en-fig9B

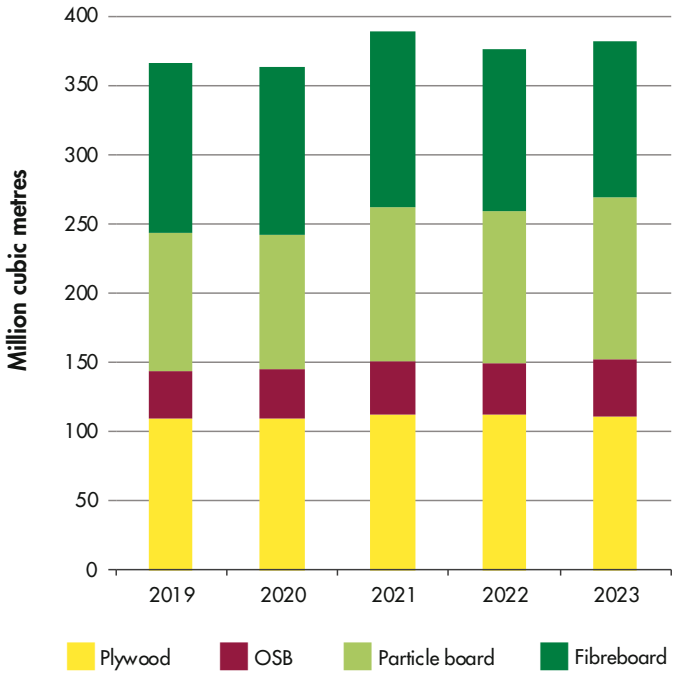
The United States was the top importer in 2023 (with imports equal to 34 percent of consumption), followed by Germany, the United Kingdom, Japan and Italy (FIGURE 9B). Together, these five countries imported 29 million m³ (or 34 percent of all global imports) in 2023. Imports have decreased in all of these countries since 2019, except the United States. However, the United States saw a steep decline of 19 percent from 2022 to 2023. In 2023, Italy became fifth-biggest importer, surpassing the Republic of Korea and Canada.

Figures 10a and 10b show recent trends in global production of wood-based panels by product category. Plywood, particle board and fibreboard each account for about 30 percent, followed by OSB. Over the five-year period, the share of plywood and fibreboard reduced from 63 percent to 58 percent while the share of particle board and OSB increased by five percentage points to 42 percent.

There are regional differences in the composition of various wood-based panel products. Reconstituted panels (OSB, particle board and fibreboard) dominate other product categories in Northern America and Europe while plywood (including blockboard) is the major wood-based panel product in the Asia-Pacific region (mainly in China). In Latin America and the Caribbean, each major wood-based panel product accounts for about an equal share of total production.

Among panels, OSB and particle board had the fastest growth in production, increasing by 19 percent and 16 percent respectively over the period from 2019 to 2023. Global production of fibreboard reached its peak in 2021 (126 million m³) and declined by 10 percent to 113 million m³ in 2023 (FIGURE 10B), the lowest level since 2013. Production of MDF/HDF, which accounted for 87 percent of all fibreboard production in 2023, decreased by 9 percent over 2019–2023. Other types of fibreboard remained quite stable over the period.

FIGURE 10A
WOOD-BASED PANEL PRODUCTION



Source: FAO. 2024. FAOSTAT: Forestry production and trade. [Accessed on 10 December 2024]. https://www.fao.org/faostat/en/#data/FO. Licence: CC-BY-4.0.
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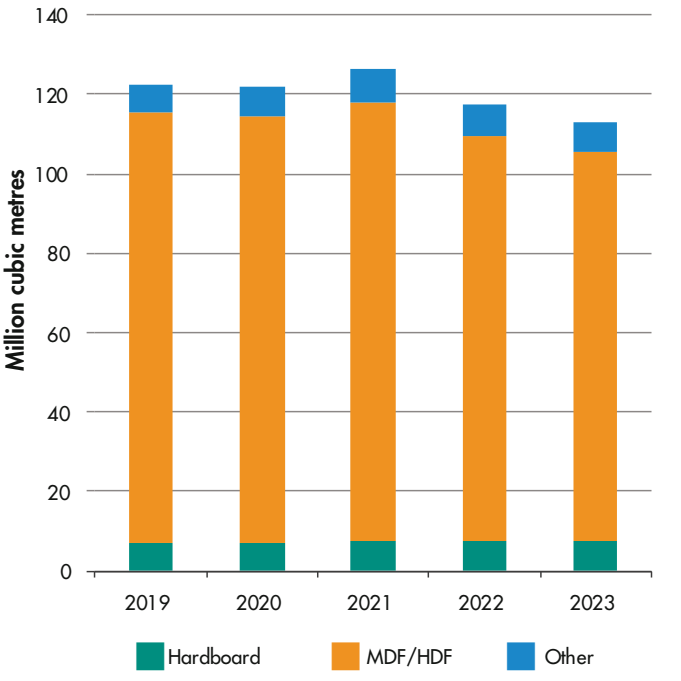
FIGURE 10B
FIBREBOARD PRODUCTION



Source: FAO. 2024. FAOSTAT: Forestry production and trade. [Accessed on 10 December 2024]. https://www.fao.org/faostat/en/#data/FO. Licence: CC-BY-4.0.
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FIBRE FURNISH

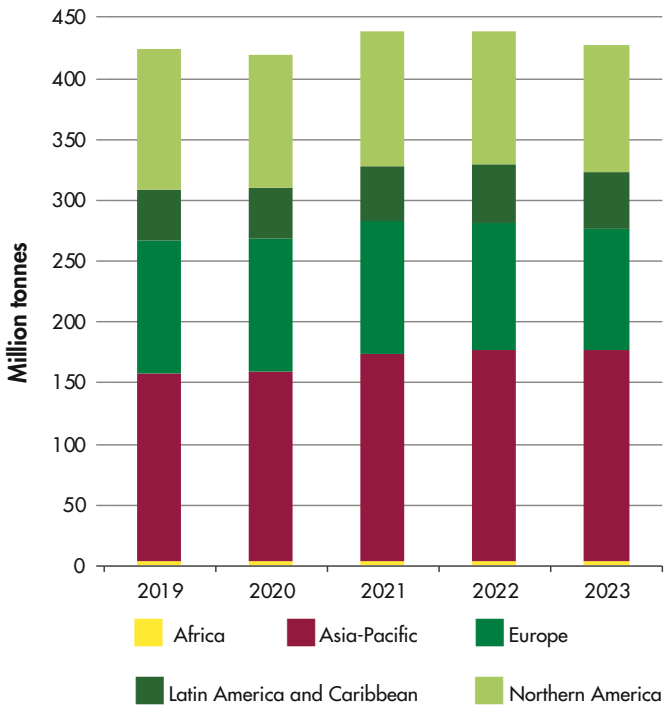
In FAO's forest product statistics, the fibre used to manufacture paper and paperboard is referred to as "fibre furnish". This includes recovered paper (wastepaper), other fibre pulp and the wood pulp used to make paper. The latter includes mechanical, semi-chemical and chemical wood pulp, but not dissolving pulp (which is used for other purposes). Chemical wood pulp is further subdivided in statistics into bleached or unbleached and sulphite or sulphate wood pulp, and various combinations of these different products are presented as product groups in FAOSTAT.

Global production of fibre furnish in 2023 amounted to 427 million tonnes (**FIGURE 11A**), a 2 percent decrease from the previous year. It was above the level of 2019 by 1 percent (424 million tonnes).

The regional distribution of production in 2023 was as follows: Asia-Pacific – 174 million tonnes (41 percent); Northern America – 104 million tonnes (24 percent); Europe – 99 million tonnes (23 percent); Latin America and the Caribbean – 46 million tonnes (11 percent); and Africa – 4 million tonnes (1 percent). Production in both Europe and Northern America decreased by 10 percent over the period from 2019 to 2023 due to continuous reductions in wood pulp mill production capacities and the declining rate of recovered paper collection in these regions. Production in Africa remained roughly the same over the period. In contrast, production in the Asia-Pacific region and Latin America and the Caribbean has grown consistently over the period. Production in these two regions combined grew by 13 percent from 2019 to 2023 as new pulp mills came into operation in both regions as well as an increase in collection of recovered paper in Asia in recent years.

