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INDIA'S WOODEN FURNITURE AND WOODEN HANDICRAFTS: RISK OF TRADE IN ILLEGALLY HARVESTED WOOD

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Acronyms

ILPA	Illegal Logging Prohibition Act	PNG	Papua New Guinea
(I)NDC	(Intended) Nationally Determined Contributions	REDD+	Reducing Emissions from Deforestation and Forest Degradation
ISFR	India State of Forest Report	RWE	round-wood equivalent
ITC	Indian Tariff Code	SEZ	Special Economic Zones
ITTO	International Tropical Timber Organization	MSME	micro, small and medium enterprise
IUCN	International Union for Conservation of Nature	km²	square kilometers
m³	cubic meters	TOF	trees outside forest
MDF	medium-density fiberboard	UGoM	Union Government of Myanmar
Mha	million hectares	U.K.	United Kingdom (as adjective)
MTE	Myanma Timber Enterprise	UN	United Nations
NCCF	Network for Certification and Conservation of Forests	UNEP	United Nations Environment Programme
NDF	Non-Detriment Finding	UNEP-WCMC	United Nations Environment Programme World Conservation Monitoring Centre
NFAP	National Forestry Action Programme	UNHRC	United Nations Human Rights Council
NGO	nongovernmental organization	UNODC	United Nations Office on Drugs and Crime
OSB	oriented-strand board	U.S.	United States (as adjective)
PEFC	Programme for Endorsement of Forest Certification	VPA	Voluntary Partnership Agreement

Executive Summary

India is poised to join China and Vietnam as a furniture-manufacturing hub, importing vast amounts of timber from all over the world and processing this wood into finished products. India's wood-based industries—comprising both large companies and millions of artisans and small and medium enterprises—now export timber products valued at more than \$1 billion,¹ an increase of 138 percent by value since 2010. At the same time, India's rural population continues to require vast amounts of fuelwood for heating and cooking, while the urban population is purchasing more furniture than ever before. Rising incomes and evolving tastes, such as an increased desire for “eco and nature-themed” design, mean that demand for wooden furniture and handicrafts is higher than ever.

Where do all the raw materials to supply this wood products industry come from? Can Indian manufacturers guarantee that their products are legally sourced, let alone sustainable?

Despite government efforts to raise domestic productivity, India's overall timber production remains low. This is especially true for the tree species preferred by consumers such as teak, sheesham and pine. Demand for all forestry products surpassed the domestic supply in the mid-1990s and this gap is likely to have grown significantly since, particularly for high-value hardwood species (FAO 2007).

To meet this supply gap, Indian manufacturers have doubled their imports of raw materials in the past decade. Imports of raw materials will likely to continue to increase, as the Government of India considers incentives to boost the domestic furniture industry further, including through duty-free imports of raw materials and by banning furniture imports altogether following recent economic concerns resulting from the COVID-19 pandemic (The Economic Times 2020).

Unfortunately, many of the countries that now supply India with these raw materials suffer from high levels of illegal logging and associated trade. The International Union of Forest Research Organizations estimates that India was the third-largest importer of illegally logged timber in the world in 2016, after China and Vietnam (Kleinschmit et al. 2016). While the government regulates the tax and phytosanitary regimes of the timber imports, as well as endangered species, India has not instituted any robust regulation to exclude the import of wood products harvested and traded in violation of the laws and regulations in the source country. Certification systems that could verify legality and/or sustainability are also not used widely. Without such systems, there is no guarantee that India's exports of manufactured timber products are verified as legal. Yet more than three-quarters of India's timber product exports require such verification by law in the importing nation— a figure that rises to 90 percent for furniture alone.

The United States and the European Union are India's largest markets for timber products. Both now have laws in place to restrict the import of illegal wood and forest products and require verification of legal harvest. Australia, Japan, the Republic of Korea and Indonesia also have similar laws in place, to be followed soon by Vietnam, and Thailand. Buyers in all these markets risk fines, penalties and/or prosecution if they cannot comply. Indian suppliers risk losing these markets to other countries that can provide the legal assurances requested.

This report summarizes India's domestic and imported timber flows in and out of the manufacturing industry,

¹ Unless otherwise specified, all value data are in U.S. dollars.



and its exports to key “regulated markets”² – particularly those exports categorized as “other wooden furniture” (Harmonized System (HS) code 940360) and “other articles of wood” (HS code 4421) which make up 60 percent of India’s timber product exports. The analysis assesses the risk (based on species, and likely source country) associated with these exports. Detailed shipment record data for India’s imports and exports were also assessed to further determine the extent to which imported or Indian-grown species are used in furniture and handicraft exported to regulated markets.

KEY FINDINGS

- **In 2019, India’s furniture and handicraft manufacturers were primarily using timber species grown and harvested in India in exported products.**

In Forest Trends review of detailed shipment records covering India’s exports of HS code 940360 and 4421 to the United States and EU+EFTA (European Free Trade Association) countries, Australia, and the Republic of Korea, **mango and acacia were most commonly referenced.** While more than 60 percent of these shipment records listed no species information at all, this finding is supported by interviews conducted for this report that suggest exporters, particularly those supplying the U.S. and European markets, are predominantly using mango, acacia, and to a lesser extent, sheesham. **This suggests that the findings presented are indicative of the current species mix used in India’s furniture and handicraft exports to regulated markets.**

Both species are likely to be low risk and grown in Indian plantations. India imported low volumes of mango and acacia between 2016 and 2019. According to detailed shipment records, all imported mango was sourced from China while 80 percent of imported acacia was sourced from Vietnam, 12 percent from Malaysia and 8 percent from low risk source countries.

- **Imports are increasing, particularly for species such as teak, pine and oak, which are widely used in furniture and handicraft production.** Indeed, India’s spectacular economic growth and increased demand for timber products over the past two decades is already having a dramatic impact throughout the forests of the world, from as far afield as Gabon, South Sudan, Suriname, and Turkey.
- **Of India’s timber imports in 2019, 42 percent can be considered as being at high risk of having been logged illegally.** Indeed, 44 percent of logs, 42 percent of sawnwood and more than 75 percent of veneer imports were sourced from countries assessed as being at high risk for illegal logging based on governance, corruption and harvest indicators, or from fragile and conflict-affected states as categorized by the World Bank.
- **India’s top 10 high risk source countries for logs, sawnwood and veneer in 2019 were Gabon, Ecuador, Brazil, Ghana, Suriname, Benin, Ukraine, Tanzania, Colombia, and Togo.**

² Regulated markets reflect countries and jurisdictions that have developed operational measures to restrict the import of illegal timber. As of 2020, this included the United States, Member States of the European Union (as well as the United Kingdom, Iceland, Liechtenstein, Norway and Switzerland), Canada, Colombia, Australia, Japan, the Republic of Korea, Indonesia, and Malaysia. Some measures are more comprehensive in scope, implementation, and enforcement than others.



- **India's main source countries on the World Bank's list of fragile and conflict-affected situations for 2019 include Myanmar, Papua New Guinea, the Solomon Islands, Nigeria, Cameroon, South Sudan, Republic of Congo, Liberia, Sudan, and the Central African Republic.**
- **India imported more than 250 species of logs, sawnwood and veneer between 2016 and 2019.³ From this, 171 species (i.e., 38 percent of India's log, sawnwood and veneer imports by value) were species assessed as Near Threatened, Vulnerable, Endangered or Critically Endangered on the International Union for Conservation of Nature (IUCN) Red List.** A species listing on the IUCN Red List does not necessarily imply prohibition of trade, and endangered species may be perfectly legally traded. However, a listing on the IUCN Red List indicates rising scarcity, which increases the value of the timber species (and hence the risk of illegal logging). More research is required to determine the extent to which veneer is used in Indian-manufactured furniture.
- **Traceability and legality verification of Indian-manufactured furniture and handicraft products is a challenge.** While there are a number of certification systems designed to verify forest management and chain of custody (CoC) systems, only a few furniture factories or artisans use them. **Verification of imported timber legality is weak even for certified products.**

The following species should be considered as being at potentially high risk when listed in Indian-manufactured furniture and handicrafts:

- **Teak:** While India has a significant area of plantation teak, the volume and quality of teak available is not currently sufficient to meet demand. More than 80 percent of India's teak imports over the past three years have been sourced from high risk source countries based on governance and harvest risk, or from fragile and conflict-affected states as designated by the World Bank. Imports from high risk countries, many with export restrictions in place such as Myanmar, Ecuador and Benin, have increased.
- **"Sheesham", "Dalbergia Sissoo", "Rosewood", "Indian Rosewood", "East Indian Rosewood", "Dalbergia Latifolia":** Both *Dalbergia* species, if used in furniture and handicraft production, are likely to be sourced from Indian agroforestry plantations but both species are listed on CITES⁴ Appendix II, despite India requesting their removal from the listings in 2019. This request was rejected and therefore shipments containing *Dalbergia* species should be accompanied by a CITES-comparable document unless exempt from CITES regulations.⁵ As the Export Promotion Council for Handicrafts (EPCH) has been designated as the competent authority to issue the comparable document in lieu of the CITES permit, imports should be accompanied by a VRIKSH Shipment Certificate.
- **Mahogany (*Khaya ivorensis*):** Mahogany (*Swietenia* spp.) grown in Indian plantations is generally low risk compared to imports from high risk or fragile and conflict-affected states such as Angola, Mozambique, Côte d'Ivoire, Ghana and the Democratic Republic of Congo (DRC). The African imports are likely to be *Khaya ivorensis*, categorized as Vulnerable by the IUCN Red List.

³ Shipment record data for the period October 1, 2016 to September 30, 2019 were analyzed for this report. These data were purchased from Export Genius.

⁴ Convention on International Trade in Endangered Species of Wild Fauna and Flora.

⁵ Note that according to the annotation for *Dalbergia*, the following is exempt from CITES regulations: finished products to a maximum weight of wood of the listed species of up to 10 kg per shipment; finished musical instruments; finished musical instrument parts; and finished musical instrument accessories. Furniture is not covered by this exemption and therefore requires CITES-comparable documentation.



- **“Merbau” or “Vengai”:** India imported significant volumes of merbau/kwila/ipil between 2016 and 2019, primarily from three source countries: Papua New Guinea (69 percent), Indonesia (18 percent) and Malaysia (13 percent). There are reported risks of illegal logging in all three countries (Chatham House 2020). More than 80 percent of the wood-based trade from Papua New Guinea has been reported to derive from unlawful harvest (UNODC 2013). The IUCN Red List also reports the species as “Vulnerable” (IUCN 2020).
- **Ebony:** *Diospyros ebenum* or Indian ebony grows in southern India but there are reports that India has banned its export. Indian companies imported low volumes of ebony (*Diospyros* spp.) between 2016 and 2019. One-quarter of imports were sourced from high risk countries or fragile and conflict-affected states including South Sudan, DRC, Gabon, Cameroon, and Nigeria. Around 50 percent was sourced from China. The remaining 25 percent was sourced from low risk European countries although *Diospyros* species do not grow in Europe, which means the timber was originally sourced elsewhere.
- **Red sanders/red sandalwood:** Though red sanders/red sandalwood is listed on India’s “prohibited” list of exports, some product categories are instead listed as “restricted” which means that their export is permitted in certain circumstances such as being harvested from cultivated land.

CONCLUDING RECOMMENDATIONS

The report presents two main recommendations:

- 1 **For governments in countries with laws regulating the import of illegal wood:** This report finds that the majority of the potentially high risk species were listed in products exported under HS code 4421, which is outside the scope of many timber import regulations including the EU Timber Regulation, the Australian Illegal Logging Prohibition Act and the Japanese Clean Wood Act. In the case of the Republic of Korea, all wooden furniture products and HS codes as well as “other articles of wood” under HS code 4421, are currently outside the scope of products covered by the Korean Revised Act on the Sustainable Use of Timbers.

As such, we recommend that the European Commission and the governments of Australia, Japan and the Republic of Korea broaden the scope of the products covered by their regulations to include all wooden furniture HS codes and “other articles of wood” under HS code 4421. Any government in countries currently designing regulations seeking to eradicate illegally logged timber from their markets should ensure that these products fall within the scope.

- 2 **For the Government of India:** Given that India’s timber product exports are already vulnerable in regulated markets, and many furniture and handicraft artisans are likely to see increasing demands to verify that the timber they use is legal, we recommend that the Government of India develops a robust import regulation specifically designed to exclude the import of wood products that are harvested and traded in violation of the laws and regulations in the source country.

1 Introduction

India’s furniture-manufacturing sector exported more than \$1 billion of timber products⁶ in 2019, an increase of 138 percent since 2010. Domestic consumption of wood products has also risen as the country has undergone strong population growth, rapid urbanization and more than 270 million citizens have risen out of poverty since 2006 (Alkire et al. 2020). Abundant labor, low-cost operations by millions of artisan handicraft operators, and low shipping costs mean that India’s furniture industry is now one of the most competitive in Asia (Sourcify n.d.).

Despite government efforts to raise productivity, overall domestic timber production remains low, especially of the species preferred by the furniture and other manufacturing sectors. As a result, export and domestic demand for forestry products (primarily timber and fuelwood) surpassed the domestic supply capacity in the mid-1990s (Bit and Banerjee 2014; Ghosh and Bhaskar 2016). By 2006, the gap between consumption and supply of timber was conservatively estimated at about 25 million cubic meters (m³) (Ministry of Environment and Forests (MoEF) 2009). Estimating the current supply gap remains challenging due to the lack of reliable production and consumption data. However, the fact that import volumes have doubled over the past decade shows the gap still exists, and there continues to be a need to fulfill the volumes that cannot be met by domestic sources. Demand for raw materials sourced from outside India, particularly logs, pulp, veneer, and sawnwood, will likely to continue to increase as Indian government incentives aim to boost domestic furniture production and provide jobs following the COVID-19 pandemic.

Many of the countries supplying India with these timber products suffer from poor governance in their forest sectors, with a high risk of corruption, illegal harvesting and document fraud. The International Union of Forest Research Organizations estimates that India was the third-largest importer of illegally logged timber in the world in 2016, after China and Vietnam (Kleinschmit et al. 2016), and that it accounted for close to 10 percent of the global illegal wood trade. The Government of India has regulated several aspects of the timber trade such as taxes (e.g. customs duties or royalties), sanitary and phytosanitary conditions (e.g. plant health), restricted and prohibited products (e.g. log export and debarked wood bans) as well as endangered species. However, to date, India has not developed a regulation specifically designed to exclude the import of wood products harvested and traded in violation of the laws and regulations of the source country.

More than three-quarters of India’s timber products, and more than 90 percent of furniture products are exported to countries that now have laws in place to restrict the import of illegal wood and forest products – not just the United States and the European Union (EU+EFTA),⁷ but also Australia, Japan, the Republic of Korea, Indonesia, and soon Vietnam and Thailand. The United States and the EU+EFTA are the biggest global



India has not developed a regulation specifically designed to exclude the import of wood products harvested and traded in violation of the laws and regulations of the source country.

⁶ The term ‘timber products’ is used to refer to wood products as classified in the Combined Nomenclature under Chapter 44 and furniture products under Chapter 94.

⁷ References to the European Union and the European Free Trade Association (EU+EFTA) in this report include the 27 Member States of the European Union, as well as Iceland, the United Kingdom, Liechtenstein, Norway, and Switzerland.



consumers of Indian timber product exports, with U.S. consumers alone buying 40 percent of India's timber product exports in 2019 (by value). Buyers in these markets are exposed to legal liabilities due to the risks associated with Indian timber products manufactured from imported, illegally sourced wood products; Indian exporters meanwhile risk losing their market access to these markets.

This report outlines some of the risks associated with the potential for illegally sourced wood products to enter India's furniture and wooden handicraft supply chains.⁸ It synthesizes the latest available data on India's wood fiber production and its increasing reliance on imports. It assesses India's exports of two main products traded (wooden furniture⁹ and handicrafts¹⁰) and looks in depth at the exports to the "regulated markets,"¹¹ including the United States and the EU+EFTA as well as Australia, Japan, and the Republic of Korea. From there, the report analyzes the latest available import data on raw materials to assess the risk that illegally sourced timber could be entering furniture supply chains. Finally, the report summarizes the risks associated with India's furniture and handicraft exports.

This report will guide subsequent field research in several Indian furniture-manufacturing centers.

⁸ India produces a number of wooden handicraft products including ornate and intricately carved wooden furniture. The Government of India specifies in ITC (HS) Schedule II (Export) Policy 2018 (available at https://dgft.gov.in/sites/default/files/sch2_0.pdf) that "handicrafts (are) predominantly made by hand (and) must be graced with visual appeal in the form of ornamentation or in-lay work or some similar work lending it an element of artistic improvement." The handicraft sector comprises predominantly micro, small and medium enterprises (MSMEs), which employ millions of people directly and indirectly.

⁹ Wooden furniture includes exports of products under HS codes 940161, 940169, 940330, 940340, 940350 and 940360.

¹⁰ For the data analysis in this report, "handicrafts" is used to refer to the additional wood products exported under HS code 4421.

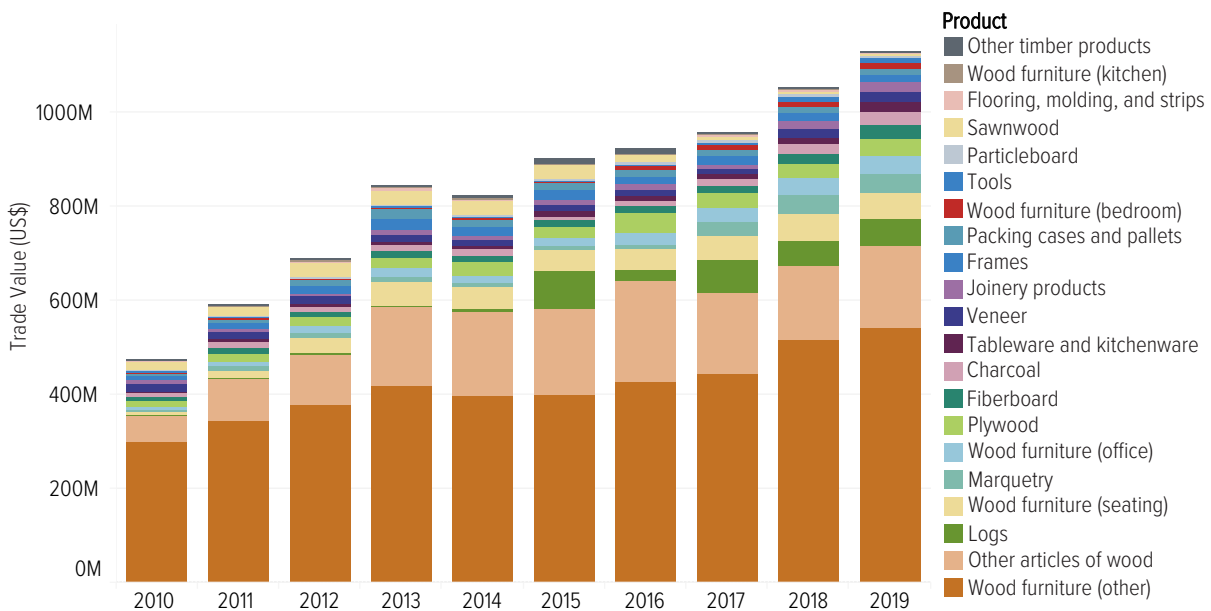
¹¹ Regulated markets reflect countries and jurisdictions that have developed operational measures to restrict the import of illegal timber. As of 2020, this included the United States, Member States of the European Union (as well as the United Kingdom, Iceland, Liechtenstein, Norway, and Switzerland), Canada, Colombia, Australia, Japan, the Republic of Korea, Indonesia, and Malaysia. Some measures are more comprehensive in scope, implementation, and enforcement than others.

India's spectacular economic growth over the past two decades, and its increased demand for timber products are having a dramatic impact throughout the forests of the world, from as far afield as Gabon, South Sudan, Suriname, and Turkey. Burgeoning domestic consumption, due to rapid population growth, urbanization and increasing income levels, in a nation with very limited per capita forest resources, has fueled the rapid rise in India's imports of forest products. Growing global demand, particularly in the United States and Europe, for low-cost furniture products and India's trade liberalization policies have further fueled its need for imported timber. India is increasingly competitive with other wood-manufacturing centers in Southeast Asia such as China and Vietnam.

2.1 Export Demand

In 2019, India's total timber product exports were valued at \$1.13 billion, an increase of 138 percent since 2010.¹² Major export products included wooden furniture, other articles of wood, wooden seating, logs, and marquetry, according to official trade data reported by the Government of India to UN Comtrade (United Nations 2020) (Figure 1).

Figure 1 | India's timber product exports



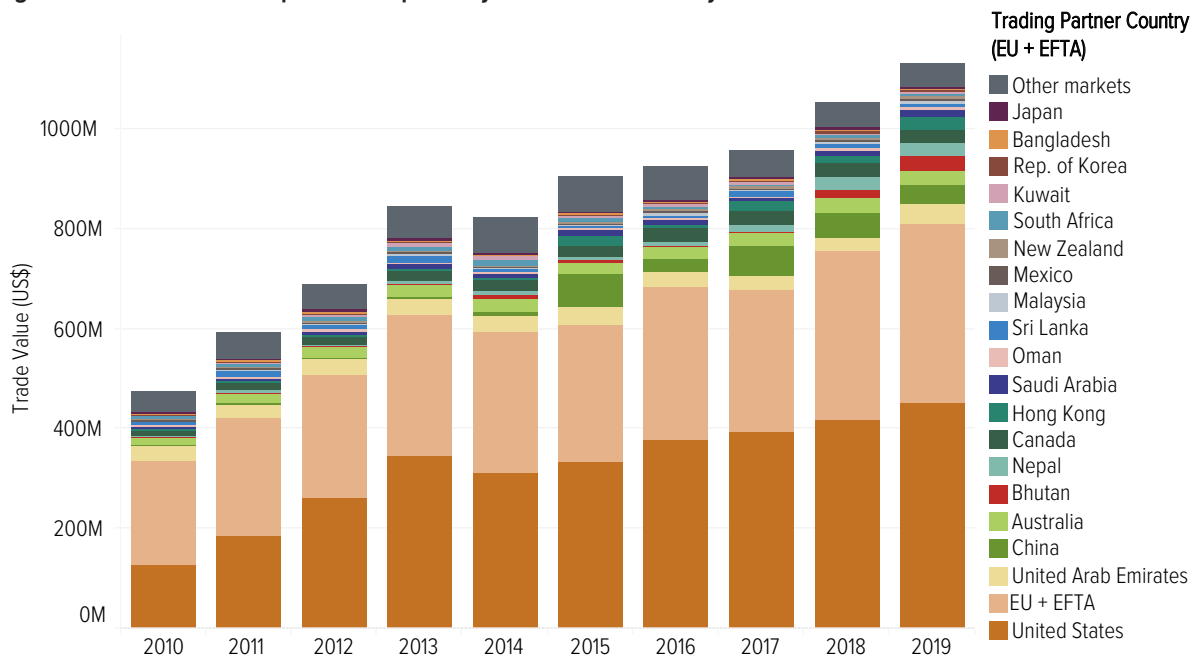
Source: UN Comtrade 2020, compiled by Forest Trends 2020

¹² Unless otherwise specified, all value data are in U.S. dollars and all data in Section 2 of the report have been sourced from UN Comtrade (United Nations 2020).



Exports have progressively increased while product lines and markets have diversified. India now exports timber products to an increasing number of developing and emerging economies. However, overall, the United States and the EU+EFTA markets continue to dominate, together accounting for more than 70 percent of India's timber product exports. The United States is by far the most significant market, consuming more than \$1.2 billion in Indian-manufactured wooden furniture products between 2015 and 2019. Germany, France, the Netherlands, and the United Kingdom have each purchased more than \$200 million in wooden furniture from India between 2015 and 2019. Belgium, Spain, Italy, Poland, and Denmark consumed slightly lower volumes during that time. A second tier of countries—China, the United Arab Emirates, Australia, Bhutan, Nepal, Canada, and Hong Kong—each accounted for between 2 and 4 percent of India's timber product export market. China, Nepal and Bhutan markets have grown 1,403 percent in the past 10 years, but from a very small base (Figure 2).

Figure 2 | India's timber product exports by destination country

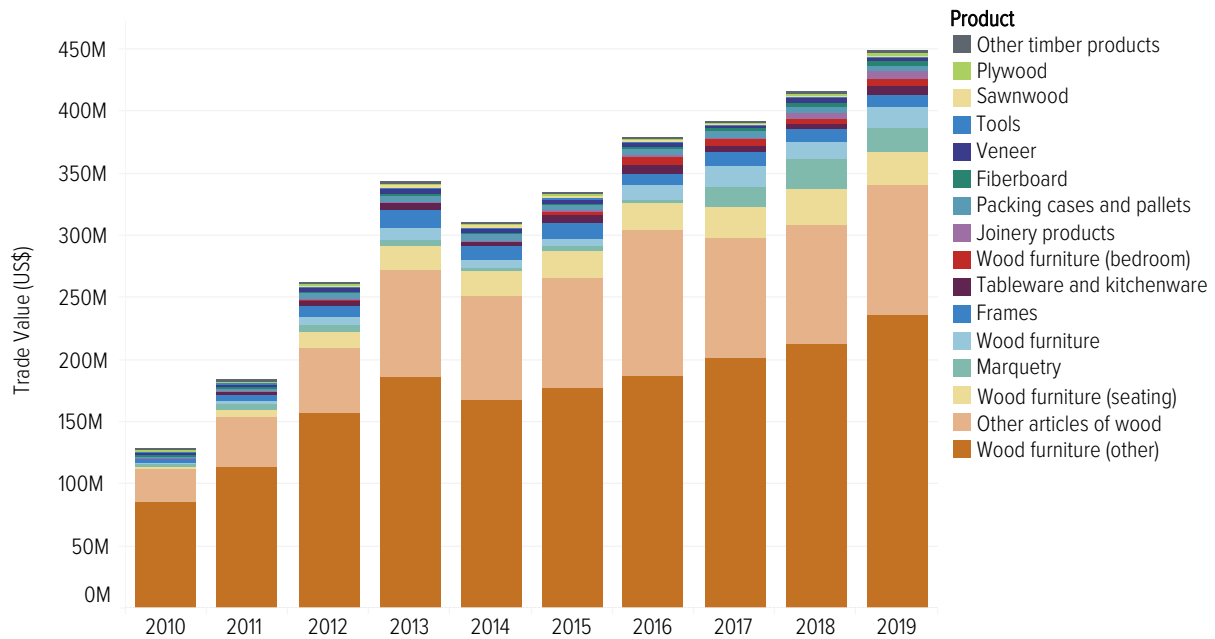


Source: UN Comtrade 2019, compiled by Forest Trends 2020

In 2019, the United States alone imported 40 percent of India's total timber product exports, a trade worth \$449 million. Most (63 percent) of these exports to the United States were of wooden furniture. Other major timber product exports to the United States included other articles of wood (captured under HS code 4421 which also includes some wooden handicraft products), wooden frames for pictures, and marquetry – all of which have increased by export value since 2016 (Figure 3).



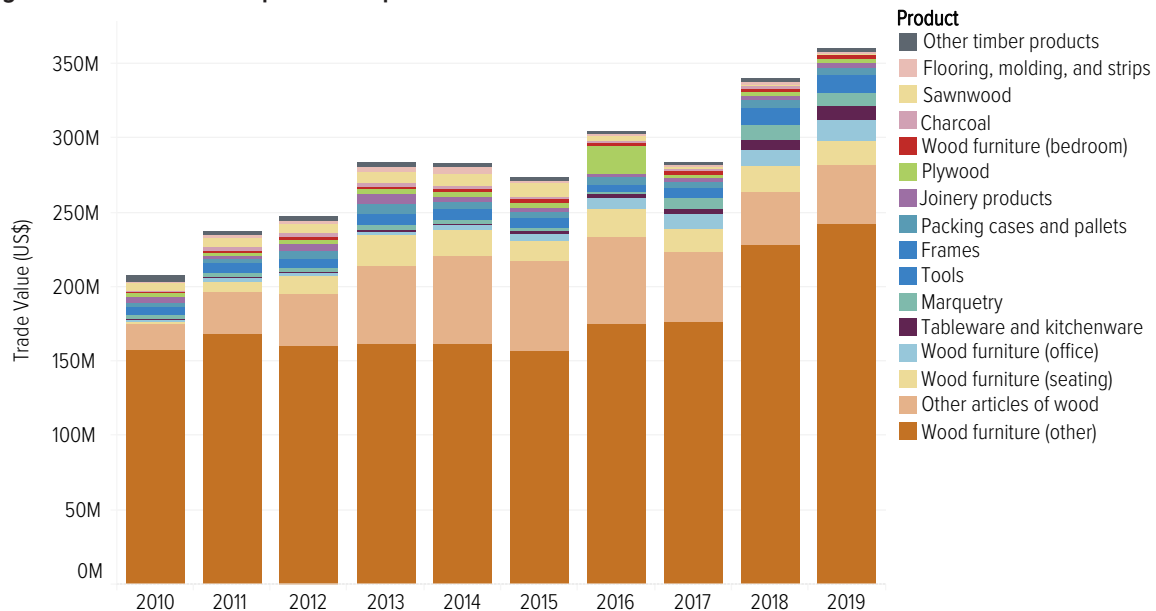
Figure 3 | India's timber product exports to the United States



Source: UN Comtrade 2020, compiled by Forest Trends 2020

Exports to EU+EFTA countries reached a new high in 2019, valued at \$360 million, or 32 percent of India's timber product exports. Wood furniture, other articles of wood including some wooden handcraft products (HS code 4421), tableware and kitchenware, wooden tools, and marquetry dominate exports to the EU and EFTA (Figures 4 and 5).

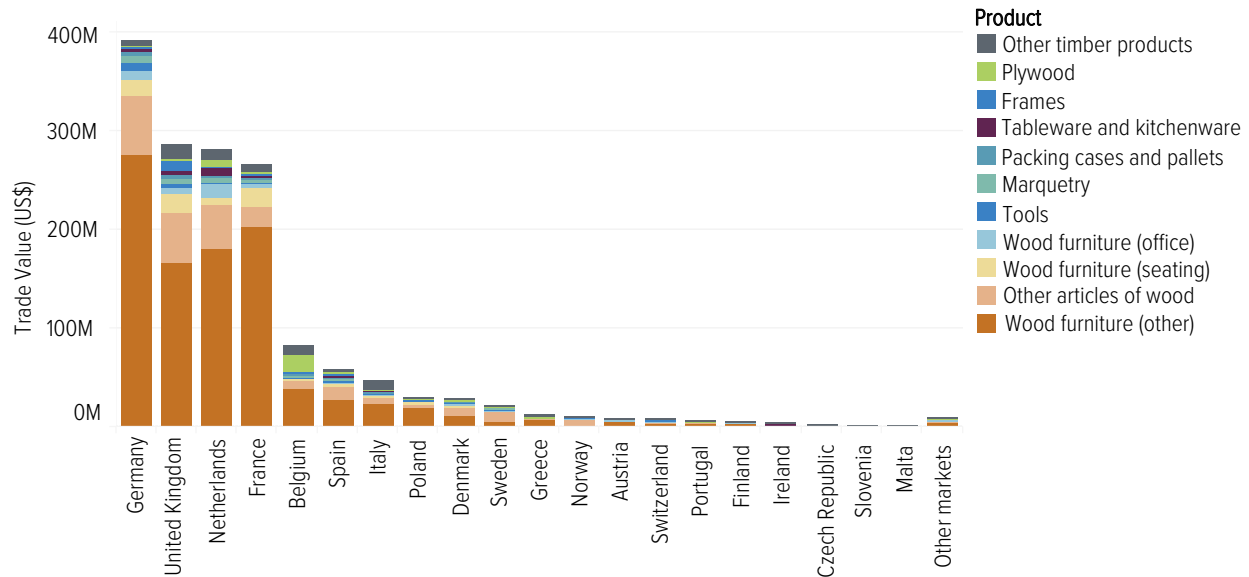
Figure 4 | India's timber product exports to the EU and EFTA



Source: UN Comtrade 2020, compiled by Forest Trends 2020



Figure 5 | Exports of timber products to EU+EFTA Members between 2015 and 2019



Source: UN Comtrade 2019, compiled by Forest Trends 2020

In early 2020, the global market downturn due to the COVID-19 pandemic crushed India’s export industry. Reported exports of all timber products fell 79 percent between January and May 2020, compared with the same five-month period in 2019. Exports of wooden furniture and handicraft products dropped 77 percent. Exports were down to all global markets.

2.2 Domestic Demand

A variety of factors lie behind India’s burgeoning domestic demand for timber products. While recent estimates on current demand for timber products remain limited, social and economic shifts in India suggest that demand is increasing and evolving (Box 1). The most obvious factor is the country’s remarkable economic growth.

India has had considerable success in reducing poverty—lifting 271 million people out of poverty in just the 10 years between 2006 and 2016 (Alkire et al. 2020). Per capita income rose by almost 32 percent in 2017–2018 compared to 2012–2013 (MoEFCC 2018). As of 2016, roughly 121 million households in India belonged to the middle-income bracket, earning a gross annual income of between \$7,700 and \$15,400. This figure is expected to increase to 140 million households by 2025, thus making India’s middle class significant relative to its total population (Keelery 2018). Dual income-earning households, larger disposable incomes, and changing lifestyle trends among Indian consumers are driving increased consumer spending, including for furniture considered to be “higher-end” (Sood 2019). India’s urban population is projected to grow to about 600 million by 2031 and 850 million by 2051 (MoEFCC 2018).



In addition, India's flourishing tourism and hospitality industry is reflecting evolving consumer preferences. A number of hotel chains are scaling up, even in smaller cities (Philip and Chaturvedi 2018). Increasingly, a large number of hotels are shifting away from décor and furnishings made from textiles such as carpets, turning instead to wooden flooring and the luxury spa atmosphere of natural "eco-furnishings" (Hotelier India 2015; Sood 2019). These factors have all contributed to a sharp increase in the domestic demand for commercial forest products.

At the same time, millions of Indians in rural areas still rely on fuelwood for heat and cooking – and much of the country's forest production objectives have prioritized wood for household use as opposed to industrial timber production. India has one of the highest rates of demand for fuelwood in the world, accounting for almost 90 percent of all India's forest product consumption (FAO 2007; Shrivastava and Saxena 2017; Sood 2019). Annual fuelwood consumption was estimated at 332.95 million m³ in the 2011 India State of Forest Report (MoEF 2011), but this decreased by around 5.46 percent between 2011 and 2019 (MoEF 2019).

Recent data on demand for timber products other than fuelwood are limited. The best estimates for India's timber consumption excluding fuelwood are only available for housing, furniture and agriculture. Combined, these uses are estimated to consume 33.61 million m³ of timber. However, researchers suggest that this could be a gross underestimation, considering that most wood markets, especially the panel, plywood and furniture industries, are fairly unorganized, and no official estimates are available (Shrivastava and Saxena 2017).

The Government of India's 2009 review of the forestry sector predicted that demand would reach 152.80 million m³ roundwood equivalent (RWE) by 2020, comprised of:

- Short-rotation species: 87.70 million m³ RWE for species such as acacia, bamboo, poplars, and eucalyptus.
- Long-rotation species: 65.10 million m³ RWE for species such as teak (*Tectona grandis*), gurjan (*Dipterocarpus turbinatus*), makai (*Shorea assamica*), dhup (*Canarium spp.*), pali (*Palaquium ellipticum*), and poon (*Calophyllum inophyllum*) (MoEF 2009).

The Indian domestic furniture market is expected to grow at an annual rate of 12.9 percent during the period between 2020 and 2024 (Tandon and Tewari 2019). Other reports value India's furniture market at \$61.09 billion by the end of 2023 (Panels and Furniture Asia 2019). IKEA, for example, has announced plans to open more than 25 stores across the country, with investments of more than \$1 billion in stores alone (Tandon and Tewari 2019).

With new construction and renovations evolving towards wooden "eco-furnishings" and floors, demand has increased for engineered wood panel products such as plywood, particleboard, medium-density fiberboard (MDF), oriented-strand board and laminated veneer lumber for construction and infrastructure projects as well as flooring products.

 **BOX 1****Consumer Concern Grows Over Climate Change and Unsustainable Consumption**

Indian citizens are increasingly concerned about environmental issues and are becoming more aware of the role that industry can play in mitigating climate change and conserving the environment. A Tetra Pak Index study in 2019 in India showed that 71 percent of respondents believed that the world is heading towards an environmental disaster unless people change their daily habits (Tetra Pak 2019).

Further studies released in 2019 show that 89 percent of Indian respondents believe that companies need to do more to address climate change, and that these businesses should be increasingly accountable for both their products and their corporate behavior (Mahindra Group 2019). Accenture's 2019 Global Consumer Pulse survey showed that 82 percent of Indian respondents prefer buying from companies that reflect their personal values (Tewari 2019). This suggests a potential shift in future consumer purchasing preferences towards companies with demonstrable ethical, legal, and sustainable sourcing practices.

3

India's Timber Supply: Domestic Production and Imports



Domestically produced wood and bamboo contribute roughly 75 percent of India's total available annual supply.

In the 1980s, the Indian government began to rethink its previous forest sector policies, which had been focused primarily on timber production (Vanam 2019). Faced with significant forest loss and degradation, principles of conservation and sustainable forest management began to be integrated into new policies and programs. Timber production from government forest areas fell dramatically in the mid-1990s. This exacerbated the increasing gap between domestic production and overall demand (Indian consumers plus export markets), creating a need for increased imports to meet this demand.

Despite increased imports, the supply-and-demand gap continued to grow. In the 2000s, the government recognized the need to balance the multiple objectives of increased production and supply of wood for subsistence fuelwood with a growing timber-processing industry which could employ thousands of people, while at the same time deliver high-level forest cover, biodiversity and climate commitments. Simultaneously, the approach of increasing timber production from trees outside forests (TOF) to meet domestic demand also gained importance.

Reports suggest that domestically produced wood and bamboo contribute roughly 75 percent of India's total available annual supply (Shrivastava and Saxena 2017). Yet, with demand from both domestic and foreign consumers continuing to rise, and the government's desire to meet its forest restoration and conservation goals, India will likely increase its reliance on imports in years to come (Gopikrishna Warriar 2018).

3.1 Domestic Production

3.1.1 Policies and measures

The Government of India has promoted the conservation and restoration of forests and has offered incentives to increase timber production from areas outside the designated forest area. On conservation and restoration, the government passed the Forest (Conservation) Act in 1980, which reportedly slowed down the rate of conversion of forest land into non-forest purposes (MoEFCC 2018). This rate declined from 0.165 million hectares per annum (1951–1976) to 0.032 million hectares per annum (1980–2016).

In 1999, the National Forestry Action Programme (NFAP) was developed to rehabilitate and increase the productivity of degraded forests, and also to increase the area under forest and tree cover, to ensure that 33 percent of the country is forested. The National Afforestation Programme, launched in 2000, is expected to contribute between 15 and 20 percent of the overall afforestation efforts with an emphasis on improving the quality and productivity of the existing forest cover (Lal 2000). The government launched various programs to rehabilitate degraded lands and watersheds. India has also complemented the reforestation policies by re-allocating tax revenues to states at least partially based on forest cover with the intention of incentivizing local governments to prioritize the reforestation of degraded land (Busch et al. 2019).



In 2015, the Government of India submitted its (Intended) Nationally Determined Contributions ((I)NDC) under the Paris Agreement, with a target of reducing overall emission intensity of its gross domestic product (GDP) by between 33 and 35 percent from 2005 levels by 2030 (UNFCCC 2015). India ratified the Paris Agreement in 2016 with the NDC aiming “to create an additional carbon sink of 2.5 to 3 billion tonnes of CO₂ equivalent through additional forest and tree cover by 2030”. This forest sector commitment is further detailed in India’s Reducing Emissions from Deforestation and Forest Degradation (REDD+) strategy published in 2018 which references the role of unplanned illegal logging and uncontrolled felling in driving deforestation, but which falls short of laying out policies to combat these drivers. Further strategies are forthcoming.

At the same time, the government has also sought to increase productivity of trees outside of forest. The National Forest Policy 1988 stated that “as far as possible, a forest based industry should raise the raw material need for meeting its own requirements, preferably by establishment of a direct relationship between the factory and the individuals who can grow the raw material by supporting the individuals with inputs including credit, constant technical advice, and finally harvesting and transport services”. To minimize the pressure on India’s forests and to meet industry’s timber needs, the policy recommended import liberalization of timber and prohibited the export of unprocessed logs (Vanam 2019).