About one-quarter of fibre furnish production was traded in international markets in 2023, and annual trade remained stable over the period (around 110 million tonnes). Net trade slightly expanded over the period (**FIGURE 11B**). The Asia-Pacific region and Africa are net importing regions, and net imports of fibre furnish increased by 6 percent over the period, from 52 million tonnes in 2019 to 55 million tonnes in 2023. Net imports have also increased

FIGURE 11A
FIBRE FURNISH PRODUCTION



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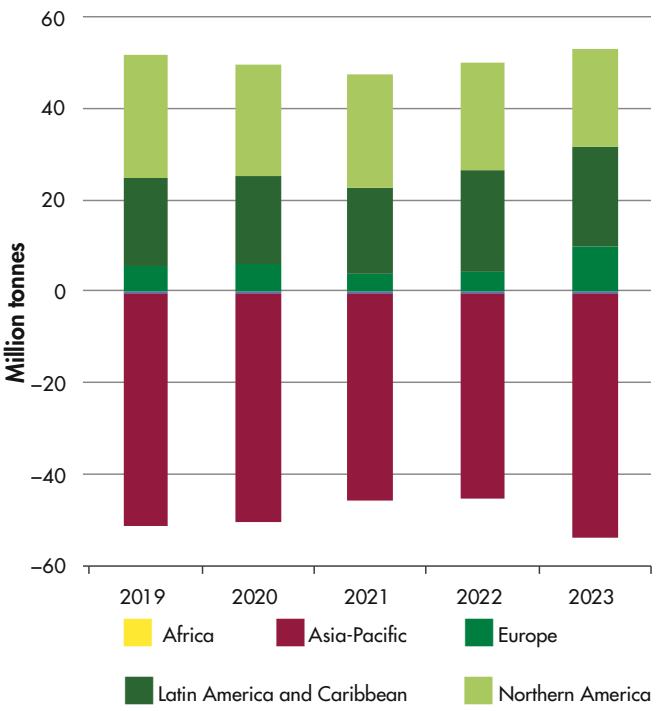
https://doi.org/10.4060/cd3650en-fig11A

FIGURE 11B
FIBRE FURNISH NET TRADE



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https://doi.org/10.4060/cd3650en-fig11B

at about the same rate as consumption in the Asia-Pacific region and accounted for 23 percent of consumption in 2023. For the first time, Latin America and the Caribbean became the main net exporter totalling 22 million tonnes in 2023, followed by Northern America at 21 million tonnes and Europe at 10 million tonnes. Net exports increased by 16 percent over the period (from 19 million tonnes to 22 million tonnes in 2019–2023) in Latin America and the Caribbean.

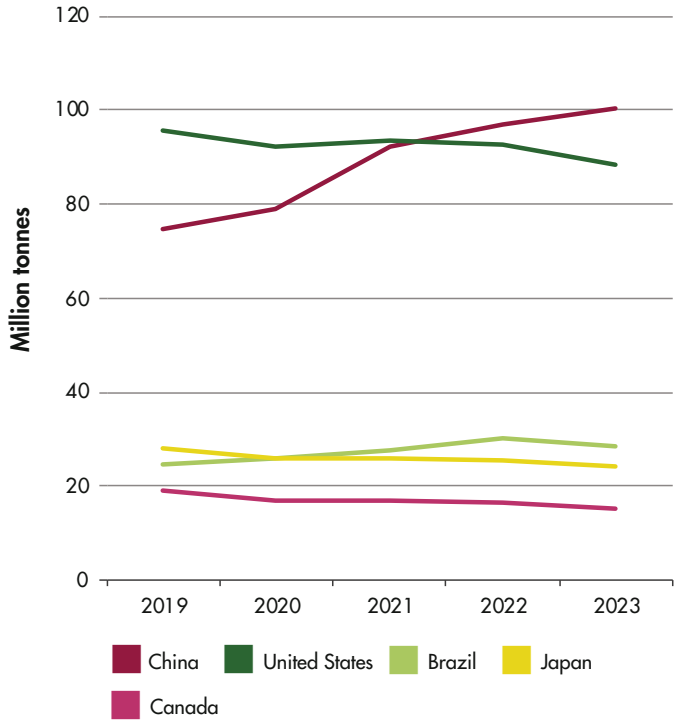
The main producers of fibre furnish are China, the United States, Brazil, Japan and Canada (**FIGURE 12A**). Together, these countries produced 257 million tonnes of fibre furnish in 2023 (60 percent of the global total). As **FIGURE 12A** shows, production declined over the period in the United States, Japan and Canada. This was because of stagnating or declining paper production and consumption in these countries, which is now a common trend in many countries due to an increasing use of electronic media. Fibre furnish production (and exports) has been consistently increasing in China and Brazil, which became the first and third largest producers by increasing production by 33 percent and 16 percent respectively from 2019 to 2023.

Three of the main producers of fibre furnish are also the main exporters (the United States, Canada and Brazil), with Indonesia in fourth and Finland in fifth place (**FIGURE 12B**). These five countries exported 57 million tonnes (51 percent of the global total) in 2023. Exports increased by 22 percent over the observed period in Brazil, by 18 percent in Indonesia, remained roughly the same in Finland and declined in the United States and Canada. For Brazil and Indonesia, these trends are driven by each country's competitiveness in wood pulp manufacturing. However, because a large part of fibre furnish consists of recovered paper (55 percent), the need to dispose of recovered paper can also be an important driver of growth in places like the United States.

The five main consumers of fibre furnish are China, the United States, Japan, Germany and India, which altogether consumed 267 million tonnes (63 percent of the global total) of fibre furnish in 2023 (**FIGURE 13A**). Consumption in China increased by 7 percent in 2023 (from 121 to 130 million tonnes). At the same time, consumption in India grew from 17 million tonnes in 2019 to 19 million tonnes in 2023. Consumption in the United States, Japan and Germany slightly declined from 2019 to 2023.

Four of the largest consumers of fibre furnish are also the largest importers (China, Germany, India and the

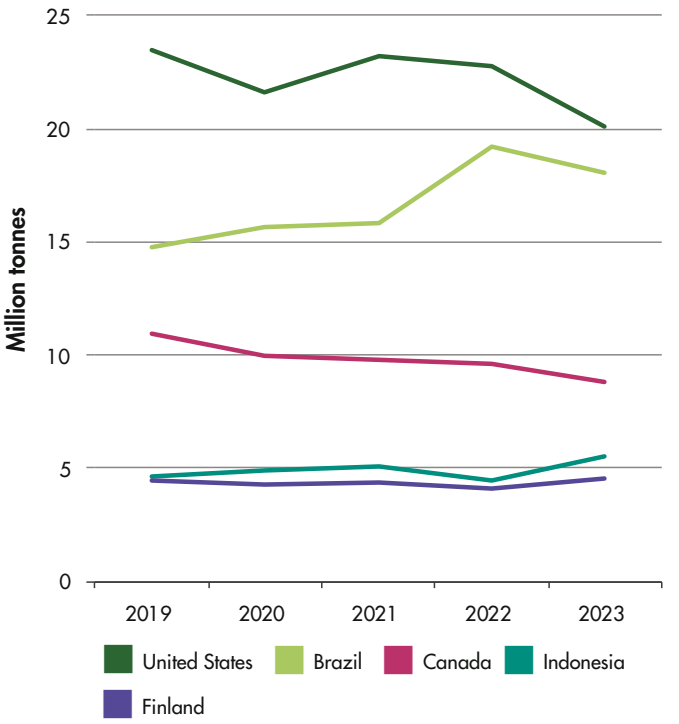
FIGURE 12A
FIBRE FURNISH PRODUCTION



Source: FAO. 2024. FAOSTAT: Forestry production and trade. [Accessed on 10 December 2024]. https://www.fao.org/faostat/en/#data/FO. Licence: CC-BY-4.0.

https://doi.org/10.4060/cd3650en-fig12A

FIGURE 12B
FIBRE FURNISH EXPORTS



Source: FAO. 2024. FAOSTAT: Forestry production and trade. [Accessed on 10 December 2024]. https://www.fao.org/faostat/en/#data/FO. Licence: CC-BY-4.0.