A commission on forests set up by the government recommended in 2006 that restrictions on felling on private land should be eased and should remain limited to “highly restricted tree species”. Land ownership restrictions were lifted for plantations to encourage investment in larger agroforestry plantations. A report prepared by the Indian Institute of Forest Management (IIFM) as input to a Draft National Forest Policy in 2016 called for the need to “double the tree cover outside forests by the end of the next decade by incentivizing agro-forestry and farm forestry, facilitating assured returns with enabling regulations, and by promoting the use of wood products” (IIFM 2016). This report also recognized the need to encourage forest certification in India. The focus on “promoting sustainable use of wood” rather than “substitution of wood” has been lauded as a clear shift in approach (Vanam 2019).

3.1.2 Forest and forestland, and sources of production

India reported a 0.37 percent forest area annual net change rate in the FAO Forest Resource Assessment (FRA) 2020 (FAO 2020). A national increase of 3,976 km² in planted forest has been reported between national assessments conducted for the India State of Forest Report (ISFR) in 2017 and 2019 (MoEFCC 2019).

States showing the most significant gains in forest cover are Karnataka, Andhra Pradesh, Kerala, and Jammu and Kashmir due to their conservation measures and afforestation activities as well as local participation in protecting and managing planted and traditional forest areas (Sood 2019).

Manipur, Arunachal Pradesh and Mizoram states lost the most forest cover (MoEFCC 2019), reportedly due to shifting cultivation, biotic pressures (insects and diseases), rotational felling, diversion of forestlands for developmental activities, submergence of forest cover, agriculture expansion, and natural disasters (Sood 2019).

India’s 72.16 million ha of forest cover is divided between 58.89 million ha of naturally regenerating forest



and 13.27 million ha of planted forest (FAO 2020). Plantation extent¹³ was estimated at 10.04 million ha in 2020.

In India, the natural forests are mostly state-owned and managed (NEPCon 2017a). While some state-managed plantation production is recorded from natural forest areas (Table 1), a significant volume of domestically produced wood and timber is sourced from trees outside the recorded forest area, mainly in the form of agroforestry plantations on private lands (Sood 2019). Wood production from these areas has been estimated at almost 14 times the production from recorded forest areas (Shrivastava and Saxena 2017). The extent of trees outside the recorded forest area was estimated for the first time in 2019 at 29.38 million ha (MoEFCC 2019). This includes trees from agricultural land (often species such as mango), farm forestry areas (often species such as eucalyptus, acacia, poplar, casuarina), social forestry areas which include roadside areas, as well as land around educational institutions, factories, railways, gardens, community lands and private lands such as estates. As such, government-owned and -managed forests, including state forest plantations, provide only a small portion of the total domestic timber supply.

The total growing stock of wood in India is estimated at 5.91 billion m³ comprising 4.27 billion m³ inside forest areas and 1.62 billion m³ outside recorded forest areas (MoEFCC 2019).

3.1.3 Production data

India's annual total wood production (including bamboo) has been estimated at 438.14 million m³. When fuelwood production is excluded, this volume falls to 52.89 million m³.¹⁴ Recycled and reclaimed wood also contributes to the supply but the volume is limited (Vanam 2019). Table 1 presents the production breakdown.

The majority of wood or timber produced in India is fuelwood, followed by sawlogs and veneer logs (Figure 6). India produced around 200,000 m³ of MDF and 295,000 m³ of veneer sheets based on the latest available data reported for 2018 (FAO 2020).

Table 1. Annual estimated wood production in India (million m³)

Type	Production volume (million m ³)
Natural forests (excluding State Forest Development Corporations)	1.21
Natural forests (State Forest Development Corporations)	1.97
Trees outside recorded forest land	44.34
Bamboo ¹⁵	5.38
Fuelwood	385.25

Source: Adapted from Shrivastava and Saxena 2017

¹³ These statistics have been taken from India's reporting to the FAO's Forest Resource Assessment 2020. "Plantation forest" is defined in that context as "forest predominantly composed of trees established through planting and/or deliberate seeding". "Plantation forest" is defined within this broader frame to include: "Planted Forest that is intensively managed and meet ALL the following criteria at planting and stand maturity: 1. one or two species, even age class, and regular spacing. Specifically, (plantation forest) includes: short rotation plantation for wood, fibre and energy. 2. Specifically excludes: forest planted for protection or ecosystem restoration. 3. Specifically excludes: Forest established through planting or seeding which at stand maturity resembles or will resemble naturally regenerating forest."

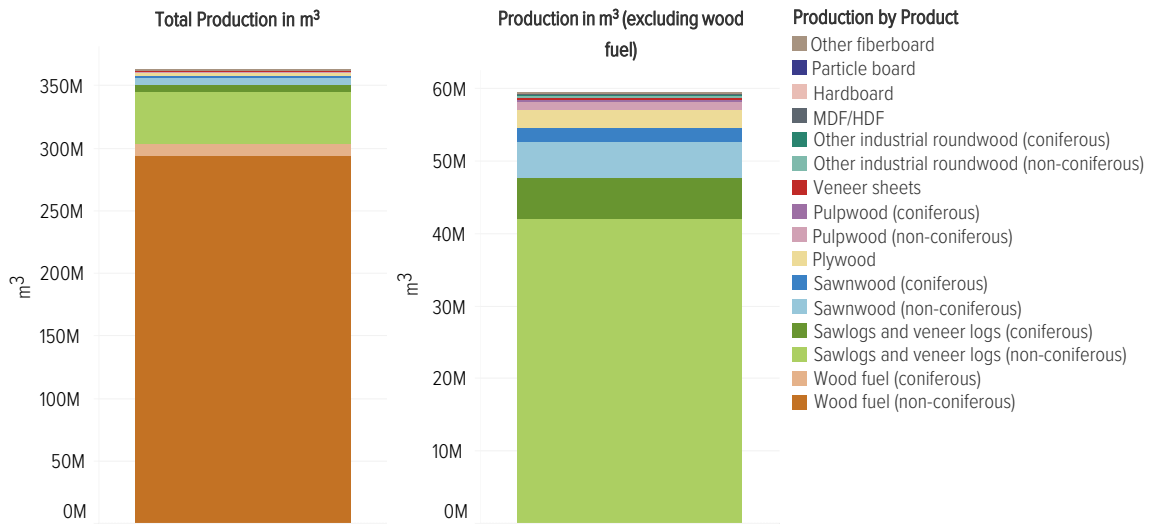
¹⁴ The figure is based on the estimations presented by Shrivastava and Saxena (2017). However, this section focuses on India's domestic production and as such omits the estimated annual volume of India's imports, which is also included in Shrivastava and Saxena (2017). This estimate is covered in Section 3.2 on imports.

¹⁵ In November 2017, the Government of India amended the 1927 Indian Forest Act to remove bamboo from the definition of "trees". This means that bamboo grown and harvested outside the designated forest area is now considered a "grass". The amendment is expected to encourage an increase in bamboo plantations.



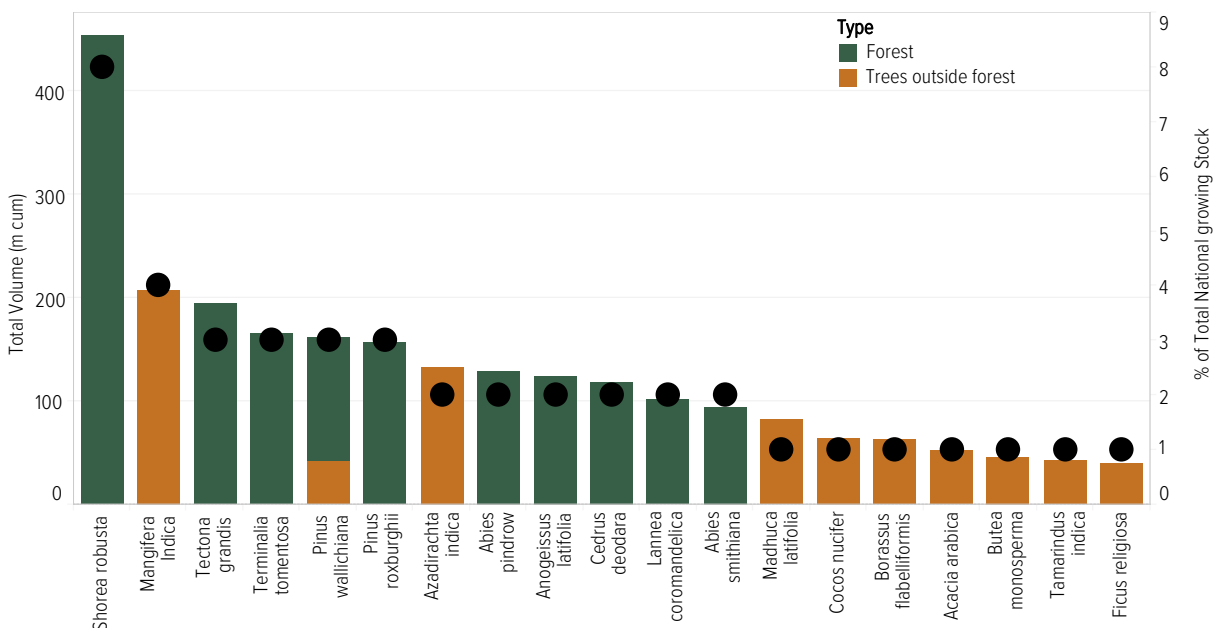
States like Punjab, Uttar Pradesh, Gujarat, Jammu and Kashmir, West Bengal, Kerala, and Andhra Pradesh are among the leading suppliers of domestic wood for the manufacturing and processing industries, and particularly, the country's furniture sector (AHEC 2016).

Figure 6 | India's wood product production (2018)



Source: FAOSTAT 2020

Figure 7 | India's growing stock by top species from forest and trees outside forest (million m³)



Source: Adapted from MoEFCC 2019



3.1.4 Domestic species

The best available production data of species are reported by forest type: trees within the designated forest area and trees outside forest.

- Sal (*Shorea robusta*) is most widely grown in India and accounts for around 8 percent of India's total national growing stock.
- Mango (*Mangifera indica*) accounts for around 4 percent of the total volume of growing stock and is produced outside forest areas in agroforestry plantations.
- Teak (*Tectona grandis*) accounts for roughly 3 percent of national growing stock (Figure 7) (MoEFCC 2019). Other key species based on growing stock include:
 - Pine (both *Pinus roxburghii* and *Pinus wallichiana*)
 - Indian Laurel (*Terminalia tomentosa*)
 - Neem/Indian lilac (*Azadirachta indica*).

3.1.5 Risk of illegality in domestic grown wood

Several legality risks are present in India, many of which are related to the legal rights to harvest and third parties' rights, non-payment of taxes and fees, and non-compliance with national laws and regulations covering timber-harvesting operations, transport and trade (NEPCon 2017a).

NEPCon's 2017 Timber Risk Assessment for India, the most comprehensive review to date, summarizes the legality risk as follows:

■ Rights to harvest

- non-recognition and violation of forest-dwellers' rights
- forest encroachment and illegal logging conducted on land not under the legal tenure of loggers, often supported by government official corruption
- harvesting without a permit
- over-harvesting on permitted volumes

■ Taxes and fees

- private businesses not paying the correct royalties and harvesting fees
- widespread VAT evasion and corruption in the implementation of VAT laws
- non-declaration/under-reporting of incomes and profits
- corruption among tax authorities

■ Timber-harvesting activities

- illegal harvesting within protected areas
- protected species being illegally harvested due to the prevalence of illicit logging and corruption among government officials



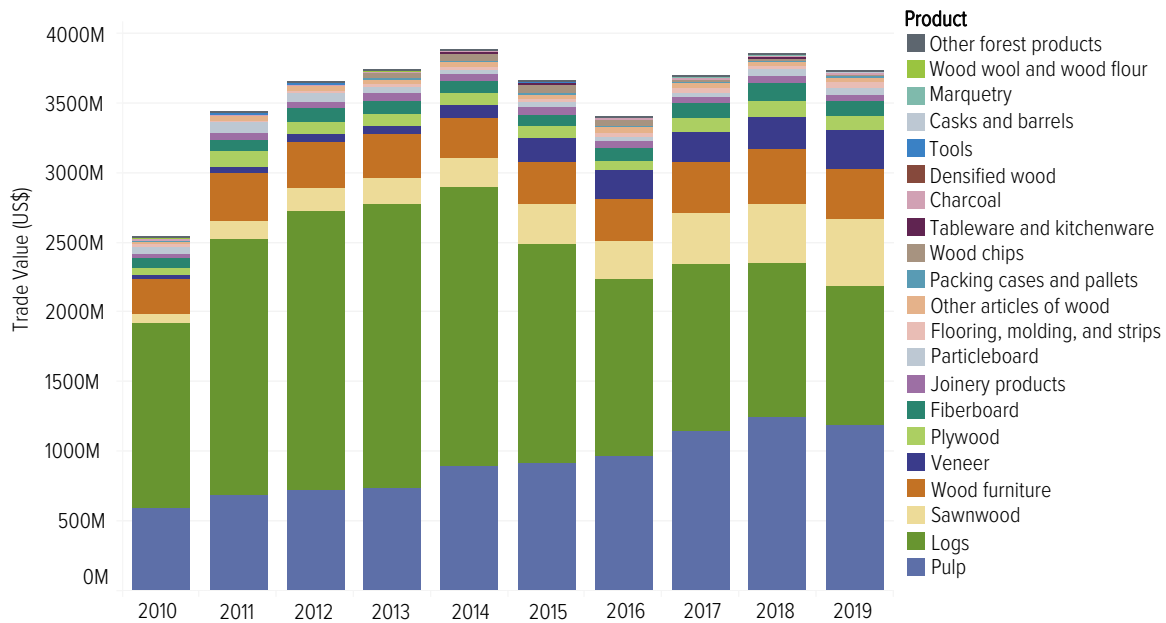
Violation of labor laws, such as non-payment of minimum wages, use of child labor, and incidences of bonded labor have also been reported as risks.

3.2 Imports

The total annual volume of imported timber has been estimated at 18.01 million m³ or roughly 25 percent of India's total available supply (including bamboo) based on 2015 import data.¹⁶ India's imports of timber products and pulp have almost doubled in value over the past decade (Figure 8). While still early to determine the full impacts of COVID-19 on global timber trade, India's reporting for the period January to May 2020 shows that total timber and pulp imports were down 82 percent by value compared to the same five-month period in 2019. This includes an 84 percent drop in log imports and an 82 percent decrease in both sawnwood and veneer imports. Imports were down from all major source countries.

Several industry studies estimate that India's imports will continue to increase as domestic and export demand continue to build, and as government incentives encourage the domestic furniture industry. Rising imports reflect increasing overall demand for raw materials as well as an increasing demand for new imported species (Sood 2019). Shrivastava and Saxena estimate an annual volume increase from 18.01 million m³ based on 2015 data to 22.51 million m³ by 2020; to 27.91 million m³ by 2025; and reaching 31.5 million m³ by 2030 (2017).

Figure 8 | Timber imports by product (excluding paper) 2010–2019



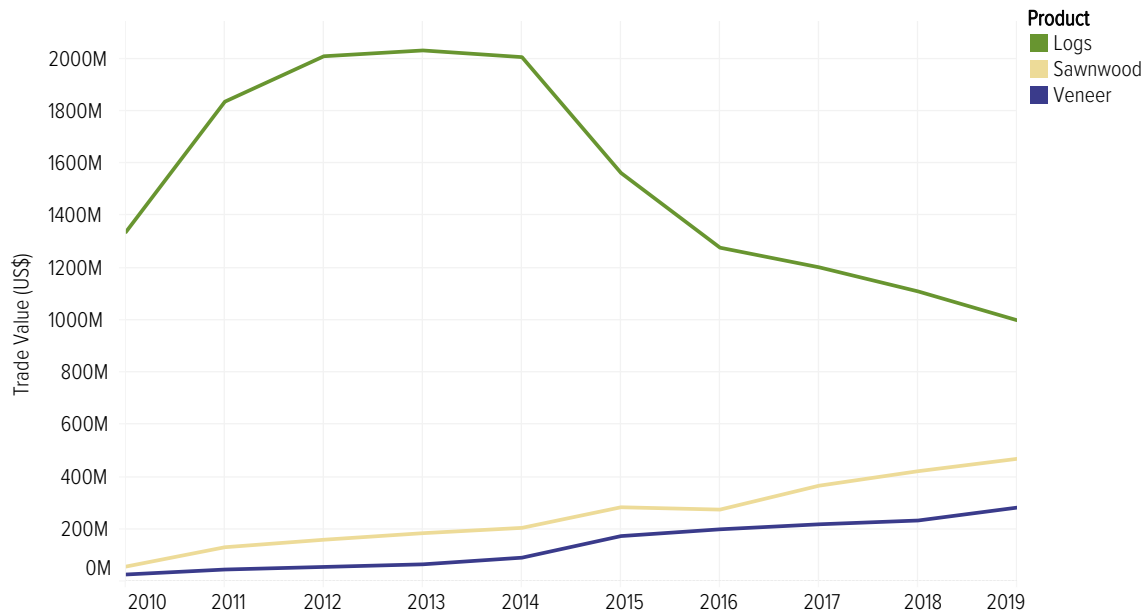
Source: UN Comtrade 2019, compiled by Forest Trends 2020

¹⁶ Based on India's estimated total supply of timber and bamboo in Shrivastava and Saxena (2017), which draws on India's 2015 import data reported on UN Comtrade.



The main products imported into India since 2010 include pulp, logs, sawnwood, and veneer to support a growing construction, manufacturing and processing industry. Together, these four products accounted for 79 percent of India's forest product imports by value in 2019. Log imports have been declining since 2014. Sawnwood and veneer imports have been slowly increasing (Figure 9).

Figure 9 | India's imports of logs, sawnwood, and veneer (2010–2019)



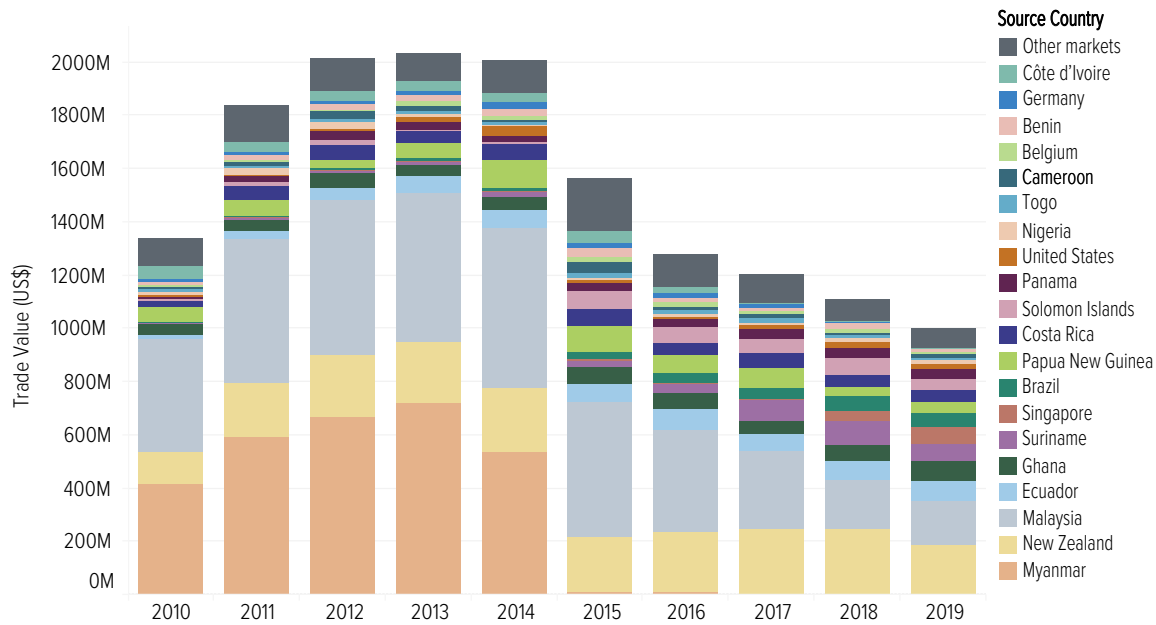
Source: UN Comtrade 2019, compiled by Forest Trends 2020

India's imports of logs have declined dramatically by 50 percent since 2014 (Figure 10), with a particular shock in 2014 and 2015 when the Governments of Myanmar and Lao People's Democratic Republic (Lao PDR) began to enforce log export bans, or due to reduced log export quotas, such as Malaysia imposed on its exports. Declining availability and rising costs of logs from the state of Sarawak have reportedly led a number of Indian companies to look outside Malaysia to other log suppliers. The top source countries since 2010 have been New Zealand, Malaysia, Suriname, Papua New Guinea, Costa Rica, Ghana, Ecuador, and the Solomon Islands, which together accounted for 69 percent of log imports by value in 2019. In 2013, prior to log export restrictions in key markets, Myanmar, Malaysia, and New Zealand supplied 75 percent of India's log imports. By 2019, India reported just 35 percent of log imports from Malaysia and New Zealand, and none from Myanmar. Over this time period, Indian log importers have switched sourcing away from Myanmar and Malaysia to Singapore (a country with no commercial forests), Brazil, the Solomon Islands, Suriname, Ghana, Panama, and Ecuador, which now supply 40 percent of India's log imports.

As log imports have declined, Indian companies have increased their sawnwood imports by 723 percent between 2010 and 2019. However, the total value of these sawnwood imports remain well below the values of total log imports (Figure 11). Malaysia is a key source country for sawnwood, along with Germany, Myanmar, Indonesia, the United States, and Brazil. As log imports have declined, Indian companies have diversified sawnwood imports from new countries, particularly Côte d'Ivoire, South Sudan, and Lithuania, as well as Papua New Guinea, Ecuador, Singapore, Ukraine, Sweden, and Benin.



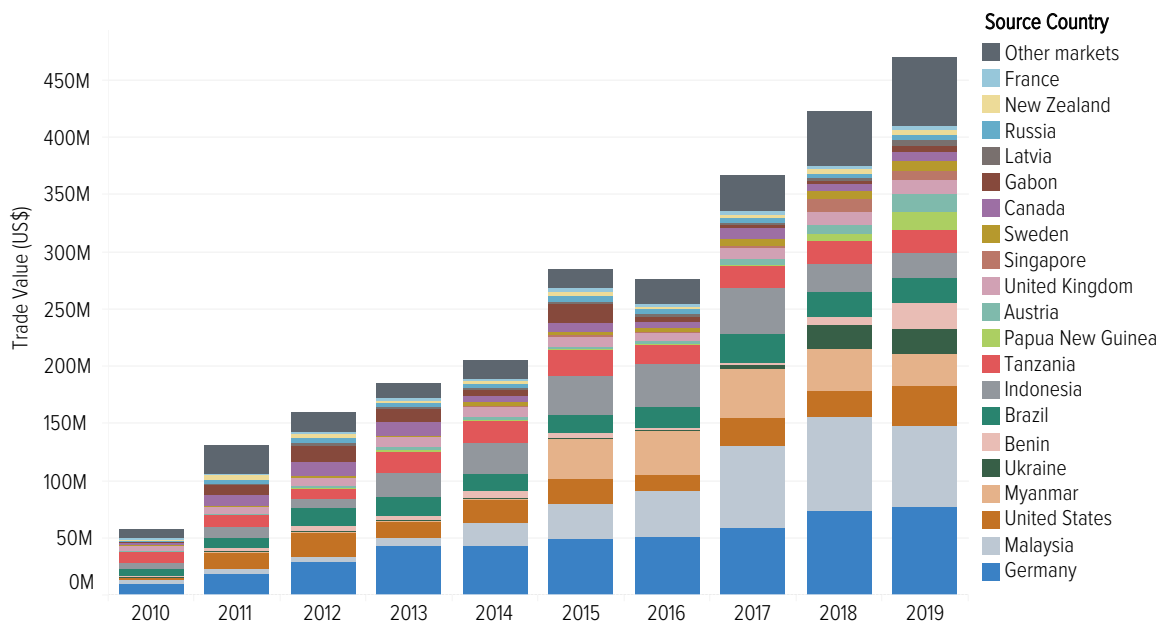
Figure 10 | India's imports of logs by source country (2010–2019)



Source: UN Comtrade 2019, compiled by Forest Trends 2020

Decorative hardwood sawn timber was initially imported from the United States and Canada but increasing imports of sawn timber from Malaysia, Indonesia, and Myanmar have been significant. This has particularly been the case in the past five years as the import duty on sawn timber from the Association of Southeast Asian Nations (ASEAN) countries has fallen to zero, which has significantly impacted Indian sourcing.

Figure 11 | India's imports of sawnwood by source country (2010–2019)

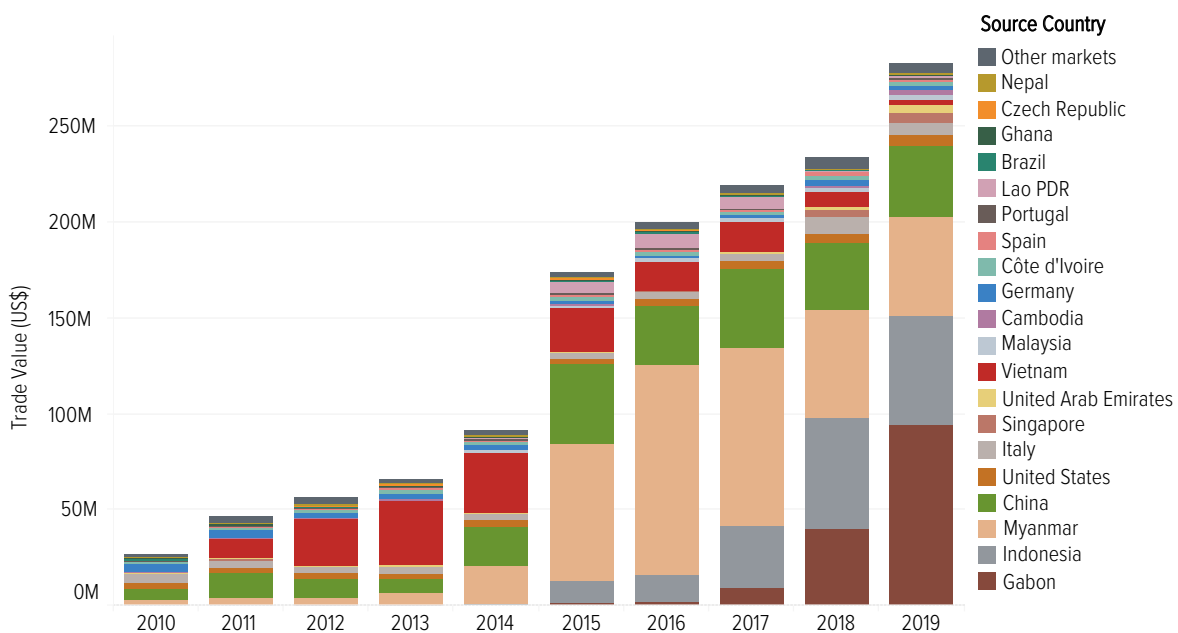


Source: UN Comtrade 2019, compiled by Forest Trends 2020



Indian companies increased veneer sourcing from Asia by 1,510 percent between 2010 and 2019. There was a rapid rise in sourcing from Myanmar and Indonesia after 2014, and a more recent spike in sourcing from Gabon in 2018 and 2019 following mill investments by Indian companies from 2013 in Myanmar (Moe 2014) and from 2016 in Gabon (ITTO 2016). Seven countries supplied 90 percent of India's veneer imports in 2019: Gabon, Myanmar, Indonesia, China, Vietnam, Italy, and the United States. Gabon alone now supplies one-third of India's total veneer imports (Figure 12 and Box 2).

Figure 12 | India's imports of veneer by source country (2010–2019)



Source: UN Comtrade 2019, compiled by Forest Trends 2020

3.3 India's Import-related Risks of Illegal Deforestation

Poor governance and corruption have been shown to correlate frequently with the failure of a country's public sector to enforce relevant laws or regulate industries effectively (Forest Trends 2017c). Nearly half of the world's forests are in nations with what Transparency International calls "rampant" corruption (Sundstrom 2016). Most of the forest crimes identified by Interpol and the United Nations Environment Programme (UNEP) result from the inability of state forest administrations to enforce laws that regulate timber harvesting and trade (Nellemann et al. 2016). The complicity of government officials in corruption in many states undermines the enforcement of laws and regulations relating to forest protection and management, and the reliability of chain of custody systems.¹⁷ This suggests an increased risk of buying illegal wood.

¹⁷ For a summary of the ways in which corruption negatively impacts environmental governance, see Leitao (2016). For examples of the links between government corruption and illegal logging, see Gore et al. (2013). For a summary of the scope and results of studies on corruption and illegality in forest management, see Sundstrom 2016.



In addition, fragile and conflict-affected states face particularly severe development and governance challenges and are characterized by weak institutional capacity, ineffective rule of law, political instability, and the threat or reality of ongoing violence at variable scales. As a result, political instability and violence inherent in these states raises the likelihood of buying illegal timber by a significant measure (Forest Trends 2017b; Forest Trends 2020).

In general, forest crimes and illegal logging in many timber-producing countries are not well documented, and consistent global data on illegal logging do not exist (Forest Trends 2017c). By its very nature, as an illicit act, the extent and nature of illegal logging are difficult to monitor systematically, and efforts are taken to hide it.

Forest Trends has also developed a risk assessment approach that follows a growing body of work using existing data and metrics related to national governance, corruption, conflict, and harvest-risk indicators to highlight the likelihood that timber may have been illegally logged in a source country, or the likelihood that illegal wood may have entered a supply chain.¹⁸

As such, to understand the risks associated with India's imported timber, this report therefore draws on three main and inter-related "risk" categories: (a) political governance and conflict risk; (b) species risk; and (c) risk of export in violation of source country restrictions.

3.3.1 Political governance and conflict risk associated with India's imports

Around 42 percent of India's timber imports in 2019, including 44 percent of logs, 42 percent of sawnwood and more than 75 percent of veneer imports, were sourced from countries assessed as being at high risk of illegal logging and trade based on governance, corruption and harvest indicators, or from conflict states as categorized by the World Bank (Figure 13). This suggests significant risks that illegal timber could be entering supply chains via imports, including in furniture and handicraft products manufactured in India.

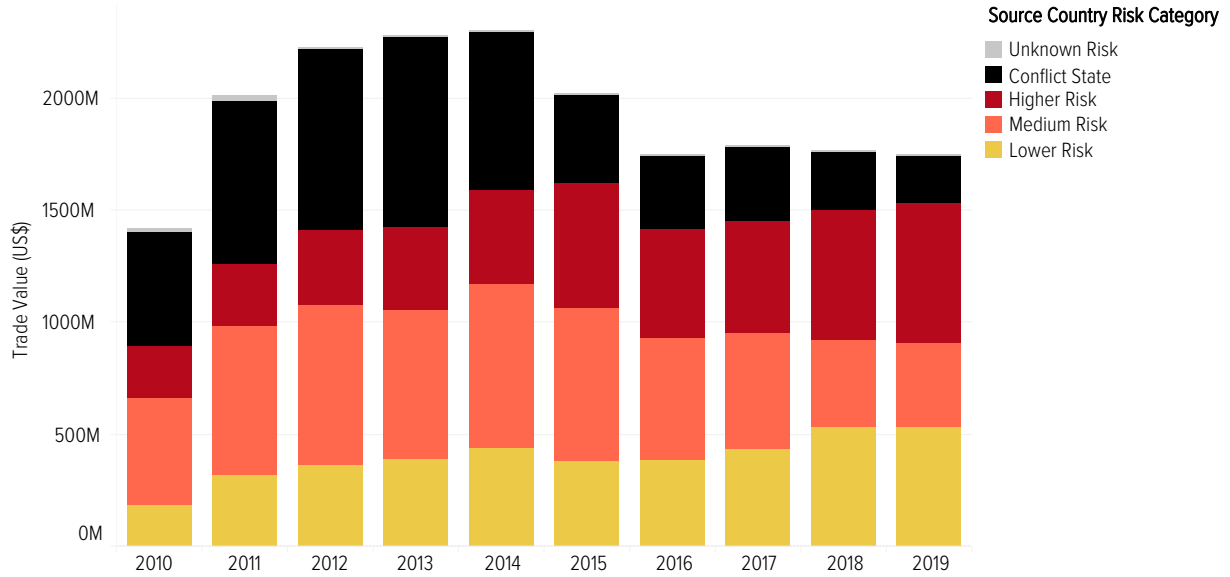
India's top 10 high risk source countries for logs, sawnwood, and veneer in 2019 were Gabon (Box 2), Ecuador, Brazil, Ghana, Suriname, Benin, Ukraine, Tanzania, Colombia, and Togo.

India's main source countries on the World Bank's list of fragile and conflict-affected situations for 2019 include Myanmar (Box 3), Papua New Guinea, the Solomon Islands, Nigeria, Cameroon, South Sudan, Republic of Congo, Liberia, Sudan, and the Central African Republic.

¹⁸ See underlying methodology at Forest Trends ILAT Risk website, <https://www.forest-trends.org/fptf-ilat-home/>



Figure 13 | India's log, sawnwood, and veneer imports by risk profile (2010–2019)



Source: UN Comtrade 2019, compiled by Forest Trends 2020

BOX 2

Reported Illegal Logging Risks in Gabon

Indian imports from Gabon, particularly of veneer, have been rapidly increasing since 2018, and Indian companies have invested heavily in facilities within Gabon itself, settling in special economic zones (SEZ) and building sawmills, kiln-drying facilities, and furniture, veneer and plywood manufacturing units (ITTO 2016). In the Nkok SEZ, 17 out of 96 industrial investors in 2016 were from India. Gabonese species such as oukumé have only recently been accepted by the Indian market for panels and ply veneers, replacing imports from countries such as Indonesia, Papua New Guinea, and the Solomon Islands (Global Wood Markets Info 2017).

Gabon's forestry sector has long been critiqued for lacking transparency; public information on production, exports, and legal compliance with national legislation by licensed logging companies is scarce. NGOs continue to document sector-wide illegalities, widespread corruption, and illegal timber being sold on international markets.

Brainforest, a Gabonese NGO, and the Environmental Investigation Agency (EIA) have released reports, in 2010 and 2019 respectively, presenting detailed evidence of sector-wide illegalities including tax evasion, money-laundering and corruption, as well as overharvesting (EIA 2019). Crackdowns by the Gabonese authorities targeting a dozen companies in 2017 exposed further evidence of illegality in the sector, including the illegal felling of protected species. In 2019, Gabon's president sacked the vice-president and forestry minister over a timber-smuggling scandal surrounding the seizure and subsequent theft of containers of kevazingo (Dewast 2019).

These combined governmental and NGO initiatives highlight how sourcing timber from Gabon continues to be high risk.

In recognition of the challenges, in 2018, Gabon's president declared that all forest concessions operating in Gabon will have to be certified by the Forest Stewardship Council (FSC) by 2022 (FSC 2020). The government has estimated that with these new measures, the sector will increase its contribution to GDP from 500 million euros to 3,000 billion euros by 2025.

BOX 3

Reported Illegal Logging Risks in Myanmar

Myanmar has the largest area of natural teak forests in the world – almost 50 percent of the 29 million ha across the globe. Until the Union Government of Myanmar (UGoM) instituted a log export ban and significantly reduced the annual allowable cut (AAC) in its teak forests (FAO 2015), Myanmar was the number one producer and exporter of teak logs in the world.

Yet there are significant reports of corruption, weak forest governance and law enforcement in Myanmar's forest sector (EIA 2019). Illegal harvesting in conflict areas such as Kachin State (EIA 2015); irregularities associated with forest conversion for all species (World Bank 2019); human rights violations (UNHRC 2019); and the mixing of timber from unknown sources has been reported (NEPCon 2017b; Forest Trends 2013; European Commission 2017; UNEP-WCMC 2018). In 2018, the European Commission and EU Member States jointly developed a common enforcement position, concluding that it was impossible to buy teak from Myanmar that complies with European Union Timber Regulation (EUTR). This position has been maintained ever since. Strong concerns have been raised regarding “the high level of corruption in Myanmar, in particular in the context of forestry, the exclusive forest ownership by the State and management by the State-owned enterprise MTE [Myanma Timber Enterprise] of natural forests, and the high value of teak grown in the wild ...[This means that] ... Myanmar remains a high risk country of harvest....The State itself is at risk of being in contravention of the law” (European Commission 2019). A number of EU Member States have started seizing Myanmar teak and/or returning shipments to both Myanmar and countries within longer supply chains such as India (Forest Trends 2020).

The 2018 FSC National Risk Assessment for Myanmar identified a wide range of key risks including: illegal assignment of harvest permits; illegal conversion of forest areas to agriculture; avoidance of paying royalties, harvesting fees and taxes; violation of forest management laws, regulations and rules; conflicts over land resources and involving Indigenous Peoples; and the falsification of documents which are all paper-based (FSC 2018).

India–Myanmar trade Historically teak has been a key import species for India, sourcing close to one-third of all log imports from Myanmar between 2010 and 2014. However, since April 2014, the UGoM enacted a log export ban and reduced the AAC. Subsequently, Indian companies began investing in basic mills within Myanmar itself as well as diversifying their sources of teak, eventually sourcing teak logs, sawnwood and veneer from more than 50 countries between 2016 and 2019. Indian buyers also began to source other Myanmar species. Until 2018, India continued to report some log imports from Myanmar in contravention of the export ban; today, sawnwood and veneer imports have increased significantly.

Through a detailed assessment of shipment record data, Forest Trends found that Indian companies imported more keruing (*Dipterocarpus* spp.) than teak (based on value) between October 2016 and September 2019. Nearly 60 percent of India's log, sawnwood and veneer imports from Myanmar were described as keruing. Teak accounted for 28 percent of India's imports from Myanmar (by value) over the period, with pyinkado (Myanmar Ironwood, or *Xylia xylocarpa*) accounting for 12 percent of imports.

Timber that does not transit through Yangon for export is illegal under Myanmar law. India and Myanmar share a land border including two main border crossings with customs stations: Tamu, Sagaing in Myanmar to Moreh, Manipur, India; and Rih, Chin State in Myanmar to Zokhawatar, Mizorem in India.

Box 3 (continued)

A recent report suggests that the quantities passing by land into India were likely to be relatively small due to the remoteness of the border region with its inadequate infrastructure for transporting wood products. However, respondents in the study did confirm an informal trade of timber crossing the border at night, with traders mainly operating from Manipur with timber illegally sourced from protected forests (Maria-Sube and Woodgate 2018).

The Governments of India and Myanmar signed a Memorandum of Understanding in February 2020 aimed at Cooperation on Combating Timber Trafficking, and Conservation of Tigers and other Wildlife, but at the time of this report, little detailed information was released other than that training of Myanmar officials would be involved (Gol 2020).

3.3.2 Species risk

Forest Trends analyzed detailed shipment records for India's imports of logs, sawnwood, and veneer to offer insight into the risk profile of India's imported wood supply. Shipping records contain more information than public international trade datasets such as UN Comtrade or Eurostat. For example, shipment record data provide information on the importer, supplier, port, and product through a description field, which may include information on the species.

India imported more than 250 species of logs, sawnwood, and veneer in 207,188 shipments between October 1, 2016 and September 30, 2019.¹⁹ Around 97 percent of all shipments by value listed information on the species in the product description field.

Overall, pine, spruce, poplar and beech were most likely to be sourced from low risk source countries based on governance, corruption, and harvest indicators (Figure 14).

Logs of merbau, bintangor, brown terminalia, nyatoh, kempas and okume were overwhelmingly sourced from fragile and conflict-affected states as categorized by the World Bank.