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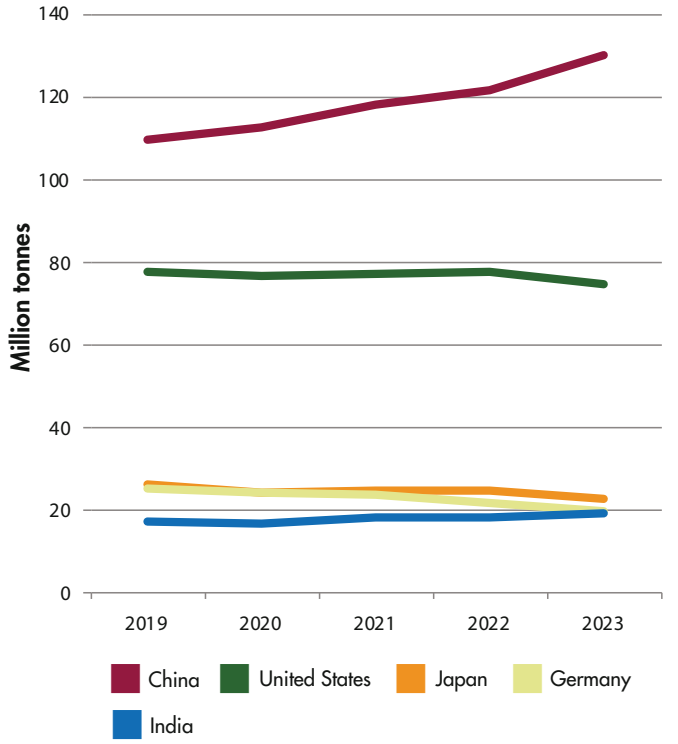
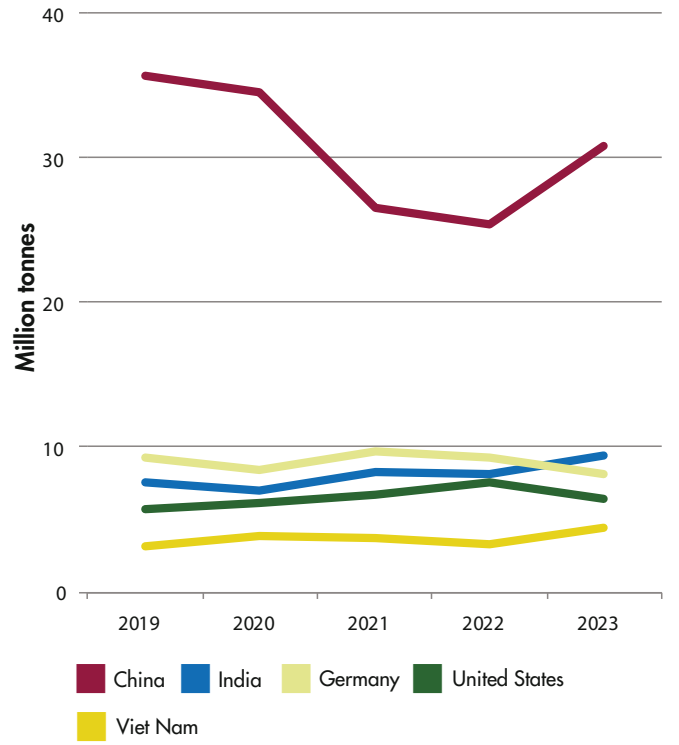
FIGURE 13A
FIBRE FURNISH PRODUCTION



Source: FAO. 2024. FAOSTAT: Forestry production and trade. [Accessed on 10 December 2024]. https://www.fao.org/faostat/en/#data/FO. Licence: CC-BY-4.0.

https://doi.org/10.4060/cd3650en-fig13A

FIGURE 13B
FIBRE FURNISH EXPORTS



Source: FAO. 2024. FAOSTAT: Forestry production and trade. [Accessed on 10 December 2024]. https://www.fao.org/faostat/en/#data/FO. Licence: CC-BY-4.0.

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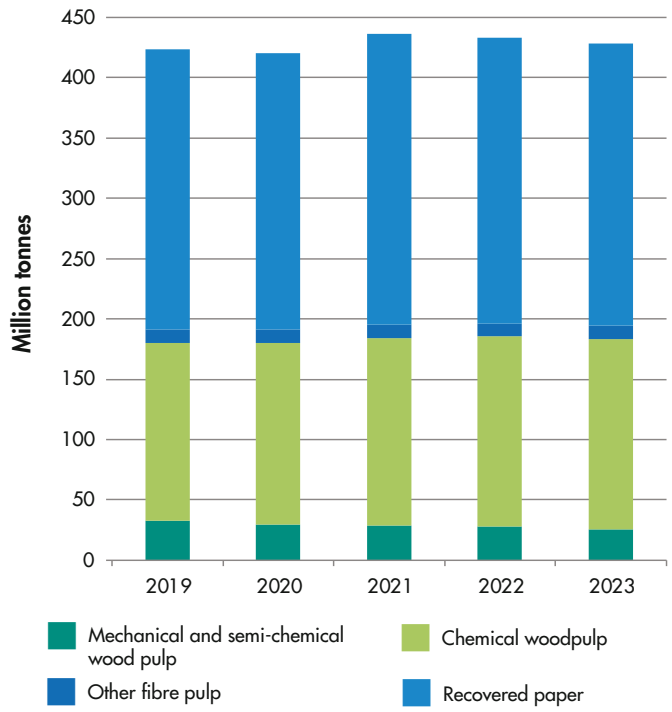
FIGURE 14A
FIBRE FURNISH CONSUMPTION



Source: FAO. 2024. FAOSTAT: Forestry production and trade. [Accessed on 10 December 2024]. https://www.fao.org/faostat/en/#data/FO. Licence: CC-BY-4.0.

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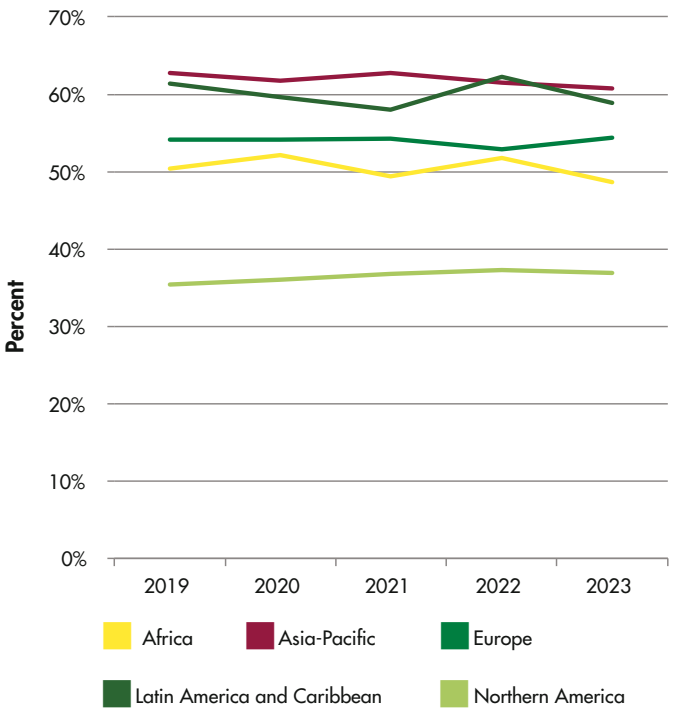
FIGURE 14B
RECOVERED PAPER UTILIZATION



Source: FAO. 2024. FAOSTAT: Forestry production and trade. [Accessed on 10 December 2024]. https://www.fao.org/faostat/en/#data/FO. Licence: CC-BY-4.0.

https://doi.org/cd10.4060/3650en-fig14B

United States); Viet Nam is another top importer (**FIGURE 13B**). Imports to these five countries amounted to 59 million tonnes (53 percent of the global total) in 2023. Comparing the two figures, it becomes evident that consumption in several of these countries is highly dependent on imports, which account for 24 percent to 49 percent of consumption in China, Germany and India. Over the observed period, imports grew in India (25 percent), the United States (13 percent) and Viet Nam (42 percent), while in China it declined by 14 percent and in Germany by 12 percent.

FIGURE 14A shows the trends in the composition of fibre furnish consumption between the main products included in this product group. It shows that recovered paper and chemical wood pulp are the two main products used to manufacture paper, accounting for 54 percent and 37 percent of all fibre furnish consumption respectively in 2023. Mechanical and semi-chemical wood pulp is the next most important (6 percent), followed by other fibre pulp (3 percent).