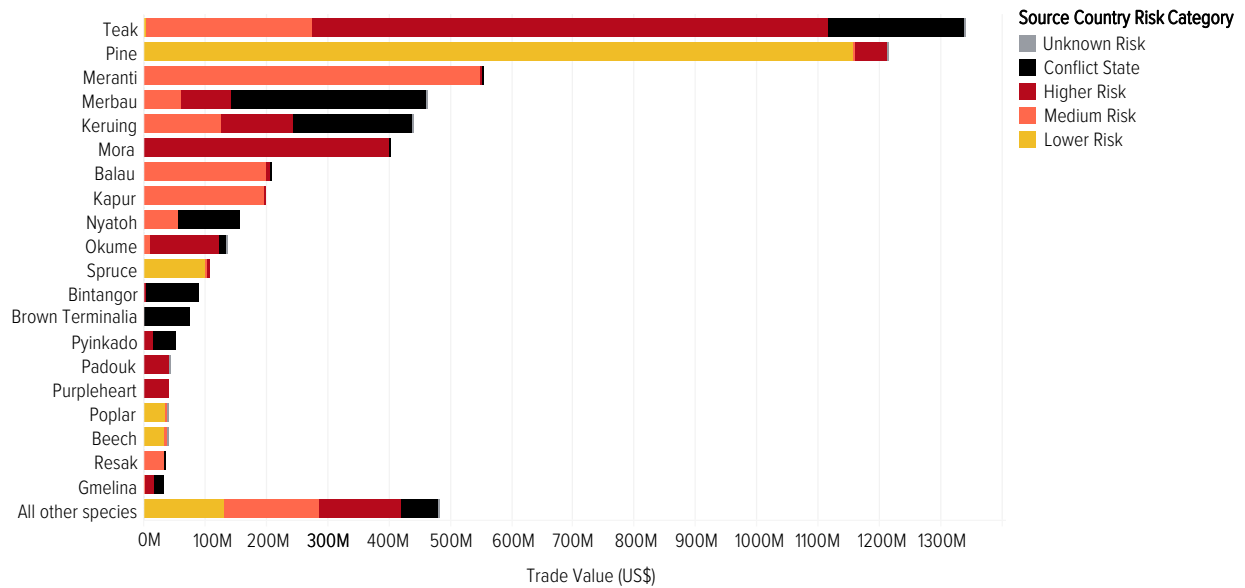
Logs and sawnwood of mora, purpleheart, tali, pyinkado, padouk, gmelina and teak were most frequently sourced from countries considered to be at high risk for illegal logging and trade.

Veneer of keruing, okume, teak, ceiba and santos rosewood were predominantly sourced from conflict states or from countries considered at high risk based on governance and harvest indicators over the period.

¹⁹ Indian customs data were purchased from Indian private customs data provider Export Genius covering the period October 1, 2016 and September 30, 2019. Species information was assessed based on the information provided in the shipment description fields.



Figure 14 | Top 20 species by source country risk for India's log, sawnwood, and veneer imports (Oct 1, 2016–Sept 30, 2019)



Source: Export Genius 2019, compiled by Forest Trends 2020

In addition, some species have been put under the protection of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species. A species listing on the IUCN Red list does not necessarily imply prohibition of trade under national law, and endangered species may be perfectly legally traded, but a listing on the IUCN Red List indicates rising scarcity, which increases the value of the timber species (and hence raises the risk of illegal logging).

According to CITES trade data covering the period 2013–2019, India directly imported agarwood chips (*Aquilaria* and *Gyrinops*) from Thailand, Vietnam, Indonesia, and Malaysia; ramin (*Gonystylus* spp.) from Malaysia; African sandalwood (*Osyris lanceolata*) from Burundi; afrormosia (*Pericopsis elata*) from DRC; and pygeum (*Prunus africana*) bark from the Republic of Congo and DRC.

According to Forest Trends analysis, 11 CITES-listed species were listed in detailed shipment data on India's imports of logs, sawnwood, and veneer between October 1, 2016 and September 30, 2019. Another two species that are considered to meet China's Homgmu standard were also found. Afrormosia (*Pericopsis elata*), tamo ash (*Fraxinus mandshurica*) bubinga (*Guibourtia* spp.), and rosewood (*Dalbergia* spp.) veneer, imported from China, the United States, Spain, Japan, the United Kingdom, France, and the Netherlands, were the most significant in terms of value. However, overall, CITES-listed species accounted for just 0.01 percent of India's log, sawnwood, and veneer imports (valued at \$713,000) between October 2016 and September 2019.

Mali banned all trading and export of rosewood (*Pterocarpus erinaceus*) in 2014 (CITES 2016) yet India reported at least one imported shipment of Kosso (a common name for *Pterocarpus erinaceus*) in December 2017, valued at \$7,000.

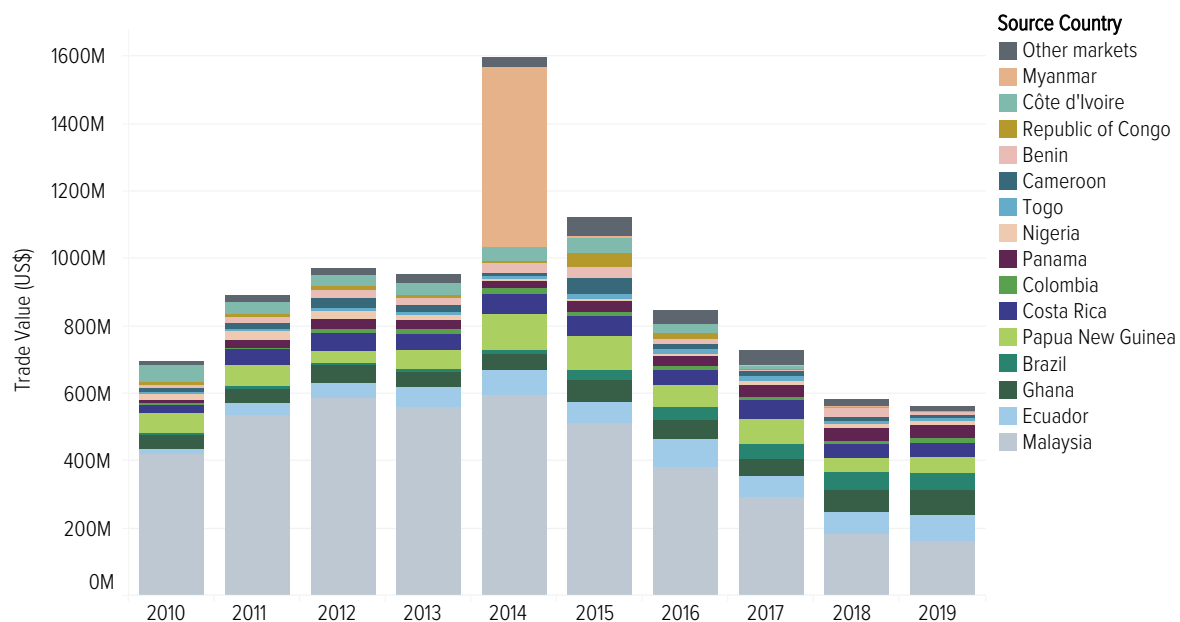


At the same time, 171 species, representing 38 percent of India's log, sawnwood, and veneer imports by value (\$2.4 billion) were species assessed as Near Threatened, Vulnerable, Endangered or Critically Endangered on the IUCN Red List. As much as 64 percent of India's veneer imports in the time period contained species assessed as vulnerable on the IUCN Red List, suggesting that veneer is considered to be particularly high risk.

3.3.3 Imports of banned or restricted forest products

India has historically sourced significant volumes of logs and sawnwood from countries with active regulations restricting their export (Figures 15 and 16). Forest product export restrictions (FPERs) range from comprehensive bans on all raw or crudely processed forest products, to more narrow, partial restrictions targeting certain types of timber, specific tree species, or distinct regions of harvest.

Figure 15 | India's imports of logs from countries with active log export restrictions (2010–2019)

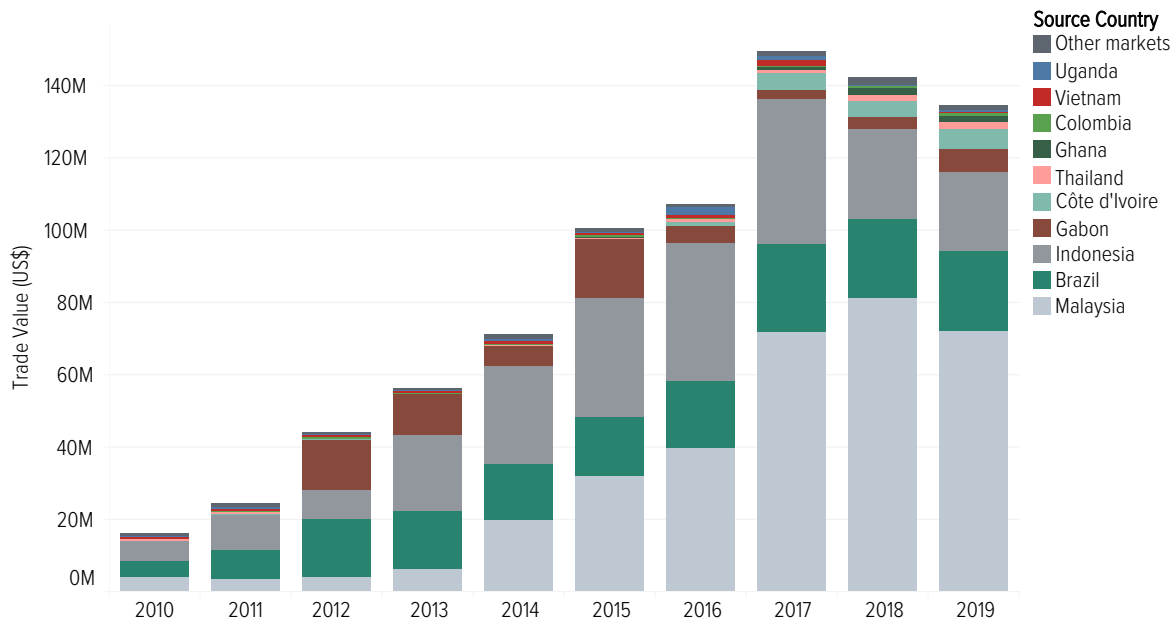


Source: UN Comtrade 2019, compiled by Forest Trends 2020

India imported \$2.5 billion of logs from countries with an active log export restriction in place (including full log export bans) and \$194 million from countries with an active sawnwood restriction in place between 2016 and 2019. Thus, nearly 60 percent of India's log imports and 20 percent of sawnwood imports were sourced from countries with active export restrictions in place. At least \$415 million of log imports and \$90 million of the sawnwood imports appear to be in contravention of the specific provisions of the relevant export restrictions and are at a high risk of illegality. The presence of an FPER signals a need for additional risk assessment and mitigation actions to ensure that the import of certain products from these countries does not violate the specific laws and regulations of the source country. Any timber products imported into India would be at risk of legality violations if these products originated as logs, sawnwood or other covered timber



Figure 16 | India's imports of sawnwood from countries with active sawnwood export restrictions (2010-2019)



Source: UN Comtrade 2019, compiled by Forest Trends 2020

products imported into those countries in violation of an FPER. In the United States, Europe, and Australia, regulated market transactions involving products in violation of an FPER policy from the country of harvest are typically within the scope of the U.S. Lacey Act, the EUTR and the Australian Illegal Logging Prohibition Act (ILPA). Thus, any timber product manufactured in India from FPER-sourced wood materials would require the additional risk assessment and mitigation measures.

The species most frequently sourced from countries with export restrictions in place were teak, meranti, merbau, balau, kapur, keruing, nyatoh and padaouk. From October 2016 to September 2019, India imported \$990 million of teak (representing 93 percent of all teak logs imported over the period), \$510 million of meranti and \$318 million of merbau logs (accounting for 100 percent of meranti and merbau imports over the period) from countries with active export restrictions in place.

4

Furniture and Handicrafts Industry

India's furniture industry includes a few large companies which are well organized, but 90 percent of the industry is small-scale or "unorganized" (Hashmi 2012), where most wooden furniture, joinery, and other household products are made to order by small workshops or individual artisans. The Association of Furniture Manufacturers and Traders reports that the organized large furniture industry has been growing 20 percent annually (Financial Express 2018). Companies include Nilkamal Limited, Godrej & Boyce Manufacturing Co. Ltd., Zuari Global Ltd, Wipro Enterprises Ltd., Furniturewalla, Featherlite, Millennium Lifestyles, Urban Ladder, Damro, Pepperfry and IKEA. There are little to no data on the SME and artisanal subsector growth.

The furniture-manufacturing industry was estimated to employ roughly 4.1 million workers in 2013, concentrated in manufacturing centers in Maharashtra, Gujarat, Uttar Pradesh, Bihar, and West Bengal (AHEC 2016). The National Skill Development Corporation in India states that the industry will require 11.3 million skilled workers by 2022 (The Economic Times 2015).

4.1 Species Used in Furniture Production

Nearly one-third of all handicrafts manufacturers reportedly use reclaimed wood (AHEC 2016). Some of the most common varieties of wood used in handicrafts and furniture include: teak, sheesham, sal, oak, mango, and mahogany. Sandalwood, ebony, rosewood, and walnut are considered exotic varieties and are highly expensive raw materials. All of these species are both grown domestically within India and are also imported (see Section 3; Table 2; and Box 4).

Teak is reportedly the most commonly used species in wooden furniture production in India. Artisans working in the furniture and handicrafts sector are accustomed to and prefer teak and other hardwoods that are perceived to be more resistant to termites and decay. Indian consumers have historically had a strong preference for dark tropical woods. Teak is typically seen as a benchmark with respect to grade and price, as compared to other wood species (Sood 2019). Government figures suggest that as much as half of the furniture manufactured in India uses teak; 30 percent is manufactured from mango, sheesham, mahogany, and cedar; and roughly 20 percent from sal (EPCH 2017).








The reported scale of teak usage in furniture is particularly at odds with what this report found through analyzing India's furniture exports. Just 1 percent of India's global exports of HS code 940360 listed teak as a component species. Given that a high percentage of export shipments did not list a species, it is possible that a higher proportion of shipments could contain teak. However, it is also possible that a much higher proportion of teak furniture remains on the Indian domestic market where it is a popular material particularly in western and southern regions of India (EPCH 2017).



Some of the most common varieties of wood used in handicrafts and furniture include: teak, sheesham, sal, oak, mango, and mahogany.












Table 2: Main species used in Indian manufactured furniture and handicraft production²⁰

Species Name Other common name(s)	Scientific name of species grown in India Geographic extent within India	Volumes and risk assessment of imported species (listed on shipping manifests Oct 2016-Oct 2019)* *Based on 97 percent of imports by value listing a species	Species risk: CITES and IUCN Red List
 Mango	<i>Mangifera indica</i> Grown throughout India	Very low imports by value ● <u>Low risk:</u> 100% China (plantation)	Not listed
 Acacia (babool, kikar)	<i>Acacia spp.</i> Rajasthan, Andhra Pradesh, Maharashtra, Madhya Pradesh, Tamil Nadu, Karnataka, Bengal, Gujarat, Uttar Pradesh	Very low imports by value ● <u>Low risk:</u> 80% Vietnam (smallholder grown) 12% from Malaysia (plantation) 8% other low risk countries (plantation)	IUCN Red List: <i>Acacia spp</i> Least Concern
 Pine	<i>Pinus wallichiana, Pinus kesiya</i> Arunachal Pradesh, Himachal Pradesh, Jammu and Kashmir, Manipur, Meghalaya, Uttarakhand	Large volume of imports by value: <i>Pinus radiata, Pinus sylvestris</i> and <i>Pinus spp.</i> ● <u>Low risk:</u> Majority sourced from low risk countries ● <u>High risk:</u> 4.45% sourced from high risk countries such as Ukraine and Russia	IUCN Red List: <i>Pinus wallichiana</i> Least Concern <i>Pinus kesiya</i> Least Concern
 Sheesham	<i>Dalbergia sissoo</i> Mysore, Maharashtra, Assam, Bengal, Uttar Pradesh, Orissa	Very low imports by value: <i>Dalbergia spp.</i> or rosewood ○ ● <u>Unknown or high risk:</u> 59% Turkey (likely not COO) 33% China (likely not COO) 8% Italy, Spain (likely re-export of rosewood veneer sourced in another COO) and Tanzania (rosewood sawnwood)	CITES Appendix-II: <i>Dalbergia sissoo</i> <i>Dalbergia spp.</i>
 Teak	<i>Tectona grandis</i> Throughout central and southern India	Large volume of imports by value ● <u>High risk:</u> 80% from high-risk countries or conflict states, even when plantation teak	Not listed
 Oak	<i>Quercus oblongata, Quercus floribunda, Quercus semecarpifolia</i> Himachal Pradesh, Jammu and Kashmir, Manipur, Nagaland, Uttarakhand	Very low imports by value: <i>Quercus alba, Quercus robur, Quercus michauxii, Quercus rubra, Quercus petraea</i> ● <u>Low risk:</u> Majority sourced from low-risk countries ● <u>High risk:</u> 2.21% sourced from high-risk countries such as Ukraine, Cameroon and Bosnia and Herzegovina	IUCN Red List: <i>Quercus oblongata</i> Not listed <i>Quercus floribunda</i> Not listed <i>Quercus semecarpifolia</i> Least Concern <i>Quercus alba</i> Least Concern <i>Quercus robur</i> Least Concern <i>Quercus michauxii</i> Least Concern <i>Quercus rubra</i> Least Concern <i>Quercus petraea</i> Least Concern <i>Quercus semecarpifolia</i> Least Concern CITES Appendix-III: <i>Quercus mongolica</i> (wood from Russia only)
 Walnut	<i>Juglans regia</i> Jammu and Kashmir, Himachal Pradesh, Maharashtra and Uttaranchal and Arunachal Pradesh	Low imports by value: (<i>Juglans nigra, Juglans regia</i> or African walnut <i>Lovoa trichilioides</i>) ● <u>Low risk:</u> Majority sourced from low-risk countries ● <u>High risk:</u> 1.79% sourced from high-risk countries such as Cameroon, Turkey, Bosnia and Herzegovina and Brazil	IUCN Red List: <i>Juglans regia</i> Least Concern <i>Juglans nigra</i> Least Concern <i>Lovoa trichilioides</i> Least Concern <i>Juglans insularis</i> Vulnerable <i>Juglans cinerea</i> Endangered

²⁰ See Box 4 for discussion of sandalwood/red sanders.



 <p>East Indian Rosewood ("rosewood")</p>	<p><i>Dalbergia latifolia</i></p> <p>Kerala, Karnataka, Maharashtra, Madhya Pradesh, Tamil Nadu, Orissa</p>	<p>Very low imports by value: <i>Dalbergia spp.</i> or rosewood</p> <ul style="list-style-type: none"> ○● Unknown or high risk: 59% Turkey (likely not COO) 33% China (likely not COO) 8% Italy, Spain (likely re-export of rosewood veneer sourced in another COO) and Tanzania (rosewood sawnwood) 	<p>CITES Appendix-II: <i>Dalbergia latifolia</i> All <i>Dalbergia spp.</i></p>
 <p>Bamboo</p>	<p>India is home to 125 indigenous and 11 exotic species of bamboo</p> <p>Throughout India, especially Assam and Bengal (which account for 50% of resources)</p>	<p>Very low imports by value</p> <ul style="list-style-type: none"> ● Low risk: 100% China (plantation) 	<p>Not listed</p>
 <p>Ash</p>	<p><i>Lannea coromandelica</i></p> <p>Andhra Pradesh, Assam, Bihar, Chhattisgarh, Goa, Gujarat, Haryana, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Telangana, Tripura. Uttar Pradesh, Dadra and Nagar Haveli</p>	<p>Low imports by value: <i>Fraxinus spp.</i></p> <ul style="list-style-type: none"> ● Low risk: Majority sourced from low-risk countries ● High risk: 5.37% sourced from high-risk countries such as Turkey, Cameroon, Ukraine and Bosnia Herzegovina 	<p>IUCN Red List: <i>Lannea coromandelica</i> Not listed <i>Fraxinus chinensis</i> Least Concern <i>Fraxinus excelsior</i> Near Threatened <i>Fraxinus nigra</i> Critically Endangered <i>Fraxinus americana</i> Critically Endangered</p> <p>CITES Appendix III: <i>Fraxinus mandshurica</i></p>
 <p>Neem or Indian lilac</p>	<p><i>Azadirachta indica</i></p> <p>Throughout India</p>	<p>No recorded imports</p>	<p>IUCN Red List: <i>Azadirachta indica</i> Least Concern</p>
 <p>Mahogany</p>	<p><i>Swietenia spp.</i></p> <p>Kerala, Tamil Nadu, Karnataka, Andhra, Bengal</p>	<p>Very low imports by value: (including <i>Swietenia</i> and <i>Khaya spp.</i>)</p> <ul style="list-style-type: none"> ● High risk: 43.76% sourced from high-risk source countries or conflict states including Angola, Mozambique, Ivory Coast, Ghana and DRC 	<p>IUCN Red List: <i>Swietenia macrophylla</i> Vulnerable <i>Khaya spp.</i> Vulnerable <i>Swietenia mahagoni</i> Near Threatened <i>Swietenia humilis</i> Endangered</p> <p>CITES Appendix II: <i>Swietenia macrophylla</i> <i>Swietenia mahagoni</i> <i>Swietenia humilis</i></p>
 <p>Sal</p>	<p><i>Shorea robusta</i></p> <p>Karnataka, Andhra Pradesh, Maharashtra, Uttar Pradesh, Bihar, Madhya, Pradesh, Orissa</p>	<p>Significant imports by value: of <i>Shorea spp.</i> (particularly meranti, balau as well as African sal)</p> <ul style="list-style-type: none"> ● Medium risk: 99% of meranti and balau imports sourced from Malaysia ● High risk: Imports from Myanmar, PNG and Turkey. 100% of "African sal" sourced from Cameroon 	<p>IUCN Red List: <i>Shorea robusta</i> Least Concern <i>Shorea laevis</i> and many other species of <i>Shorea</i> Endangered</p>
 <p>Rubberwood</p>	<p><i>Hevea brasiliensis</i></p> <p>Andaman and Nicobar Islands, Assam, Karnataka, Kerala, Tamil Nadu</p>	<p>Low imports by value</p> <ul style="list-style-type: none"> ● Low risk: 47% Thailand (plantation) 29% Malaysia (plantation) 20% Vietnam (smallholder grown) 4% Indonesia (low risk: plantation) 	<p>Not listed</p>
 <p>Kadam (Cadamba)</p>	<p><i>Neolamarckia cadamba</i></p> <p>Throughout India</p>	<p>No recorded imports</p>	<p>Not listed</p>
 <p>Ebony</p>	<p><i>Diospyros ebenum</i></p> <p>Southern India. There are reports that India has banned the export of <i>Diospyros ebenum</i></p>	<p>Low imports by value (<i>Diospyros spp.</i>)</p> <ul style="list-style-type: none"> ○● Unknown or high risk: 25% sourced from high-risk countries or conflict states including South Sudan, DRC, Gabon, Cameroon and Nigeria 50% sourced from China (likely not COO) 25% sourced from low-risk European countries (likely re-export of ebony sourced in another COO) 	<p>IUCN Red List <i>Diospyros ebenum</i> Data deficient <i>Diospyros crassiflora</i> Vulnerable <i>Diospyros celebica</i> Vulnerable <i>Diospyros mun</i> Critically Endangered</p> <p>CITES Appendix-II: All Madagascan species of <i>Diospyros</i></p>

BOX 4

Exports of CITES-listed Species Red Sanders or Red Sandalwood

Red sanders or red sandalwood (*Pterocarpus santalinus*) is endemic to several districts in Andhra Pradesh and some parts of Tamil Nadu and Karnataka in India (Arunkumar and Joshi 2014). Traditionally, the wood has been in high demand for furniture, and for medicinal uses, particularly for domestic markets as well as international markets such as China and Japan.

Overexploitation to meet domestic and international demand prompted the Government of India to recommend inclusion of red sanders under CITES protections in the 1980s. In particular, prices on the international market were double than when sold domestically. Red sanders was listed in Appendix II of CITES in 1995, and the Government of India subsequently banned export in 2004. Individual states regulated the domestic trade of red sanders through a process of multiple permits (Kukreti 2018).

In 2010, the Indian government submitted a Non-Detriment Finding (NDF) requesting permission to export from cultivated sources. India set a CITES annual export quota²¹ for red sanders which meant that 310 metric tons of red sanders obtained from “artificially propagated” sources (grown on farms) could be exported annually. Farmers are allowed to “artificially propagate” red sanders but require a permit for harvesting and transportation – a permit which has been reportedly difficult to obtain.

The Directorate General of Foreign Trade (DGFT), an agency of the Indian Ministry of Commerce and Industry, has a 2018 export policy which includes product-specific rules for all Indian Tariff Codes (ITC), although a 2019 policy has been drafted and is under discussion.

Under the 2018 policy, the export of red sanders wood in any form is “prohibited” yet certain value-added products are listed in the “restricted” category and therefore can be exported with a license.²² To permit export, the Indian government requires that the red sanders wood is procured from legal sources, including red sanders obtained from cultivated land (Kukreti 2019). Log exports of red sanders are prohibited, however seized logs are exempted depending on the regulations of the individual Indian state government, which vary. While there have been large, widely publicized national government seizures of volumes of red sanders logs in recent years, more research is needed to understand the documentation needed for seized logs to be legally exported.

Thousands of metric tons of red sandalwood logs and other timber products have been smuggled illegally out of southern India in recent years with a recent seizure of 8 metric tons of illegal red sander logs by Malaysian Customs in July 2020 highlighting the continuing illegal trade (TRAFFIC 2020).

²¹ Export quotas are voluntary with the amount set by the exporting range state and does not have to be approved by other Parties to CITES.

²² ITC (HS) Schedule II (Export) Policy 2018, (available at <http://164.100.228.221/basiccontent/itchsschedule-2-export-policy-2018-0>) lists a number of restrictions related to red sanders, including exemptions for “value added products of Red Sanders wood such as Chips, Powder, Extracts, Dyes, Musical Instruments, Parts of Musical Instruments, Furniture, Parts of various sizes of furniture (maximum cross section: sizes: 15 cm X 15 cm; Planks: 20 cm X 7.5 cm and maximum length 2.5 Mtrs), toys, dolls & other handicrafts made from Red Sanders wood procured from legal sources.” These exemptions apply to relevant timber product HS codes including 94039000, 44209090 and 44219090.



4.2 Materials Used in Furniture Production

This desk-based study was not able to determine the proportion of India's furniture exports that are solid wood or are constructed using engineered wood. Indian producers have traditionally used wood panels but there are now calls to increase the use of MDF as a substitute for local plywood and particle boards. Globally, MDF is used in 80 percent of furniture but India has only used MDF in 20 percent of furniture to date (Panels and Furniture Asia 2018). From analysis of detailed shipment level data, Forest Trends found that at least 12 percent (by value) of India's exports of HS code 940360 "other wooden furniture" reported MDF in the product description.

4.3 Location

Rajasthan and Uttar Pradesh states have the largest number of furniture manufacturers (EPCH 2017). Some of the prominent centers for wooden handicrafts and furniture production are summarized in Table 3. They include Saharanpur and Nagina in Uttar Pradesh, Hoshiarpur and Amritsar in Punjab, Jaipur and Jodhpur in Rajasthan, Srinagar in Jammu and Kashmir, Jagdalpur and Behrampur in West Bengal, Chennapatna and Chennai in Tamil Nadu, Bengaluru and Mysore in Karnataka, and Ernakulam and Cochin in Kerala.

Jodhpur in Rajasthan now has a strong presence in the international wooden furniture markets.

Table 3. Furniture and handicraft hubs in India

State/District/Cluster	Crafts
Srinagar - Jammu & Kashmir	Walnut & Deodar Wood Craft
Saharanpur - Uttar Pradesh	Wood Carvings Furniture, Screens
Nagina - Uttar Pradesh	Wood Carvings Boxes
Jodhpur - Rajasthan	Wooden Hadicrafts, Furniture & Giftwares
Kolkata - West Bengal	Wooden Furniture & Giftwares
Kondapalli - Andhra Pradesh	Wood (Turning and Lacquer Ware)
Chennapatna - Karnataka	Wood Inlay Articles
Chennai - Tamil Nadu	Wooden Handicrafts Antique Finish
Quilandy - Kerala	Coconut Wood/Coconut Shell Gift Articles
Trivandram - Kerala	Rose Wood Carvings Gift Wares
North East Region	Cane & Bamboo - Funityre and other Home Utility Products

Source: EPCH 2017



4.4 | Jodhpur as the Main Hub for Furniture Exports to the United States and Europe

More than 50 percent of India's furniture exports to the United States and the EU+EFTA countries in 2019 came from Jodhpur. Around 75 percent of the handicrafts produced in Jodhpur were made from wood, including small gift articles, carved items, toys, and furniture.

More than 500 handicraft-manufacturing units are concentrated in Jodhpur itself, with about half focused on export markets (TRAFFIC India n.d.).

Only about 10 percent of these handicraft exporters import raw materials. For those that import materials, species include teak and oak. MDF is imported mostly from Malaysia and New Zealand. A review of the Jodhpur handicraft industry found roughly one-third of operators using sheesham (*Dalbergia sisso*) which is often sourced from Sri Ganganagar in Rajasthan, Uttar Pradesh, Punjab and Bihar (TRAFFIC India n.d.).

Only large manufacturers of handicrafts are found to import wood materials from other countries, purchasing imported raw materials through agents in Delhi.

4.5 | Other Manufacturing Centers

Forest Trends analyzed shipping manifest data for India's 2019 exports to regulated markets. This showed that other key centers include Delhi (accounting for 18 percent of India's exports of HS codes 940360 and 4421 to the United States and 3 percent to EU+EFTA in 2019); and Jaipur (12 percent of exports to the United States and 24 percent of exports to the EU+EFTA).

Mumbai and Bangalore, while only accounting for 1 percent of India's 2019 exports to the United States and 0.6 percent of exports to EU+EFTA countries, were most likely to export teak "other wooden furniture". Mumbai produced the most teak furniture exported to the United States in 2019. More than 60 percent of HS code 940360 "other wooden furniture" produced in Bangalore and exported to the United States included teak. The other 40 percent of export manifests did not include any species information. Together Mumbai and Bangalore produced more than 60 percent of the teak furniture under HS code 940360 exported to EU+EFTA countries in 2019.

Jaipur and Sikar in Rajasthan were key centers for production of "other wooden furniture" using sheesham and accounted for almost 60 percent of India's exports of sheesham furniture under HS code 940360 to both the United States and EU+EFTA countries in 2019. All of the exports originating from Sikar reported sheesham as the main furniture component.

4.6 | Certification

While there are a number of certification systems in use in India today, only 521,680 ha of Indian forest area were reported as certified in 2018, predominantly under the FSC or the Programme for Endorsement of



Forest Certification (PEFC 2020; FAO 2020c). While there are also several chain of custody certification systems, only a few furniture factories or artisans use them. Where they are in use, the Indian standard VRKISH, and the international standards of FSC and PEFC, are most common. Interviews conducted for this study suggest that while quite a few companies have been obtaining VRKISH certification over the last few years, this concerns still a relatively small proportion of companies overall (Box 5). These standards have varying levels of robustness and scope.

As of June 2020, 750 companies were FSC Chain of Custody (CoC) certified. This is still a relatively low number (roughly equal to the number of CoC certificates for Hong Kong), considering the market size in India.

PEFC is represented in India through the Network for Certification and Conservation of Forests (NCCF), which developed national forest management certification standards endorsed by PEFC International in 2019 (PEFC n.d.). Around 40 companies were PEFC CoC-certified as of June 2020.

The large number of SMEs working in the timber industry have reported significant challenges in demonstrating the legality of their timber, despite acknowledging how certification is critical for a growing number of their export markets (EPCH 2017).

In 2017, the Export Promotion Council for Handicrafts (EPCH) was also added to the list of CITES management authorities competent to issue comparable documentation in relation to trade in specimens of *Dalbergia spp.* included in Appendix II (*Dalbergia sissoo* and *Dalbergia latifolia*), demonstrating that their products are manufactured from timber that has been legally acquired.²³

²³ Note that according to the annotation for *Dalbergia*, the following is exempt from CITES regulations including: finished products to a maximum weight of wood of the listed species of up to 10 kg per shipment (this is to placate the handicraft industry); and finished musical instruments, finished musical instrument parts and finished musical instrument accessories (this is to placate the musical instrument industry as *D. latifolia* commonly used in guitar backs). Furniture is not covered by this exemption and therefore requires CITES-comparable documentation.

BOX 5

VRIKSH

The Export Promotion Council for Handicrafts (EPCH) developed the VRIKSH standard in 2014 to support the exporters of wooden handicrafts in India supplying European and U.S. markets (VRIKSH n.d.). VRIKSH is designed to certify the legal right to harvest and trade as well as compliance with local legislation, all taxes and royalties, and all other requirements for the trade and export of domestically produced timber. Companies receive certification for a five-year period that is subject to an annual surveillance audit. As of July 2020, there were 218 valid certificates for VRIKSH-certified exporters (VRIKSH n.d.) While the VRIKSH legality assessment and verification standard includes provisions to ensure timber has been legally imported, importers are only required to make documents available detailing the source country and species, the value of the timber and a phytosanitary certificate in addition to other regulatory documents which are not further detailed.

In general, the VRIKSH system is designed to show that companies are able to trace their product from the forest all the way to individual consignments through a series of checks and balances. Barber and Winfield note that this is a document-based system which could be vulnerable to fraud, as they were “unable to determine whether anyone can actually verify that the wood in a particular shipment actually CAME from where the paperwork says it comes from” (CITES 2019). There remains a risk that VRIKSH-certified products may have been harvested from areas other than noted in the paperwork.

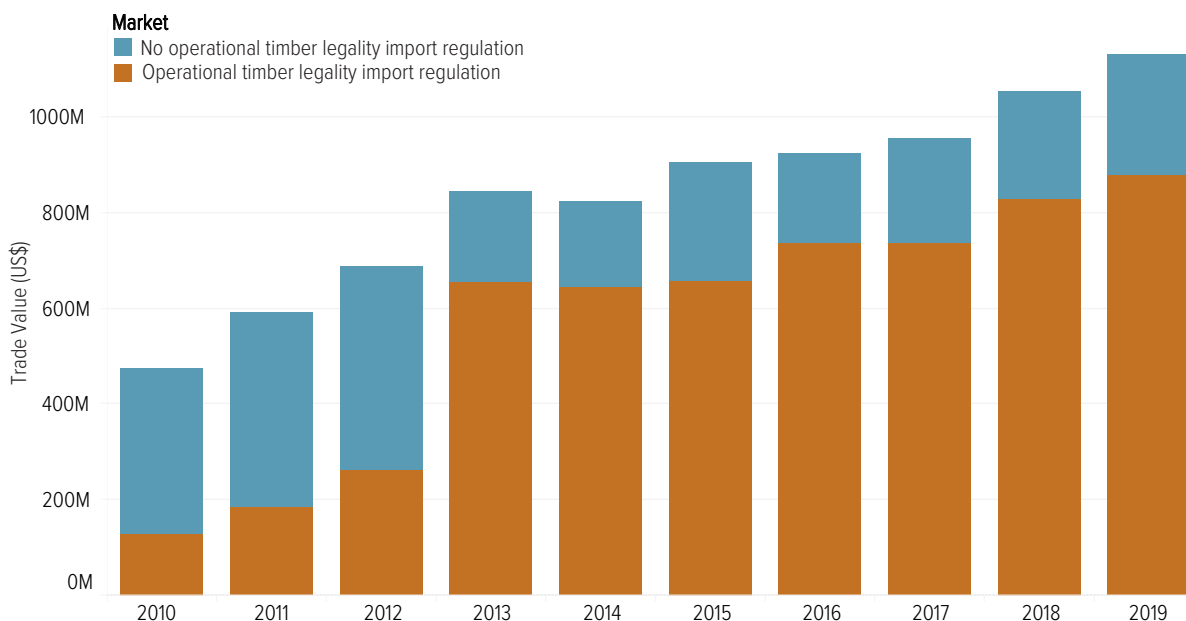
Robust, third-party certification can be considered as a tool to help mitigate high risk sourcing but should not constitute sufficient due diligence for legality in and of itself. Under the EUTR, for example, certification or other third-party verified systems may be taken into account in the risk assessment and risk mitigation, but these do not grant automatic compliance. The U.S. Lacey Act, for example, is a fact-based statute with strict liability, which means that only actual legality counts and no third-party certification or verification schemes can be used to “prove” legality under the Act.

India's exports are overwhelmingly destined for countries that have already taken action to develop import regulations designed to exclude illegally logged timber from their markets. By 2019, 78 percent of all timber products (Figure 17), and 92 percent of wooden furniture products (Figure 18) were exported to countries with import controls in place designed to exclude illegal timber from their markets.²⁴

5.1 Trade to Markets with Regulations Designed to Exclude Illegal Timber

Regulations to tackle the trade in illegal wood have now been operational for several years across the EU (through the EUTR), in the United States (through the U.S. Lacey Act) and in Australia (through the ILPA). Implementation and enforcement modalities are well established (Forest Trends 2017a). More recently, Japan and the Republic of Korea have developed regulations to exclude illegal wood imports, while Indonesia, Vietnam and Thailand have committed to exclude illegal timber from their imports as a key component of the timber legality assurance systems that underpin Forest Law Enforcement Governance and Trade (FLEGT) Voluntary Partnership Agreements (VPAs) (Forest Trends 2019).

Figure 17 | India's timber product exports to markets with operational timber legality import regulations

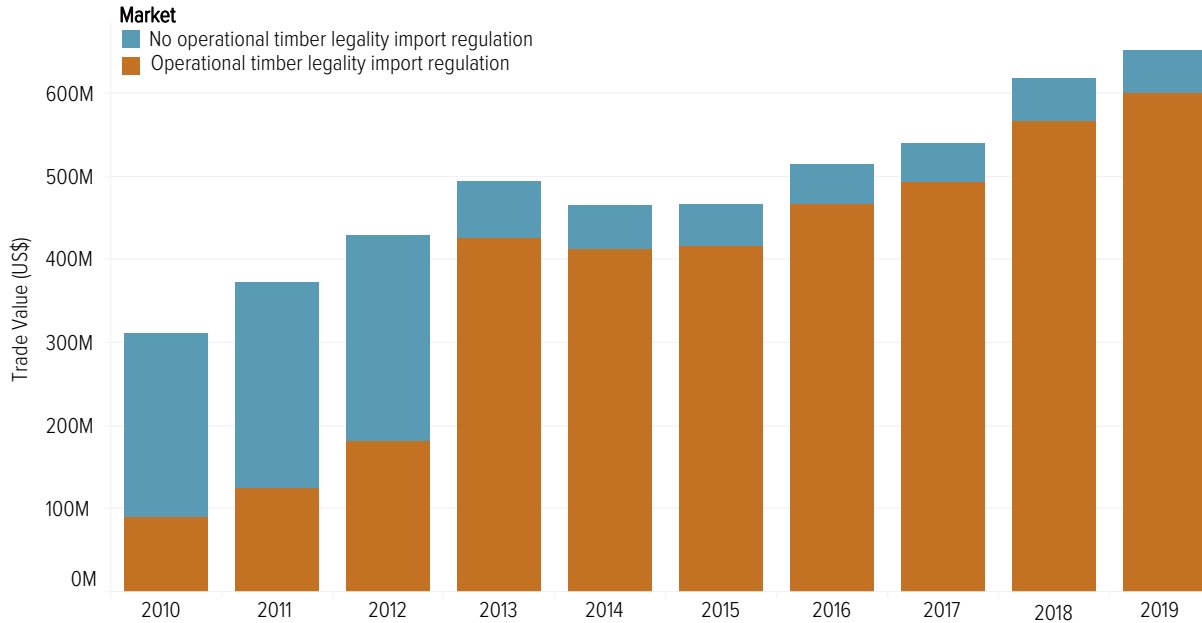


Source: UN Comtrade 2019, compiled by Forest Trends 2020

²⁴ As of 2019, this included the United States, Member States of the EU (as well as Iceland, Liechtenstein, Norway and Switzerland), Canada, Colombia, Australia, Japan, the Republic of Korea, Indonesia, and Malaysia. Some measures are more comprehensive in scope, implementation, and enforcement than others.



Figure 18 | India's wooden furniture product exports to markets with operational timber legality import regulations



Source: UN Comtrade 2019, compiled by Forest Trends 2020

5.2 Species in India's Exports to Regulated Markets

Forest Trends analyzed all detailed shipment record data for India's two main timber product exports to regulated consumer markets in 2019 (the United States, EU+EFTA, Australia, Japan, and the Republic of Korea). These two exports – “other wooden furniture” (HS 940360) and “other articles of wood” (HS 4421) which includes a number of wooden handicraft products – constitute more than 60 percent of India's timber product exports.²⁵ The aim of the analysis was to assess the risk (based on species, and likely source country) associated with the main products exported by India to regulated markets in 2019. From this, Forest Trends was able to determine the extent to which Indian exporters are likely to be using domestically grown and harvested species, or species imported from other countries.