The trends in consumption also show that recovered paper accounts for more than half of all fibre used to make paper. In 2023, recovered paper consumption amounted to 234 million tonnes (54 percent of the total), compared to 232 million tonnes (54 percent of the total) in 2019. Consumption of chemical pulp has increased in absolute terms and that of other fibre pulp has remained stable. In contrast, consumption of mechanical and semi-chemical wood pulp declined from 33 million tonnes (8 percent of total) in 2019 to 25 million tonnes in 2023.

FIGURE 14B shows the share of recovered paper in the consumption of total fibre furnish (the utilization rate) in each of the main regions. Differences in the levels of utilization and trends reflect the geographical and socioeconomic situations in each region, as well as other factors such as recycling and waste disposal policies and availability of pulpwood. For example, the Asia-Pacific region has a high utilization rate (partly met by a large amount of recovered paper imports) owing to the high demand and intense competition for wood fibre there. Conversely, in Northern America, where the availability of wood fibre is relatively high, recovered paper utilization is much lower (and a lot of recovered paper is actually exported to the Asia-Pacific region). Europe lies somewhere in between, with both a relatively high availability of wood fibre and numerous policies promoting recycling that encourage the use of recovered paper.

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PAPER AND PAPERBOARD

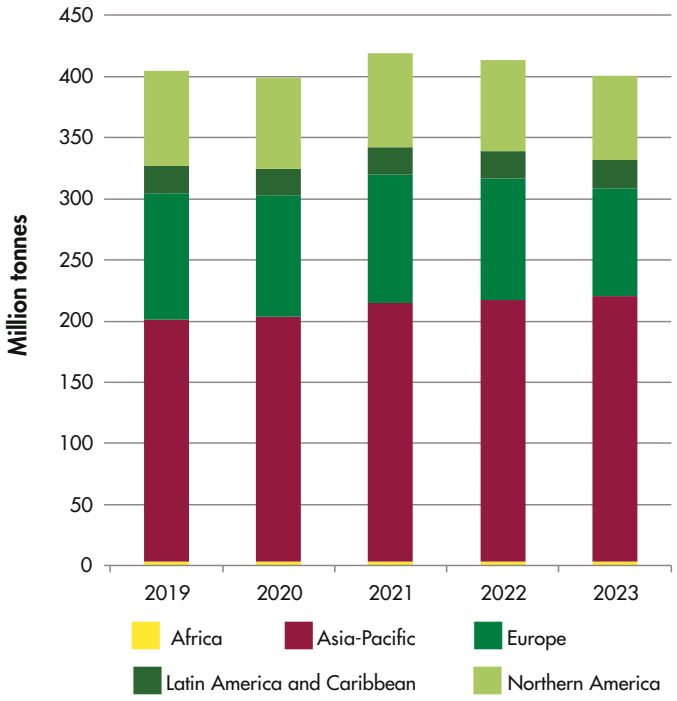
The paper and paperboard product group comprises graphic papers (newsprint, printing and writing paper) and other paper and paperboard. The latter is further subdivided into packaging paper and paperboard, household and sanitary paper, and other paper and paperboard not elsewhere specified.

Paper and paperboard production slightly decreased over the period 2019–2023 from 404 million tonnes to 401 million tonnes (**FIGURE 15A**). After reaching record levels in 2021 (419 million tonnes), production has since declined.

In the Asia-Pacific region and Latin America and the Caribbean, production increased by 2 percent in 2023. Africa remained stable, while Europe and Northern America recorded a decline of 11 percent and 8 percent respectively. In 2023, the regional distribution of production was as follows: Asia-Pacific – 217 million tonnes (54 percent); Europe – 88 million tonnes (22 percent); Northern America – 69 million tonnes (17 percent); Latin America and the Caribbean – 23 million tonnes (6 percent); and Africa – 3 million tonnes (1 percent).

With respect to international trade, about one-quarter of production is exported (roughly the same proportion of fibre furnish that is exported). Global trade remained quite stable at around 114 million tonnes from 2019 to 2022 but dropped by 9 percent in 2023.

FIGURE 15A
PAPER AND PAPERBOARD PRODUCTION



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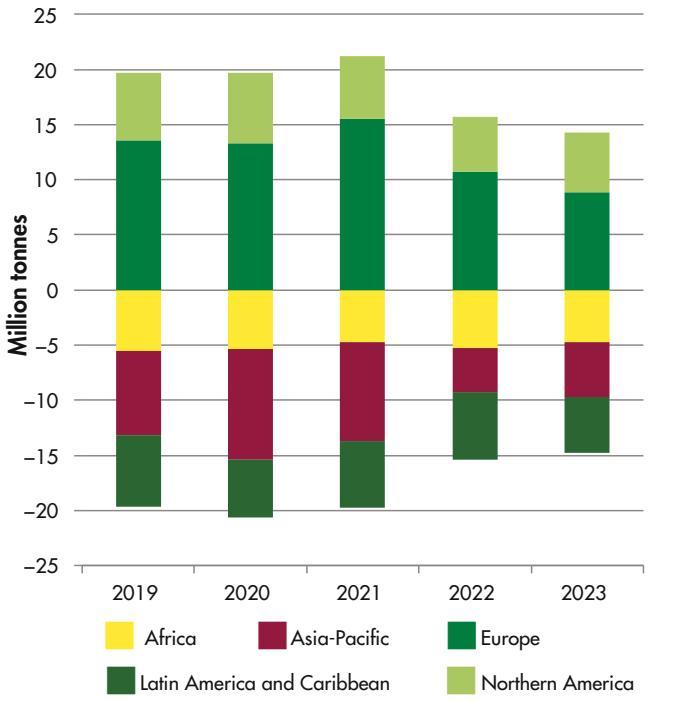
https://doi.org/10.4060/cd3650en-fig15A

FIGURE 15B
PAPER AND PAPERBOARD NET TRADE



Source: FAO. 2024. FAOSTAT: Forestry production and trade. [Accessed on 10 December 2024]. https://www.fao.org/faostat/en/#data/FO. Licence: CC-BY-4.0.
https://doi.org/10.4060/cd3650en-fig15B

FIGURE 15B shows a decrease in net trade between the regions in 2022 and 2023. Europe and Northern America are net exporting regions, with net exports of 9 million tonnes and 5 million tonnes respectively in 2023. The Asia-Pacific region, Latin America and the Caribbean and Africa are all net importers, with net imports of 5 million tonnes each in 2023.

The two largest paper and paperboard producers in 2023 were China (134 million tonnes) and the United States (61 million tonnes) (**FIGURE 16A**). Their combined production accounted for 48 percent of global production. The other three largest producers were Japan (22 million tonnes), Germany (19 million tonnes) and India (17 million tonnes), which accounted for another 15 percent of global production. Among the top five producers, China was the only country that increased production significantly (20 percent) over the observed period. Production in India remained about the same from 2019 to 2023, while the United States, Japan and Germany saw a decline of 11 percent to 16 percent.

Exports from the five largest paper and paperboard exporters ranged between 6 million tonnes and 12 million tonnes (**FIGURE 16B**). These five countries – Germany, the United States, China, Sweden and Finland – exported 44 million tonnes (42 percent of global exports) in 2023. **FIGURE 16B** also shows that exports have been on decline for all countries except China, which increased exports by 25 percent from 2019 to 2023. Over the period, export decline in Germany, the United States and Sweden ranged from 13 percent to 17 percent, while in Finland exports contracted by 36 percent.

Trends in paper and paperboard consumption were similar to the trends in production (**FIGURE 17A**). Consumption in China increased by 23 percent, from 112 million tonnes in 2019 to 138 million tonnes in 2023. Consumption has remained quite stable in India while it declined 12 percent to 21 percent in Germany, Japan and the United States. Total consumption in these five countries amounted to 250 million tonnes in 2023 (i.e. 62 percent of global consumption).

The five largest importers – China, Germany, the United States, Italy and Poland – imported 37 million tonnes of paper and paperboard in 2023, the same volume as in 2019. China's imports surged by 67 percent to 13 million making it the top importer since 2020 (it was third in 2019). A decline in

FIGURE 16A
PAPER AND PAPERBOARD PRODUCTION

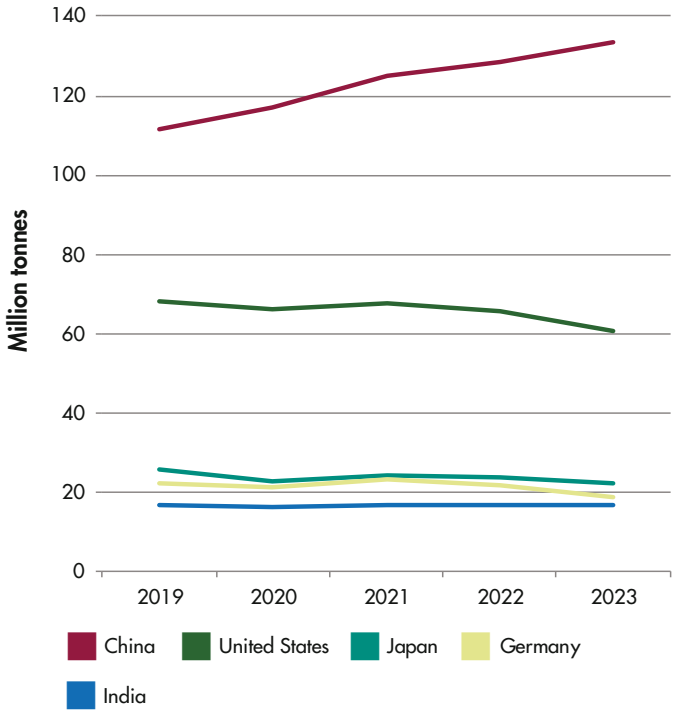


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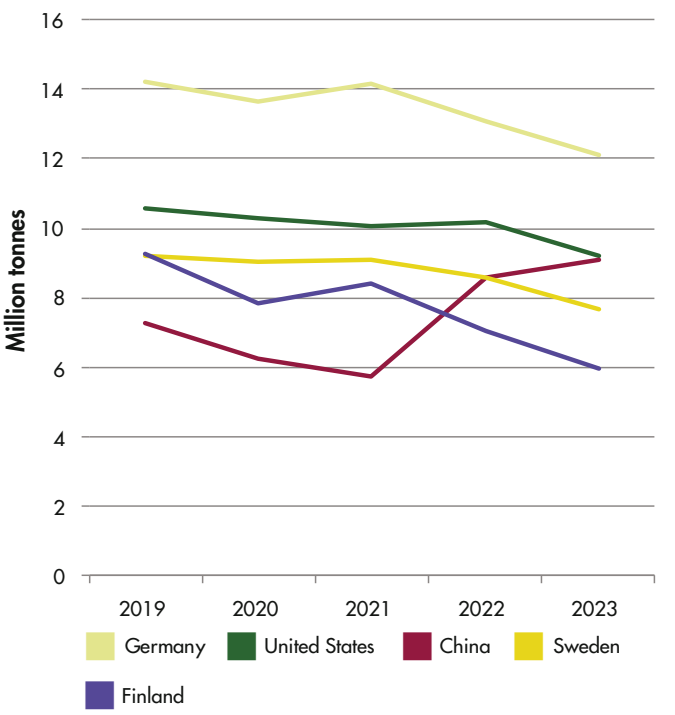
FIGURE 16B
PAPER AND PAPERBOARD EXPORTS



Source: FAO. 2024. FAOSTAT: Forestry production and trade. [Accessed on 10 December 2024]. https://www.fao.org/faostat/en/#data/FO. Licence: CC-BY-4.0.

https://doi.org/10.4060/cd3650en-fig16B

FIGURE 17A
PAPER AND PAPERBOARD CONSUMPTION

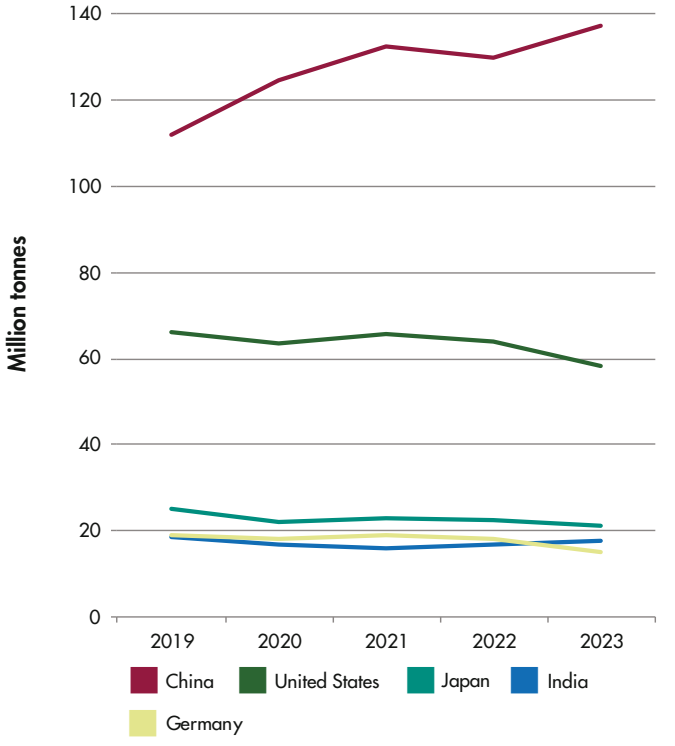


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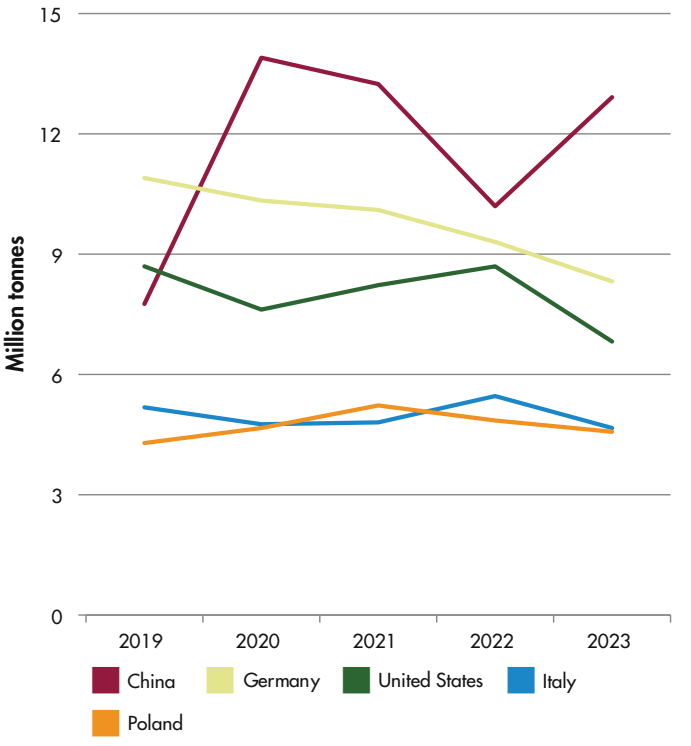
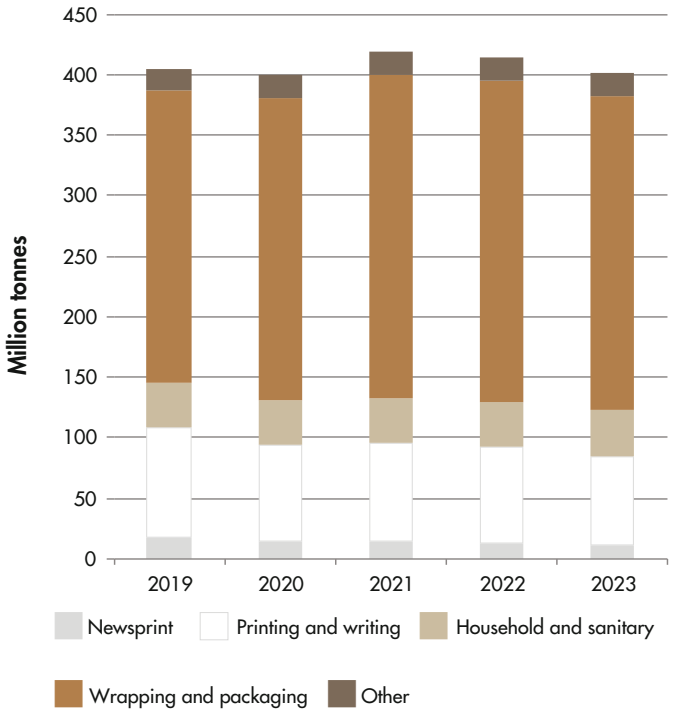
FIGURE 17B
PAPER AND PAPERBOARD IMPORTS