Shipping records contain more information than public international trade datasets such as UN Comtrade or Eurostat. For example, shipment record data provide information on the importer, supplier, port and the product through a description field, which may include information on the species. These detailed data therefore allow a more comprehensive analysis of the species used in products that are destined for markets such as the United States and the EU+EFTA. While some of this information is collected by the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) through the Lacey Act declaration requirement, or by Customs Authorities, the data are not made publicly available.

²⁵ Data were purchased from Export Genius, one of several companies based in India that provide detailed customs data/trade data. Data are available for purchase at <https://www.exportgenius.in/company/about-us.php>.



The Government of India, as well as other governments in consumer countries, do not mandate exporters to list species information on shipping manifests, except for products produced with CITES-listed species. Thus, some of the shipment record data do not list information on species, while other shipment records provide detailed information on one or more species, typically in the product description section. Where shipment-level species information is listed, these manifests are often incomplete and misleading, and there have reportedly been frequent seizures of wood exported illegally from India due to false customs declarations (NEPCon 2017a). Incorrect specification of species, quantity and quality of forest products are commonly used to evade taxes and tariffs, and possibly import regulations like the U.S. Lacey Act and the EUTR (NEPCon 2017).

5.2.1 Shipments to the United States

Forest Trends analyzed the detailed shipment records of all 111,508 shipments of HS 940360 and all 68,389 shipments of HS 4421 exported to the United States in 2019.

■ Other wooden furniture (HS 940360):

- 20 species were referenced in the shipment records.
- Around two-thirds of the shipment records did not list any species information.
- Where information was provided, the most frequently listed species were mango (24 percent of all shipments to the United States by value), acacia (9 percent), and pine (3 percent).
- Sheesham accounted for roughly 2 percent and teak accounted for 1 percent of India's other wooden furniture exports to the United States in 2019.
- 2 shipments listed ebony and one shipment listed merbau.

■ Other articles of wood (HS 4421):

- 36 species were listed in the shipment records.
- Around two-thirds of the shipment records did not list any species information. Where information was provided, the most frequently listed species were mango (26 percent of all shipments to the United States by value), acacia (3 percent), as well as pine and sheesham (each roughly accounting for 1 percent of all shipments by value).
- Teak accounted for roughly 0.5 percent of India's exports of other articles of wood to the United States in 2019.
- Other species referenced in the detailed shipment record data include ebony (0.1 percent of shipments by value), mahogany (0.02 percent), and sandalwood (0.01 percent).

A full breakdown of species found in India's exports of HS codes 940630 and 4421 to the United States is provided in Annex I.



5.2.2 Shipments to EU+EFTA countries

Forest Trends analyzed the detailed shipment records of all 155,623 shipments of “other wooden furniture” (HS code 940360) and 47,626 shipments of “other articles of wood” (HS code 4421) to the EU and EFTA countries in 2019. While other wooden furniture is within the product scope of the EUTR, HS code 4421 is currently outside the scope, and imports of HS 4421 are therefore exempt from the requirements of the EUTR.

■ Other wooden furniture (HS 940360):

- 24 species were referenced in the shipment records.
- Roughly 64 percent of shipments did not reference any species information. Where information was provided, the most frequently listed species were mango (19 percent of all shipments to the EU+EFTA by value), acacia (12 percent), sheesham (7 percent).
- Oak, pine and teak each roughly accounted for 1 percent of shipments by value.
- 2 shipments listed mahogany, 2 shipments listed marbau/vengai, and 2 shipments listed “African timber”. All were exported to the United Kingdom.

■ Other articles of wood (HS 4421):

- 38 species were referenced in the shipment records.
- More than 70 percent of shipment records did not include any species information. Where species were listed in the product descriptions, the most frequently cited species were mango (23 percent of all shipments by value), acacia (3 percent), as well as teak and sheesham both accounting for roughly 1 percent of India’s other articles of wood exports in 2019.
- Other species referenced in the detailed shipment record data include ebony (0.03 percent of shipments by value), mahogany (0.1 percent), and meranti (0.01 percent).

A full breakdown of species found in India’s exports of HS codes 960430 and 4421 to EU+EFTA countries is provided in Annex I.

5.2.3 Shipments to Australia

Forest Trends analyzed the detailed shipment records of all 12,257 shipments of HS code 940360 and all 8,869 shipments of HS code 4421 exported to Australia in 2019. Other wooden furniture is within the product scope of ILPA, but HS code 4421 is currently outside the scope and imports of HS code 4421 are therefore exempt from the requirements of the Australian ILPA.

■ Other wooden furniture (HS 940360):

- 12 species were referenced in the shipment records.
- Roughly 64 percent of shipments did not reference any species information. Where information was provided, the most frequently listed species were mango (24 percent of all shipments to Australia by value), acacia (10 percent), sheesham (5 percent).
- Pine and teak each roughly accounted for 1 percent of shipments by value.
- 1 shipment listed ebony.



■ **Other articles of wood (HS 4421):**

- 18 species were referenced in the shipment records.
- Roughly 63 percent of manifests did not include any species information. Where species were listed in the product descriptions, the most frequently cited species were acacia (18 percent of all shipments by value), mango (17 percent), as well sheesham (3 percent of exports by value), and teak (accounting for roughly 1 percent of India's other articles of wood exports in 2019).

A full breakdown of species found in India's exports of HS codes 940630 and 4421 to Australia is provided in Annex I.

5.2.4 Shipments to Japan

Forest Trends analyzed the detailed shipment records of all 1,397 shipments of HS code 940360 and all 1,407 shipments of HS code 4421 exported to Japan in 2019. The Japanese Clean Wood Act covers a broad range of products including wooden furniture but "other articles of wood" under HS code 4421 appears to be outside the scope of the Clean Wood Act.

■ **Other wooden furniture (HS 940360):**

- 5 species were referenced in the shipment records.
- Roughly 60 percent of shipments did not reference any species information. Where information was provided, the most frequently listed species were teak (19 percent of all shipments to Japan by value), acacia (12 percent), mango (6 percent), and sheesham (5 percent).

■ **Other articles of wood (HS 4421):**

- 13 species were referenced in the shipment records.
- More than 80 percent of manifests did not include any species information. Where species were listed in the product descriptions, the most frequently cited species were mango (11 percent of all shipments by value), sheesham (3 percent), as well as sandalwood (2 percent of shipments by value).
- Beech and acacia each accounted for roughly 1 percent of India's other articles of wood exports in 2019).

A full breakdown of species found in India's exports of HS codes 940630 and 4421 to Japan is provided in Annex I.

5.2.5 Shipments to the Republic of Korea

Forest Trends analyzed the detailed shipment records of all 822 shipments of HS code 940360 and all 497 shipments of HS code 4421 exported to the Republic of Korea in 2019. The Korean Revised Act on the Sustainable Use of Timbers only covers seven HS codes and does not apply to either wood furniture or other articles of wood.



■ **Other wooden furniture (HS 940360):**

- 7 species were referenced in the shipment records.
- Roughly 64 percent of shipments did not reference any species information. Where species were listed in the product descriptions, the most frequently cited species were mango (27 percent of all shipments to the Republic of Korea by value), teak (6 percent), acacia (2 percent), pine (2 percent), and neem (1 percent).

■ **Other articles of wood (HS 4421):**

- 7 species were referenced in the shipment records.
- Roughly three-quarters of manifests did not include any species information. Where species were listed in the product descriptions, the most frequently cited species was mango (15 percent of all shipments by value), kadam (*Neolamarckia cadamba*) (6 percent), as well as teak and acacia which each accounted for roughly 1 percent of India's other articles of wood exports in 2019.

A full breakdown of species found in India's exports of HS codes 940630 and 4421 to the Republic of Korea is provided in Annex I.

Despite the high proportion of shipments of "other wooden furniture" (HS 940360) and "other articles of wood" (HS 4421) that did not list a species, interviews conducted for this report suggest that exporters, particularly those supplying the U.S. and European markets, are predominantly using mango, acacia, and to a lesser extent, sheesham. This suggests that the findings presented are indicative of the current species mix used in India's furniture and handicraft exports to regulated markets such as the United States and the EU+EFTA.

5.2.6 Emerging evidence that exports to regulated markets include high risk imported timber

This study confirms that a number of Indian companies supplying regulated markets are also importing raw materials from high risk source countries. However, the study cannot confirm from where the specific timber used in furniture and handicrafts exported under HS codes 4421 and 940360 was sourced. Some examples uncovered in this study include:

- **Teak:** At least one company supplying hand-crafted teak doors to the United States had sourced teak from Myanmar in the period between 2016 and 2019. Several companies supplying the United States, EU+EFTA, and Australia had also imported teak from Ghana, Nigeria, Costa Rica, Ecuador, and Tanzania.
- **Ebony:** At least one company supplying 18 shipments of ebony wood products under HS code 4421 to Germany was also found to be sourcing ebony logs listed as *Diospyros crassiflora* from Nigeria in the period between 2016 and 2019. Nigeria reportedly bans the export of logs.
- **Keruing:** Several companies sourcing keruing from Myanmar were found to be supplying furniture and handicraft products to regulated markets in 2019 without any species information provided in the manifests. This included shipments to both the Netherlands and Australia.
- **Mahogany:** At least one company supplying regulated markets in the United States, EU+EFTA, and Australia had sourced mahogany veneer products from China in the period between 2016 and 2019.

6 Summary Findings

The aim of this report is to outline India's growing prominence in the global wooden furniture and handicrafts sector, and to present a desk-based assessment of the main risks identified through an analysis of exports of "other wooden furniture" and "other articles of wood" (HS codes 940360 and 4421), with a particular focus on "regulated markets" such as the United States and the European Union, but also Australia, Japan, and the Republic of Korea.

As a result of increasing international and domestic demand, India is becoming a furniture-manufacturing hub, with timber product exports worth more than \$1 billion in 2019, an increase of 138 percent by value since 2010. Demand is expected to increase exponentially in the next decade as India becomes one of the most competitive furniture- and handicraft-manufacturing centers in the region. The Government of India has also taken steps towards potentially banning furniture imports in 2020, which, if implemented, will further increase domestic demand for Indian-made furniture.

The government has sought to increase domestic productivity, particularly of trees in areas outside the designated forest area, such as agroforestry plantations and social forestry programs. Yet, overall production remains low, especially for the tree species preferred by India's furniture and handicrafts sectors. India has one of the highest rates of demand for fuelwood in the world, accounting for almost 90 percent of all domestic forest product consumption (FAO 2007; Shrivastava and Saxena 2017; Sood 2019). While poverty reduction strategies are reducing dependence on fuelwood, the Government of India reported just a 5.46 percent reduction in the overall demand for fuelwood in the past decade (MoEF 2019). This means that the majority of domestically produced timber is still used for fuel.

Demand for all forestry products (primarily timber and fuelwood) surpassed the domestic supply capacity in the mid-1990s. The gap between consumption and supply of timber was conservatively estimated at about 25 million m³ in 2006 and is likely to have grown significantly since (FAO 2007). The gap for high-value hardwood species is likely to be significantly larger.

India has relied increasingly on imports to fill this supply gap. Imports have almost doubled in the past decade. To date, imports have been estimated to account for roughly 25 percent of India's total available supply of timber and bamboo (excluding fuelwood), but this proportion is likely to rise in the next decade. Reports suggest that India's timber imports will increase from an annual volume of 18.01 million m³ (based on 2015 data) to 22.51 million m³ by 2020; 27.91 million m³ by 2025; and 31.5 million m³ by 2030 (Shrivastava and Saxena 2017). Recent economic concerns resulting from the COVID-19 pandemic have led the Indian government to consider other incentives to boost the domestic furniture industry further, including proposing to offer duty-free imports of raw materials (The Economic Times 2020).

Many of the countries supplying India with raw materials suffer from poor governance in their forest sectors, with the risk of corruption, illegal harvesting and document fraud considered to be high. The International Union of Forest Research Organizations estimates that India was the third-largest importer of illegally logged timber in the world in 2016, after China and Vietnam (Kleinschmit et al. 2016). India has not taken steps to develop a regulation specifically designed to exclude the import of wood products harvested and traded in violation of the laws and regulations in the source country. However, India has put in place a number of measures that regulate taxes (e.g., customs duties or royalties), sanitary and phytosanitary conditions, (e.g.,



plant health), restricted and prohibited products (e.g., logs and debarked wood trade bans), as well as endangered species (e.g. CITES).

Without specific measures to ensure that India's imported raw materials are legally sourced, there is no guarantee that India's exports of manufactured timber products (furniture and other articles of wood) are verified as legal.

At the same time, more than three-quarters of India's timber products are exported to countries that now have laws in place to restrict the import of illegal wood and forest products. For furniture, this percentage rises to 90 percent. Importers that are non-compliant with those laws risk enforcement actions including fines, penalties, and prosecution, while Indian suppliers risk losing out to other countries that can provide the legal assurances requested. This includes the United States and the EU, but also in Australia, Indonesia, Japan, and the Republic of Korea, and will soon include Vietnam and Thailand. Buyers in these markets, as well as Indian exporters looking to maintain market access, are therefore exposed to the risks associated with India's imported timber products.

This report will guide subsequent field research in several Indian furniture-manufacturing centers (Box 6).

Report findings:

- **Furniture and handicraft manufacturers are primarily using timber species that are grown and harvested in India in their export-oriented products (2019 data).** Desk-based research and interviews conducted for this report suggest that only larger manufacturers are using imported timber in their products, compared to the millions of SMEs and artisans who use less. Products manufactured from high-value or protected species—typically tropical hardwoods—can be sold for double the price on the international market compared to the domestic market. Rising scarcity of these tropical hardwoods will increase their market value, increasing the incentives for illegal logging and associated trade.
- In Forest Trends review of detailed shipment records covering India's exports of HS code 940360 and 4421 to the United States and EU+EFTA (European Free Trade Association) countries, Australia, and the Republic of Korea, **mango and acacia were most commonly referenced.** Mango and acacia are likely to be low risk and grown in Indian plantations. India imported low volumes of mango and acacia between 2016 and 2019. All imported mango was sourced from China while 80 percent of imported acacia was sourced from Vietnam, 12 percent from Malaysia and 8 percent from low risk source countries. While more than 60 percent of these shipment records listed no species information at all, this finding is supported by interviews conducted for this report that suggest exporters, particularly those supplying the U.S. and European markets, are predominantly using mango, acacia, and to a lesser extent, sheesham. **This suggests that the findings presented are indicative of the current species mix used in India's furniture and handicraft exports to regulated markets.**
- **While teak is reportedly widely used in Indian furniture production, Forest Trends found that only 1 percent of India's exports specifically listed teak in shipment record data.** Teak remains a major species used in furniture manufacturing in India, estimated to be used in as much as half of all wooden furniture produced in India. However, just 0.7 percent of the furniture exported to the United States and 0.5 percent exported to EU+EFTA countries under HS code 940360 (1 percent to all global markets), referenced teak.



Forest Trends found teak to be the most common species listed in exports to Japan (19 percent by value). Given the high proportion of shipments that did not specify a species, it is possible that additional shipments could contain teak. However, it is also possible that a higher proportion of teak furniture remains in the Indian domestic market where it is a popular material, particularly in western and southern regions of India (EPCH 2017).

- **Decreasing domestic productivity for certain species such as teak, and rising imports over the past decade suggest that imported timber is likely to be more widely used in furniture and handicraft production in the future.** This is despite the fact that many exports listed domestic, Indian-grown and -harvested species. Forest Trends also found that a number of Indian companies supplying regulated markets also imported raw materials from high risk source countries between 2016 and 2019. However, this study cannot confirm the source of the specific timber used in furniture and handicrafts exported under HS codes 4421 and 940360.
- **There are considerable risks associated with India's imported timber.** This report finds that 42 percent of India's timber imports in 2019, including 44 percent of logs, 42 percent of sawnwood and more than 75 percent of veneer imports, were sourced from countries assessed as being at high risk for illegal logging based on governance, corruption and harvest indicators or from fragile and conflict-affected states as categorized by the World Bank. More research is required to determine the extent to which veneer is used in Indian-manufactured furniture. While fewer than 40 species were listed in India's exports to regulated markets, Forest Trends found that India imported more than 250 species of logs, sawnwood, and veneer between 2016 and 2019.²⁶ From this, 171 species, (38 percent of India's log, sawnwood, and veneer imports by value) were species assessed as being Near Threatened, Vulnerable, Endangered, or Critically Endangered on the IUCN Red List. As much as 64 percent of India's veneer imports in the time period contained species assessed as Vulnerable on the IUCN Red List, suggesting that veneer imports are considered to be particularly high risk.
- **There are traceability and legality verification risks associated with Indian-manufactured furniture and handicraft products.** While there are a number of certification systems designed to verify forest management in India, FSC or PEFC are the main schemes that are certifying forest management in India. There are also several CoC systems in operation but only a few furniture factories or artisans use them. FSC and PEFC are the main international standards offered while an Indian system known as VRIKSH has been designed to help companies, particularly SMEs and artisans, to trace their product from the forest all the way to individual consignments through a series of checks. These standards have varying levels of robustness and scope. A 2019 assessment of VRIKSH said that it was "unable to determine whether anyone can actually verify that the wood in a particular shipment actually CAME from where the paperwork says it comes from" (CITES 2019). As with all other document-based certification schemes, there is a risk that the timber product presented for export is not the species of wood presented in the certificate. This is why the U.S. and EU+EFTA governments do not recognize privately certified timber as automatically complying with the U.S. Lacey Act or the EUTR. Overall, the number of Indian exporters claiming to be certified remains low.
- **Verification of imported timber legality is a major weakness, even for certified products** (Poynton 2013). PEFC and FSC have been widely criticized in the past for poor standards on imported timber (EIA

²⁶ Shipment record data for the period October 1, 2016 to September 30, 2019 were analyzed for this report.



2017), and while the VRIKSH legality assessment and verification standard includes provisions to ensure timber has been legally imported, importers are only required to make documents available detailing the source country and species, the value of the timber and a phytosanitary certificate in addition to other regulatory documents which are not further detailed. This exposes importers in regulated markets to significant risks associated with India's imported timber both now and in the future, as imports grow to meet increasing domestic and international demand.

- **India's timber product exports are therefore vulnerable in regulated markets.** With such a large volume of wooden products exported to markets that either have timber import regulations in place, or are currently designing/operationalizing regulations to exclude timber that cannot be verified as legal, many furniture and handicraft artisans are likely to face increasing demands that the timber they use is verified as legal. Enforcement checks and prosecutions against companies have been pursued in recent years in some of India's main markets. For example, Lombok, a UK-furniture company, was prosecuted and fined in 2017 for importing furniture manufactured in India that was in breach of the EUTR (UK BEIS 2018). As imported materials are expected to become more widely used, India faces even greater vulnerability in the coming years.
- **Composite wood products, and finished goods containing composite wood products, including furniture and handicrafts, should in general be considered as high risk.** This includes products made from MDF, high-density fiberboard (HDF), oriented strand board (OSB), particle board, paper, paperboard, and cardboard. This study confirms that these products are manufactured in a manner that makes it difficult and perhaps expensive to identify the genus, species and country of harvest of the wood content. Plywood and products made from plies of wood are easier to identify species and origin than composite products, which are mechanically processed into small fibers and bonded together chemically.

Higher risk species found in India's exports to "regulated markets" in 2019: The following species should be considered potentially high risk if declared in Indian-manufactured furniture and handicraft products. The basis for this list is Forest Trends' assessment of shipment record data to identify the species in India's 2019 exports of "other wooden furniture" (HS 940360) and "other articles of wood" (HS 4421), as well as data on India's supply (both domestic production and the source countries/risks associated with India's imports between 2016 and 2019).

- **Teak:** While India has a significant area of plantation teak, the volume and quality of teak available is not currently sufficient to meet demand. This has led to increasing imports from countries associated with significant risks of illegal logging, particularly Myanmar, and those at risk of illegal exports, particularly Ecuador and Benin. More than 80 percent of India's teak imports over the past three years have been sourced from high risk source countries based on governance and harvest risk, or from conflict states as designated by the World Bank.
- **"Sheesham", "Dalbergia Sissoo", "Rosewood", "Indian Rosewood", "East Indian Rosewood", "Dalbergia Latifolia":** These terms appear to be used interchangeably in the detailed shipment record data. These species are only permitted to be harvested within India from agroforestry plantations. Management of the species is reported to vary across the regions in India, but in general, harvest from the wild does not occur often (CITES 2019).