Source: FAO. 2024. FAOSTAT: Forestry production and trade. [Accessed on 10 December 2024]. https://www.fao.org/faostat/en/#data/FO. Licence: CC-BY-4.0.

https://doi.org/10.4060/cd3650en-fig17B

FIGURE 18A
PAPER AND PAPERBOARD PRODUCTION



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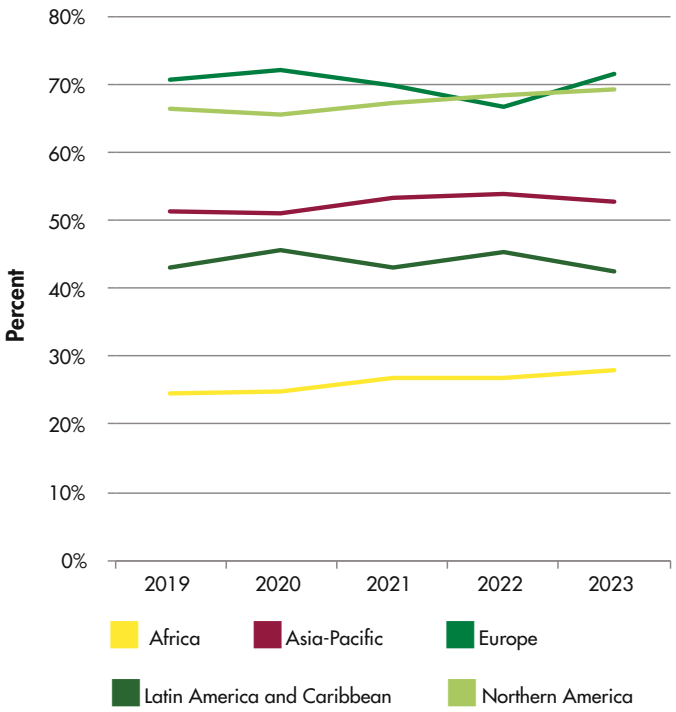
https://doi.org/10.4060/cd3650en-fig18A

FIGURE 18B
RECOVERED PAPER RECOVERY RATE



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https://doi.org/10.4060/cd3650en-fig18B

imports was seen in the United States (22 percent), Germany (24 percent) and Italy (9 percent) over the period (**FIGURE 17B**). Poland recorded a 6 percent growth over the period; it become fifth biggest importer in 2020 (surpassing France and the United Kingdom). The other notable feature of international trade in paper and paperboard is that imports are distributed much more evenly across different countries, with these top five importers accounting for only 36 percent of global imports in 2023.

FIGURE 18A shows the distribution of paper and paperboard production among the five different product types of this group. Wrapping and packaging paper accounted for over half (259 million tonnes, or 64 percent of the total) of all production in 2023. Printing and writing paper was the second-largest (73 million tonnes or 18 percent of the total), followed by household and sanitary paper (10 percent), other paper and paperboard (5 percent), and newsprint (3 percent). The two main trends are the gradual decline of graphic papers (newsprint and printing and writing papers) and growth in other paper and paperboard grades. Production of graphic papers fell by 10 percent from 109 million tonnes in 2019 to 84 million tonnes in 2023. Wrapping and packaging paper production increased by 7 percent (from 243 million tonnes to 259 million tonnes) over the period. Household and sanitary paper production also increased by 8 percent to 39 million tonnes; production of other paper remained roughly the same over the period. The peak in production of packaging paper was reached in 2021 (increased demand for packaging during the pandemic); however, production has been declining in the following years.

FIGURE 18B shows the amount of paper consumption collected for reuse in the pulp and paper industry (i.e. the recovery rate). At the global level, this remained roughly the same at 58 percent over the observed period. In the three main regions that consume paper and paperboard (and use recovered paper), the recovery rates were high and remained stable over the period. In 2023, Northern America and Europe had the highest recovery rate (72 percent and 69 percent, respectively), followed by the Asia-Pacific region (53 percent).

Some of the factors that explain the differences in recovery rates are the same as noted previously (for the utilization rate), but one other important factor is the “hidden” trade in wrapping and packaging

paper. This occurs where manufactured goods are packed in paperboard and traded across borders (and therefore the movement of the paperboard is not recorded). This partly explains the relatively low recovery rate in the Asia-Pacific region, where packaging of goods for export is counted as paperboard consumption; this packaging paper is then recovered and counts as fibre furnish production in other regions such as Europe and Northern America.

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WOOD FUEL, CHARCOAL AND PELLETS

Wood fuel is roundwood that is used as fuel for cooking, heating or power production and it includes wood used to make charcoal and pellets. It includes wood harvested from main stems, branches and other parts of trees (where these will be used for fuel) and wood chips to be used for fuel that are made directly (i.e. in the forest) from roundwood. However, it does not include wood residues from the forest processing industry, black liquor or recovered post-consumer wood. It is subdivided into wood fuel from coniferous and non-coniferous species. Statistics for charcoal production and trade are also presented as a separate dataset in FAOSTAT. Data series for wood pellets, briquettes and other agglomerates appear in FAOSTAT from 2012 onwards.

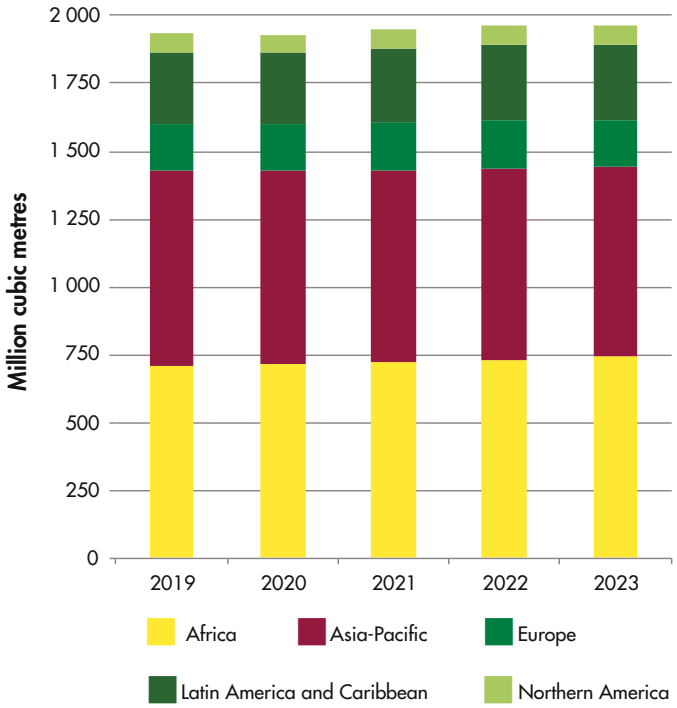
Global wood fuel removals amounted to 1961 million m^3 in 2023 (**FIGURE 19A**), roughly unchanged from 2019. At the regional level there are some differences in trends. For example, wood fuel removals decreased in the Asia-Pacific region (by 3 percent) and Northern America (8 percent), but increased in Africa (5 percent), Latin America and the Caribbean (4 percent) and Europe (3 percent) over the period 2019–2023.

Africa was the largest wood fuel-producing region in 2023, accounting for 38 percent (741 million m^3) of global removals. The Asia-Pacific region ranked second, with a 36 percent share (701 million m^3), followed by Latin America and the Caribbean (14 percent), Europe (9 percent) and Northern America (3 percent).

About 59 million tonnes of wood charcoal were produced in 2023, with an increase of 10 percent over the observed period (**FIGURE 19B**). In 2023, Africa accounted for 65 percent of global charcoal production (with an increase in production from 35 million tonnes in 2019 to 38 million tonnes in 2023). Production in Latin America and the Caribbean increased by 1 million tonnes to 9 million tonnes from 2019 to 2023. In the Asia-Pacific region production grew from 9 million tonnes to 10 million tonnes over the period. Charcoal production was relatively low and remained mostly unchanged in the other two regions.