- *Dalbergia sissoo* is a restricted or reserved tree in Jharkhand, West Bengal and Assam, where harvest from the wild either requires special permission, or is completely banned (TRAFFIC India n.d.).
 - Bihar has banned harvest due to rapid deforestation and reduced availability of plantations.
 - Both *Dalbergia* species, if used in furniture and handicraft production, are likely to be sourced from Indian agroforestry plantations but both species are listed in CITES Appendix II, despite India requesting their removal from the listings in 2019. This request was rejected and therefore shipments containing *Dalbergia* species should be accompanied by a CITES-comparable document unless exempt from CITES regulations.²⁷ As the Export Promotion Council for Handicrafts (EPCH) has been designated as the competent authority to issue the comparable document in lieu of the CITES permit, imports should be accompanied by a VRIKSH Shipment Certificate.
 - There are reports that *Dalbergia* species are sometimes referred to as “tali” in India. This should therefore not be confused with India’s imports of *Erythrophleum spp.*, often from high risk African countries, which are also commonly called “tali”.
- **Mahogany (*Khaya ivorensis*):** A very small number of shipments referenced mahogany furniture or handicraft exports in 2019. Mahogany (*Swietenia spp.*) reportedly grows in plantations in Kerala, Tamil Nadu, Karnataka, Andhra, and Bengal, and can be considered as low risk. India imported very low volumes of mahogany between 2016 and 2019 (including true mahogany, *Swietenia spp.*; all neotropical species which are listed in CITES Appendix II; and African mahogany, *Khaya spp.*). Yet, 44 percent of imported mahogany was sourced from high risk countries or conflict states including Angola, Mozambique, Côte d’Ivoire, Ghana and DRC. The African imports are likely to be *Khaya ivorensis*, which is subject to high levels of exploitation and categorized as Vulnerable by the IUCN Red List.
 - **“Merbau” or “Vengai”:** There was just one shipment of “vengai” to the United States in 2019 and three shipments to the EU+EFTA, but there is limited information on India’s domestic production of merbau/vangai. India imported significant volumes of merbau/kwila/ipil between 2016 and 2019, primarily from three source countries: Papua New Guinea (69 percent), Indonesia (18 percent), and Malaysia (13 percent). There are reported risks of illegal logging in all three countries: a Chatham House study estimates that the majority of India’s illegal timber is imported from Malaysia and Indonesia (Chatham House 2020). More than 80 percent of the wood-based trade from Papua New Guinea has been reported to derive from unlawful harvest (UNODC 2013). The IUCN Red List also reports the species as “Vulnerable” (IUCN 2020).
 - **Ebony:** There were two shipments under HS code 940360 that listed ebony to the United States, and one to Australia in 2019. However, ebony was more common in exports of HS code 4421, with 145 shipments to the United States and EU+EFTA countries in 2019. *Diospyros ebenum* or Indian ebony grows in southern India but there are reports that India has banned the export of *Diospyros ebenum*. Indian companies imported low volumes of ebony (*Diospyros spp.*) between 2016 and 2019. One-quarter of imports were sourced from high risk countries or conflict states including South Sudan, DRC, Gabon, Cameroon, and Nigeria. Around 50 percent was sourced from China. The remaining 25 percent was sourced from low

²⁷ Note that according to the annotation for *Dalbergia* the following is exempt from CITES regulations including: finished products to a maximum weight of wood of the listed species of up to 10 kg per shipment (this is to placate the handicraft industry); finished musical instruments, finished musical instrument parts and finished musical instrument accessories (this is to placate the musical instrument industry as *D. latifolia* commonly used in guitar backs). Furniture is not covered by this exemption and therefore requires CITES-comparable documentation.



risk European countries, although *Diospyros* species do not grow in Europe, which means the timber was originally sourced elsewhere. This study found that at least one company supplying 18 shipments of ebony wood products under HS code 4421 to Germany was also found to be sourcing ebony logs listed as *Diospyros crassiflora* from Nigeria in the period between 2016 and 2019. Nigeria reportedly bans the export of logs. Timber products under HS code 4421 are currently outside the scope of the EUTR.

- **Bintangor, brown terminalia, nyatoh, kempas and okume in Indian-exported furniture products should be considered as high risk as the wood has likely been sourced from conflict states** as designated by the World Bank. This includes sourcing from the Solomon Islands, Myanmar, Togo, Sudan, South Sudan, Papua New Guinea, Republic of Congo, Liberia, and DRC.
- **Mora, purpleheart, tali, pyinkado, padouk, okume, keruing, ceiba, santos rosewood, gmelina, and teak in Indian-exported furniture products should be considered as high risk as the wood has likely been sourced from countries considered as being at high risk for illegal logging and trade based on governance and harvest risk indicators.**²⁸ These source countries include Suriname, Brazil, Ecuador, Ghana, Benin, Tanzania, Gabon, and Cameroon among others.
- **Teak, meranti, merbau, balau, kapur, keruing, nyatoh and padaouk should be considered as high risk as this wood was most likely to have been sourced from countries with active export restrictions in place.** These source countries include Malaysia, Ecuador, Ghana, Brazil, Papua New Guinea, Costa Rica, Colombia, and Panama among others.
- **Red sanders/red sandalwood:** No red sandalwood was found reported in India's exports of HS code 940360 but there were reports of "sandalwood" jewelry in India's exports of 4421 to the United States and Japan in 2019. Though red sanders/red sandalwood is listed on the "prohibited" list of exports, some product categories are instead listed as "restricted", which means that their export is permitted in certain circumstances such as being harvested from cultivated land. Red sanders/red sandalwood is a very high-value species that can be sold for double the price on the international market compared to the domestic market.
- **Oak and pine: In general, Indian-manufactured furniture made of oak and pine should be considered low risk unless the country of harvest is Ukraine, Russia or Romania where high rates of illegal logging and associated trade have been well documented.**

²⁸ A full description of the risk assessment approach is available on the Forest Trends ILAT Risk website and has been funded by the U.S. Department of State. The risk categories of "low", "medium" and "high" are based on an ILAT Risk score between 1 and 100 assigned by Forest Trends. Countries scoring less than 25 out of 100 are categorized as "lower risk", while countries scoring between 25 and 50 are categorized as "medium risk". Countries scoring above 50 are categorized as "higher risk". Research on these issues shows that complicity of government officials in corruption in many countries can undermine the enforcement of laws and regulations relating to forest protection and management, as well as the reliability of chain of custody systems. As such, countries associated with corruption and governance challenges are deemed at higher risk for illegal logging and associated trade. The category of "conflict state" is based on whether a country is listed on the World Bank Harmonized List of Fragile Situations for 2019. Conflict states are listed as a separate category because, while it remains possible to buy legal wood in a fragile and conflict-affected state, the political instability, weak governance, and violence inherent to these situations indicates an elevated risk of buying illegal wood.

Concluding Recommendations

The report presents two main recommendations:

1 For governments in countries with laws regulating the import of illegal wood: This report finds that the majority of the potentially high risk species were listed in products exported under HS code 4421, which is outside the scope of many timber import regulations including the EU Timber Regulation, the Australian Illegal Logging Prohibition Act and the Japanese Clean Wood Act. In the case of the Republic of Korea, all wooden furniture products and HS codes as well as “other articles of wood” under HS code 4421, are currently outside the scope of products covered by the Korean Revised Act on the Sustainable Use of Timbers.

As such, we recommend that the European Commission and the governments of Australia, Japan and the Republic of Korea broaden the scope of the products covered by their regulations to include all wooden furniture HS codes and “other articles of wood” under HS code 4421. Any government in countries currently designing regulations seeking to eradicate illegally logged timber from their markets should ensure that these products fall within the scope.

2 For the Government of India: Given that India’s timber product exports are already vulnerable in regulated markets, and many furniture and handicraft artisans are likely to see increasing demands to verify that the timber they use is legal, **we recommend that the Government of India develops a robust import regulation specifically designed to exclude the import of wood products that are harvested and traded in violation of the laws and regulations in the source country.**

BOX 6

FURTHER RESEARCH

This report presents a desk-based review of existing information on India’s supply (production and imports), and demand (both international and domestic), as well as information on India’s wooden furniture and handicraft industry. This study has been designed to summarize existing data and information as well as to identify research questions for a second, field study that will focus on furniture hubs supplying key regulated markets like the United States and the EU+EFTA.

In light of the findings in this report, it is recommended that the in-country study focuses on four “hubs”. These could include:

- 1** Jodhpur, in Rajasthan, which now has a strong presence in international wooden furniture markets. More than 50 percent of India’s furniture exports to the United States and the EU+EFTA countries in 2019 came from Jodhpur.
- 2** Delhi (accounting for 18 percent of exports of furniture under HS code 940360 to the United States in 2019, although only 3 percent were to EU+EFTA countries). Delhi is also a hub for agents within India who are responsible for linking imported timber with producers and selling furniture to international buyers.

Box 6 (continued)

- 3** Jaipur/Sikar (accounting for 12 percent of exports of furniture under HS code 940360 to the United States and 24 percent of exports to the EU+EFTA in 2019). Jaipur and Sikar in Rajasthan were key centers for production of other wooden furniture using sheesham (*Dalbergia sisso*) and accounted for 60 percent of India's exports of sheesham furniture under HS code 940360 to the United States in 2019. All the exports originating from Sikar reported sheesham as the main furniture component.
- 4** Mumbai or Bangalore, only accounting for 1 percent of India's 2019 exports of wooden furniture under HS code 940360 to the United States and 0.6 percent of exports to EU+EFTA countries, but were most likely to export teak furniture. Mumbai produced the most teak furniture exported to the United States in 2019, accounting for around one-third of all India's other wooden furniture exports to the United States that specified "teak". More than 60 percent of the furniture produced in Bangalore and exported to the United States included teak. The other 40 percent of exports did not include any species information.

Key questions for the in-country study include:

- What is the 2020 overall supply (domestic supply plus imports) and demand (domestic demand plus exports)?
- What is the forecast for domestic production in the next 10 years?
- What are the legality risks associated with timber harvested in India?
- How does this vary across the regions/states?
- What are the main overland trade routes, border points, quantities, and actors involved? Through interviews with traders in India, to what extent is the overland illegal timber trade between Myanmar and India a significant risk?
- Which manufacturing centers are using raw materials sourced from Myanmar and other high risk countries? What products are being produced? Who are the ultimate consumers of these products?
- What is the structure of the furniture industry, and how is this changing? Are SMEs still purchasing imported timber through agents in Delhi and other major centers?
- What are the preferences for Indian consumers?
- How often is teak being used in furniture production? How often is teak furniture exported to the United States and to Europe?
- What proportion of exported furniture and handicraft products are using reclaimed wood? Where and how is reclaimed wood produced?
- What are the Government and/or industry attitudes and plans for introducing robust import restrictions designed to exclude the import of wood products that are being harvested and traded in violation of the laws and regulations in the source country?

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India's exports of HS 940360 to the United States in 2019 by species

Species where listed in product description	Free on board (FOB) value of shipments in \$	% from overall shipments value ²⁹
No species info	166,594,840	66%
Mango	60,129,592	24%
Acacia	21,755,974	9%
Pine	7,414,005	3%
Sheesham	4,070,869	2%
Teak	1,720,695	1%
Oak	987,080	0.4%
Walnut	473,369	0.2%
Bamboo	13,955	0.006%
Sevan	10,406	0.004%
Ash	10,113	0.004%
Maple	5,924	0.002%
Ebony	4,396	0.002%
Neem	3,780	0.002%
Willow	2,111	0.001%
Mahogany	1,708	0.001%
Sesame	507	0.0002%
Sal	219	0.0001%
Merbau	185	0.0001%
Hickory	132	0.0001%
Rubberwood	1	0.0000%

²⁹ Given that some products are composed of several species, percentages won't necessarily add up to 100 percent and in some cases, can exceed 100 percent.



India's exports of HS 940360 to EU+EFTA countries in 2019 by species

Species where listed in product description	FOB value of shipments in \$	% from overall shipments value ³⁰
No species info	162,032,078	64%
Mango	47,064,305	18.5%
Acacia	30,094,397	11.8%
Sheesham	18,135,381	7.1%
Pine	2,357,193	0.9%
Oak	1,578,229	0.6%
Teak	1,399,282	0.6%
Sevan	31,662	0.01%
Eucalyptus	19,342	0.01%
Walnut	16,698	0.01%
Sal	14,390	0.01%
Java plum	13,902	0.01%
Ash	10,458	0.004%
Mora	9,993	0.004%
Mahogany	7,283	0.003%
Birch	3,251	0.001%
Willow	1,728	0.001%
Sesame	1,392	0.001%
Albizia lebbeck	1,229	0.000%
Merbau	853	0.0003%
Bamboo	591	0.0002%
Toona	552	0.0002%
Rubberwood	521	0.0002%
Neem	477	0.0002%
Cedar	242	0.0001%

³⁰ Given that some products are composed of several species, percentages won't necessarily add up to 100 percent and in some cases, can exceed 100 percent.



India's exports of HS 940360 to Australia in 2019 by species

Species where listed in product description	FOB value of shipments in \$	% from overall shipments value ³¹
No species info	9,906,894	64%
Mango	3,761,658	24%
Acacia	1,533,925	10%
Sheesham	716,485	5%
Teak	182,908	1%
Pine	126,488	1%
Sevan	15,586	0.1%
Oak	13,430	0.1%
Ebony	7,681	0.05%
Tulipwood	5,220	0.03%
Walnut	3,423	0.02%
Bamboo	239	0.002%
Sal	156	0.001%

India's exports of HS 940360 to Japan in 2019 by species

Species where listed in product description	FOB value of shipments in \$	% from overall shipments value ³²
No species info	522,209	61%
Teak	163,814	19%
Acacia	104,779	12%
Mango	55,173	6%
Sheesham	14,783	2%
Pine	880	0.1%

India's exports of HS 940360 to Republic of Korea in 2019 by species

Species where listed in product description	FOB value of shipments in \$	% from overall shipments value ³³
No species info	669,580	64%
Mango	282,365	27%
Teak	67,525	6%
Pine	25,927	2%
Acacia	19,738	2%
Neem	13,960	1%
Sheesham	1,120	0.1%
Eucalyptus	114	0.01%

³¹ Given that some products are composed of several species, percentages won't necessarily add up to 100 percent and in some cases, can exceed 100 percent.

³² Given that some products are composed of several species, percentages won't necessarily add up to 100 percent and in some cases, can exceed 100 percent.

³³ Given that some products are composed of several species, percentages won't necessarily add up to 100 percent and in some cases, can exceed 100 percent.



India's exports of HS 4421 to United States in 2019 by species

Species where listed in product description	FOB value of shipments in \$	% from overall shipments value ³⁴
No species info	77,118,289	67%
Mango	30,392,616	26%
Acacia	3,897,303	3%
Sheesham	1,096,431	1%
Pine	608,927	1%
Teak	526,932	0.5%
Rubberwood	332,684	0.3%
Walnut	132,602	0.1%
Palm	87,103	0.1%
Beech	81,159	0.1%
Ebony	72,432	0.1%
Bamboo	67,686	0.1%
Haldu	62,255	0.1%
Oak	61,205	0.1%
Tamarind	54,424	0.05%
Maple	47,997	0.04%
Sevan	35,873	0.03%
Eucalyptus	35,790	0.03%
Badam	24,130	0.02%
Papri (Indian Elm)	23,223	0.02%
Birch	21,577	0.02%
Neem	20,677	0.02%
Poplar	18,809	0.02%
Mahogany	18,629	0.02%
Sandalwood	11,088	0.01%
Guava	8,058	0.01%
Neolamarckia cadamba	7,561	0.01%
Badlu	5,271	0.005%
Java plum	2,475	0.002%
Padauk	2,469	0.002%
Albizia Lebbeck	1,716	0.001%
Sal	863	0.001%
Kedar	811	0.001%
Turmeric	442	0.0004%
Bodhi	295	0.0003%
Instia bijuga	162	0.0001%
Toon	117	0.0001%

³⁴ Given that some products are composed of several species, percentages won't necessarily add up to 100 percent and in some cases, can exceed 100 percent.



India's exports of HS 4421 to EU+EFTA countries in 2019 by species

Species where listed in product description	FOB value of shipments in \$	% from overall shipments value ³⁵
No species info	30,852,489	70%
Mango	10,078,415	23%
Acacia	1,440,021	3%
Teak	447,352	1%
Sheesham	427,583	1%
Eucalyptus	185,761	0.4%
Pine	117,268	0.3%
Cedar	111,227	0.3%
Bamboo	82,756	0.2%
Maple	53,632	0.1%
Papri	32,963	0.1%
Mahogany	29,309	0.1%
Beech	25,818	0.1%
Olive	23,187	0.1%
Neem	21,230	0.05%
Walnut	13,236	0.03%
Palm	12,993	0.03%
Ebony	11,975	0.03%
Haldu	8,346	0.02%
Hardickia binata	8,325	0.02%
Rubberwood	6,667	0.02%
Siras	6,446	0.01%
Oak	4,204	0.01%
Neolamarckia cadamba	3,617	0.01%
Kaayur	3,568	0.01%
Sal	3,377	0.01%
Meranti	3,009	0.01%
Albizia Lebbeck	1,898	0.004%
Khirni	1,707	0.004%
Plum	1,266	0.003%
Badlu	882	0.002%
Intsia bijuga	740	0.002%
Laurel	614	0.001%
Boxwood	347	0.001%
Birch	255	0.001%
Poplar	163	0.0004%
Kane	77	0.0002%
Partal	29	0.0001%

³⁵ Given that some products are composed of several species, percentages won't necessarily add up to 100 percent and in some cases, can exceed 100 percent.



India's exports of HS 4421 to Australia in 2019 by species

Species where listed in product description	FOB value of shipments in \$	% from overall shipments value ³⁶
No species info	3,997,657	63%
Acacia	1,152,936	18%
Mango	1,062,197	17%
Sheesham	161,157	3%
Teak	50,240	1%
Pine	6,970	0.1%
Bamboo	5,007	0.1%
Papri	3,427	0.1%
Oak	1,856	0.03%
Maple	1,486	0.02%
Poplar	784	0.01%
Rubberwood	734	0.01%
Beech	667	0.01%
Badam	656	0.01%
Eucalyptus	596	0.01%
Haldu	215	0.003%
Palm	87	0.001%
Neolamarckia cadamba	28	0.0004%

India's exports of HS 4421 to Japan in 2019 by species

Species where listed in product description	FOB value of shipments in \$	% from overall shipments value ³⁷
No species info	559,929	82%
Mango	74,901	11%
Sheesham	23,174	3%
Sandalwood	11,243	2%
Beech	4,557	1%
Acacia	4,338	1%
Papri	1,209	0.2%
Teak	1,052	0.2%
Palm	950	0.1%
Neolamarckia cadamba	840	0.1%
Maple	736	0.1%
Bamboo	681	0.1%
Oak	117	0.02%
Pine	102	0.01%

³⁶ Given that some products are composed of several species, percentages won't necessarily add up to 100 percent and in some cases, can exceed 100 percent.

³⁷ Given that some products are composed of several species, percentages won't necessarily add up to 100 percent and in some cases, can exceed 100 percent.



India's exports of HS 4421 to the Republic of Korea in 2019 by species

Species where listed in product description	FOB value of shipments in \$	% from overall shipments value ³⁸
No species info	195,144.79	77%
Mango	37,767.21	15%
Neolamarckia cadamba	15,663.44	6%
Teak	2,426.96	1%
Acacia	1,331.42	1%
Sal	762.76	0.3%
Bamboo	624.99	0.2%
Oak	12.00	0.005%

³⁸ Given that some products are composed of several species, percentages won't necessarily add up to 100 percent and in some cases, can exceed 100 percent.



Forest Trends works to conserve forests and other ecosystems through the creation and wide adoption of a broad range of environmental finance, markets and other payment and incentive mechanisms. This report was released by Forest Trends' Forest Policy, Trade, and Finance program, which seeks to create markets for legal forest products while supporting parallel transformations away from timber and other commodities sourced illegally and unsustainably from forest areas.

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