The reason for different production growth in Africa and Latin America is because the main charcoal users vary in these two regions. In Africa, charcoal is mainly used by urban households for cooking, so consumption trends change only gradually. In Latin

FIGURE 19A
WOOD FUEL REMOVALS



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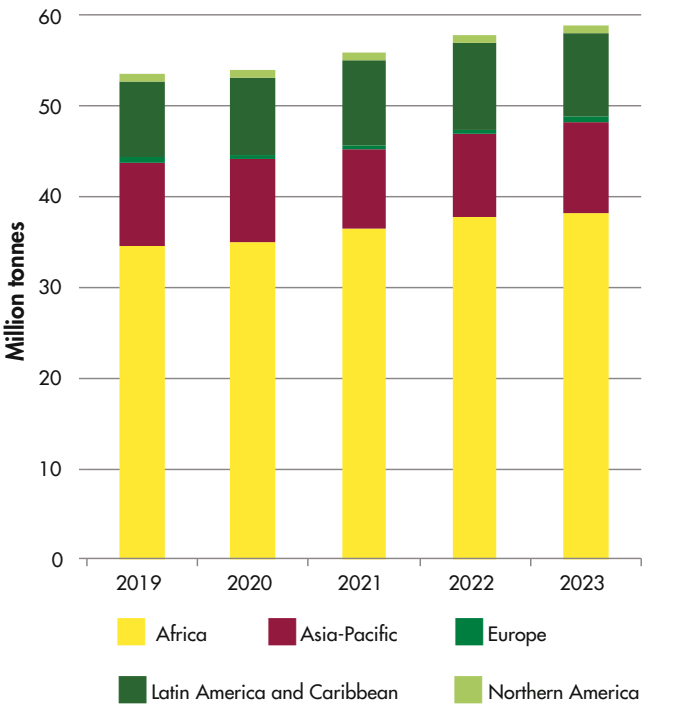
https://doi.org/10.4060/cd3650en-fig19A

FIGURE 19B
WOOD CHARCOAL PRODUCTION



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America and the Caribbean, the steel industry in Brazil is the main charcoal consumer, so trends in production are closely linked to more volatile economic trends.

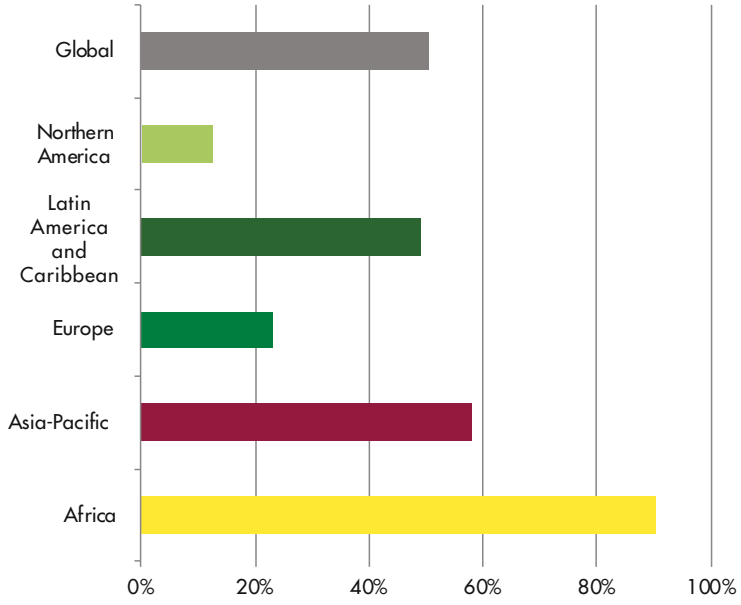
FIGURE 20 shows the estimated proportion of all roundwood that was used as wood fuel in 2023 (in FAO statistics, roundwood is simply divided into industrial roundwood and wood fuel). At the global level, wood fuel removals accounted for half (50 percent) of all roundwood produced in 2023. This proportion remained stable over the observed period.

Wood fuel production is by far the most significant in Africa, where it accounted for 90 percent of roundwood removals in 2023. It is also relatively important in the Asia-Pacific region, where it accounted for 58 percent of roundwood removals. Wood fuel use in Latin America and the Caribbean was close to the global average at 49 percent of all roundwood production, whereas in Europe and Northern America it accounted for only 23 percent and 12 percent of all roundwood production respectively. These proportions remained relatively unchanged in most of the regions except Latin America and the Caribbean, where the share of wood fuel decreased from 52 percent in 2019 to 49 percent in 2023. This can be explained by the increased use of roundwood (pulpwood) in the expanding wood pulp industry in the region in recent years.

In contrast to the trends for wood fuel and charcoal, production and trade in wood pellets has grown noticeably (**FIGURE 21A**). Pellet production increased from 42 million tonnes in 2019 to 47 million tonnes in 2023. However, after uninterrupted growth in the last decades until 2022, for the first time, global production declined by 2 percent in 2023. Nearly all production remains concentrated in Europe and Northern America. However, the share of production in the Asia-Pacific region has been constantly increasing (from 13 percent in 2019 to 18 percent in 2023). In 2023, the regional distribution of production was as follows: Europe – 24 million tonnes (51 percent); Northern America – 13 million tonnes (28 percent); Asia-Pacific – 8 million tonnes (18 percent); and Latin America and the Caribbean and Africa – 1 million tonnes combined (3 percent).

With respect to international trade, nearly two-thirds of production (64 percent) was exported in 2023. Exports increased from 27 million tonnes in 2019 to 30 million tonnes in 2023. Net trade between the regions grew as well. Northern America was a net exporting region, with net exports of 13 million tonnes

FIGURE 20
WOOD FUEL SHARE IN ROUNDWOOD REMOVALS IN 2023



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https://doi.org/10.4060/cd3650en-fig20

in 2023 (**FIGURE 21B**). Europe and the Asia-Pacific region registered net imports of 7 million tonnes and 3 million tonnes respectively in 2023. Net exports from the Latin America and the Caribbean tripled from 2019 to 2023 but remained below 1 million tonnes.

The five largest pellet producers in 2023 were the United States (9.8 million tonnes), Viet Nam (4.5 million tonnes), Germany (3.7 million tonnes), Canada (3.5 million tonnes) and France (1.7 million tonnes). Together, their production accounted for 51 percent of global production.

Three largest pellets producers (the United States, Canada and Viet Nam) are also the largest exporters, joined by Latvia and Estonia. Together, these five countries exported 14 million tonnes (65 percent of global exports) in 2023. Exports in the Russian Federation, formerly the fourth largest exporter (in 2022), halved from 1.8 million tonnes in 2022 to 0.9 million tonnes in 2023.

Germany and France are the only top producers that are among the largest consumers. Other countries that ranked among the top five consumers of wood pellets in 2023 were the United Kingdom (first), Japan (second) and the Republic of Korea (third). Total consumption in these five countries amounted to 24 million tonnes in 2023, or 54 percent of global consumption. Consumption in the United Kingdom declined by 27 percent, while it increased in all four other major consumers with the strongest growth recorded in Japan (238 percent) followed by France (69 percent), Germany (44 percent) and the Republic of Korea (37 percent) over the period from 2019 to 2023.

The five largest importers (the United Kingdom, Japan, the Republic of Korea, Denmark and the Kingdom of the Netherlands) imported 21 million tonnes of wood pellets – an increase of 18 percent from 2019. In the United Kingdom imports dropped by 28 percent (from 8.9 million tonnes in 2019 to 6.4 million tonnes in 2023), in Japan they increased by 260 percent (from 1.6 million tonnes in 2019 to 5.8 million tonnes in 2023), and in the Republic of Korea imports grew from 3.0 million tonnes in 2019 to 3.7 million tonnes in 2023. Imports in Denmark declined by 14 percent to 2.7 million tonnes, and in the Kingdom of the Netherlands they doubled to 2.3 million tonnes. Together, these five countries accounted for 76 percent of global imports in 2023.

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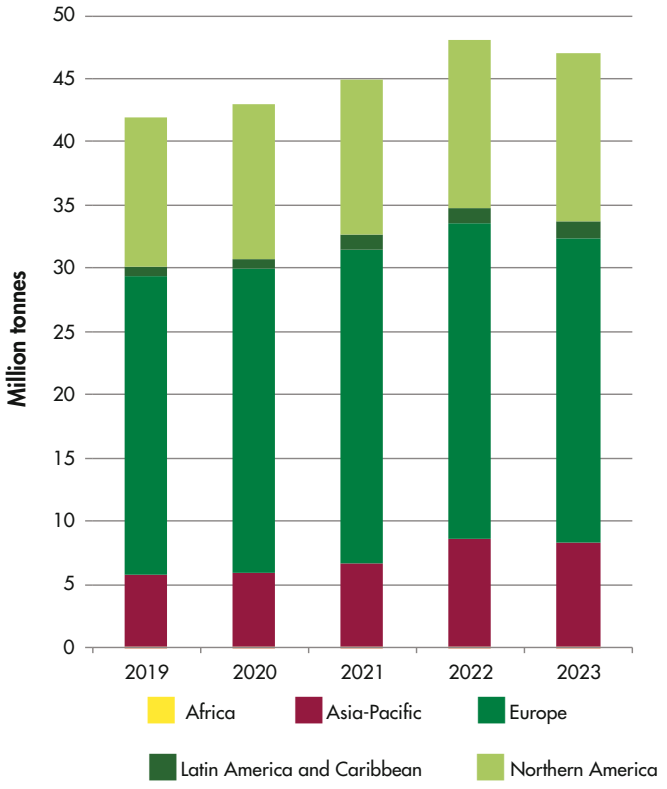
FIGURE 21A
WOOD PELLET PRODUCTION



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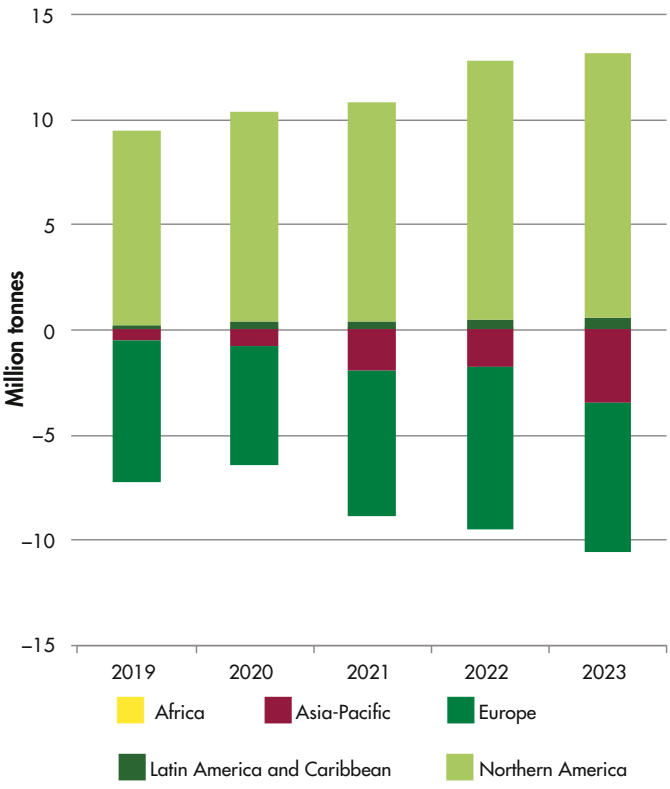
https://doi.org/10.4060/cd3650en-fig21A

FIGURE 21B
WOOD PELLET NET TRADE



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https://doi.org/10.4060/cd3650en-fig21B

DEVELOPMENT OF FAO'S FOREST PRODUCTS STATISTICS

This final section describes highlights from 2022–2024 in dissemination of FAO's forest product statistics, capacity-building efforts, and improvements in the collection and dissemination of statistics.

ENHANCING DISSEMINATION OF FOREST PRODUCTS STATISTICS

- Sustainability by numbers – Forest products at FAO, a history of forest product statistics and vision for the future was published in six languages (Arabic, Chinese, English, French, Russian and Spanish) along with a downloadable data snapshot for 2023. This publication describes the many uses of forest product data and includes interactive graphical displays of data trends.
- Summary sections based on data from FAOSTAT—Forestry were included in FAO's flagship publications The State of the World's Forests 2024, World Food and Agriculture – Statistical Yearbook 2024 *and* Country Profile Tool – Statistics of agriculture.
- New data series were launched in the FAOSTAT–Forestry database on:
  - Production and trade in engineered wood products (EWPs): laminated veneer lumber (LVL), glue-laminated timber (glulam), cross-laminated timber (CLT or X-lam) and I-beams (I-joists). Newly collected data show the following annual global production: LVL – 4 million m^3 (exports – 1 million m^3); glulam – 7 million m^3 (exports – 2 million m^3); CLT – 1 million m^3 (exports – 0.5 million m^3); I-beams – 1 million tonnes (exports – 0.2 million tonnes);
  - Trade quantity and value of sawdust;
  - Trade value in secondary processed wood products (further processed sawnwood, wooden wrapping and packaging material, wood products for domestic/decorative use, builder's joinery and carpentry of wood, wooden furniture, prefabricated buildings of wood, and other manufactured wood products) and secondary processed paper products (composite paper and paperboard, special coated paper and pulp products, household and sanitary paper ready for use, packaging cartons and boxes, and other articles of paper and paperboards ready for use). Addition of data series on secondary processed products in FAOSTAT allows a full picture of the status and trends in export and import value of all wood and paper products at the global, regional and country level.

    These new data will contribute to the monitoring of raw wood material and wood product flows as well as value chain analyses to support development of a forest-based bioeconomy.
- Results of the annual Pulp and paper capacities 2023–2025 survey were released in 2024. Beginning with the 2020 edition, data tables in spreadsheet format are available alongside the PDF version of the publication. Work is ongoing to digitize older statistics for a future launch of the full data series in the FAOSTAT database.

IMPROVING INTERNATIONAL STATISTICAL CLASSIFICATIONS AND STANDARDS

- Classification of forest products 2022 was published, superseding the classification of 1982. The new publication reflects innovation and change in the forest sector over the past decades by incorporating many new products (e.g. engineered wood products).
- FAO contributed to the update of the Standard Industrial Classification of All Economic Activities, Revision 5 (ISIC Rev.5), adopted in 2024. FAO's proposal to add a new code for wooden furniture under *310 Manufacture of furniture* was accepted (*3101 Manufacture of wooden furniture*).
- FAO contributed to the update of the Central Product Classification (CPC) Version 3, officially endorsed in March 2024. FAO's proposal to add 46 new codes for forest products that reflect new developments in the forest sector (e.g. engineered wood products and various wooden packaging and paper products) was accepted. The CPC serves as a basis for the internationally comparable collection of production data. It is available on the United Nations Statistics Division's website.
- FAO participated in the update of the revision of the Standard International Energy Classification (SIEC), providing expertise on the classification of wood energy products to enhance global bioenergy data.
- FAO, in collaboration with the International Tropical Timber Organization (ITTO), the Statistical Office of the European Union (Eurostat) and the United Nations Economic Commission

for Europe (UNECE) proposed amendments for forest product codes in the Harmonized System (HS) to the World Customs Organization (WCO) for the HS 2028 revision in 2022. The proposal was further scrutinized by WCO in 2023 and 2024. The new structure of HS 2028 will be announced by WCO in early 2026 and will come into force beginning in January 2028.

- To address the challenges customs offices worldwide face in identifying tropical woods in trade, FAO, together with WCO, ITTO, the International Tropical Timber Technical Association (ATIBT) and the French Agricultural Research Centre for International Development (CIRAD), collaborated through a technical working group to revise the list of tropical woods in the HS Annex to the Explanatory Notes to Chapter 44, Appellations of Certain Tropical Woods. As a result, the list was expanded from 408 to over 550 pilot names of tropical wood. The WCO recognized this work as essential for improving the classification of tropical woods, combating illegal trade, and protecting natural forests.
- FAO supported Eurostat and the Association of the European Producers of Laminate Flooring (EPLF) with proposals for new codes for wood processing residues (44014910) and laminate flooring (44111391, 44111491) that were endorsed in the Combined Nomenclature 2025 (CN 2025) and will come into force on 1 January 2025.

STRENGTHENING NATIONAL STATISTICAL CAPACITIES

- FAO in collaboration with ITTO and Mexico's National Forestry Agency (CONAFOR) conducted a Meso-American workshop on Forest Products Statistics in Zapopan, Mexico on 19–21 March 2024. The workshop brought together over 40 participants including forest officials, technicians, statisticians and academics of five Mesoamerican countries – Costa Rica, Guatemala, Honduras, Mexico and Panama.
- FAO participates in the work of the FAO/UNECE Team of Specialists on Forest Products and Wood Energy Statistics. The last two meetings took place in Geneva, Switzerland in May 2023 and 2024.

For more information about FAO's forest product statistics, please contact:
FAO Forestry Division
FPS@fao.org | http://www.fao.org/forestry/statistics

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